

# HUMAN BIOLOGY, BACHELOR OF SCIENCE

## College of Biological Sciences

Frédéric Chédin, Ph.D., Professor, Chairperson of the Department of Molecular & Cellular Biology; term ends June 30, 2026

W. Martin Usrey, Ph.D., Chairperson of the Department Neurobiology, Physiology, & Behavior

149 Briggs Hall; 530-752-3611; Molecular & Cellular Biology (<http://www.mcb.ucdavis.edu>)

196 Briggs Hall; 530-752-0203; Neurobiology, Physiology & Behavior (<https://npb.ucdavis.edu/>)

The Human Biology major provides students with a broad biological understanding of our species, from molecules, genes, and cells to tissues, organ systems and organism/environment interactions. The curriculum includes classes on the basic principles that help us understand normal human physiology, human health, and the molecular basis of disease.

## The Program

In the freshman and sophomore years, students majoring in Human Biology build a broad scientific background, taking courses in chemistry, biology, physics, and mathematics. As juniors or seniors, students can enroll in a variety of courses focused on biological processes and diseases that affect humans.

## Career Alternatives

The Human Biology major provides fundamental knowledge needed for a broad range of careers, including those in the areas of healthcare, biotechnology, public health, public policy, and education, and for advanced study in health-related disciplines, including medicine, dentistry, nursing, physical therapy, and pharmacy.

## Faculty

Faculty includes all members of the Departments of Neurobiology, Physiology, & Behavior, Molecular & Cellular Biology, Evolution & Ecology, Microbiology & Molecular Genetics, and Plant Biology in the College of Biological Sciences.

## Faculty Advisors

Mona Monfared, Ph.D.; Alex Nord, Ph.D.

## Advising

Biology Academic Success Center (BASC) (<https://basc.biology.ucdavis.edu/>) in 1023 Katherine Esau Science Hall (formerly Sciences Laboratory Building); 530-752-0410.

The major requirements below are in addition to meeting University Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/>) & College Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/>); unless otherwise noted. The minimum number of units required for the Human Biology Bachelor of Science is 96.

Code	Title	Units
<b>Preparatory Subject Matter</b>		
<i>Biological Science</i>		15

BIS 002A & BIS 002B & BIS 002C	Introduction to Biology: Essentials of Life on Earth and Introduction to Biology: Principles of Ecology & Evolution and Introduction to Biology: Biodiversity & the Tree of Life
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<i>Chemistry</i>		
Choose CHE 002 or CHE 004 series: <sup>1</sup>		15
CHE 002A & CHE 002B & CHE 002C	General Chemistry and General Chemistry and General Chemistry	
<b>OR</b>		
CHE 004A & CHE 004B & CHE 004C	General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering	
Choose CHE 008 or CHE 118 series: <sup>2</sup>		6-12
CHE 008A & CHE 008B	Organic Chemistry: Brief Course and Organic Chemistry: Brief Course	
<b>OR</b>		
CHE 118A & CHE 118B & CHE 118C	Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences	
<i>Mathematics</i>		
Choose MAT 017 or MAT 021 series: <sup>3</sup>		8-12
MAT 017A & MAT 017B & MAT 017C	Calculus for Biology & Medicine and Calculus for Biology & Medicine and Calculus for Biology & Medicine	
<b>OR</b>		
MAT 021A & MAT 021B & MAT 021C	Calculus and Calculus and Calculus (Recommended)	
<i>Physics</i>		12
PHY 007A & PHY 007B & PHY 007C	General Physics and General Physics and General Physics	
Preparatory Subject Matter Subtotal		56-66
<b>Depth Subject Matter</b>		
<i>Biological Science</i>		
BIS 101 or BIS 101V	Genes & Gene Expression	4
BIS 104	Cell Biology	3
BIS 105 or (BIS 102 OR BIS 102V) & BIS 103	Biomolecules & Metabolism and Bioenergetics & Metabolism	3-6
<i>Statistics</i>		
STA 100	Applied Statistics for Biological Sciences	4
Choose one:		3-4
EVE 100	Introduction to Evolution	
EVE 131	Human Genetic Variation & Evolution	
MCB 162	Human Genetics & Genomics	

<i>Microbiology</i>		
MMG 102	Introductory Microbiology	3
	or MIC 102 DISCONTINUED FOR FALL 2026 **	
<i>Neurobiology, Physiology, &amp; Behavior</i>		
NPB 101	Systemic Physiology	5
Depth Subject Matter Subtotal		25-29
<b>Restricted Electives</b>		
Courses meeting this requirement must come from at least two of the following categories; any cross-listed courses taken will count for only one category; must include at least one approved lab course.		15-19
Genetics, Genomics, & Development (p. 2)		
Physiology & Neurobiology (p. 2)		
Origins of Disease & Human Health (p. 3)		
Restricted Electives Subtotal		15-19
<b>Total Units</b>		<b>96-114</b>

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With BASC advisor approval, these combinations also satisfy the Chemistry requirement: CHE 004A-CHE 002A (3 units w/no lab)-CHE 002B-CHE 002C; CHE 004A, CHE 004B-CHE 002C.

