The Department of Cognitive Sciences is committed to the investigation of the abstract, complex structures that underlie human cognition: language, thought, memory, learning, sensorimotor integration and perception. The main areas of research strength within the Department are visual and auditory perception, experimental psychology, cognitive psychology, mathematical psychology, and cognitive neuroscience.

Undergraduate Program

Students should be aware that psychology courses are offered in several different departments and programs. Students interested in general psychology including the areas of development, clinical, perception, learning, memory, cognitive processes, and neuroscience are advised to consult the course listings here in the Department of Cognitive Sciences section. These courses are designed to provide students with a strong foundation in general psychology. Students interested in other areas of psychology are advised to consult the course listings in the School of Social Ecology (catalogue.uci.edu/previouseditions/2013-14/schoolofsocialecology) and the School of Biological Sciences (catalogue.uci.edu/previouseditions/2013-14/schoolofbiologicalsciences) sections.

In anticipation that the number of students who are qualified to elect Psychology as a major will exceed the number of positions available, students applying for admission for fall 2014 should be sure to file their application before November 30, 2013.

Change of Major

Information about change-of-major requirements, procedures, and policies is available in the School of Social Sciences Undergraduate Student Affairs Office and at http://www.changeofmajor.uci.edu.

Excellence in Psychological Research

Psychology majors doing independent research under PSYCH 199 may be eligible for participation in the Undergraduate Research Opportunities Program (UROP). Participants can obtain research funding and have the opportunity to have their research papers published in a peer-reviewed student journal or to present them at a special conference of UCI student research. Guidelines for the program are available from the Department of Cognitive Sciences office.

Requirements for the B.A. Degree in Psychology

All students must meet the University Requirements (catalogue.uci.edu/previouseditions/2013-14/informationforadmittedstudents/requirementsforabachelorsdegree).

All students must meet the School Requirements (catalogue.uci.edu/previouseditions/2013-14/schoolofsocialsciences/#undergraduatetext).

Departmental Requirements for the Major

School requirements must be met and must include 18 courses (70 units) as specified below:

A. Complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 9A- 9B- 9C</td>
<td>Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals</td>
</tr>
</tbody>
</table>

B. Two introductory courses (eight units) in the social sciences selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHRO 2A</td>
<td>Introduction to Sociocultural Anthropology</td>
</tr>
<tr>
<td>ANTHRO 2B</td>
<td>Introduction to Biological Anthropology</td>
</tr>
<tr>
<td>ANTHRO 2D</td>
<td>Introduction to Language and Culture</td>
</tr>
<tr>
<td>ECON 1</td>
<td>Introduction to Economics</td>
</tr>
<tr>
<td>LINGUIS 3</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>POL SCI 6C</td>
<td>Introduction to Political Science: Micropolitics</td>
</tr>
<tr>
<td>SOC SCI 5A</td>
<td>Introduction to Human Geography</td>
</tr>
<tr>
<td>SOCIOL 1</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SOCIOL 2</td>
<td>Global and International Sociology</td>
</tr>
<tr>
<td>SOCIOL 3</td>
<td>Introduction to Social Problems</td>
</tr>
<tr>
<td>SOC SCI H1E- H1F- H1G</td>
<td>Honors: Critical Issues on the Social Sciences and Honors: Critical Issues on the Social Sciences</td>
</tr>
</tbody>
</table>

or one or two quarters of the following when topic is not psychology:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 112A- 112LA</td>
<td>Experimental Psychology and Experimental Psychology Laboratory</td>
</tr>
<tr>
<td>PSYCH 112M- 112LM</td>
<td>Research Methods in Psychology and Research Methods in Psychology Laboratory</td>
</tr>
<tr>
<td>PSYCH 112P- 112LP</td>
<td>Research in Perception and Psychophysics and Research in Perception and Psychophysics Laboratory</td>
</tr>
<tr>
<td>PSYCH 112R- 112LR</td>
<td>Cognitive Robotics and Cognitive Robotics Laboratory</td>
</tr>
</tbody>
</table>
NOTE: These courses have as prerequisites PSYCH 9A, PSYCH 9B, and one year of mathematics/statistics (see course listings). These prerequisites are strictly enforced. PSYCH 112A, PSYCH 112LA are the first quarter of a multi-quarter sequence that satisfies the upper-division writing requirement and allows students to plan and conduct research projects. Students taking these courses should plan to continue in them through at least the second quarter. Students who intend to fulfill the upper-division writing requirement in some other way should consider taking PSYCH 112M and PSYCH 112LM, PSYCH 112P and PSYCH 112LP, or PSYCH 112R and PSYCH 112LR to fulfill the laboratory requirement.

D. Select four upper-division Psychology core courses (16 units). These courses are designated with an ending number "0" and include the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 120A</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYCH 120D</td>
<td>Developmental Psychology</td>
</tr>
<tr>
<td>PSYCH 120H</td>
<td>History of Psychology</td>
</tr>
<tr>
<td>PSYCH 120P</td>
<td>Personality Theories</td>
</tr>
<tr>
<td>PSYCH 130A</td>
<td>Perception and Sensory Processes</td>
</tr>
<tr>
<td>PSYCH 140C</td>
<td>Cognitive Science</td>
</tr>
<tr>
<td>PSYCH 140L</td>
<td>Principles of Learning Theory</td>
</tr>
<tr>
<td>PSYCH 140M</td>
<td>Human Memory</td>
</tr>
<tr>
<td>PSYCH 150</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYCH 160A</td>
<td>Introduction to Cognitive Neuroscience</td>
</tr>
<tr>
<td>PSYCH 160D</td>
<td>Brain Disorders and Behavior</td>
</tr>
</tbody>
</table>

E. Select seven additional courses (four or more units each) with emphasis in psychology, distributed as follows:

1. No more than one of the seven may be lower-division. PSYCH 7A and PSYCH 46A may not be used to fulfill this requirement.

2. Three of the upper-division courses used to satisfy requirements D and E must be taken from one of the following modules: Psychology 110–119 (Research Methodologies), 120–129 (General Psychology), 130–139 (Perception and Sensory Processes), 140–149 and 150–159 (Learning and Cognition and Language Sciences combined), 160–169 (Cognitive Neuroscience), and 170–179 (Interdisciplinary Studies).

3. Certain courses offered in the School of Biological Sciences and the School of Social Ecology may be used in partial satisfaction of this requirement. A total of three of these courses (12 units) may be used in this way with a maximum of two from either of these Schools.

The courses that may be used in this way are those in the Department of Cognitive Sciences’ course listings numbered PSYCH 127, PSYCH 147, and PSYCH 177, as well as Psychology and Social Behavior 193E (same as Criminology, Law and Society C105) and Biological Sciences D137, E174, N110, and N159.

4. No more than three of the courses (each of four or more units) may be numbered 190–199.

NOTE: Psychology majors are strongly encouraged to take BIO SCI 1A and BIO SCI 35 toward satisfaction of the science and technology portion of the general education requirement (category II). Furthermore, it is strongly recommended that students who intend to pursue post-baccalaureate work in psychology take the PSYCH 112A-PSYCH 112B-PSYCH 112C sequence. Most psychology graduate programs require statistics (which, at UCI, may be satisfied by taking PSYCH 10A-PSYCH 10B-PSYCH 10C or SOC SCI 10A-SOC SCI 10B-SOC SCI 10C), but some require calculus (which, at UCI, may be satisfied by taking MATH 2A-MATH 2B).

Honors Program in Psychology

The two-year honors program in Psychology is open to selected juniors who are majoring in Psychology. It provides thorough grounding in research methods and culminates with the opportunity for basic research in some area of psychology under faculty supervision. The program has a limited number of openings and seeks to attract outstanding students who plan to undertake postgraduate education in some field of the psychological sciences. Admission to the program is based on a formal application that is normally submitted in the spring quarter of the sophomore 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 psychology courses, although this requirement may be waived in unusual cases.

