Department of Psychology

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www.cmu.edu/dietrich/psychology (http://www.cmu.edu/dietrich/psychology/)

Can newborn infants perceive the world as we do, or is it just "a blooming buzzing confusion"? Do personality, beliefs and social factors influence health? How do scientists and young children make discoveries, and what abilities make these insights possible? How does brain activity reveal differences in thinking? Can computers think the way people do?

These are some of the questions that psychologists at Carnegie Mellon are trying to answer.

For the student who is majoring in Psychology, Cognitive Science or Neuroscience, studying with faculty who are on the leading edge of research on questions like the above can be a very exciting experience.

The Psychology Department at Carnegie Mellon has long been noted as one of the pioneering Psychology Departments in the world, particularly in such areas as cognitive psychology, cognitive science, social psychology, developmental psychology, cognitive neuroscience, and health psychology. The Psychology Department offers 5 majors: B.A. and B.S. degrees in Psychology, as well as a B.S. degree in Cognitive Science and together with the Department of Biological Sciences, a unified B.S. double major in Psychology and Biological Sciences, and an Intercollege major in Neuroscience.

Psychology Course Renumbering – Effective Fall 2025

Beginning in **Fall 2025**, the Psychology department has introduced a **new course numbering system**. At this time, only **Fall 2025 courses** have been updated in **S3** and **Stellic**. Additional course numbers will be updated as **Spring 2026** scheduling begins.

Please note:
Majors, minors, and course prerequisites remain unchanged.
Only the **course numbers** have been updated to make them more informative and reflective of course content.

Understanding the New Numbering System: 85-XYZ

- **X** Indicates how introductory or advanced the course is
- **Y**: Represents the course's general topic area
- **Z**: For administrative purposes and does not affect content or placement

Topic Areas by "Y" Value:

- **Cognitive Psychology:** 85-X10
- **Developmental Psychology:** 85-X30
- **Social Psychology:** 85-X50
- **Neuroscience:** 85-X70
- **Clinical Psychology:** 85-X90

Please refer to the **Course Descriptions page** for the full list of renumbered courses and details.

The Major in Psychology

Psychology is a discipline that embraces both biological and social sciences. It is a science concerned with establishing principles and laws regarding the ways in which people think and behave through the scientific study of human behavior.

The orientation of the Carnegie Mellon Psychology curriculum is toward developing highly skilled and knowledgeable graduates. About half of our graduates go on to graduate or professional school. The remainder seek to expand their problem-oriented analytic skills to qualify themselves for job opportunities beyond those typically open to liberal arts students. Using the outcomes tool (https://www.cmu.edu/career/outcomes/post-grad-dashboard.html)created by CMU's Career & Professional Development Center, students have the opportunity to explore where some of our recent graduates have accepted employment and their positions.

Majors in the department are expected not only to learn about findings already established by psychologists, but also to become proficient in the investigation and analysis of behavior. This includes observing behavior, formulating hypotheses, designing experiments to test these hypotheses, running experiments, performing statistical analysis, and writing reports. The department has many resources for students to use in acquiring these skills. For instance, students interested in child development may be involved in the child development laboratory and observational facilities which are a part of the Carnegie Mellon Children's School (https://www.cmu.edu/dietrich/psychology/cs/) which operates under the department's aegis. Students interested in health or clinical psychology might have opportunities to do internships in applied settings, and all Psychology majors have access to extensive computer facilities for data analysis and simulation work. The department also has a state of the art set of undergraduate research laboratories and computer clusters, and through the Scientific Imaging & Brain Research Center, a magnet is in use for conducting brain imaging studies using fMRI.

In addition to formal class work, students are encouraged to participate in research projects where they may register and receive credit for freshmen research experience course 85-198 Research Training: Psychology, Fall research experience in 85-507 Research in Psychology or Spring research experience in 85-508 Research in Psychology. In the research in psychology course, the student may work on an ongoing research projects or develop and carry out a new research project with a faculty member. To compliment students research experience, the department requires 85-509 Research in Psychology Practicum, a 1 unit, pass/fail course which provides students with an opportunity to frame their research experience in a broader professional and scholastic perspective. More information on research labs that are recruiting can be found here (https://www.cmu.edu/dietrich/psychology/undergraduate/current-students/research-and-internships/research-opportunities/).

