

# Psychology

STUDENT SERVICES OFFICE:  
1533 McGill Hall Annex

## Professors

Thomas D. Albright, Ph.D., *Adjunct*  
Norman H. Anderson, Ph.D., *Emeritus*  
Stuart M. Anstis, Ph.D.  
Mark I. Appelbaum, Ph.D., *Associate Vice Chancellor*

Richard C. Atkinson, Ph.D., *Emeritus*  
Ursula Bellugi, Ph.D., *Adjunct*  
Robert M. Boynton, Ph.D., *Emeritus*  
Sandra A. Brown, Ph.D.  
Nicholas Christenfeld, Ph.D.  
Francis H. C. Crick, Ph.D., *Adjunct*  
Diana Deutsch, Ph.D.  
J. Anthony Deutsch, D. Phil., *Emeritus*  
Karen R. Dobkins, Ph.D.  
Ebbe B. Ebbesen, Ph.D.  
Edmund J. Fantino, Ph.D.  
Steven A. Hillyard, Ph.D., *Adjunct*  
Vladimir J. Konečni, Ph.D.  
George F. Koob, Ph.D., *Adjunct*  
James A. Kulik, Ph.D.  
Donald I. A. MacLeod, Ph.D.  
George Mandler, Ph.D., *Emeritus*  
Harold E. Pashler, Ph.D.  
John M. Polich, Ph.D., *Adjunct*  
Vilayanur S. Ramachandran, Ph.D., M.B.B.S.  
Pamela A. Sample, Ph.D., *Adjunct*  
Laura E. Schreibman, Ph.D.  
Larry R. Squire, Ph.D., *In-Residence*  
David A. Swinney, Ph.D.  
Paul E. Touchette, Ph.D., *Adjunct*  
Ben A. Williams, Ph.D.  
John T. Wixted, Ph.D., *Chair*

## Associate Professors

Karen Emmorey, Ph.D., *Adjunct*  
Kang Lee, Ph.D.  
Craig R. M. McKenzie, Ph.D.  
Victor S. Ferreira, Ph.D.  
Timothy C. Rickard, Ph.D.  
Piotr Winkielman, Ph.D.

## Assistant Professors

Stephan Anagnostaras, Ph.D.  
Leslie L. Carver, Ph.D.  
Beatrice Golomb, M.D., Ph.D., *Adjunct*  
James L. Goodson, Ph.D.

Michael R. Gorman, Ph.D.  
Christine R. Harris, Ph.D.  
Gail D. Heyman, Ph.D.

## Affiliated Faculty

Michael Cole, Ph.D., *University Professor, Communication*  
Jean M. Mandler, Ph.D., *Professor Emeritus, Cognitive Science*  
Terrence J. Sejnowski, Ph.D., *Professor, Biological Sciences/Adjunct Professor, Physics, Neurosciences, Cognitive Science, and Computer Science and Engineering*

## The Undergraduate Program

### The Psychology Major Program

The department offers three degree programs: bachelor of arts (B.A.), bachelor of science (B.S.), and the integrated bachelor of science (B.S.)/master of arts (M.A.). We offer courses in all major areas of experimental psychology, with emphasis in behavior analysis, biopsychology, clinical psychology, cognitive psychology and cognitive neuropsychology, developmental psychology, human information processing, physiological psychology, psychopathology, sensation and perception, and social psychology. The department emphasizes research in the experimental and theoretical analysis of human and animal behavior, and the study of the mind. Students who major in psychology can expect to develop a knowledge of a broad range of content areas, as well as basic skills in experimental and analytic procedures.

Majors must have departmental approval for electives taken outside the department. Of the required courses in the area of specialization (three regular upper-division courses and two research experiences), no more than two may be taken outside the department. We recommend consulting the department before enrolling in courses offered by other departments.

### Prerequisites for the B.A.

Experimental psychology uses the tools and knowledge of science: calculus, probability theory, computer science, chemistry, biology, physics, and statistics. Accordingly, students in upper-division courses must have an adequate background in these topics. Prerequisites for individual courses are specified in the catalog.

A bachelor of arts (B.A.) degree in psychology will be granted if the following requirements have been met:

1. Three lower-division, general-introductory natural science courses from the listing of the approved UCSD courses below or their equivalent. (The three courses can be distributed in any manner.)  
Biology: 1, 2, 3, 10, 12 (or Cognitive Science 17), 20, 24, 26, 30  
Chemistry: 4, 6A, 6B, 6C, 11, 12, 13  
Physics: Any of the 1 and 2 series, 10, 11
2. Three formal skills courses, at least one of which must be calculus. The other two courses may consist of any combination of courses in calculus or logic. Acceptable calculus courses at UCSD include Mathematics 10A-B-C, 20A-B-C. Acceptable logic courses at UCSD include Philosophy 10 and 12.
3. One introduction to computer programming course. Acceptable courses at UCSD are CSE 3, CSE 5A, CSE 5B, CSE 8A, CSE 8B, CSE 11, CSE 12, MAE 5, MAE 9, MAE 10, or CogSci 18. Other courses will be accepted only if they are primarily concerned with programming in a high-level computer language.  
*All courses listed under 1–3 may be taken Pass/No Pass.*
4. One quarter of statistics. Acceptable courses at UCSD are Psychology 60, Economics 120A, Sociology 60, Mathematics 11, or 181, BIEB 100, Cognitive Science 14, or equivalent. Statistics **MUST** be taken for a letter grade.  
Students should complete these prerequisite requirements by the end of the sophomore year.

### Major Requirements for the B.A.

A minimum of **twelve** upper-division courses in psychology is required. Five must be taken from the core courses (Psychology 101–106), and at least seven from the upper-division elective courses. **A minimum of six upper-division psychology courses must be taken at UCSD.** These courses must be taken for a letter grade; courses taken on a Pass/No Pass prior to declaring psychology as a major **cannot** be used to satisfy the major requirement. Excluded from credit toward the major is Psychology 199 (Special Studies); however, Psychology 195 (Instructional Assistant) can be credited once. A grade-point average of at least 2.0 in the

upper-division courses of the major is required for graduation.

### 2XX. Graduate Seminar

We encourage juniors and seniors with an overall 3.0 GPA or better to enroll in graduate seminars. Check the schedule of classes and contact the student affairs office on how to enroll.

### Honors Program for the B.A. Program

Students are encouraged to participate in the department's honors program. It is strongly recommended for all students interested in graduate schools. An overall GPA of 3.3 is a prerequisite. Admission is granted by application in the fall of the junior year (deadline October 31). This program is composed of the following courses.