During the junior year, students who participate in the program are expected to enroll in Honors Experimental Psychology (PSYCH H111A-PSYCH 111BW-PSYCH H111C), and in the fall quarter of the Honors Seminar in Psychology (PSYCH H101A). As seniors, following successful completion of these junior-year requirements, Psychology honors students are enrolled in the Honors Seminar in Psychology (PSYCH H101B-PSYCH H101C) in the fall and spring quarters. Participants in the honors program are expected to complete course work beyond the general education requirement in one or more of the following areas: biological sciences, mathematics, computer science, physical science, linguistics, philosophy. The honors seminar may be used to satisfy two of the courses required by Part E of the Psychology major requirements. To graduate with Honors in Psychology, a student must successfully complete the requirements for the B.A. degree in Psychology with an overall grade point average of 3.2 and a grade point average of at least 3.5 in Psychology courses. In addition, Honors students must successfully complete a senior honors thesis as part of the senior-year course work.

Sample Programs — Psychology Majors

General

<table>
<thead>
<tr>
<th>Freshman</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 9A</td>
</tr>
<tr>
<td>PSYCH 9B</td>
</tr>
<tr>
<td>PSYCH 9C</td>
</tr>
<tr>
<td>2 Intro. Soc. Sci.</td>
</tr>
<tr>
<td>1 Computer</td>
</tr>
<tr>
<td>6 Gen. Ed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 quarters Statistics¹</td>
</tr>
<tr>
<td>3 Core²</td>
</tr>
<tr>
<td>6 Gen. Ed./Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core²</td>
</tr>
<tr>
<td>3 Module/UDP³</td>
</tr>
<tr>
<td>4 Gen. Ed./Electives</td>
</tr>
</tbody>
</table>

and select one:

| PSYCH 112A- 112BW- 112C (and 1 UDP)³ |
| PSYCH 112M ( and 3 UDP)³ |

<table>
<thead>
<tr>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Electives</td>
</tr>
</tbody>
</table>

and select one:
2 PSYCH 199 and PSYCH 190
3 UDP

**Graduate School Track**

**Freshman**
PSYCH 9A
PSYCH 9B
PSYCH 9C
Humanities Core
MATH 2A- 2B
STATS 7

**Sophomore**
3 quarters Statistics
3 Core
2 Intro. Soc. Sci.
1 Computer
3 Gen. Ed.

**Junior**
1 Core
3 Module/UDP
4 Gen. Ed./Electives
PSYCH 112A- 112BW- 112C (and 1 UDP)

**Senior**
9 Electives
PSYCH 199 (2 quarters)
PSYCH 190

**Honors**

**Freshman**
PSYCH 9A
PSYCH 9B
PSYCH 9C
Humanities Core
MATH 2A- 2B
STATS 7

**Sophomore**
3 quarters Statistics
3 Core
2 Intro. Soc. Sci.
1 Computer
3 Gen. Ed.
Apply to Honors in spring

**Junior**
PSYCH H111A- 111BW- H111C
PSYCH H101A
1 Core
2 UDP
5 Gen. Ed./Electives

**Senior**
8 Electives

PSYCH H101B- H101C
PSYCH 199 (2 quarters)

1 Either PSYCH 10A-PSYCH 10B-PSYCH 10C (recommended for those planning to attend graduate school in Psychology) or SOC SCI 10A-SOC SCI 10B-SOC SCI 10C.
2 Psychology core course, an upper-division course with the ending number "0."
3 UDP is an upper-division Psychology course.
4 For the graduate school track, the PSYCH 112A-PSYCH 112BW-PSYCH 112C series is recommended.

**Sample Program — Transfer Psychology Majors**

**Junior**
PSYCH 9A
PSYCH 9B
PSYCH 9C
3 quarters Statistics
1 Computer
2 Intro. Soc. Sci.
3 Core

**Senior**
1 Core
3 Module/UDP
1 Elective
Select one of the following:
PSYCH 112A- 112B- 112C (and 3 UDP)
PSYCH 112M (and 5 UDP)

1 Either PSYCH 10A-PSYCH 10B-PSYCH 10C (recommended for those planning to attend graduate school in Psychology) or SOC SCI 10A-SOC SCI 10B-SOC SCI 10C.
2 Psychology core course, an upper-division course with the ending number "0."
3 UDP is an upper-division Psychology course.

**Psychology Minor Requirements**

Requirements for the minor in Psychology are met by taking seven or eight psychology courses (28 or 32 units) as specified below:

**A. Complete either:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 7A</td>
<td>Introduction to Psychology (for the 28-unit minor)</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>PSYCH 9A- 9B- 9C</td>
<td>Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals (for the 32-unit minor)</td>
</tr>
</tbody>
</table>

**B. Select three upper-division Psychology courses from the following:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 120A</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYCH 120D</td>
<td>Developmental Psychology</td>
</tr>
<tr>
<td>PSYCH 120H</td>
<td>History of Psychology</td>
</tr>
<tr>
<td>PSYCH 120P</td>
<td>Personality Theories</td>
</tr>
</tbody>
</table>
Graduate Study in the Cognitive Sciences

The Department of Cognitive Sciences offers a Ph.D. degree program in Psychology, with a specialization in cognitive science, to prepare students for research and teaching careers in academia, industry, and government. The emphasis is on modern techniques of experimentation and theory construction. Special attention is given to providing hands-on research experience and equipping students with sophisticated mathematical and computing skills. The Department has 30 faculty; two are members of the National Academy of Sciences, and many serve as editors or editorial board members of leading professional journals, and as members of NSF and NIH study panels. Many Cognitive Sciences faculty are also members of UCI’s Institute for Mathematical Behavioral Sciences, and the Department is generally regarded as one of the world’s leading centers for mathematically oriented research in cognitive psychology. The Department is also allied closely to the School’s Center for Cognitive Neuroscience.

Admission

In addition to meeting the general requirements for admission, applicants should have acquired a background in mathematics equivalent to at least one year of calculus. Advanced course work in some of the following fields is highly desirable: psychology, computer science, mathematics, physical sciences, engineering, biology, logic, and linguistics. Standard requirements for admission include Graduate Record Examination (GRE) scores for tests taken within the past five years, official transcripts of all college course work, and at least three letters of recommendation. Applicants whose primary language is not English are required to demonstrate proficiency in English for admission consideration. Information about this requirement is available at [http://www.grad.uci.edu/admissions/applying-to-uci/english-proficiency.html](http://www.grad.uci.edu/admissions/applying-to-uci/english-proficiency.html).

To receive full consideration for fellowship and assistantship awards, applications must be received by December 15. While applications filed and completed before January 15 will be reviewed for admissions and financial support, applicants are strongly encouraged to submit their application by December 15. Admissions decisions are made in March. Application materials are available online at the Graduate Division Website [http://www.grad.uci.edu/](http://www.grad.uci.edu/).

Requirements for the Doctoral Degree in Psychology

Course work. Students must complete 12 courses distributed as follows: the cognitive and brain sciences core courses, PSYCH 210A-PSYCH 210B; three quantitative courses drawn from PSYCH 203A, and two of PSYCH 203B, PSYCH 203C, or PSYCH 203D; two computational methods courses PSYCH 205A and either PSYCH 205B or PSYCH 205C; two cognitive science core courses drawn from the PSYCH 211–219 module; and three electives.

Students must fulfill the Ph.D. program’s computer-programming language requirement.

Students are expected to enroll in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B-PSYCH 201C during all quarters in residence prior to passage of the advancement-to-candidacy examination. During the fall of the first year in the program, students should enroll in the Seminar in Professional Development PSYCH 204A and the Proseminar PSYCH 202A.

Second-year examination. During the first year, in consultation with their advisor, the student should establish an advisory committee consisting of three faculty members, including the advisor and at least one other Cognitive Sciences faculty member. The committee should meet with the student during spring quarter of the first year to determine the student’s area(s) of research interest and to identify the published literature with which the student must be familiar. At the beginning of the fall quarter of their second year, students will be required to take a second-year examination. It will involve (1) a critical review of work in the student’s area of research interest, and (2) an oral examination by the student’s committee members. Should the student fail the second-year exam, the student will be allowed to repeat the exam in the winter quarter. A subsequent failure results in the student exiting the program.

Pre-advancement talk. Prior to advancement, usually in the third year, each student will give a talk to the Department faculty and students in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B-PSYCH 201C. Each student is expected to carry out theoretical/empirical research during the first two years. By the start of the third year, each student should have completed a research project of a scope and nature that is potentially publishable in a professional journal. (Another forum for the pre-advancement talk may be substituted with the written approval of the Graduate Director.) This talk is required prior to the student’s advancement to candidacy.