There is university and departmental funding (https://www.cmu.edu/dietrich/psychology/undergraduate/current-students/research-and-internships/undergrad-research-grants.html) available to help support student-initiated research projects and student travel to present research results at scientific meetings and conferences. In the Readings courses, the student reads extensively on a particular topic. The faculty member and student meet to discuss the readings, and the student writes a paper on the topic selected. The Psychology Department Website (http://www.cmu.edu/dietrich/psychology/), provides descriptions of faculty research interests (http://www.cmu.edu/dietrich/psychology/research-areas/) that the student can use in determining who should be approached to supervise a particular research or reading project.

Students interested in gaining field work experience via a number of internship opportunities available to them can receive credit through 85-503 Internship in Psychology, 85-590 Internship in Clinical Psychology or 85-530 Practicum in Developmental Psychology. Clinical internships are available with a variety of clinical settings where students get first-hand experience with different clinical populations. Developmental Practicum experience is available in the department-run CMU Children's School (http://www.cmu.edu/dietrich/psychology/centers-and-facilities/).

As a note, students who completed psychology courses under the old numbering system will still have those courses count towards the requirements previously specified. New course numbers will take effect starting Fall 2025. Spring 2026 courses will be updated once course scheduling begins. The old course numbers remain in use until then, with catalog updates reflecting the changes beginning Fall 2026.

If you would like to learn more about the BA and BS in Psychology, please reach out to Lauren McCarthy laurenmc@andrew.cmu.edu for more information.

Bachelor of Arts in Psychology

Mathematics		10-20 units
21-090	Precalculus	10
or 21-111	Differential Calculus	
or 21-112	Integral Calculus	
or 21-120	Differential and Integral Calculus	

*Please see mathematics placement (https://www.cmu.edu/math/undergrad/exams/mathematics-placement-information.html) policy.

Statistics Sequence		9 units
36-309	Experimental Design for Behavioral & Social Sciences	9
or 85-309	Statistical Concepts and Methods for Behavioral and Social Science	

Psychology Surveys		27 units
85-100	Introduction to Psychology	9
Survey Courses - Complete Two		Units
85-110	Cognitive Psychology	9
85-130	Developmental Psychology	9
85-150	Social Psychology	9
85-170	Foundations of Brain and Behavior	9
85-190	Psychopathology	9

* Introduction to Psychology cannot be substituted; AP credit does not count towards this requirement

Introduction to Research Methods		9 units
85-300	Introduction to Research Methods	9

Advanced Research Methods		9 units
Take one advanced research methods:		
85-302	Research Methods: Meta-Analysis	9
85-310	Research Methods in Cognitive Psychology	9
85-314	Cognitive Neuroscience Research Methods or 85-370 in S26	9
85-330	Analytic Research Methods or 85-303	9

Advanced Courses		18 units

Advanced psychology courses exist within four areas (cognitive, cognitive neuroscience, developmental, social and health psychology.) Any upper-level Psychology course 85-400 thru 85-499 will count towards this requirement.

Practical Application		9

These courses offer students hands-on experience applying psychological principles in real-world settings such as research labs, schools, clinical settings, and community organizations.

Must receive a B or higher in the course.

Application

85-198	Research Training: Psychology	9
85-501	Teaching Assistantship	Var.
85-503	Internship in Psychology	Var.
85-507	Research in Psychology	Var.
85-508	Research in Psychology	Var.
85-601	Senior Thesis	9
66-501	Dietrich College Senior Honors Thesis I	9
85-530	Practicum in Developmental Psychology	Var.
85-590	Internship in Clinical Psychology	Var.
99-270	Summer Undergraduate Research Apprenticeship	9