2

With BASC advisor approval, this combination also satisfies the Organic Chemistry requirement: CHE 118A-CHE 008B.

3

With BASC advisor approval, this combination also satisfies the Mathematics requirement: MAT 021A-MAT 017B-MAT 017C; MAT 017A-MAT 021B.

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Course(s) discontinued; see your advisor for course options.

## Genetics, Genomics, & Development

Code	Title	Units
ANT 153	Human Genetics: Mutation & Migration	5
BIS 181	Comparative Genomics	3
BIS 183	Functional Genomics	3
EVE 102	Population & Quantitative Genetics	4
EVE 131	Human Genetic Variation & Evolution	3
MCB 121	Advanced Molecular Biology	3
MCB 144	Mechanisms of Cell Division	3
MCB 150	Developmental Biology	4
MCB 162	Human Genetics & Genomics	3
MCB 163	Developmental Genetics	3
MCB 164	(Discontinued for spring 2025) **	3
MCB 182	Principles of Genomics	3
MIC 150	(Discontinued for winter 2025) **	3
NPB 122	Developmental Endocrinology (Discontinued)	3
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 133	Genes & the Brain	4
NPB 161	Developmental Neurobiology (Discontinued for winter 2026) **	3

### Approved Laboratory Courses:

MCB 160L	Principles of Genetics Laboratory
MMG 103L	or MIC 103L DIS
EVE 105	Phylogenetic Analysis of Vertebrate Structure (Discontinued for winter 2026) **

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Course(s) discontinued; see your advisor for course options.

## Physiology & Neurobiology

Code	Title	Units
EXB 101	Exercise Physiology	4
EXB 106/CHA 101	Human Gross Anatomy	4
EXB 106L/CHA 101L	Human Gross Anatomy Laboratory	3
EXB 110	Exercise Metabolism	3
EXB 124	Physiology of Maximal Human Performance	4
NPB 100	Neurobiology	4
NPB 107	Cell Signaling in Health & Disease	3
NPB 109	Kinesiology: Analysis & Control of Human Movement	4
NPB 113	Cardiovascular, Respiratory, & Renal Physiology	4
NPB 114	Gastrointestinal Physiology	3
NPB 122	Developmental Endocrinology (Discontinued for winter 2026) **	3
NPB 130	Physiology of the Endocrine Glands	4
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 133	Genes & the Brain	4
NPB 134	General Immunology for Physiologists	3
NPB 140	Principles of Environmental Physiology	3
NPB 152/PSC 123	Hormones & Behavior	3
NPB/HPH 157	Advanced Physiology of Animal/Human Disease	3
NPB 161	Developmental Neurobiology (Discontinued for winter 2026) **	3
NPB 163	Systems Neuroscience	4
NPB 164	Mammalian Vision (Discontinued for winter 2026) **	4
NPB 165	Neurobiology of Speech Perception	3
NPB 167	Computational Neuroscience	5
NPB 168	Neurobiology of Addictive Drugs	4
NPB 171	Physiology of Neuroimmune Interactions	4
NPB 172	Map Formation in the Brain (Discontinued for winter 2026)	3
NPB 173	Neurobiology of Brain Disorders	3
<b>Approved Laboratory Courses:</b>		
EVE 105	Phylogenetic Analysis of Vertebrate Structure (Discontinued for winter 2026) **	
NPB 100L	Neurobiology Laboratory	
NPB 101L	Systemic Physiology Laboratory	

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Course(s) discontinued; see your advisor for course options.

## Origins of Disease & Human Health

Code	Title	Units
EVE 161	Microbial Phylogenomics; Genomic Perspectives on the Diversity & Diversification of Microbes	3
EXB 101	Exercise Physiology	4
EXB 106	Human Gross Anatomy	4
EXB 106L	Human Gross Anatomy Laboratory	3
EXB 110	Exercise Metabolism	3
EXB 124	Physiology of Maximal Human Performance	4
MIC 150	(Discontinued for winter 2025) **	3
MMG 111 or MIC 111 DISCON	Human Microbiology	3
MMG 162 or MIC 162 DISCONTINUED FOR FALL 2024 **	General Virology	3
MMG 172 or MIC 172 DISCON	Host-Parasite Interactions	3
MMG 175 or MIC 175 DISCONTINUED FOR FALL 2025 **	Cancer Biology	3
NPB 107	Cell Signaling in Health & Disease	3
NPB 109	Kinesiology: Analysis & Control of Human Movement	4
NPB 132	Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients & Health	3
NPB 134	General Immunology for Physiologists	3
NPB/HPH 157	Advanced Physiology of Animal/Human Disease	3
NPB 168	Neurobiology of Addictive Drugs	4
NPB 171	Physiology of Neuroimmune Interactions	4
NPB 173	Neurobiology of Brain Disorders	3
Approved Laboratory Courses:		
MCB 120L	Molecular Biology & Biochemistry Laboratory	
MMG 103L or MIC 103L DIS		

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Course(s) discontinued; see your advisor for course options.