#### 1. Junior year:

Winter: Junior Honors Research Seminar 110.  
Advanced Statistics and Research Methods 111A

Spring: Advanced Statistics and Research Methods 111B

#### 2. Senior Year: A year-long independent research project (Psychology 194-A-B-C) under the sponsorship of a faculty adviser. This research culminates in an honors thesis.

#### 3. At least one laboratory course (Psychology 107, 109, 114, 115, 118A, 118B, 119, 120/121, 120/140, 127) or, upon petitioning, two Psychology 199 Independent Study courses culminating in a research paper accepted by the adviser (199s, however, do not count as upper-division credit toward the major).

Successful completion of the Honors Program requires a grade of A- in Psychology 194 and a minimum GPA of 3.5 in the upper-division courses taken for the major.

### Prerequisites for the B.S.

In general, the prerequisites for the B.S. degree in psychology overlap with the B.A. prerequisites. However, to fulfill the formal skills, we require the mathematics sequence 20A-B-C.

### Major Requirements for the B.S.

A minimum of twelve upper-division courses is required. Five of these courses must come from the core courses: Psychology 101–106. The seven elective courses may be chosen from any

of the upper-division courses listed for the psychology program at UCSD.

B.S. students must choose an area of specialization (behavior analysis, biopsychology, clinical psychology, cognitive and cognitive neuropsychology, developmental psychology, sensation and perception, or social psychology), and three courses of the seven electives must be in the chosen area of concentration.

**In addition to the twelve upper-division courses**, all B.S. degree students must complete **two research experience courses** in the chosen area. Research experience courses will be comprised of a combination of laboratory courses and Psychology 199 (Independent Study). If two Psychology 199 courses are taken to fulfill this requirement, they must be directed by the faculty within the chosen area of specialization and culminate in a research paper approved by the adviser and submitted to the Undergraduate Student Services Office in due time for graduation.

### 2XX. Graduate Seminar

We encourage juniors and seniors with an overall 3.0 GPA or better to enroll in graduate seminars. Check the schedule of classes and contact the student affairs office for how to enroll.

### Honors Program for the B.S.

The honors program is strongly recommended for all students interested in graduate schools.

In general, the honors program for the B.S. is the same as for the B.A. except that only one 199 rather than two is required. **NOTE:** The senior thesis, if done with a faculty member affiliated with the chosen area of concentration, will satisfy the laboratory experience requirement.

Successful completion of the honors program requires a grade of A- in Psychology 194 and a minimum GPA 3.5 in the upper-division courses taken for the major.

### Upper-Division Course Requirements for the B.S.

**Core courses of which five have to be taken for any area of concentration**

|           |                                   |
|-----------|-----------------------------------|
| Psych 101 | Intro to Developmental Psychology |
| Psych 102 | Intro to Sensation and Perception |
| Psych 103 | Intro to Principles of Behavior   |
| Psych 104 | Intro to Social Psychology        |
| Psych 105 | Intro to Cognitive Psychology     |
| Psych 106 | Intro to Physiological Psychology |

### Areas of concentration and their associated courses are listed in alphabetical order below.

(Subject to change—for additional qualifying courses, see the department's Student Affairs Office, 1533 McGill Annex).

#### Concentration in Behavior Analysis

Behavior analysis is based on the principles of Pavlovian and operant conditioning, and other aspects of contemporary associative learning theory. It also includes the application of reinforcement principles and other behavior modification techniques in applied settings (applied behavior analysis).

#### Courses:

Psych 109 Lab / Applied Behavior Analysis

Psych 120\* Learning and Motivation

Psych 121\* Lab / Operant Psychology

\* to be taken concurrently with Psych 120

Psych 132 Hormones and Behavior

Psych 134 Eating Disorders

Psych 135 Evolutionary Principles/Animal Social Behavior

Psych 140\* Lab/Human Behavior

\* to be taken concurrently with Psych 120

Psych 143 Control and Analysis of Human Behavior

Psych 154 Behavior Modification

Psych 168 Psychological Disorders of Childhood

Psych 184 Choice and Self Control

Psych 188 Impulse Control Disorders

Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

#### Concentration in Biopsychology

This area studies how the nervous system mediates behavioral effects in the realms of motivation, perception, learning and memory, and attention. It also includes human neurophysiology and aphasia.

#### Courses:

Psych 107 Lab / Substance Abuse Research

Psych 114 Lab/Psychophysiological Perspectives on the Social Mind

Psych 125 Clinical Neuropsychology and Assessment

Psych 129 Logic of Perception

Psych 132 Hormones and Behavior

- Psych 133 Circadian Rhythms—Biological Clocks
- Psych 134 Eating Disorders
- Psych 135 Evolutionary Principles/Animal Social Behavior
- Psych 159 Physiological Basis of Perception
- Psych 169 Brain Damage and Mental Function
- Psych 179 Drugs, Addiction, and Mental Disorders
- Psych 181 Drugs and Behavior
- Psych 188 Impulse Control Disorders
- Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

**Concentration in Clinical Psychology**

This area studies psychological and physiological causes of and treatments for mental illness in children and adults.

**Courses:**

- Psych 107 Lab / Substance Abuse Research
- Psych 109 Lab / Applied Behavior Analysis
- Psych 124 Intro to Clinical Psychology
- Psych 125 Clinical Neuropsychology and Assessment
- Psych 131 Personality: Theory and Research
- Psych 132 Hormones and Behavior
- Psych 133 Circadian Rhythms—Biological Clocks
- Psych 134 Eating Disorders
- Psych 146 Persuasive Techniques
- Psych 151 Tests and Measurement
- Psych 154 Behavior Modification
- Psych 155 Social Psychology and Medicine
- Psych 163 Abnormal Psychology
- Psych 168 Psychological Disorders in Children
- Psych 172 Human Sexuality
- Psych 184 Choice and Self-Control
- Psych 188 Impulse Control Disorders
- Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

**Concentration in Cognitive Psychology and Cognitive Neuropsychology**

- a. The cognitive area studies reasoning, thinking, language, judgment, and decision-making in adults and children (including attention,

- memory, and visual and auditory information processing).
- b. The cognitive neuropsychology area studies cognitive processes and their implementation in the brain. Cognitive neuroscientists use methods drawn from brain damage, neuropsychology, cognitive psychology, functional neuroimaging, and computer modeling.

**Courses:**

- Psych 115 Lab / Cognitive Psychology
- Psych 118 Lab 118A-B / Language Processing
- Psych 119 Lab / Psycholinguistics
- Psych 129 Logic of Perception
- Psych 137 Social Cognition
- Psych 141 Evolution and Human Nature
- Psych 142 Psychology of Consciousness
- Psych 144 Memory and Amnesia
- Psych 145 Psychology of Language
- Psych 148 Psychology of Judgment and Decision
- Psych 152 Concepts of Intelligence
- Psych 156 Cognitive Development in Infancy
- Psych 161 Introduction to Engineering Psychology
- Psych 187 Development of Social Cognition
- Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

**Concentration in Developmental Psychology**

This area studies all aspects of human development with emphasis on social and personality development, perceptual development, and language acquisition. Also includes the study of developmental psychopathology.