Breadth		**9 units**

Additional courses may be approved upon request

Breadth

Additional courses may be approved upon request		
85-105	Hack Your Life	9
85-106	Animal Minds	9
85-107	The Psychology of Video Games	9
85-251	Personality or 85-151 starting Summer 26	9
85-213	Human Information Processing and Artificial Intelligence	9

Computer Science Requirement		
15-110	Principles of Computing	10
or 88-300	Programming and Data Analysis for Social Scientists	
or 15-112	Fundamentals of Programming and Computer Science	
or 15-104	Introduction to Computing for Creative Practice	

Natural Science Requirement , B.A. 18 units

These courses can be selected from the following areas:

- 03-XXX Biology*
- 09-XXX Chemistry
- 33-XXX Physics

* Given the growing relevance of biology to psychology, it is strongly recommended to take a course in Biological Sciences

Bachelor of Science in Psychology

Mathematics		10-20 units
21-090	Precalculus	10
or 21-111	Differential Calculus	
or 21-112	Integral Calculus	
or 21-120	Differential and Integral Calculus	

*Please see mathematics placement (https://www.cmu.edu/math/undergrad/exams/mathematics-placement-information.html) policy.

Statistics Sequence		9 units
36-309	Experimental Design for Behavioral & Social Sciences	9
or 85-309	Statistical Concepts and Methods for Behavioral and Social Science	

Psychology Surveys		27 units
85-100	Introduction to Psychology	9
Survey Courses - Complete Two		Units
85-190	Psychopathology	9
85-110	Cognitive Psychology	9
85-130	Developmental Psychology	9
85-150	Social Psychology	9
85-170	Foundations of Brain and Behavior	9
85-251	Personality	9

* Introduction to Psychology cannot be substituted; AP credit does not count towards this requirement

Introduction to Research Methods		9 units
85-300	Introduction to Research Methods	9

Advanced Research Methods		9 units
Take one advanced research methods:		
85-302	Research Methods: Meta-Analysis	9
85-310	Research Methods in Cognitive Psychology	9
85-314	Cognitive Neuroscience Research Methods or 85-370 in S26	9
85-330	Analytic Research Methods or 85-303	9

Advanced Courses 27 units

Advanced psychology courses exist within four areas (cognitive, cognitive neuroscience, developmental, social and health psychology.) Any upper-level Psychology course 85-400 thru 85-499 will count towards this requirement.

Practical Application 9 units

These courses offer students hands-on experience applying psychological principles in real-world settings such as research labs, schools, clinical settings, and community organizations.

Must receive a B or higher in the course.

85-198	Research Training: Psychology	9
85-501	Teaching Assistantship	Var.
85-503	Internship in Psychology	Var.
85-507	Research in Psychology	Var.
85-508	Research in Psychology	Var.
85-601	Senior Thesis	9
66-501	Dietrich College Senior Honors Thesis I	9
85-530	Practicum in Developmental Psychology	Var.
85-590	Internship in Clinical Psychology	Var.
99-270	Summer Undergraduate Research Apprenticeship	9

Breadth 9 units

Additional courses may be approved upon request

Breadth

Additional courses may be approved upon request

85-105	Hack Your Life	9
85-106	Animal Minds	9
85-107	The Psychology of Video Games	9
85-251	Personality or 85-151 starting Summer 26	9
85-213	Human Information Processing and Artificial Intelligence	9

Computer Science Requirement 10 units

15-110	Principles of Computing	10
or 88-300	Programming and Data Analysis for Social Scientists	
or 15-104	Introduction to Computing for Creative Practice	
or 15-112	Fundamentals of Programming and Computer Science	

NATURAL SCIENCE REQUIREMENT, B.S. 27 units

- 03-xxx Biology*
- 09-xxx Chemistry
- 33-xxx Physics

* Given the growing relevance of biology to psychology, it is strongly recommended to take at least one course in Biological Sciences

Additional Major in Psychology

In order to complete an additional major in Psychology, a student must fulfill all of the Psychology major requirements within the department -- in other words, introduction to psychology and survey course requirement, computing requirement, two research methods courses, and two advanced courses. These courses must include at least 81 units, plus calculus prerequisites and the 36-200 statistics course or equivalent and 36-309/85-309 . In addition, psychology additional major candidates must complete two science courses.