Advancement examination. The advancement examination consists of a written research proposal in NIH NRSA Predoctoral Fellowship format, and an oral defense of the proposed research. The requirements for advancement are detailed below.

Dissertation. Students must submit a dissertation describing original publishable research and present a public defense of the dissertation as the final requirement of the Ph.D. program as detailed below.

Concentration in Cognitive Neuroscience

Students can also pursue a Ph.D. in Psychology with a concentration in Cognitive Neuroscience. This is an interdisciplinary field which studies the relation between mind and brain. With the development of non-invasive functional brain imaging techniques during the last two decades, the integration of cognitive and neural models of information processing has
become a major focus in the field, and a major growth area within the Department’s academic plan.

The program concentration is administered by the Department of Cognitive Sciences and coordinated by the Cognitive Neuroscience graduate director. Commensurate with the multidisciplinary nature of cognitive neuroscience, the Department expects to admit students with a variety of undergraduate educational backgrounds. These include, but are not necessarily limited to, undergraduate degrees in psychology/cognitive science, neuroscience, biology, computer science, mathematics, and engineering.

Requirements

Course work. Students must complete 12 courses distributed as follows:
- the cognitive and brain sciences core courses, PSYCH 210A-PSYCH 210B: two quantitative courses drawn from PSYCH 203A and one of PSYCH 203B, PSYCH 203C, or PSYCH 203D; one computational course drawn from the PSYCH 205A-PSYCH 205B-PSYCH 205C sequence; two neuroscience methods courses drawn from PSYCH 236, PSYCH 265, PSYCH 268A; two neuroscience courses drawn from the PSYCH 261–269 module; and three electives.
- Students must fulfill the Ph.D. program’s computer-programming language requirement.
- Students are expected to enroll in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B-PSYCH 201C during all quarters in residence prior to passage of the advancement-to-candidacy examination. During the fall of the first year in the program, students should enroll in the Seminar in Professional Development PSYCH 204A and the Proseminar PSYCH 202A.
- Second-year examination. During the first year, the student in consultation with their advisor should establish an advisory committee consisting of three faculty members, including the advisor and at least one other Cognitive Sciences faculty member. The committee should meet with the student during spring quarter of the first year to determine the student’s area(s) of research interest and to identify the published literature with which the student must be familiar. At the beginning of the fall quarter of their second year, students will be required to take a second-year examination. It will involve (1) a critical review of work in the student’s area of research interest, and (2) an oral examination by the student’s committee members. Should the student fail the second year exam, the student will be allowed to repeat the exam in the winter quarter. A subsequent failure results in the student leaving the program.
- Pre-advancement talk. Prior to advancement, usually in the third year, each student will give a talk to the department faculty and students in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B-PSYCH 201C. Each student is expected to carry out theoretical/empirical research during the first two years. By the start of the third year, each student should have completed a research project of a scope and nature that is potentially publishable in a professional journal. (Another forum for the pre-advancement talk may be substituted with the written approval of the Graduate Director.) This talk is required prior to the student’s advancement to candidacy.
- Advancement examination. The advancement examination consists of a written research proposal in NIH NRSA Predoctoral Fellowship format, and an oral defense of the proposed research. The requirements for advancement are detailed below.

Dissertation. Students must submit a dissertation describing original publishable research and present a public defense of the dissertation as the final requirement of the Ph.D. program as detailed below.

Requirements for the M.A. Degree

NOTE: Although the Department does not have an M.A. program, students may earn an M.A. degree as part of the Ph.D. program.

The student must (1) complete the required course work as outlined above; (2) present a talk and submit an approved paper, both based on empirical/theoretical research, as described above; and (3) fulfill a computer-programming language requirement by completing satisfactorily the computational research methods sequence PSYCH 205A-PSYCH 205B or by demonstrating proficiency in use of a programming language for cognitive sciences research as assessed by two faculty members and approved by the Graduate Director.

Requirements for Advancement to Candidacy

The requirements for advancement to candidacy are (1) the student must meet the requirements listed above for the M.A. degree; (2) the student must, in addition, form a five-member faculty committee selected according to Graduate Division policy. The committee will examine the student on a topic which is determined in consultation with the committee. A written document describing the student’s work on this topic must be submitted to the committee prior to advancement. The student must demonstrate an understanding of the background and issues for the research topic and show sufficient preparation and creativity to undertake planning for a dissertation project (e.g., by describing a possible experimental design or outlining a possible theoretical development); and (3) students are required to advance to candidacy by the end of the fall quarter of their third year in the program.

Requirements for the Ph.D. Degree

The requirements for the Ph.D. degree are (1) the student must formally present and defend a written dissertation proposal to a committee of at least three members selected according to Graduate Division requirements. The dissertation proposal presentation may take place as part of the examination for Advancement to Candidacy, in which case, that five-member committee will approve the dissertation proposal; (2) the proposal must be approved prior to the final dissertation defense (usually at least three months before to allow time for the candidate to incorporate suggestions and changes required by the committee); (3) prior to the approval of the final version of the dissertation the student is expected to defend the dissertation in a public colloquium announced with at least one week’s notice; and (4) all requirements for the Ph.D. degree must be fulfilled within three years after advancement to candidacy.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is six years.

Participating Faculty

William Batchelder: Mathematical models of learning and memory, mathematical psychology, and measurement

Bruce Berg: Audition, auditory attention, psychophysics of complex sounds, computational models of hearing
Myron Braunstein: Visual perception
Alyssa A. Brewer: Neuroimaging of visual perception, visual deficits, and neurological disorders
Charles F. Chubb: Visual perception, mathematical modeling, histogram contrast analysis
Barbara Dosher: Human information processing, memory retrieval, attention, visual perception
Michael D’Zmura: Vision, hearing, language, brain-computer interfaces
Jean-Claude Falmagne: Mathematical behavioral sciences
Emily D. Grossman: Visual perception, neuroimaging
Gregory Hickok: Neuroanatomy of language, neural plasticity, neuroimaging, cognitive neuroscience
Donald Hoffman: Machine and human vision, visual recognition, artificial intelligence, virtual reality, consciousness and cognition, shape from motion
Geoffrey J. Iverson: Mathematical psychology, psychophysics, statistics
Mary-Louise Kean: Cognitive neuropsychology, biological foundation of higher mental processes
Jeffrey Krichmar: Computational neuroscience, robotics
Michael D. Lee: Mathematical and computational models of stimulus representation, categorization, memory decision-making, problem solving
Virginia Mann: Reading ability: phoneme awareness, developmental dyslexia, phonological skills, early intervention, precocious readers; speech perception: context effects, cross-linguistic comparisons
Louis Narens: Measurement, logic, and metacognition
Lisa Pearl: Linguistics, computational linguistics, language development, language change, Bayesian models
Virginia M. Richards: Auditory perception and cognition, human psychophysics
Kourosh Saberi: Signal detection, psychophysics, cortical neuroscience, sensory genetics
Barbara Sarnecka: Cognitive development, language development, number concepts, conceptual change, individual cognitive development, historical development of science and mathematics
George Sperling: Vision, perception, information processing
Jon Sprouse: Linguistics, syntax, psycholinguistics
Ramesh Srinivasan: Cognitive neuroscience, brain development, consciousness, perception, EEG, brain dynamics
Mark Steyvers: Semantic influences in recognition and recall, computational models for knowledge extraction, dynamic decision-making models, causal reasoning, bayesian networks
Jennifer Trueblood: Human judgment, decision-making, mathematical modeling
Joachim Vandekerckhove: Response time modeling, model fitting, computational statistics, model evaluation
W.C. Watt: Cognitive semiotics
Charles E. (Ted) Wright: Cognitive psychology, human motor control, Fitts task, aimed movements, handwriting, immersive virtual reality, 1/f noise, quantitative models
John I. Yellott, Jr.: Mathematical psychology, visual perception

Courses

PSYCH 7A. Introduction to Psychology. 4 Units.
Introduction to field of psychology, addressing the application of scientific methods to the study of human development, learning, memory, problem solving, perception, biological mechanisms, emotions and motivation, personality, psychopathology, and effects of diverse social and cultural contexts on human behavior. Course may be offered online.