**Courses:**

- Psych 109 Lab / Applied Behavior Analysis
- Psych 114 Lab/Psychophysiological Perspectives on the Social Mind
- Psych 122 Aging
- Psych 128 Practicum in Child Development
- Psych 133 Brain and Cognitive Development
- Psych 135 Evolutionary Principles/Animal Social Behavior
- Psych 141 Evolution and Human Nature
- Psych 145 Psychology of Language
- Psych 152 Concepts of Intelligence
- Psych 156 Cognitive Development in Infancy
- Psych 168 Psychological Disorder of Childhood
- Psych 172 Human Sexuality

- Psych 180 Adolescence
- Psych 185 Applied Developmental Psychology
- Psych 187 The Development of Social Cognition
- Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

(For additional qualifying courses, see the department's Student Affairs Office, 1533 Mandler Hall.)

**Concentration in Sensation and Perception**

This area studies how our sense organs and brain make it possible for us to construct our consciously experienced representation of the environment. Experiments using stimuli and computer control are used to test models of sensory or perceptual processes. Processes of particular interest include color vision, motion perception, and auditory illusions and paradox.

**Courses:**

- Psych 125 Clinical Neuropsychology and Assessment
- Psych 129 Logic of Perception
- Psych 138 Sound and Music Perception
- Psych 159 Physiological Basis of Perception
- Psych 164 Mathematical Ideas in Psychology
- Psych 169 Brain Damage and Mental Functions
- Psych 182 Allusions and the Brain
- Psych 199 Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major).

**Concentration in Social Psychology**

This area studies human behavior in social situations, with specialization in such topics as emotion, aggression, social cognition, and aesthetics. It also encompasses applied social psychology, including psychology and the law and behavioral medicine.

**Courses:**

- Psych 114 Lab/Psychophysiological Perspectives on the Social Mind
- Psych 127 Applied Social Psychology
- Psych 130 Delay of Gratification
- Psych 131 Personality: Theory and Research
- Psych 135 Evolutionary Principles/Animal Social Behavior

|           |   |
|-----------|---|
| Psych 137 | Social Cognition  |
| Psych 139 | Social Psychology of Sports   |
| Psych 141 | Evolution and Human Nature  |
| Psych 149 | Social Psychology of Theater  |
| Psych 152 | Concepts of Intelligence  |
| Psych 153 | Psychology of Emotion   |
| Psych 155 | Social Psychology and Medicine  |
| Psych 157 | Happiness   |
| Psych 160 | Groups  |
| Psych 162 | Psychology and the Law  |
| Psych 172 | Human Sexuality   |
| Psych 175 | Psychology and the Arts   |
| Psych 178 | Industrial Organization Psychology  |
| Psych 186 | Psychology and Social Policy  |
| Psych 187 | Development of Social Cognition   |
| Psych 199 | Independent Study courses in this field, must culminate in a research paper to fulfill lab requirement (but do not count as upper-division psychology courses towards the major). |

### Advising

Students are strongly encouraged to choose an adviser among the faculty. The Undergraduate Student Services Office will assist with the choice, office hours, or appointments. The student then plans her or his major program with the aid of the adviser. Such planning should take place in the student's sophomore year or as soon as possible thereafter.

### Preparation for Graduate School

Regardless of the area of specialization that a student chooses to pursue, it is strongly advised that she or he obtain a strong general background in statistics and experimental methods through research with a faculty member. A recommended program of study to accomplish these goals is the following:

1. At least five courses from the group numbered Psychology 101–106 (Core Courses)
2. At least one laboratory course (Psychology 107, 109, 114, 118A, 118B, 119, 120/121, 120/140, 127)
3. Introduction to Statistics and Advanced Statistics (Psychology 60 and 111A-B)
4. The Senior Independent Research Project, Psychology 194A-B-C, as part of the Honors Program or the Research Project 196A-B-C.
5. Strongly recommended: Independent Studies (Psychology 199).

Quarterly, the Associated Students' U.S. Grants Program awards funds to undergraduate students' research independent of in-class projects. We encourage students to apply. Also, check the Web at <http://orpheus.ucsd.edu/finaid/Scholarships/ucsdsc.htm>, [usgrants@ucsd.edu](mailto:usgrants@ucsd.edu), and <http://usgrants.ucsd.edu>; or visit the U.S. Grants Office on the third floor of the Price Center room 3.346 for an application.

### Preparation for Graduate School in Clinical Psychology

The above program is recommended for all students planning to go on to graduate school, including those interested in a clinical graduate program. Experience in research methodology and a general knowledge of psychology are considered the most important features and are preferred over a large number of courses in one particular area. Students are strongly advised **not** to take a large number of clinical courses in lieu of the recommended program of study listed above.

### The Minors Program

The minor in psychology consists of at least twenty-eight units (seven four-unit courses), of which at least twenty units (five four-unit courses) must be upper-division. At least four courses have to be taken at UCSD.

If Psychology 60 (Statistics) is chosen as one of the lower-division courses, it, too, has to be taken for a letter grade. The application for a minor can be obtained from your college.

### Education Abroad

Students are often able to participate in the UC Education Abroad Program (EAP) and UCSD's Opportunities Abroad Program (OAP) while still making progress toward the major. Students considering this option should discuss their plans with the director of Undergraduate Studies before going abroad, and courses taken abroad must be approved by the department. Information on EAP/OAP is detailed in the Education Abroad Program of the *UCSD General Catalog*. Interested students should contact the Program Abroad Office in the International Center.

### Transfer Credit

In general, all introductory courses in experimental psychology are accepted for lower-division credit toward a psychology minor. Lower-division courses covering special topics

in psychology (e.g., personal adjustment, human sexuality) will be accepted only if: 1) the student had a general introductory course as a prerequisite, and 2) the student had satisfied this prerequisite before taking the special topics course. Advance Placement credit for Statistics is not sufficient for the psychology major. Upper-division psychology courses will be evaluated for transfer credit on a course by course basis.

### Elementary School Teaching

Majoring in psychology offers excellent preparation for teaching in the elementary schools. If you are interested in earning a California teaching credential from UCSD, contact the Teacher Education Program (TEP) as early as possible in your academic career for information about the prerequisite and professional preparation requirements.