Concentrations within the Psychology Major

Students who wish to focus their Psychology program on a specific area can do so by the careful selection of a Psychology concentration which allows for focusing on an area of interest. Concentrations are a required part of the BA and BS in Psychology.

Please reach out to Lauren McCarthy laurenmc@andrew.cmu.edu to declare the concentration. The declared concentration will appear in Stellic.

The completion of a concentration will be recognized in the Psychology Graduation Program.

Learning and Development

- **Survey:** 85-130 Developmental Psychology
- **Research Methods:**
- **Advanced Psychology Course:** See list in Stellic
- **Application**: 85-530 Practicum in Developmental Psychology or 85-501 Teaching Assistantship

Health Psychology

- **Survey**: 85-170 Foundations of Brain and Behavior or 85-150 Social Psychology
- **Research Methods:** 85-350 Research Methods in Social Psychology or 85-314 Cognitive Neuroscience Research Methods
- **Advanced Psychology Course:** 85-454 Health Psychology
- **Application:** 85-507 Research in Psychology/85-508 Research in Psychology , 85-601 Senior Thesis, 85-501 Teaching Assistantship, 85-503 Internship in Psychology

Cognitive Psychology

- **Survey**: 85-110 Cognitive Psychology
- **Research Methods:** 85-310 Research Methods in Cognitive Psychology
- **Advanced Psychology Course:** See list in Stellic
- **Application:** 85-507 Research in Psychology/85-508 Research in Psychology, 85-601 Senior Thesis, 85-501 Teaching Assistantship, 85-503 Internship in Psychology

Social Psychology

- **Survey:** 85-150 Social Psychology
- **Research Methods**: 85-350 Research Methods in Social Psychology
- **Advanced Psychology Course:** See list in Stellic
- **Application:** 85-507 Research in Psychology/85-508 Research in Psychology, 85-601 Senior Thesis, 85-501 Teaching Assistantship, 85-503 Internship in Psychology

Clinical/Counseling Psychology

- **Survey:** 85-190 Psychopathology
- **Research Methods:** or 85-350 Research Methods in Social Psychology
- **Advanced Psychology Course:** See list in Stellic
- **Application:** 85-590 Internship in Clinical Psychology

Cognitive Neuroscience

- **Survey**: 85-110 Cognitive Psychology or 85-170 Foundations of Brain and Behavior
- **Research Methods:** 85-370 Cognitive Neuroscience Research Methods
- **Advanced Psychology Course:** 85-472 Cognitive Neuropsychology
- **Application:** 85-507 Research in Psychology/ 85-508 Research in Psychology, 85-601 Senior Thesis, 85-501 Teaching Assistantship, 85-503 Internship in Psychology

Neuroscience Major

The Psychology Department at Carnegie Mellon University has a major focus on the role of the brain and nervous system in cognition and behavior, including biological approaches involving the health impact that arises from the interaction of behavior with the nervous, endocrine, and immune systems. These interests are manifested in faculty research (http://www.cmu.edu/dietrich/psychology/research-areas/), departmental and

university centers that operate from or heavily involve the department (e.g., the Center for Cognitive Brain Imaging (http://www.ccbi.cmu.edu/), and the Center for the Neural Basis of Cognition (http://www.cnbc.cmu.edu/)) as well as undergraduate coursework (http://www.cmu.edu/dietrich/psychology/undergraduate/) and graduate coursework.

For undergraduates, there are a number of ways in which students with an interest in these approaches can pursue that interest in an organized fashion. Major requirements for the Bachelor of Science in Neuroscience can be found under Intercollege Programs (http://coursecatalog.web.cmu.edu/intercollegeprograms/#bachelorofscienceinneurosciencetext).

Finally, for any interested student, there is a Minor in Cognitive Neuroscience available through the Psychology department.