Same as PSY BEH 9. Overlaps with PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9A. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11A.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)
PSYCH 9B. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11B.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9C. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11C.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9D. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9A.

PSYCH 9E. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.

PSYCH 9F. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9C.

PSYCH 10A. Probability and Statistics in Psychology I. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10A.

Overlaps with ANTHRO 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B, POL SCI 10B.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10B. Probability and Statistics in Psychology II. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10A.

Overlaps with ANTHRO 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B, POL SCI 10B.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10C. Probability and Statistics in Psychology III. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10B.

Overlaps with ANTHRO 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C, POL SCI 10C.

Restriction: Psychology majors have first consideration for enrollment.

(Vb)

PSYCH 21A. Adolescent Psychology. 4 Units.
Focuses on psychosocial dynamics of today’s adolescents in America emphasizing the quest for identity, independence, values, and sexual orientation. The influence of society, family, school, and peers is analyzed. Strategies for helping troubled adolescents are discussed.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSY BEH 112D.

(III)

PSYCH 46A. Introduction to Human Memory. 4 Units.
Covers the core concepts of modern research and theorizing about human memory, including structural subdivisions (e.g., perceptual memory, short-term memory, long-term memory), different measures of memory (e.g., recall, reorganization), and some practical applications of memory research (e.g., mnemonics). Course may be offered online.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSYCH 140M, PSY BEH 192J.

(III)

PSYCH 56L. Acquisition of Language. 4 Units.
What children say, what they mean, and what they understand. Theories about the learning of language by one-, two-, and three-year olds. Comparison of kinds of data on which these theories are based.

Same as LINGUIS 51.

(Va)
**PSYCH 78A. Introduction to Social Psychology. 4 Units.**
Studies sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction.

Same as SOCIOL 31.
Overlaps with SOCECOL S86, SOCIOL 61A.

**PSYCH 89. Special Topics in Lower-Division Psychology. 4 Units.**
Studies in selected areas of psychology at the lower-division level. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.

**PSYCH H101A. Honors Seminar in Psychology I. 4 Units.**
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Grading Option: Pass/no pass only.
Repeatability: May be taken for credit 2 times.
Restriction: Honors Program in Psychology students only.

**PSYCH H101B. Honors Seminar in Psychology II. 4 Units.**
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101A.
Grading Option: Pass/no pass only.
Repeatability: May be taken for credit 2 times.
Restriction: Honors Program in Psychology students only.

**PSYCH H101C. Honors Seminar in Psychology III. 4 Units.**
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101B.
Repeatability: May be taken for credit 2 times.
Restriction: Honors Program in Psychology students only.

**PSYCH 109. Cognitive Sciences Research Seminar. 4 Units.**
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.
Prerequisite: PSYCH 9A.

**PSYCH 110. Quantitative Methods for Cognitive Sciences Research. 4 Units.**
Basics of quantitative methods used in cognitive science research focusing on linear algebra, Fourier analysis, multivariate statistics, and signal detection theory. Examples drawn from models and methods used in cognitive sciences research with practical examples.

Prerequisite: MATH 2A and MATH 2B and STATS 7 AND (PSYCH 114M or I&C SCI 31).

**PSYCH 111BW. Honors Advanced Experimental Psychology. 4 Units.**
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH H111B.
Prerequisite: PSYCH H111A and (PSYCH H11A or PSYCH 112A). Satisfactory completion of the Lower-Division Writing requirement.
Restriction: Honors Program in Psychology students only.

**PSYCH H111A. Honors Experimental Psychology. 4 Units.**
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH H111LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and 10B and 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH 112A.
Restriction: Campuswide Honors Program students only.

**PSYCH H111B. Honors Advanced Experimental Psychology Laboratory. 2 Units.**
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 111BW.

**PSYCH H111C. Honors Research in Experimental Psychology. 4 Units.**
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.

Prerequisite: PSYCH 111BW or PSYCH 112B.
Restriction: Honors Program in Psychology students only.

**PSYCH 112A. Experimental Psychology. 4 Units.**
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH 112LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH H111A, PSYCH 112F, PSYCH 112G.
Restriction: Psychology majors have first consideration for enrollment.
PSYCH 112B. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.
Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA.
Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112BW. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.
Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA. Satisfactory completion of the Lower-Division Writing requirement.
Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.
Restriction: Psychology majors have first consideration for enrollment.

( Ib )

PSYCH 112C. Research in Experimental Psychology. 4 Units.
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.
Prerequisite: PSYCH 112B and PSYCH 112LB.
Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LA. Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112A.
Corequisite: PSYCH 112A.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LB. Advanced Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112B and 112BW.
Corequisite: PSYCH 112B or PSYCH 112BW.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LC. Research in Experimental Psychology. 0 Units.
Required laboratory section and co-requisite for Psych 112C.
Corequisite: PSYCH 112C.

PSYCH 112LM. Research Methods in Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112M.
Corequisite: PSYCH 112M.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LP. Research in Perception and Psychophysics Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112P.
Corequisite: PSYCH 112P.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LR. Cognitive Robotics Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112R.
Corequisite: PSYCH 112R.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112M. Research Methods in Psychology. 4 Units.
Research methods in psychology for majors who wish to fulfill this requirement separately from upper-division writing. Covers both experimental and descriptive research methods, analysis of results, and reading the psychological literature. Research experience is provided in laboratory sections.
Corequisite: PSYCH 112LM.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).
Overlaps with PSYCH 112F, PSYCH 112FW.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112P. Research in Perception and Psychophysics. 4 Units.
Introduction to design and practice of experiments: students perform auditory, visual, tactile, or other experiments. Emphasis on methodology, finding and reading previous research, generating research ideas, statistical analysis. Students propose and conduct their own final research project with approval.
Corequisite: PSYCH 112LP.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))) and PSYCH 130A.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112R. Cognitive Robotics. 4 Units.
Introduces concepts on experimental design, embodiment, robot construction, and computer programming. Concepts of embodied intelligence and case studies of cognitive robotics are covered in lecture. Simple robots are constructed and programmed to carry out different behavioral experiments in lab.
Corequisite: PSYCH 112LR.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).
Restriction: Psychology majors have first consideration for enrollment.
PSYCH 113T. Introduction to Psychological Tests and Measurement. 4 Units.
Principles of psychological measurement, including elementary psychophysics, psychometrics, test theory, and the measurement of abilities, attitudes, traits, and interests. Reliability and validity of psychological measurements.
Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C) and PSYCH 10A.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 114M. MATLAB Programming. 4 Units.
MATLAB is a mathematical software package for solving quantitative problems often encountered in experimental psychology. Topics include rudiments of programming, statistical analysis of data, matrix algebra, signal processing, graphic visualization, and simulated models of cognitive and perceptual processes.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 119. Special Topics in Research Methodologies. 1-4 Units.
Studies in selected areas of research methodologies. Topics addressed vary each quarter.
Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120A. Abnormal Psychology. 4 Units.
Introduction to psychopathology and behavioral deviations, and the concepts of theories regarding these conditions.
Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.
Overlaps with PSY BEH 102C.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120D. Developmental Psychology. 4 Units.
A general introduction to the study of the physical, intellectual, social, and emotional development of the child from birth to adulthood.
Prerequisite: PSYCH 7A or PSYCH 9A or PSY BEH 9 or PSY BEH 11A
Overlaps with PSY BEH 111D.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120H. History of Psychology. 4 Units.
A history of the development of various schools and systems of psychological thought.
Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.
Same as PSY BEH 192A.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 120P. Personality Theories. 4 Units.
A survey of the evolution of personality theory during this century. An overview of major perspectives in the field, with special attention to Freud, Jung, and Adler.
Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.
Overlaps with PSY BEH 170S.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121M. Theories of Motivation. 4 Units.
Factors affecting the behavioral performance of organisms. A survey of theoretical and empirical approaches to the physiological, psychological, and social factors which generate behavior.
Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).
Overlaps with PSY BEH 176S.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121P. Positive Psychology. 4 Units.
Positive psychology, at the subjective level, is about valued subjective experiences; at the individual level, it is about positive individual traits; and at the group level, it is about the civic virtues and institutions that move individuals toward better citizenship.
Prerequisite: (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121S. Psychology of Sleep and Consciousness. 4 Units.
Covers the physiology, neurochemistry, and neuroanatomy associated with sleep, contemporary sleep theory, REM and NREM, phenomenology, sleep disorders, examination of differences between conscious and unconscious cognitive function, the history of sleep and dream theories from ancient time to present day.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122C. Clinical Psychology. 4 Units.
Provides overview of the clinical psychology field including theories and techniques used in counseling and testing.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122I. Organizational/Industrial Psychology. 4 Units.
Introduction to applied psychology in organizations, including personnel testing, selection, training and evaluation, job and classification analysis, job satisfaction and motivation, organizational development, leadership, market research and consumer psychology. Potential ethical problems are discussed.
Prerequisite: PSY BEH 9 or PSY BEH 11A or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9A or PSYCH 9B or PSYCH 9C.
Same as PSY BEH 180S.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.
PSYCH 123P. Topics in Philosophy of Psychology, 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.
Same as LPS 143, PHILOS 143.
Restriction: Psychology and Philosophy majors have first consideration for enrollment.