### Major Requirements for the Integrated B.S./M.A.

An integrated program leading to a bachelor of science degree and a master of science degree in psychology is offered to those undergraduate students who are enrolled in any of the major programs offered in the Department of Psychology at UCSD. Qualified students are able to obtain the M.A. degree within one year following receipt of the B.S. degree. Students interested in applying to this program must meet with the B.S./M.A. adviser in the psychology student affairs office BEFORE the end of their junior year.

The program is open only to UCSD undergraduates. Psychology does not have financial aid available for students enrolled in this program.

### Eligibility and Enrollment

To be eligible, students must have completed the first two quarters of their junior year in residence at UCSD and must have an overall UCSD GPA of at least 3.0 and students' major GPA should be at least 3.3. It is the responsibility of the prospective student to select a faculty member who would be willing to serve as the student's adviser and in whose laboratory the student would complete at least twenty-four units of research over a two-year period. Twelve of the twenty-four units of research Psychology 194A-B-C or 196A-B-C must be completed during the student's senior undergraduate year and must be taken IN ADDITION to the requirements for the bachelor of science degree.

There are two applications:

1. In spring of the junior year, students apply to the integrated B.S./M.A. track if they fulfill above requirements.
2. In the spring of their senior year, they apply to the M.A. GREs are not required.

### Requirements for the M.A.

For an M.A. in psychology, students must pick a concentration in one of six areas: Behavioral, Biological, Cognitive, Developmental, Sensation and Perception, and Social.

Students who have been approved (by both the Department of Psychology and UCSD Office of Graduate Studies) for the program must enroll in their graduate year in:

- Psychology 201A-B *Quantitative Methods*,
- Psychology 270A-B-C *Introduction to Laboratory Experimentation*,
- Four psychology seminars, two of which are in their area of concentration. In addition, three of the four seminars must be pro-seminars, which include:

Psychology 217 *Developmental Psychology*,

Psychology 218 *Cognitive Psychology*,

Psychology 219 *Behavioral Psychology*,

Psychology 220 *Social Psychology*,

Psychology 221 *Sensation and Perception*, and

Psychology 222 *Behavioral Psychology*.

- one Psychology 500 *Teaching Instruction*

This amounts to forty units of graduate work. All courses must be completed with the grade of B+ or better. All course work is to be approved by the advisers (forms available from the Undergraduate Students Affairs Office). Students are expected to meet the graduate requirements for the M.A. in *one year* (three consecutive, contiguous, academic quarters, beginning in the fall after graduation). Any deviation from this plan, such as a break in enrollment for one or more quarters, will cause the student to be dropped from the program.

All forms required for the program must be submitted and approved by the psychology undergraduate coordinator prior to each quarter of the graduate year. This includes the Application for Candidacy. Students must pay fees and be officially enrolled at UCSD during the quarter that the master's degree is to be awarded. The

thesis draft should be submitted to the Office of Graduate Studies and Research for review before the final copy is officially submitted.

See the Undergraduate Students Affairs Office for further details.

## The Graduate Program

The Department of Psychology provides broad training in experimental psychology. Increased specialization and the general burgeoning of knowledge make it impossible to provide training in depth in every aspect of experimental psychology, but most aspects are represented in departmental research.

### Preparation

Apart from the general university requirements, the department generally expects adequate undergraduate preparation in psychology. A major in the subject, or at least a strong minor, is normally a prerequisite, but applicants with good backgrounds in such fields as biology and mathematics are also acceptable.

### Language Requirements

There is no foreign language requirement.

## Graduate Curriculum

All students must fulfill all course requirements (stated below) while registered as graduate students in psychology at UCSD. There may occasionally be exceptions granted to this rule. Requests for exception should be in the form of petitions from students and their advisers to the Committee on Graduate Affairs. It is in the best interest of the student if these petitions are forthcoming at the time of admission to the graduate program. In this way, the committee, the students, and their advisers will all be aware of the course requirements before any of them are taken.

### Program of Study

Courses are divided into six areas: *behavior analysis* (including basic and applied), *biopsychology* (including neuropsychology and neurophysiology), *cognitive* (including attention, language, and perception), *developmental* (including language acquisition), *sensation and perception* (including vision and audition), and *social* (including health and law). The Graduate

Affairs Committee provides an approved list of courses from these areas. In the first year of study, each student must fulfill the following four requirements:

1. Each student must fulfill a quantitative methods requirement, either by taking two quantitative methods courses approved by the Graduate Affairs Committee (currently 201A and 201B), or by showing a satisfactory knowledge of these courses through an examination.
2. In addition to the quantitative methods requirement, each student is expected to take four proseminars and four approved courses from the list prepared by the Graduate Affairs Committee. All course work must be completed by the end of the third year.
3. Each first-year graduate student is required to submit a research paper on the research project (Psychology 270ABC). The paper should be comparable in style, length, and quality to papers published in the normal, refereed journals of the student's research area. (The publication manual of the American Psychological Association, fourth edition, 1995, gives an acceptable format.)

The research paper will be read and evaluated by the student's research adviser and by at least two other readers appointed by the graduate adviser.

The research paper is presented orally at a research meeting held at the end of the spring quarter. Attendance at this meeting is a requirement for the department's graduate students and faculty. Typically, each student is allowed ten minutes to present the paper, with a five-minute question period following the presentation.

4. A teaching requirement must be met. (see below)
 

All students are evaluated by the entire faculty at the end of the academic year. The normal minimum standards for allowing a student to continue beyond the first year are:

  - a. satisfactory completion of the first-year research project (including oral presentation),
  - b. at least a B+ in the quantitative methods courses,
  - c. a B+ average in the courses which fulfill the area requirements, and

- d. having a faculty adviser in the psychology department.

Any student whose needs cannot be reasonably met with courses conforming to these guidelines is encouraged to petition the Graduate Affairs Committee. The petition should contain a specific list of courses and a statement of justification and must be approved by the student's adviser.

### Advancing to Candidacy

In order to advance to Ph.D. candidacy a student must:

1. Complete all first year requirements,
2. Complete an additional four elective courses from the list prepared by the Graduate Affairs Committee, and
3. Complete the qualifying examination for the Ph.D.

The qualifying examination is divided into two sections to be taken separately by all students. *Part I* of the qualifying exam consists of a paper written by the student that is modeled after those published in *Psychological Bulletin* or *Psychological Review*. Ideally, the paper would consist of a detailed review and theoretical synthesis of a coherent body of research. The paper should demonstrate independent and original thinking on the part of the student, and should either take a theoretical stance or recommend experiments designed to resolve theoretical ambiguities (i.e., the paper should not merely review published research).

Students form a qualifying committee in much the same way that they form a dissertation committee. The same rules apply, except that members from outside the department need not be included (although up to two may be). Once the committee is formed, the student should prepare a brief (e.g., three pages) proposal defining the area of research and the theoretical issues that will be addressed in the paper. A proposal meeting is then arranged (usually in spring quarter of the student's second year), and committee members may at that time recommend changes in the scope of the paper and define their expectations.