The Major in Cognitive Science

The Psychology Department offers a B.S. degree in Cognitive Science. The field of cognitive science has grown out of increasingly active interaction among psychology, linguistics, artificial intelligence, machine learning, philosophy, and neuroscience. All of these fields share the goal of understanding intelligence. By combining these diverse perspectives, students of cognitive science are able to understand cognition at a deep level. Because this major is administered by the Psychology Department, it focuses on human cognition and the experimental study of the human mind as illuminated by the techniques of the above disciplines.

Cognitive Science Curriculum

The Cognitive Science major is only offered as a B.S. degree.

As a note, students who completed psychology courses under the old numbering system will still have those courses count towards the requirements previously specified. New course numbers will take effect starting Fall 2025. Spring 2026 courses will be updated once course scheduling begins. The old course numbers remain in use until then, with catalog updates reflecting the changes beginning Fall 2026.

Candidates should complete before the junior year the calculus requirement 21-120

(or alternatively 21-111/21-112) and a statistics course beyond 36-200. In addition, candidates complete 15-112 Fundamentals of Programming and Computer Science, as their departmental computing course.

Because of the number and sequential nature of required courses, prospective Cognitive Science majors are encouraged to begin course work for the major prior to junior year. In particular, completion of calculus, 36-200, and 85-110 or 85-213 before the junior year will enable students to complete an introductory research methods course 85-300 and by the Fall semester of their sophomore or junior year and, if interested, to then take advantage of research opportunities in the department. The Psychology Department (https://www.cmu.edu/dietrich/psychology/undergraduate/current-students/research-and-internships/research-opportunities/) website has more information regarding research for credit opportunities available to undergraduates.

Computing Prerequisite		10 units
15-112	Fundamentals of Programming and Computer Science	12

Mathematics		29-30 units
21-090	Precalculus	10
21-111 & 21-112	Differential Calculus and Integral Calculus	20
or 21-120	Differential and Integral Calculus	

*Please see mathematics placement (https://www.cmu.edu/math/undergrad/exams/mathematics-placement-information.html) policy.

or

21-127	Concepts of Mathematics	12

*Students who place out of 21-120 will have fulfilled the calculus requirement

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Statistics Sequence		18 units
36-200	Reasoning with Data	9
36-309	Experimental Design for Behavioral & Social Sciences	9
or 85-309	Statistical Concepts and Methods for Behavioral and Social Science	
or 36-225	Introduction to Probability Theory	
or 36-218	Probability Theory for Computer Scientists	

Computational/Cognitive Modeling Core		29–31 units
Two of the following:		Units
15-122	Principles of Imperative Computation	12
15-150	Principles of Functional Programming	12
15-251	Great Ideas in Theoretical Computer Science	12
Plus one of the following:		Units
85-412	Cognitive Modeling	9
85-414	Cognition in the Age of AI	9
85-419	Introduction to Parallel Distributed Processing	9

Cognitive Psychology Core		27 units
		Units
85-110	Cognitive Psychology	9
Plus two of the following, one of which need to be 85-xxx:		Units
85-170	Foundations of Brain and Behavior	9
85-359	Introduction to Music Cognition Research	9
85-370	Cognitive Neuroscience Research Methods	9
85-375	Crosscultural Psychology	9
85-385	Auditory Perception: Sense of Sound	9
85-395	Applications of Cognitive Science	9
85-407	How the Brain Makes Meaning	9
85-408	Visual Cognition	9
85-414	Cognition in the Age of AI	9
85-421	Language and Thought	9
80-381	Meaning in Language	9
80-310	Formal Logic	9
80-315	Logics for Knowledge and Belief	9
80-383	Language in Use	9

05-413	Human Factors	9
11-344	Machine Learning in Practice	12

Cognitive Science Concentration

(3 courses, concentration approval required)

These three courses are chosen in conjunction with your advisor to form a coherent area of concentration from the course list under "Cognitive Science Concentration" in the current Undergraduate Catalog. Before proceeding with the choice of courses, students must fill out the concentration form, obtained from Emilie O'Leary in Baker Hall 339, with a description of the concentration area and the planned set of three courses. Courses not represented on the list may, with pre-approval of advisor and department, be used to satisfy part of this requirement. **The three courses are not required to be within any single category below but be coherent within the major and the focus may vary across disciplinary boundaries.** Courses taken for the major requirements can not be double counted in the concentration.

