

Cognitive Sciences, B.S.

The B.S. in Cognitive Sciences is structured to provide students with a challenging introduction to the broad field of Cognitive Sciences that is strongly grounded in theory and an empirical approach emphasizing experimental/computational methods. To ensure an intellectually coherent experience, students in the major are able to choose courses from areas including: (a) Cognitive Neuroscience; (b) Experimental Psychology–Sensation, Perception, Attention, and Memory; (c) Language Science; and (d) Computational Cognitive Science. In addition, students are required to acquire a background in (a) calculus, (b) statistics, (c) introductory computer programming, and (d) some combination of the natural sciences, logic and philosophy of science, linguistics, or more advanced computer science or mathematics.

NOTE: Students may complete either the B.A. in Psychology, the B.S. in Psychology, or the B.S. in Cognitive Sciences. You may not double major within the majors offered by the department.

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All students must meet the University Requirements (<http://catalogue.uci.edu/informationforadmittedstudents/requirementsforabachelorsdegree/>).

All students must meet the School Requirements (<http://catalogue.uci.edu/schoolofsocialsciences/#schoolrequirementstext>).

Departmental Requirements for the Major

School requirements must be met and must include courses as specified below:

A. Complete the following:

MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
COGS 110 or STATS 110	Quantitative Methods for Cognitive Sciences Research Statistical Methods for Data Analysis I
PSYCH 114M or I&C SCI 31	MATLAB Programming Introduction to Programming
PSYCH 9A- 9B- 9C	Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals
COGS 109	Cognitive Sciences Research Seminar
PSYCH H101A	Honors Seminar in Psychology I
PSYCH H111A	Honors Experimental Psychology
PSYCH 111BW- H111B	Honors Advanced Experimental Psychology and Honors Advanced Experimental Psychology Laboratory
PSYCH H111C	Honors Research in Experimental Psychology
STATS 7	Basic Statistics

B. Select three courses from the following list:

BIO SCI 35	The Brain and Behavior
BIO SCI 36	Drugs and the Brain
BIO SCI 37	Brain Dysfunction and Repair
BIO SCI 38	Mind, Memory, Amnesia, and the Brain
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
I&C SCI 31	Introduction to Programming ¹
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
PHYSICS 3A- 3B- 3C	Basic Physics I and Basic Physics II and Basic Physics III

or

PHYSICS 7C- 7D- 7E

Classical Physics
and Classical Physics
and Classical Physics

with labs PHYSICS 7LC and PHYSICS 7LD

NOTE: Careful selection should be made in order to satisfy general education requirements and prerequisites for upper-division courses.

C. Three additional courses must be taken in Biology, Physics, Computer Science, Linguistics, Logic and Philosophy of Science, Mathematics, or Statistics. They can be chosen either from the list above or from the following list:

LSCI 1	Languages of the World
LSCI 3	Introduction to Linguistics
LSCI 10	Introduction to Phonology
LSCI 20	Introduction to Syntax
LSCI 51	Acquisition of Language
LSCI 68	Introduction to Language and Culture
LPS 30	Introduction to Symbolic Logic
LPS 31	Introduction to Inductive Logic
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
MATH 4	
PHYSICS 15	Physics of Music
PSYCH 56L	Acquisition of Language
STATS 111	Statistical Methods for Data Analysis II
STATS 112	Statistical Methods for Data Analysis III

D. Three core courses must be selected from this list:

PSYCH 120A	Abnormal Psychology
PSYCH 120D	Developmental Psychology
PSYCH 120H	History of Psychology
PSYCH 120P	Personality Theories
PSYCH 130A	Perception and Sensory Processes
PSYCH 140C	Cognitive Science
PSYCH 140L	Principles of Learning Theory
PSYCH 140M	Human Memory
PSYCH 150	Psychology of Language
PSYCH 160A	Introduction to Cognitive Neuroscience
PSYCH 160D	Brain Disorders and Behavior

E. Four core electives must be selected from this list:

COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
COMPSCI 183	Introduction to Computational Biology
LSCI 102	Formal Languages and Automata
LSCI 111	Intermediate Phonology
LSCI 121	Intermediate Syntax
PSYCH 112R- 112LR	Cognitive Robotics and Cognitive Robotics Laboratory
PSYCH 131A	Vision
PSYCH 131B	Hearing
PSYCH 156A	Acquisition of Language II
PSYCH 161	Language and the Brain
PSYCH 161H	Hearing and the Brain
PSYCH 162N	Human Neuropsychology

F. Six additional electives must be selected from the lists under requirements D and E only. ²

G. All courses for the above major requirements must be taken with a grade of B- or better. Students must maintain an overall grade point average of 3.0 for courses within the major.