The paper does not have a prescribed length, although low-end and high-end limits of thirty and fifty pages, respectively, seem reasonable. An oral defense of the paper is required (and

should be completed by the end of the student's third year).

*Part II* of the qualifying examination is the defense of the dissertation proposal. This will normally follow *Part I* of the qualifying examination and will be an oral examination including outside examiners.

### Teaching

In order to acquire adequate teaching experience, all students are required to participate in the teaching activities of the department for at least four years (one quarter for the first year and two quarters the second through the fourth year).

### Residency

Each student must complete the requirements for qualification for candidacy for the Ph.D. degree by the end of the third year of residence. Any student failing to qualify by this time will be placed on probation. A student who fails to qualify by the end of the spring quarter of the fourth year of residence will automatically be terminated from the department.

No students may allow more than eight calendar years to elapse between starting the graduate program and completing the requirements for the Ph.D. degree. Students will automatically be terminated from the program at the end of the spring quarter of their eighth calendar year in the department.

### Research

In each year of graduate study all students are enrolled in a research practicum (Psychology 270 in the first year; Psychology 296 in subsequent years). Students are assigned to current research projects in the department and receive the personal supervision of a member of the staff.

### Departmental Ph.D. Time Limit Policies

Students must be advanced to candidacy by the end of four years. Total university support cannot exceed eight years. Total registered time at UCSD cannot exceed eight years.

## COURSES

### LOWER-DIVISION

#### Experimental Requirements

Psychology at UCSD is a laboratory science. We are concerned with the scientific develop-

ment of knowledge about human and animal behavior and thought. Accordingly, experience with experimental procedures plays an important role in the undergraduate and graduate training of students.

All psychology majors must learn experimental methods, including basic statistical techniques. Students in the Honors Program must take laboratory courses and also do a year-long undergraduate thesis.

#### ATTENTION lower-division students:

Students enrolled in the lower-division psychology courses *must* serve as experimental subjects for three hours per course. The requirement is intended to be a positive educational supplement to the course work. Part of each experimental session will be devoted to explanation and discussion of the purpose and nature of the experiment. This usually will be done at the end of the experimental session. Students always have the right to discontinue participation at any point in any study. Students who are unable to participate or who choose not to participate will be provided alternate service assignments which are designed to serve similar educational goals.

#### 1. Psychology (4)

A comprehensive series of lectures covering the basic concepts of modern psychology in the areas of human information processing, learning and memory, motivation, developmental processes, language acquisition, social psychology, and personality.

#### 2. General Psychology: Biological Foundations (4)

A survey of physiological and psychological mechanisms underlying selected areas of human behavior. Emphasis will be upon sensory processes, especially vision, with emphasis also given to the neuropsychology of motivation, memory, and attention.

#### 3. General Psychology: Cognitive Foundations (4)

This course is an introduction to the basic concepts of cognitive psychology. The course surveys areas such as perception, attention, memory, language, and thought. The relation of cognitive psychology to cognitive science and to neuropsychology is also covered.

#### 4. General Psychology: Behavioral Foundations (4)

This course will provide a basic introduction to behavioral psychology, covering such topics as classical conditioning, operant conditioning, animal learning and motivation, and behavior modification.

#### 6. General Psychology: Social Foundations (4)

This course will provide a basic introduction to social psychology, covering such topics as emotion, aesthetics, behavioral medicine, person perception, attitudes and attitude change, and behavior in social organizations.

#### 60. Introduction to Statistics (4)

Introduction to the experimental method in psychology and to mathematical techniques necessary for experimental research. *Prerequisite: one year mathematics or consent of instructor.*

**87. Freshmen Seminar (1)**

The Freshman Seminar Program is designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and undergraduate colleges, and topics vary from quarter to quarter. Enrollment is limited to fifteen to twenty students, with preference given to entering freshmen. *Prerequisites: none.*

**90. Undergraduate Seminar (1)**

This seminar introduces the various subdisciplines in psychology and their research methods, and also explores career and graduate school opportunities. This includes informal presentations by faculty, graduate students, and other professionals.

**99. Independent Study (2,4)**

Independent study or research under direction of a member of the faculty. *Prerequisites: lower-division standing, completion of at least thirty units of undergraduate study at UCSD with a minimum UCSD GPA of 3.0; completed and approved Special Studies form.*

**UPPER-DIVISION****101. Introduction to Developmental Psychology (4)**

A lecture course on a variety of topics in the development of the child, including the development of perception, cognition, language, and sex differences. *Prerequisite: Psychology 60*

**102. Introduction to Sensation and Perception (4)**

An introduction to problems and methods in the study of perception and cognitive processes. *Prerequisite: Psychology 60*

**103. Introduction to Principles of Behavior (4)**

An example of the principles of conditioning and their application to the control and modification of human behavior.

**104. Introduction to Social Psychology (4)**

An intensive introduction and survey of current knowledge in social psychology. *Prerequisite: Psychology 60*

**105. Introduction to Cognitive Psychology (4)**

Introduction to experimental study of higher mental processes. Topics to be covered include pattern recognition, perception, and comprehension of language, memory, and problem solving. *Prerequisite: junior standing.*

**106. Introduction to Physiological Psychology (4)**

Intensive introduction to current knowledge of physiological factors in learning, motivation, perception, and memory.

**107. Lab/Substance Abuse Research (4)**

This lab course examines theory and research design and methods for substance abuse in adolescent adult populations. This course serves as preparation for individual research topics culminating in a paper.

**109. Lab/Applied Behavior Analysis (4)**

This course will provide students with hands-on training in the application of behavioral research technology to a clinical population. Students will meet weekly for lecture, discussion, research article reviews, and specific technique training. In addition, students will work on a research project. *Prerequisite: Psychology 199 in the Schreibman Autism Laboratory recommended.*

**110. Juniors Honors Research Seminars (4)**

Meetings consist of research seminars by a range of departmental faculty, exposing students to contemporary research problems in all branches of experimental psychology. Class discussions will follow faculty presentations. Evaluation is based on assigned papers. *Prerequisites: admission by application with a minimum UCSD GPA of 3.3. Department stamp required.*

**111A. Research Methods I (6)**

Designed to provide training in the applications of advanced statistical methods in the context of initial instruction in experimental design. Emphasis will be placed on the development of statistical problem-solving skills, practical computer applications, and scientific report writing. *Prerequisites: minimum grade of B in Psychology 60 or equivalent and junior standing. Open to honors students or consent of instructor. Department stamp required.*