PSYCH 124S. Sports Psychology, 4 Units.
Discusses the field of sports psychology with an emphasis on clinical practice including motivation, goal setting, performance skills, and mental skills. Discusses and utilizes a wide range of techniques designed to enhance performance and manage problems among athletes.
Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 124V. Psychology of Violence, 4 Units.
Discusses the psychology of violence and aggression with an emphasis on understanding the psychological, social, and physiological roots of violent and aggressive behavior. Psychological treatment techniques and strategies for prevention of aggressive and violent behavior are also discussed.
Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 127A. Adult Development, 4 Units.
Examines why and how we change (with attention to gains as well as losses) from ages 18-65 and the nature and sources of continuity over time. Topics include physical and intellectual functioning, personality, coping strategies, and social roles and relationships.
Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.
Same as PSY BEH 113D.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127C. Clinical Child Psychology, 4 Units.
Examines research and theory concerning childhood psychopathology behavior disorders. Diagnosis and assessment, early identification of high-risk children, fears and phobias, antisocial behavior, childhood psychoses, autism, depression, attention deficit/hyperactivity disorders, and ethical and policy implications of identifying children who are different.
Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.
Same as PSY BEH 152C.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127D. Development of Gender Differences, 4 Units.
Examination of research on how sexes differ in physiology, cognitive functioning, personality, and social behavior. Sex-differentiated development from the prenatal period through adulthood. Explanations for male-female differences are sought, focusing on biological (genetic, hormonal), and social (familial, cultural) mechanisms.
Prerequisite: PSY BEH 9 or PSYCH 9B or PSY BEH 11B or PSYCH 7A.
Same as PSY BEH 117D.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127E. Psychology and Emotion, 4 Units.
General theories of emotion and research regarding cognitive, behavioral, physiological, and subjective experience of emotion. Specific topics include emotion regulation, emotion and health, emotional intelligence, and emotional development.
Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.
Same as PSY BEH 177S.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127G. Gerontology, 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.
Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.
Same as PSY BEH 114D.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127H. Child Health Psychology, 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.
Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A.
Recommended: SOCECOL 10.
Same as PSY BEH 138H.
Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Public Health Policy majors have first consideration for enrollment.
PSYCH 127I. Infant Development. 4 Units.
Study of human development from conception through the first two years of life, covering processes and events in the domains of physical, social, and cognitive development.
Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.
Same as PSY BEH 110D.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127S. Attitudes and Behavior. 4 Units.
Intended for students interested in theory and research on how attitudes influence, and are influenced by, behavior. Topics include: voting behavior, Fishbein and Ajzen's theories of reasoned action and planned behavior, attitude accessibility, prejudice and discrimination, and cognitive dissonance theory.
Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.
Same as PSY BEH 172S.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127T. Child Therapies. 4 Units.
Examines research methodologies, empirical data, and implications of diverse intervention strategies. Primary topics include psychotherapy process and outcome, family therapies, behavioral intervention, cognitive behavior modification, pediatric psychopharmacology, and ethical and social policy implications of intervening in other people's lives.
Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 122C.
Same as PSY BEH 155C.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 129. Special Topics in General Psychology. 4 Units.
Studies in selected areas of general psychology. Topics addressed vary each quarter.
Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 130A. Perception and Sensory Processes. 4 Units.
A general introduction to the scientific study of sensory processes and perceptual phenomena, with special emphasis on the visual system.
Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.
Same as PSY BEH 192E.
Overlaps with PSYCH 131A, PSYCH 131B.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 131A. Vision. 4 Units.
Visual perception and the anatomy and physiology of the visual system. Topics include: the retina and the visual pathway; visual sensitivity; color vision; spatial vision; motion perception; and the development of the visual system.
Same as BIO SCI N182.
Overlaps with PSYCH 130A.
Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 131B. Hearing. 4 Units.
Auditory perception, the anatomy and physiology of the auditory system, and the physics of sound. Topics include: neural transduction of sound, sensitivity, sound localization, complex sound perception, and hearing loss.
Prerequisite: (PSYCH 9A and PSYCH 9B) or (PSY BEH 11A and PSY BEH 11B).
Overlaps with PSYCH 130A, PSY BEH 192E.
Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 135A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 235A.

PSYCH 135B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 235B.

PSYCH 135C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 235C.
PSYCH 135M. The Mind/Body Problem. 4 Units.
What is consciousness and what is matter and how are the two related?
How can brains have minds? This multidisciplinary course draws on
information from the fields of computer vision, artificial intelligence,
cognition, neurophysiology, philosophy, and psychophysics.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 139. Special Topics in Perception and Sensory Processes. 4 Units.
Studies in selected areas of perception and sensory processes. Topics
addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 140C. Cognitive Science. 4 Units.
Introduction to investigations of the structure and function of the
mind, from viewpoints of computation, neuroscience, philosophy, and
cognitive psychology. Topics include: perception, attention, knowledge
representations, learning and memory, action, reasoning, and language.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSYCH 11B) or PSYCH 7A or (PSYCH 9A and PSYCH 9B).

Same as PSY BEH 192G.

Restriction: Psychology and Social Behavior, Social Ecology, and
Psychology majors have first consideration for enrollment.

PSYCH 140L. Principles of Learning Theory. 4 Units.
Investigation of the learning and memory processes of humans and
animals. Basic experimental approaches to learning and memory,
empirical results, and theoretical interpretations of the evidence are
discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSY BEH 192I.

Restriction: Psychology and Social Behavior, Social Ecology, and
Psychology majors have first consideration for enrollment.

PSYCH 140M. Human Memory. 4 Units.
Developments in the area of memory; history of memory research;
theories of the nature of memory. Visual memory, recognition memory,
high-speed scanning, free recall, short-term memory, mnemonics,
retrieval, relationship of memory to thinking. Selected theoretical
formulations for memory.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192J.

Restriction: Psychology and Social Behavior, Social Ecology, and
Psychology majors have first consideration for enrollment.

PSYCH 141D. Cognitive Development: The Origins of Knowledge. 4 Units.
Explores the origins of individual human knowledge in relation to two
larger time scales: biological evolution and historical/cultural change.
Evidence from many fields is presented, but the main focus is on
experimental data from cognitive and developmental psychology.

Overlaps with PSY BEH 115D.

Restriction: Upper-division students only. Psychology majors have first
consideration for enrollment.

PSYCH 141DW. Cognitive Development: The Origins of Knowledge. 4 Units.
Explores the origins of individual human knowledge in relation to two
larger time scales: biological evolution and historical/cultural change.
Evidence from many fields is presented, but the main focus is on
experimental data from cognitive and developmental psychology.

Prerequisite: Satisfactory completion of the Lower-Division Writing
requirement.

Overlaps with PSY BEH 115D.

Restriction: Upper-division students only. Psychology majors have first
consideration for enrollment.

(Ib)

PSYCH 141J. Jumpstart I: Early Language, Literacy, and Social
Development. 4 Units.
An experiential course integrated with lecture material in the field of child
development and education. Students are expected to attend lectures,
complete assignments, and commit eight hours per week as mentors of
disadvantaged preschool children.

Same as EDUC 141A.

Restriction: Psychology majors and School of Education students have
first consideration for enrollment.