¹ If not used to satisfy Introductory Programming Requirement.

² If accepted into the Honors Program, only four additional electives must be selected from the lists under requirements D and E.

Sample Program - Interest in Cognitive Neuroscience

Freshman		
Fall	Winter	Spring
PSYCH 9A	PSYCH 9B	PSYCH 9C
MATH 2A	MATH 2B	STATS 7
General Education	General Education	General Education
BIO SCI 35	COGS 109	
Sophomore		
Fall	Winter	Spring
PSYCH H111A	PSYCH 111BW	PSYCH H111C
PSYCH 114M	PSYCH H111B	COGS 110
BIO SCI 36	General Education	General Education
		BIO SCI 37
Junior		
Fall	Winter	Spring
Core course	Core course	Core course
PSYCH H101A	General Education	General Education
Addl. science course	Addl. science course	Addl. science course
Elective	Core elective	Elective
Senior		
Fall	Winter	Spring
Core elective	Core elective	Core elective
Addl. elective	Addl. elective	Addl. elective
Addl. elective	Addl. elective	Addl. elective
Elective	Elective	Elective

Honors Program in Psychology and Cognitive Sciences

The Honors Program in Psychology and Cognitive Sciences is an advanced educational and research program for outstanding undergraduate students in these two majors.

The program emphasizes advanced competence in scientific research, and allows participants the opportunity to pursue advanced work in independent research, in addition to earning honors upon graduation. While the program is designed for students who are interested in pursuing graduate study or seeking challenging research experiences as a capstone to their undergraduate experience, all Psychology and Cognitive Sciences majors who meet the minimum eligibility requirements are welcome to apply.

The program has a limited number of openings and seeks to attract outstanding students who plan to undertake postgraduate education in some field of cognitive/psychological sciences. Admission to the program is based on a formal application submitted prior to the start of the junior year. Applicants should have an overall grade point average of at least 3.2 and a grade point average of at least 3.5 in courses within their major. Students are encouraged to apply in the summer two years prior to graduation, and, in some instances, may be accepted one year prior to graduation.

During the junior year, students who participate in the program are expected to enroll in the Honors Experimental Psychology series (PSYCH H111A-PSYCH 111BW-PSYCH H111C), and enroll in the first course in the Honors Seminar series (PSYCH H101A) in the fall quarter. As seniors, following successful completion of these junior-year requirements, honors students are enrolled in the remaining courses of the Honors Seminar series in fall (PSYCH H101B) and spring (PSYCH H101C). In addition, honors students must successfully complete a senior honors thesis as part of the senior-year course work.

The Honors Experimental Psychology series can be used to satisfy the Research Methods requirement for the major. The Honors Seminar series may be used to satisfy two of the courses required by Part A of the B.S. in Psychology major requirements.

Sample Program - Honors

Freshman		
Fall	Winter	Spring
PSYCH 9A	PSYCH 9B	PSYCH 9C
PSYCH 10A	PSYCH 10B	PSYCH 10C
General Education	General Education	General Education
	Computer Tech Requirement	

Sophomore		
Fall	Winter	Spring
General Education	General Education	General Education
Science course	Science course	Science course
Psych. Core course	Psych. Core course	Psych. Core course
Psych. Module	Psych. Module	Psych. Module
Junior		
Fall	Winter	Spring
PSYCH H101A	PSYCH 111BW	PSYCH H111C
PSYCH H111A	PSYCH H111B	Additional Science course
Logic course	Additional Science course	Psych. Core course
General Education	Additional Science course	
Senior		
Fall	Winter	Spring
PSYCH H101B	Additional Psych. course	PSYCH H101C
Additional Science course	Elective	Elective
Additional Psych. course	Elective	Elective
Elective	Elective	Elective