**111B Research Methods II (6)**

Designed to extend the material of Psychology 111A. Focusing on the techniques developed previously. Participate in data collection, data organization, statistical analysis, and graphic displays, emphasis placed on developing scientific report writing, presentations, and critical thinking about experimental methods. *Prerequisite: Psychology 111A or consent of instructor.*

**114. Laboratory in Psychophysiological Perspectives on the Social Mind (4)**

Lab course on the use of psychophysiological methods to investigate "the social mind," or the cognitive and emotional processes involved in understanding and reacting to other people. Overview of major research topics and methods applying selected techniques in actual experiments. Students will engage in developing individual research questions to actively participate in designing and conducting the experiments. *Prerequisite: upper-division standing.*

**115. Laboratory in Cognitive Psychology (4)**

Lecture and laboratory work in human information processing. *Prerequisite: Psychology 105 and 111A-B or consent of instructor.*

**118A. Real-Time Examination of Language Processing (4)**

This lab course examines the design and methods for the real-time examination of language processing in normal and disordered (aphasic, dyslexic, child language impaired, etc.) language populations. This course serves as preparation for individual research topics in Psychology 118B. *Prerequisite: a course in language or cognition (see professor for exceptions).*

**118B. Real-Time Examination of Language Processing (4)**

This lab is a continuation of Psychology 118A. The instruction to laboratory methods is now applied to individual research projects culminating in a lab presentation and paper. *Prerequisite: Psychology 118A or consent of instructor.*

**119. Psycholinguistics/Cognition Laboratory (4)**

Methods and practicum in experimental study of language, reading, and related cognitive processes (reasoning, problem solving) in young adult populations. *Prerequisites: A course in language or cognition, or Psych 118A-B (see professor for exceptions). Permission of instructor required. Department stamp required.*

**120. Learning and Motivation (4)**

Survey of research and theory in learning and motivation. Includes instincts, reinforcement, stimulus control, choice, aversive control, and human application. *Prerequisites: upper-division standing. Must be taken concurrently with Psychology 121.*

**121. Laboratory in Operant Psychology (4)**

Lecture and laboratory in operant psychology. *Prerequisite: must be taken concurrently with Psychology 120.*

**124. Introduction to Clinical Psychology (4)**

Introduction to major concepts and models used in psychological assessment and psychotherapeutic intervention. Several modalities of psychotherapy (individual, group, and family) will be reviewed along with research on their efficacy. *Prerequisite: Psychology 163.*

**125. Clinical Neuropsychology and Assessment (4)**

A fundamental grounding in basic neuropsychological principles and assessment methods, neuroanatomical, and cognitive relationships, with special emphasis on imaging technologies in diagnosis and prognosis. Neuropsychological testing methods are discussed in terms of statistical reliability, validity, and applications to neurologic/psychiatric populations. *Prerequisite: Psychology 60.*

**127. Methods in Applied Social Psychology (4)**

Emphasizes learning of experimental and quasi-experimental methodology applicable to social problems. Students carry out field research in areas such as the psychology of law (judicial decision-making), traffic-related behavior (risk taking), environmental psychology, and other areas of student interest. *Prerequisites: Psychology 104 and 60.*

**128. Practicum in Child Development (6)**

[Same as COHI 116 and HDP 135] A combined lecture/laboratory course for students in psychology, communication, and human development. Student backgrounds should include a background in general psychology or communication. Students will be expected to spend four hours a week in a supervised practical after school setting at one of the community field sites involving children. Additional time will be devoted to readings and class prep, as well as six hours a week transcribing field notes and writing a paper on some aspect of the field work experience as it relates to class lectures and readings. *Prerequisites: Psychology 101 or COGN 20 or HDP1 or consent of instructor.*

**129. Logic of Perception (4)**

Lectures will cover three topics: 1) tradition of experimental work on perception that dates back to Hemholtz; 2) discussion and criticisms of theories of perception; 3) recent physiological work on the visual pathways that may give us insights into neural mechanisms underlying perception. *Prerequisite: upper-division standing.*

**130. Delay of Gratification (4)**

This course will review the research on delay of gratification. It will cover what makes it in general so tough, what situations make it possible, who can do it, and what the implications of this ability are. *Prerequisite: upper-division standing.*

**131. Personality: Theory and Research (4)**

Introduction to major theoretical approaches to the study of personality constructs and processes. Disturbances in personality development and functioning will be discussed and illustrated. The social learning theory perspective will be emphasized rela-

tive to other theoretical frameworks. *Prerequisite: upper-division standing.*

**132. Hormones and Behavior (4)**

A survey of the effects of chemical signals (hormones, neurohormones and pheromones) on behavior as well as reciprocal effects of behavior on these chemical systems. Specific topics covered include aggression, sex and sexuality, feeding, learning, memory and mood. Animal studies will be emphasized. *Prerequisite: Psychology 106 or consent of instructor.*

**133. Circadian Rhythms—Biological Clock (4)**

Examples and fundamental properties of the daily biological clock in humans, animals and microbes. Experimental approaches employed to understand how organisms keep time and how this applies to human health. *Prerequisite: Psychology 106 or BILD 1 or consent of instructor.* This course is cross-listed with BIMM 116.

**134. Eating Disorders (4)**

This course will cover the biology and psychology of eating disorders such as anorexia nervosa, bulimia nervosa, and binge eating disorder. Abnormal, as well as normal eating will be discussed from various perspectives including endocrinological, neurobiological, psychological, sociological, and evolutionary. *Prerequisite: upper-division standing.*

**135. Animal Behavior (4)**

Mechanisms that regulate the behavior of animals, including neural, endocrine, genetic, and environmental mechanisms, with a strong emphasis on evolution (natural and sexual selection). Topics include communication, sociality, mating strategies, and parental behavior. *Prerequisite: upper-division standing.*

**136. Cognitive Development (4)**

Examination of the foundations and growth of mind, discussing the development of perception, imagery, concept formation, memory, and thinking, with emphasis on the presentation of knowledge in infancy and childhood. *Prerequisite: Cognitive Science 110B, Psychology 105 or 101.*

**137. Social Cognition (4)**

Social cognition blends cognitive and social psychology to investigate how people make sense of the social world. Social perception, inference, memory, motivation, and affect, understanding of the self, stereotypes, and cultural cognition. *Prerequisite: upper-division standing.*

**138. Sound and Music Perception (4)**

Topics include the physiology of the auditory system, perception and pitch, loudness and timbre, localization of sound in space, perception of melodic and temporal patterns, handedness correlates, and musical illusions and paradoxes. There will be a substantial number of sound demonstrations. *Prerequisite: upper-division standing.*

**139. Social Psychology of Sports (4)**

This course focuses on the applications of social psychological principles and finding to the understanding of sports. Topics include the role of motivation, level of aspiration, competition, cooperation, social comparison, and optimal arousal, spectators' perspective, motivation and perceptions of success, streaks, etc. *Prerequisite: upper-division standing or consent of instructor.*