Computer Science

16-385	Computer Vision	12
15-213	Introduction to Computer Systems	12

Psychology

85-354	Infant Language Development	9
85-360	Origins of Intelligence	9
85-363	Attention, Its Development and Disorders	9
85-370	Cognitive Neuroscience Research Methods	9
85-375	Crosscultural Psychology	9
85-385	Auditory Perception: Sense of Sound	9
85-395	Applications of Cognitive Science	9
85-359	Introduction to Music Cognition Research	9
85-382	The Psychology and Neuroscience of Consciousness	9
85-408	Visual Cognition	9
85-412	Cognitive Modeling	9
85-414	Cognition in the Age of AI	9
85-419	Introduction to Parallel Distributed Processing	9
85-421	Language and Thought	9
85-432	Data Science for Psychology and Neuroscience	9

Philosophy

80-210	Logic and Proofs	9
80-211	Logic and Mathematical Inquiry	9
80-220	Philosophy of Science	9
80-249	AI, Society, and Humanity	9
80-254	The History of Analytic Philosophy and Its Influence	9
80-255	Pragmatism: Clear Ideas for a Better Life	9
80-270	Problems of Mind and Body: Meaning and Doing	9
80-271	Mind and Body: The Objective and the Subjective	9
80-310	Formal Logic	9
80-311	Undecidability and Incompleteness	9

Human Computer Interaction

05-317	Design of Artificial Intelligence Products	12
05-320	Social Web	12
05-333	Gadgets, Sensors and Activity Recognition in HCI	12
05-418	Design Educational Games	12
05-413	Human Factors	9
05-410	User-Centered Research and Evaluation	12
05-738	Evidence-Based Educational Design	12

Linguistics

80-180	Introduction to Linguistics	9
80-280	Linguistic Analysis	9
80-315	Logics for Knowledge and Belief	9
76-385	Introduction to Discourse Analysis	9

Machine Learning

10-301	Introduction to Machine Learning	12
10-335	Art and Machine Learning	12
11-344	Machine Learning in Practice	12
11-411	Natural Language Processing	12

Decision Sciences

88-275	Bubbles: Data Science for Human Minds	9
88-302	Behavioral Decision Making	9
88-231	Thinking in Person vs. Thinking Online	9
88-230	Human Intelligence and Human Stupidity	9
88-223	Decision Analysis	12
88-120	Reason, Passion and Cognition	9

Neurosciences

03-133	Neurobiology of Disease	9
03-365	Neural Correlates of Learning and Memory	9
03-366	Neuropharmacology: Drugs, Brain and Behavior	9
86-375	Computational Perception	9
03-362	Cellular Neuroscience	9
03-363	Systems Neuroscience	9
42-202	Physiology	9
15-386	Neural Computation	9
15-883	Computational Models of Neural Systems	12
03-221	Genomes, Evolution, and Disease: Introduction to Quantitative Genetic Analysis	9
03-360	Genomics and Epigenetics of the Brain	9

Science Requirement

The Cognitive Science program requires two additional science courses beyond Dietrich College's General Education requirements or additional majors or minors declared.

These can be selected from any one of the following areas.

03-xxx	Biology *
09-xxx	Chemistry
33-xxx	Physics

* Those interested in a cognitive neuroscience focus are recommended to take biology courses, including if possible, 03-362, or 03-363.

Additional Major in Cognitive Science

In order to complete a double major in Cognitive Science, a student must fulfill the major requirements as listed under the Cognitive Science major. These include the programming requirement (15-112), the Mathematics and Statistics prerequisites, Computational/Cognitive Modeling Core, The Cognitive Psychology Core, the Cognitive Science Concentration Requirement, and the Supplementary Science Requirement. Students will be assigned a department advisor to help plan their program of studies in Cognitive Science.