PSYCH 141K. Jumpstart I: Early Language, Literacy, and Social
Development. 4 Units.
An experiential course integrated with lecture material in the field of child
development and education. Students are expected to attend lectures,
complete assignments, and commit eight hours per week as mentors of
disadvantaged preschool children.

Same as EDUC 141B.

Restriction: Psychology majors and School of Education students have
first consideration for enrollment.

PSYCH 141L. Jumpstart I: Early Language, Literacy, and Social
Development. 4 Units.
An experiential course integrated with lecture material in the field of child
development and education. Students are expected to attend lecture,
complete assignments, and commit eight hours per week as mentors of
disadvantaged preschool children.

Same as EDUC 141C.

Restriction: Psychology majors and School of Education students have
first consideration for enrollment.
PSYCH 141M. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141D.

PSYCH 141N. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141E.

PSYCH 141O. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141F.

PSYCH 141P. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141G.

PSYCH 141Q. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141H.

PSYCH 141R. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.
Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141I.

PSYCH 143P. Human Problem Solving. 4 Units.
Modern developments in the psychology of human problem solving. Topics include: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, and theorem proving.
Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192K.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 144A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two- to four-year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.
Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.
Same as SOC SCI 186A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 144B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two- to four-year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.
Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.
Same as SOC SCI 186B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.
PSYCH 144C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.
Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.
Same as SOC SCI 186C, CHC/LAT 191C.
Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 145P. Attention and Learning Deficits in Children I. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145Q. Attention and Learning Deficits in Children II. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.
Prerequisite: PSYCH 145P.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145R. Attention and Learning Deficits in Children III. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.
Prerequisite: PSYCH 145Q.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 146MW. Writing about Memory. 4 Units.
Covers a broad range of texts, literary, philosophical, and scientific, each probing the nature of memory and its meaning in human life. Readings are drawn from across many disciplines and many perspectives.
Prerequisite: PSYCH 7A or PSYCH 9B or PSY BEH 9 or PSY BEH 11B. Satisfactory completion of the Lower-Division Writing requirement.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 147C. Cognitive Behavior Therapy. 4 Units.
Presentation of principles and procedures of therapeutic interventions based on cognitive-behavior methods. Cognitive factors in learning, emotional arousal, psychological disorder, and psychotherapy reviewed. Introduces the application of cognitive behavioral methods to problems of depression, anxiety, anger, pain, and impulsivity.
Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSY BEH 11C) or PSYCH 7A or (PSYCH 9A and PSYCH 9C).
Same as PSY BEH 154C.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 148A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child’s acquisition of number words and concepts. Students conduct research and review and discuss each other’s projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 228A.

PSYCH 148B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child’s acquisition of number words and concepts. Students conduct research and review and discuss each other’s projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 228B.

PSYCH 148C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child’s acquisition of number words and concepts. Students conduct research and review and discuss each other’s projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 228C.

PSYCH 149. Special Topics in Cognition and Learning. 4 Units.
Studies in selected areas of cognition and learning. Topics addressed vary each quarter.
Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.
Restriction: Psychology majors have first consideration for enrollment.
PSYCH 150. Psychology of Language. 4 Units.
Examines language using the tools of experimental psychology. From sounds to words to spoken and written sentences, explores how language is used in real time, and how its use reveals how it is represented in the mind.

Same as LINGUIS 155.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 151. Brainwaves in Language Research. 4 Units.
Provides a hands-on introduction to the use of electroencephalography (EEG) in language processing research. In addition to theoretical discussions, students design, deploy, and analyze a novel EEG experiment of their own during the quarter.

Prerequisite: PSYCH 150.

PSYCH 153. Experimental Syntax. 4 Units.
Examines the experimental methods that have been proposed for accessing speakers’ knowledge of language in the psycholinguistic literature. Students investigate the merits of each technique through hands-on experience, culminating in a fully fledged experimental syntax study.

Prerequisite: LINGUIS 20.
Same as LINGUIS 123.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 156A. Acquisition of Language II. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the “how” of language acquisition.

Prerequisite: Recommended: PSYCH 56L or LINGUIS 51.
Same as LINGUIS 150.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 157M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 155 or LINGUIS 155 or PSYCH 156A or LINGUIS 150.
Same as LINGUIS 107M.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 247M.

PSYCH 158A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 248A.

PSYCH 158B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 248B.

PSYCH 158C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 248C.

PSYCH 159. Special Topics in Semiotics and Language. 4 Units.
Studies in selected areas of language sciences. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 160A. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: Psych 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or Bio Sci 35 or Bio Sci N110.
Same as PSY BEH 192L, BIO SCI N166.
Restriction: Psychology majors have first consideration for enrollment.
PSYCH 160D. Brain Disorders and Behavior. 4 Units.
Examines the localization of human brain functions and the effects of neurological disorders on psychological functions such as perception, motor control, language, memory and decision-making.
Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.
Same as BIO SCI N165.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161. Language and the Brain. 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.
Prerequisite: BIO SCI 35 or BIO SCI N110.
Same as BIO SCI N160, LINGUIS 158.
Restriction: Psychology and Biology majors have first consideration for enrollment.

PSYCH 161H. Hearing and the Brain. 4 Units.
An overview of brain mechanisms of hearing, including perception of simple sounds, speech, and music. Begins with sound itself, and looks at processing by the ear, auditory pathways, auditory cortex, and beyond. Also auditory development, learning, and clinical issues.
Prerequisite: PSYCH 160A or BIO SCI N110.
Same as BIO SCI N147.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161P. Perceptual Neuroscience. 4 Units.
Examines the physiology of cortical networks underlying human perceptual experience.
Prerequisite: PSYCH 160A or PSY BEH 192L.
Same as PSY BEH 192P.
Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 161V. Cognitive Neuroscience of Vision. 4 Units.
Explores the neural basis of our visual experience, including visual perception, face and object recognition, attention, and visual awareness. Emphasis placed on evidence acquired from neuroimaging, neuronal recordings, patient literature, and brain stimulation.
Prerequisite: PSYCH 160A and PSY BEH 192L.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 162A. Neurobiology of Learning and Memory. 4 Units.
How the brain and behavior change as a result of experience, with an emphasis on identifying the neurochemical processes through which memory is stored and the parts of the brain that are involved.
Prerequisite: BIO SCI 35 or BIO SCI N110.
Same as BIO SCI N158.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 162B. Human Memory Disorders. 4 Units.
Focuses on models and methods of assessing human memory and its disorders. Exposure to conventional and new assessment devices provided.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 164A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 264A.

PSYCH 164B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 264B.

PSYCH 164C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology majors have first consideration for enrollment.
Concurrent with PSYCH 264C.

PSYCH 165A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 263A.
PSYCH 165B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 263B.

PSYCH 165C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 263C.

PSYCH 168E. Embodied Cognition. 4 Units.
Addresses concepts of embodiment in cognitive sciences. Introduces the notion of how the brain is closely coupled to the body and its interaction with the environment. Case studies of both natural and artificial systems are explored.
Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 169. Special Topics in Cognitive Neuroscience. 4 Units.
Studies in selected areas of cognitive neuroscience. Topics addressed vary each quarter.
Prerequisite: Prerequisites vary.
Repeatability: Unlimited as topics vary.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 171. Psychology of a Diverse Society. 4 Units.
Examines the social and cultural bases of human behavior, including ethnicity, gender, gender orientation, class, and religion. Analysis of historical, political, and economic factors influencing a diverse society.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 172S. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.
Same as REL STD 112B, SOC SCI 130B, LPS 140B.

PSYCH 173A. Psychological Anthropology. 4 Units.
Cultural differences and similarities in personality and behavior. Child-rearing practices and consequent adult personality characteristics, biocultural aspects of child development and attachment, culture and behavior evolutionary models, politically linked personality, cognitive anthropology, psychology of narrative forms, comparative national character studies.
Prerequisite: ANTHRO 2A or PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).
Same as ANTHRO 132A.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 174A. Asian American Psychology. 4 Units.
Examines the social and psychological concerns of Asian Americans; e.g., coping with racial prejudice, maintaining bicultural identities, dealing with cross-cultural conflicts in interracial relationships, and trying to reconcile generational differences between immigrant parents and their American-born children.
Same as ASIANAM 141.