**140. Lab/Human Behavior (4)**

Laboratory on the principles of human behavior, including choice behavior, self-control, and reasoning. *Prerequisites: 120 (may be taken concurrently); upper-division standing.*

**141. Evolution and Human Nature (4)**

Can important aspects of human behavior be explained as a result of natural selection? Focus on sex differences, selfishness and altruism, homicide and violence, and context effects in human reasoning. *Prerequisite: upper-division standing and consent of instructor.*

**142. Psychology of Consciousness (4)**

This course will survey research on consciousness from an experimental psychology perspective. Special emphasis will be placed on cognitive, neuro-imaging, and clinical/psychiatric investigative techniques, and on the scientific assessment of the mind-body problem. *Prerequisites: Recommended Psychology 1 (or equivalent) and 60. Psychology 105 and/or 106 are useful but not necessary.*

**143. Control and Analysis of Human Behavior (4)**

An overview of the behavioral approach including basic principles, self-control, clinical applications, and the design of cultures. *Prerequisite: upper-division standing.*

**144. Memory and Amnesia (4)**

This course will review basic research into the nature of memory. It begins with an examination of historical milestones in the study of memory and then considers research concerned with contemporary models of memory and amnesia. *Prerequisite: upper-division standing.*

**145. Psychology of Language (4)**

Introduction to research on language comprehension and production. Focus on brain basis of language, language origin and universal structure, language disorders (aphasia, dyslexia), animal language, linguistic community differences, and the mental processes underlying normal language processing. *Prerequisite: a course in language, cognition, or philosophy of mind recommended.*

**147. Gender (4)**

This interactive undergraduate seminar will examine biological approaches to gender differences and sexuality. Do the biosciences further our understanding of these issues? How are biological claims embraced or rebutted by other disciplines? Students will read primary scientific literature and criticism. *Prerequisite: department stamp.*

**148. Psychology of Judgment and Decision (4)**

Broadly defined, the field of judgment and decision making examines preferences and subjective probability, and how they are combined to arrive at decisions. The course will cover history and current topics. *Prerequisite: upper-division standing*

**149. Social Psychology of Theater (4)**

Exploration of the relationship between social psychology and drama, focusing on the use of psychological principles in plays (by playwrights) and their performance (by directors, actors, and choreographers). *Prerequisites: upper-division standing, major in psychology or theater, or permission of instructor.*

**151. Tests and Measurement (4)**

This course provides an introduction to psychological testing presented in three components: 1) psychometrics and statistical methods of test construction; 2) application of psychological tests in industry, clinical

practice, and other applied settings; and 3) controversies in the application of psychological tests. *Prerequisite: Psychology 60.*

**152. Conceptions of Intelligence (4)**

This course will examine the concept of intelligence from several perspectives: its historical development, its measure in terms of IQ test, and its role in practical affairs. Also included will be its role in comparative psychology and attempts to analyze intelligence in terms of more fundamental cognitive processes. *Prerequisite: Psychology 60 or consent of instructor.*

**153. Psychology of Emotion (4)**

Past and current findings and theories on emotion. Facial expressions of emotions, psychophysiology, evolutionary perspectives, and specific emotions: anger, fear, and jealousy. *Prerequisites: upper-division standing and Psychology 104, or consent of instructor.*

**154. Behavior Modification (4)**

Extension of learning principles to human behavior, methods of applied behavior analysis, and applications of behavioral principles to clinical disorders and to normal behavior in various settings. *Prerequisite: upper-division standing.*

**155. Social Psychology and Medicine (4)**

Explores areas of health, illness, treatment, and delivery of treatment, and social psychological perspectives in the medical area. *Prerequisite: Psychology 60 or equivalent and 104.*

**157. Happiness (4)**

This course will address the psychology of happiness. The discussions and readings, consisting largely of original research articles. Will explore such questions as: what is happiness? How do we measure it, and how do we tell who has it? What is the biology of happiness and what is its evolutionary significance? What makes people happy—youth, fortune, marriage, chocolate? Is the pursuit of happiness pointless? *Prerequisite: upper-division standing.*

**159. Physiological Basis of Perception (4)**

A survey of sensory and perceptual phenomena and the physiological mechanisms underlying them. *Prerequisite: Psychology 102 or consent of instructor.*

**160. Groups (4)**

Causes and consequences of gregariousness, stress, validating attitudes, improving efficiency, consolidating power, permitting loafing, rejecting deviates, and insulating group members from unpleasant outside influence. *Prerequisite: upper-division standing.*

**161. Introduction to Engineering Psychology (4)**

Surveys human perceptual and cognitive limitations and abilities important in designing "user-friendly" computers and devices, improving aviation and traffic safety, and other engineering challenges. Topics include human vision as it bears on display design (including virtual-reality), short-term memory limitations, learning and practice, effects of noise and stress, causes of human error and their minimization. Acceptable as elective for ECE and ESE students. *Prerequisite: upper-division standing.*

**162. Psychology and the Law (4)**

Studies the psychological factors in the legal system, applying psychological theory and methods to the criminal justice system, identifying crime and criminals, eyewitness reliability, bail setting, plea bargaining, sentencing, and parole. An original research

project will be required as part of the course. *Prerequisite: Psychology 60 and 104.*

#### 163. Abnormal Psychology (4)

Surveys origins, characteristics and causes of abnormal behavior and the biological and environmental causes of abnormality. *Prerequisite: upper-division standing.*

#### 164. Mathematical Ideas in Psychology (4)

This course will survey how mathematical ideas have been applied in modeling psychological processes and in analyzing psychological data. Topics include signal detection theory, perceptual encoding, scaling techniques, and neural models of perceptual and cognitive processes. *Prerequisite: Calculus: one quarter, linear algebra desirable.*

#### 166. History of Psychology (4)

Surveys major trend and personalities in development of psychological thoughts. Emphasis given to such topics as mind-body problem, nativism vs. empiricism, and genesis of behaviorism. *Prerequisite: concurrently enrolled in Honors Thesis 194A-B-C.*

#### 167. Social and Emotional Development (4)

Focuses on topics like attachment, moral development, sex roles, self-definition, and peer interaction. *Prerequisite: Psychology 60 and 101.*

#### 168. Psychological Disorders of Childhood (4)

Explores different forms of psychological deviance in children (psychosis, neurosis, mental retardation, language disorders and other behavior problems). Emphasis on symptomatology, assessment, etiological factors, and various treatment modalities. (Offered every other year.) *Prerequisite: upper-division standing.*