Unified Double Major in Psychology & Biological Sciences

Gordon Rule, *Interim Department Head, Biological Sciences*

Susanne Ferber, *Department Head, Psychology*

This major is intended to reflect the interdisciplinary nature of current research in the fields of biology and psychology, as well as the national trend in some professions to seek individuals broadly trained in both the social and natural sciences.

Note: Students entering from the Dietrich College of Humanities and Social Sciences will earn a Bachelor of Science in Psychology and Biological Sciences. Students in the Mellon College of Science will earn a Bachelor of Science in Biological Sciences and Psychology.

Depending on a student's home college (DC or MCS), General Education (GenEd) requirements will be different. GenEd requirements for DC (http://coursecatalog.web.cmu.edu/schools-colleges/dietrichcollegeofhumanitiesandsocialsciences/#hampssgeneraleducationprogram160) and MCS (http://

coursecatalog.web.cmu.edu/schools-colleges/melloncollegeofscience/) are found on their respective Catalog pages.

As a note, students who completed psychology courses under the old numbering system will still have those courses count towards the requirements previously specified. New course numbers will take effect starting Fall 2025. Spring 2026 courses will be updated once course scheduling begins. The old course numbers remain in use until then, with catalog updates reflecting the changes beginning Fall 2026.

Degree Requirements:

Biological Sciences		Units
03-151	Honors Modern Biology	10
or 03-121	Modern Biology	
03-201	Undergraduate Colloquium for Sophomores *Only required for MCS Students [1]	2
03-220	Genetics	9
or 03-221	Genomes, Evolution, and Disease: Introduction to Quantitative Genetic Analysis	
03-231	Honors Biochemistry	9
or 03-232	Biochemistry I	
03-320	Cell Biology	9
03-343	Experimental Techniques in Molecular Biology	12
03-411	Topics in Research *Only required for MCS Students	1
03-412	Topics in Research *Only required for MCS Students	1
03-xxx	General Biology Elective [1]	9
03-3xx	Advanced Biology Elective [1]	18
Total Biology units		**80**

[1] Please see description and requirements for electives under the B.S. in Biological Sciences section of this Catalog.

Mathematics, Statistics, Physics and Computer Science		Units
21-120	Differential and Integral Calculus (prerequisite: 21-090)	10
21-122	Integration and Approximation	10
36-200	Reasoning with Data	9
36-309	Experimental Design for Behavioral & Social Sciences	9
or 85-309	Statistical Concepts and Methods for Behavioral and Social Science	
33-121	Physics I for Science Students	12
or 33-141	Physics I for Engineering Students	
33-122	Physics II for Biological Sciences & Chemistry Students *Only required for MCS Students	9
or 33-142	Physics II for Engineering and Physics Students	
15-110	Principles of Computing	10-12
or 15-112	Fundamentals of Programming and Computer Science	
Total Science units		**69-71**

Chemistry		Units
09-105	Introduction to Modern Chemistry I	10
09-106	Modern Chemistry II	10
09-217	Organic Chemistry I	9
09-218	Organic Chemistry II	9
09-207	Techniques in Quantitative Analysis	9
09-208	Techniques for Organic Synthesis and Analysis	9
Total Chemistry units		**56**

Psychology Courses		Units
85-100	Introduction to Psychology	9
85-170	Foundations of Brain and Behavior	9
85-1xx	Survey Psychology Course	9
85-300	Introduction to Research Methods	9
85-4xx	Advanced Psychology Electives	18
Total Psychology units		**54**

Additional Advanced Elective 9 units

(Choose one of the following courses)		
85-4xx	Advanced Psychology Elective	9
or		
03-3xx	Advanced Biology Elective	9

Additional Laboratory or Research Methods 9-12 units

(Choose one of the following courses)		
03-344	Experimental Biochemistry	12
03-345	Experimental Cell and Developmental Biology	12
03-346	Experimental Neuroscience	12
85-302	Research Methods: Meta-Analysis	9
85-310	Research Methods in Cognitive Psychology	9
85-314	Cognitive Neuroscience Research Methods or 85-370 starting S26	9
85-330	Analytic Research Methods or 85-303 starting S26	9

85-350	Research Methods in Social Psychology	9
85-370	Cognitive Neuroscience Research Methods	9