PSYCH 174C. Adolescent Psychology in Urban American Society. 4 Units.
Psychosocial dynamics of adolescents in American society; their ongoing quest for identity, independence, values, moral and cognitive development, peer group relationships, sexuality and sex role preference. Analysis of power struggle between adolescent subcultures and institutions of dominant society.
Restriction: Psychology majors have first consideration for enrollment.

PSYCH 174E. African American Psychology. 4 Units.
Historical overview of the development of black psychology and the African American frame of reference. Topics include personality development, psychological assessment, issues in education, black mental health, and the role of the African American psychologist in the community.
Same as AFAM 153.

PSYCH 174F. Chicano/Latino Psychology. 4 Units.
Examines research and literature investigating Chicano/Latino ethnicity as a variable influencing behavior. Explores mental health needs and issues of Chicano/Latinos and discusses competent, sensitive methods of mental health service delivery.
Same as CHC/LAT 171.

PSYCH 174H. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.
Same as CHC/LAT 170, SOC SCI 165.
PSYCH 176A. Political Psychology. 4 Units.
Examines how psychological theory and research may be used to better understand political thought and behavior. Drawing on theories of learning, cognition, and personality, discusses the formation of political attitudes, the process of political decision-making, the nature of political leadership.

Same as POL SCI 137C.

Restriction: Psychology and Political Science majors have first consideration for enrollment.

PSYCH 177D. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as SOCIOL 156, CRM/LAW C107.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

PSYCH 177F. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as PSY BEH 156C, CRM/LAW C136.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

PSYCH 177I. Impacts of Divorce. 4 Units.
Examines divorce in historical, economic, and, primarily, psychological contexts, emphasizing recent research pertaining to the impacts of divorce on children, families, and society.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A.

Same as PSY BEH 124D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 177P. Developmental Psychopathology. 4 Units.
Research and theory of origins, course, and outcomes of disordered behavior. Continuity and change in patterns of behavior; environmental challenges and buffers; stress/competence in children; vulnerable/invincible children; children of mentally ill parents; families at risk; childhood antecedents of adult disorders.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 120A. Recommended: SOCECOL 10.

Same as PSY BEH 153C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 178N. Social Psychology of Networks. 4 Units.
Review of network methods used in small group and organizational research. Discussion of social psychological literature relevant to the network of study of cognitive social structure, exchange/communication, identity negotiation, and social control. Case study of network datasets exemplifies research issues.

Same as SOCIOL 135.

Restriction: Sociology and Psychology majors have first consideration for enrollment.

PSYCH 179. Special Topics in Interdisciplinary Studies. 1-4 Units.
Studies in selected areas of interdisciplinary studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 190. Senior Thesis. 4 Units.
Student writes senior thesis on a topic of psychology with guidance from a three-member committee comprised of Cognitive Sciences faculty. Senior thesis includes the following: research statement, literature review, experimental design, data collection and analysis, and a written final thesis.

Grading Option: In progress only.

Repeatability: May be taken for credit 3 times.

PSYCH 198. Directed Group Study. 1-4 Units.
Directed study with Cognitive Sciences faculty.

Repeatability: May be repeated for credit unlimited times.

PSYCH 199. Independent Study. 1-4 Units.
Independent research with Cognitive Sciences faculty.

PSYCH 201A. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201B. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201A.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201C. Cognitive Sciences Research Seminar. 1.4 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201B.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.
PSYCH 202A. Proseminar in the Cognitive Sciences. 1 Unit.
Introduction to the conceptual foundations and basic research results in the cognitive sciences for first-year graduate students.

Grading Option: Satisfactory/unsatisfactory only.
Restriction: Graduate students only.

PSYCH 203A. Discrete Mathematics and Probability. 4 Units.
Logic and set theory are covered during the first three weeks, using an interactive computer system. The remaining seven weeks are devoted to probability theory and cover elementary concepts from samples spaces to Chebychev's Inequality and the moment generating function.

Restriction: Graduate students only.

PSYCH 203B. Introduction to Mathematical Statistics. 4 Units.

Restriction: Graduate students only.

PSYCH 203C. Design & Analysis of Experiments. 4 Units.
Discussion of the logic of experimental design and inferential statistics. Presentation of mathematical ideas from behind analyses of variance and covariance, analysis of counted data; main emphasis on research applications rather than mathematical formulations.

Restriction: Grad students only or Consent of instructor to enroll

PSYCH 203D. Engineering Mathematics for Cognitive Science Research. 4 Units.
Covers the basics of linear systems analysis, focusing on linear algebra, Fourier analysis, differential equations, and elementary signal processing. Applications in Cognitive Science and Cognitive Neuroscience research will be developed.

Prerequisite: PSYCH 205A.
Restriction: Psychology graduate students only.

PSYCH 204A. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on grant writing and submission process, responsible conduct of research, and ethics training.

Grading Option: Satisfactory/unsatisfactory only.
Restriction: Psychology graduate students only.

PSYCH 204B. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focus on scientific presentations and preparation.

Grading Option: Satisfactory/unsatisfactory only.
Restriction: Psychology graduate students only.

PSYCH 204C. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on career opportunities, interests and information, and community outreach.

Grading Option: Satisfactory/unsatisfactory only.
Restriction: Psychology graduate students only.

PSYCH 205A. Computational and Research Methods with MATLAB. 4 Units.
Introduces rudiments of programming, statistical analysis and probability theory, graphic visualization, GUI design, spectral analysis, and simulation models using MATLAB, a software package for solving quantitative problems often encountered in experimental psychology.

Restriction: Graduate students only.

PSYCH 205B. Running Experiments Using MATLAB. 4 Units.
Provides an in-depth introduction to writing MATLAB programs to run auditory and visual experiments. Topics covered include program structure, stimulus generation, presentation, and data collection.

Prerequisite: PSYCH 205A.

PSYCH 205C. Computational Statistics. 4 Units.
Introduction to a number of computational statistics approaches including exploratory data analysis and modeling using a probabilistic framework with Bayesian graphical models. Emphasis will be on in-class programming using MATLAB.

Restriction: Graduate students only.

PSYCH 210A. Introduction to Cognitive and Brain Sciences I: Perception. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on visual, auditory, and somatic perception and bottom-up mechanisms of attention.

Restriction: Graduate students only.

PSYCH 210B. Introduction to Cognitive and Brain Sciences II: Cognition. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on emotion, top-down attention, goal-directed behavior, categorization, judgment, and decision-making.

Restriction: Graduate students only.

PSYCH 211. Attention and Perception. 4 Units.
Focuses on selective attention, the process of selecting a subset of available information for analysis and representation, and on how stimulus salience, behavioral goals, and expectations influence attentional deployment and perception. Also explores related cognitive processes and applications.

Restriction: Graduate students only.

PSYCH 212. Learning, Memory, and Knowledge Organization. 4 Units.
Addresses fundamental issues in human memory, inductive learning, and knowledge organization. Knowledge representation, storage, retrieval, acquisition, and relation to the environment are explored. Prominent computational approaches are reviewed.

Restriction: Graduate students only.
PSYCH 213. The Mind/Body Problem. 4 Units.
Course is multidisciplinary, drawing on information from the fields of quantum physics, computer vision, artificial intelligence, cognition, neurophysiology, philosophy, and psychophysics.
Restriction: Graduate students only.

PSYCH 214. Bayesian Cognitive Modeling. 4 Units.
Considers a range of statistical methods of data analysis and simple cognitive models using the Bayesian graphical modeling framework.
Restriction: Graduate students only.

PSYCH 215L. Language Acquisition. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.
Restriction: Graduate students only.

PSYCH 215N. Neuroscience of Language. 4 Units.
Covers fundamental issues in the neuroscience of language processing. Topics include word and sentence-level psycholinguistics, and the neural basis of these language functions as revealed by neuropsychological and functional imaging studies.
Restriction: Graduate students only.

PSYCH 216. Introduction to Cognitive Neuroscience. 4 Units.
Explores the neural basis of higher cognitive functions such as perception, attention, language, memory, and executive function as understood from functional brain imaging, neuropsychological disorders, and other neuroscience techniques.
Restriction: Graduate students only.
Concurrent with PSYCH 160A.