Elective Units	Units
Free Electives	33-36
MCS Nontechnical Breadth or DC General Education requirements	36-48
Total Elective units	**69-84**

Minimum number of units required for degree: 360

Minors in Psychology and Cognitive Neuroscience

Minor in Psychology 72 units

Introductory course

85-100	Introduction to Psychology	9

Area Survey courses

Complete one course

85-110	Cognitive Psychology	9
85-190	Psychopathology	9
85-130	Developmental Psychology	9
85-150	Social Psychology	9
85-170	Foundations of Brain and Behavior	9

Statistics

36-200	Reasoning with Data	9
36-309	Experimental Design for Behavioral & Social Sciences	9
or 85-309	Statistical Concepts and Methods for Behavioral and Social Science	
or 36-202	Methods for Statistics & Data Science	

36 unitsUpper Level Courses

Research Methods Courses

85-300	Introduction to Research Methods	9

Advanced courses (minimum 18 units)

Advanced psychology courses exist within four areas (cognitive, cognitive neuroscience, developmental, social and health psychology.) Any advanced content courses from 85-400 thru 85-499 may be counted in this requirement.

Psychology Elective - Anything with 85-XXX number can be used 9 units

Minor in Cognitive Neuroscience 63 units

The minor in Cognitive Neuroscience offered by the Department of Psychology is similar to the Neuroscience Minor offered by the Department of Biological Sciences. The differences between the two forms of the minor are determined by one required course, and additionally, by the students' choice of distribution electives. The requirements for the Cognitive Neuroscience Minor include 7 courses: four required courses, and three distribution and elective courses.

Because of the curriculum within this minor may overlap with some degree requirements, no more than 2 courses fulfilling Neuroscience or Cognitive Neuroscience Minor requirements may count towards a student's major or other minor requirements.

Cognitive Neuroscience Curriculum

Required Coursework

03-121	Modern Biology	9
03-363	Systems Neuroscience	9
85-110	Cognitive Psychology	9
85-170	Foundations of Brain and Behavior	9

Distribution Requirements

Three courses, including at least 1 from each of the following categories

Approaches to Cognitive Neuroscience

85-213	Human Information Processing and Artificial Intelligence	9
85-314	Cognitive Neuroscience Research Methods 85-370::starting S26	9
85-412	Cognitive Modeling	9
85-414	Cognition in the Age of AI	9
85-419	Introduction to Parallel Distributed Processing	9
15-386	Neural Computation	9
86-375	Computational Perception	9
85-432	Data Science for Psychology and Neuroscience	9
85-417	Multilingual Minds and the Brain	9
85-472	Cognitive Neuropsychology	9

Cognitive Neuroscience Electives

03-133	Neurobiology of Disease	9
03-362	Cellular Neuroscience	9
03-365	Neural Correlates of Learning and Memory	9
85-359	Introduction to Music Cognition Research	9
85-110	Cognitive Psychology	9
85-370	Cognitive Neuroscience Research Methods	9
85-106	Animal Minds	9
85-421	Language and Thought	9
85-190	Psychopathology	9
85-395	Applications of Cognitive Science	9

The Honors Program

The Honors Program provides recognition of outstanding performance by students in the Psychology department. Participation enables students to pursue their own research ideas through completion of an honors thesis. The honors thesis is completed during the senior year. By completing a thesis, the student earns 18 units of credit and qualifies for graduation with "College Honors." To qualify for the Honors Program, the student must maintain a quality point average of at least 3.50 in the major and 3.25 overall. More information on the Honor program can be found here (http://www.cmu.edu/dietrich/undergraduate/programs/shp/).

A year long departmental senior thesis course exists (66-501 and 66-502) for students interested in pursuing a sizable research project who do not qualify for the honors program. More information can be obtained by contacting Emilie O'Leary at emilier@andrew.cmu.edu.

Faculty

JOHN R. ANDERSON, Richard King Mellon University Professor of Psychology and Computer Science – Ph.D., Stanford University; Carnegie Mellon, 1978–

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