PSYCH 217. Vision. 4 Units.
Examines visual sensation and perception using psychophysical and neuroscientific perspectives. Covers visual stimulus description and generation; the eye and retinal processing; LGN and cortical visual area function; specialized processing for form, depth, motion, and color perception; and neurological disorders.
Restriction: Graduate students only.

PSYCH 218. Hearing. 4 Units.
Examines auditory sensation and perception using psychophysical and neuroscientific perspectives. Covers physical aspects of sound; subcortical auditory processing; aspects of sensation and perception such as sensitivity, sound localization, and complex-sound recognition; neuroscientific studies of cortical function; and abnormal auditory processing.
Restriction: Graduate students only.

PSYCH 219. Cognitive Development I: Core Knowledge. 4 Units.
Explores the study of cognitive development in infancy and childhood. Emphasizes the role of this research in answering questions concerning the origins of human knowledge. Addresses topics of space, objects, agency, navigation, number, and conceptual change.
Restriction: Graduate students only.

PSYCH 220. Cognitive Development II: Conceptual Change. 4 Units.
The cognition of human infants is similar to that of other primates. But adult human knowledge is vastly different from that of any other animal. Examines the childhood conceptual changes that underlie adult human cognitive achievements.
Restriction: Graduate students only.

PSYCH 228A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 148A.

PSYCH 228B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 148B.

PSYCH 228C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 148C.

PSYCH 229. Special Topics in Human Cognition. 1.3-4 Units.
Current research in brain/behavior relationships, human memory, and learning theory is presented.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.
PSYCH 231P. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.
Repeatability: Unlimited as topics vary.
Same as LPS 243, PHILOS 243.

PSYCH 233A. Observer Theory I. 4 Units.
Provides framework for mathematical analysis of perception/cognition and its relation to the physical world. Permits a unified treatment of perceptual and physical interactions and lays the foundation for a nondualistic, nonreductionistic science. Mathematical aspects include study of Markovian dynamic systems.
Restriction: Graduate students only.

PSYCH 234A. Mathematical Models of Cognitive Processes I. 4 Units.
Mathematical models of various cognitive processes developed since 1960, including learning, memory, perception, psycholinguistics, and problem solving. Models are formulated in different mathematical languages: calculus, algebra, logic, probability, and computer. Difficulties in testing and validating models discussed.
Restriction: Graduate students only.

PSYCH 235A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 135A.

PSYCH 235B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 135B.

PSYCH 235C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 135C.

PSYCH 236. Multivariate Time Series Analysis. 4 Units.
Introduces multivariate time series analysis theory and methods emphasizing computational methods in spectral analysis, autoregressive modeling, information theory, principal and independent components analysis, and nonlinear dynamics. Applications to human neuroimaging data are extensively discussed.
Prerequisite: PSYCH 205A.
Restriction: Graduate students only.

PSYCH 237. Advanced Bayesian Cognitive Modeling. 4 Units.
Considers a range of advanced cognitive process models including models of signal detection, memory retention, category learning, stimulus representation, and reasoning using the Bayesian graphical modeling framework.
Prerequisite: PSYCH 214.
Restriction: Graduate students only.

PSYCH 238. Auditory Signal Processing and Experimental Design. 4 Units.
Topics include physics and measurement of sounds, digital signal processing (DSP), recording/processing of speech and music, generating complex sounds (e.g., FM and AM), use of sound level meter and artificial ear (coupler), digital filtering, signal mixing, autocorrelation and cross-correlation.
Prerequisite: PSYCH 205A.

PSYCH 239. Special Topics in Methodology and Models. 1.3-4 Units.
Current research in cognitive sciences methodologies, concepts, and models is presented.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.

PSYCH 245A. Computational Models of Language Learning. 4 Units.
Focuses on computational models of native language learning, exploring how probabilistic learning and inference fare on difficult case studies within language acquisition. In all cases, grounds the learning models in available empirical data and considers their psychological plausibility.
Prerequisite: PSYCH 215L.
Restriction: Graduate students only.

PSYCH 247M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.
Prerequisite: PSYCH 215L or PSYCH 215S or PSYCH 215N or PSYCH 245A.
Restriction: Graduate students only.
Concurrent with PSYCH 157M and LINGUIS 107M.
PSYCH 248A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language.
Research topics include language acquisition and adult processing.
Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 158A.

PSYCH 248B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language.
Research topics include language acquisition and adult processing.
Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 158B.

PSYCH 248C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language.
Research topics include language acquisition and adult processing.
Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.
Repeatability: May be repeated for credit unlimited times.
Concurrent with PSYCH 158C.

PSYCH 249. Special Topics in Language Science. 1.3-4 Units.
Foundations and current research in theoretical, experimental, and computational linguistics.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.

PSYCH 254. Human Information Processing. 4 Units.
Detailed introduction to speed-accuracy tradeoff experimental procedures; speed-accuracy tradeoff issues; quantitative modeling of temporal aspects of human information processing.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only or Honors Program in Psychology undergraduate students.

PSYCH 259. Special Topics in Human Performance. 1.3-4 Units.
Current research in the human issues involved with sensation, perception, and cognition.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.

PSYCH 261N. Cortical Neuroscience. 4 Units.
Physiology of the cerebral cortex, theoretical neuroscience, and the neural basis of perception.
Prerequisite: PSYCH 216.

PSYCH 262. Functional Neuroanatomy. 4 Units.
It is impossible to truly understand human behavior without some understanding of the physical structure that enables behavior. Examines recent findings in functional neuroanatomy through lectures and papers discussing links between particular behaviors and specific brain structures.
Restriction: Graduate students only.

PSYCH 263A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.
Concurrent with PSYCH 165A.

PSYCH 263B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Restriction: Graduate students only.
Concurrent with PSYCH 165B.

PSYCH 263C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.
Restriction: Graduate students only.
Concurrent with PSYCH 165C.

PSYCH 264A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.
Concurrent with PSYCH 164A.

PSYCH 264B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.
Concurrent with PSYCH 164B.
PSYCH 264C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.
Concurrent with PSYCH 164C.

PSYCH 265. Introduction to Functional MRI. 4 Units.
Describes the fundamentals of imaging the human brain function using functional Magnetic Resonance Imaging (fMRI). Topics include basic fMRI physics, experimental design, and data acquisition and analysis.
Restriction: Graduate students only.

PSYCH 267. Cognitive Neuroscience of Music. 4 Units.
Introduction to cortical mechanisms involved in music perception and production.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.

PSYCH 268A. Computational Neuroscience. 4 Units.
Introduction to computational neuroscience. Mathematical models of single neurons, neural circuits, thalamocortical systems, and cortical mass action can stimulate single-unit, local field potential, and EEG dynamics. These models are used to investigate mechanisms of sensation, motor control, attention, and consciousness.
Prerequisite: PSYCH 205A and (PSYCH 216 or PSYCH 261N).

PSYCH 268R. Cognitive Robotics. 4 Units.
Introduces concepts for studying cognitive function by embedding brain models on robotic platforms. Topics include robot construction, computer programming, and the notion of embodiment. Students construct simple robots and program these robots to perform different behaviors.

PSYCH 269. Special Topics in Cognitive Neuroscience. 1.3-4 Units.
Current research in cognitive neuroscience.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.

PSYCH 271B. Cognitive Neuroscience Brownbag. 1.3 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.
Grading Option: Satisfactory/unsatisfactory only.
Restriction: Graduate students only.

PSYCH 271C. Cognitive Neuroscience Brownbag. 1.4 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.
Grading Option: Satisfactory/unsatisfactory only.
Restriction: Graduate students only.

PSYCH 289. Special Topics in Sensation and Perception. 1.3-4 Units.
Current research in the reception and processing of visual and auditory stimuli presented.
Repeatability: Unlimited as topics vary.
Restriction: Graduate students only.

PSYCH 290. Dissertation Research. 1-12 Units.
Dissertation research with Cognitive Science faculty.
Repeatability: May be repeated for credit unlimited times.
Restriction: Psychology graduate students only.

PSYCH 299. Individual Study. 4-12 Units.
Individual research with Cognitive Science faculty.
Repeatability: May be repeated for credit unlimited times.
Restriction: Graduate students only.