#### 169. Brain Damage and Mental Functions (4)

Studies neural mechanisms underlying perception, memory, language, and other mental capacities. What happens to these capacities when different parts of the brain are damaged? What can we learn about the normal brain by studying patients? *Prerequisite: upper-division standing.*

#### 172. The Psychology of Human Sexuality (4)

Important issues in human sexuality including sex and gender, sexual orientation, reproductive technology, and sexual dysfunction. *Prerequisite: upper-division standing.*

#### 175. Psychology and the Arts (4)

An interdisciplinary course focusing on theoretical ideas and empirical research that relate contemporary psychology (social and cognitive, psychophysiology, motivation and emotion) to issues in various aesthetic and artistic domains, as visual arts, music, literature, criticism, and the performance arts. *Prerequisite: upper-division standing; major in Psychology, Music, Visual Arts, Communications, or Literature, or permission of instructor.*

#### 178. Organizational Psychology (4)

Examines human behavior in industrial and organizational settings. Psychological principles are applied to selection, placement, and training. The effectiveness of individuals and groups within organizations, including leadership and control, conflict and cooperation, motivation, and organizational structure and design, is examined. *Prerequisite: upper-division standing.*

#### 179. Drugs, Addiction, and Mental Disorders (4)

Considers the use, abuse, liability, and psychotherapeutic effects of drugs in humans. Lectures are supplemented by guest lecturers from clinical experts in psychology and psychiatry. *Prerequisite: one lower-*

*division psychology course (1, 2, 3, or 4) or upper-division standing.*

#### 180. Adolescence (4)

This course will adopt a multidisciplinary approach toward understanding the period of human adolescence. A strong focus on the neurobiological aspects of adolescence will be combined with psychological, anthropological, and sociological considerations. *Prerequisite: upper-division standing.*

#### 181. Drugs and Behavior (4)

Psychological effects, brain mode of action, patterns of use of psychoactive agents, including stimulants, sedative/hypnotic, hallucinogens, marijuana, alcohol, over-the-counter drugs, cognitive enhancers, anti-anxiety agents, antidepressants, antipsychotics, and basic principles in psychopharmacology. *Prerequisite: upper-division standing.*

#### 182. Illusions and the Brain (4)

This course explores the bases of illusions in terms of perceptual and cognitive principles, and the underlying brain mechanisms; extensive demonstrations are included. *Prerequisite: upper-division standing.*

#### 184. Choice and Self-Control (4)

Experimental analysis of choice behavior, with an emphasis on the types of choice involved in self-control. Focus on conditions under which decision-making is optimal. *Prerequisite: upper-division students in psychology, biology, economics, or consent of instructor.*

#### 185. Applied Developmental Psychology (4)

This seminar course deals with how developmental psychologists conduct scientific studies that have direct practical implications for children's well-being. Major issues to be discussed are: child witnesses, literacy, school violence, impact of media on child development, and developmental psychopathology. *Prerequisite: upper-division standing.*

#### 186. Psychology and Social Policy (4)

This course will examine social policy issues from the psychological point of view. Each social policy issue will be discussed in a descriptive manner and will include (with student input) an array of both pro and con arguments. The psychological (behavioral) assumptions in the pro and con arguments will then be identified and the empirical evidence for these assumptions will be analyzed. *Prerequisite: Psychology 60 and 104.*

#### 187. Development of Social Cognition (4)

This course will examine reasoning about people from a developmental perspective. Topics will include emotional understanding, achievement motivation, peer relations, social categories, and culture. *Prerequisites: upper-division standing. Department stamp required.*

#### 188. Impulse Control Disorders (4)

Problems of impulse control are important features of major psychiatric disorders but also of atypical impulse control disorder such as: pathological gambling, compulsive sex, eating, exercise, shopping. Focus: development, major common features, treatment, and neurobiological basis of impulse control disorders. *Prerequisite: upper-division standing.*

#### 194A-B-C. Honors Thesis (4-4-4)

Students will take part in a weekly research seminar. In addition, they will plan and carry out a three-quarter research project under the guidance of a faculty member. The project will form the basis of the senior honors thesis. *Prerequisite: acceptance to the Honors Program in the junior year (110A-B) (GPA 3.3), in addition one labo-*

*ratory course (114-127) or two 199s which culminate in a research paper (by petition only) and Psychology 110, 111A-B and consent of instructor.*

#### 195. Instruction in Psychology (4)

Introduction to teaching a class section in a lower-division psychology course, hold office hours, assist with examinations and grading (P/NP grades only). This course counts only once towards the major. *Prerequisite: junior or senior psychology major with GPA of 3.0 or an A in the course and consent of instructor.*

#### 196 A-B-C Research Seminar (4-4-4)

Weekly research seminar, three quarter research project under faculty guidance which culminates in a thesis. *Prerequisite: one laboratory course, 3.3 GPA, and/or consent of instructor.*

#### 199. Independent Study (2 or 4)

Independent study or research under direction of a member of the faculty. *Prerequisite: GPA 2.5 and 90 units completed. (P/NP grades only.) Not counted for credit towards the major. See Section on 199 information.*

#### 2XX. Graduate Seminar

We encourage Juniors and Seniors meeting the suggested criteria of an overall 3.0 GPA to enroll in Graduate Seminars. Check the schedule of classes and contact the Student Affairs Office on how to enroll.

## GRADUATE

#### 201A-B-C. Quantitative Methods in Psychology (4-4-4)

An intensive course in statistical methods and the mathematical treatment of data, with special reference to research in psychology. *Prerequisite: restricted to graduate students in psychology.*

#### 204. Neurobiology of Social Development (4)

The goal of this class is to acquaint students with research on the neurological underpinnings of social and social cognitive development. Students will be expected to become familiar with the existing research in the area, and to understand the neural structures that comprise the limbic system, and their developmental timecourse. Students will be expected to form hypotheses about the neural correlates of aspects of social development based upon an understanding of the development of structures involved in social behavior.

#### 206. Mathematical Modeling (4)

This course is designed to teach the basics of mathematical modeling. Topics include when, why, and how to use signal detection theory (an essential theory for anyone interested in attention, perception, memory, or decision making), how to analyze reaction time distributions (instead of simply measuring mean RT), how to engage in the fine art of model comparison, and how to avoid creating models that are more complex than the data they seek to explain.

#### 208. Seminar on Hormones and Behavior (4)

A survey of the affects of chemical signals (hormones, neurohormones, and pheromones) on behavior as well as reciprocal effects of behavior on these chemical systems. Specific topics covered include aggression, sex and sexuality, feeding, learning, memory and mood. Animal studies will be emphasized.

#### 209. Topics in Judgment and Decision Making (3)

This seminar examines issues in the psychology of judgment and decision making. Topics include the heuristics and biases approach, over confidence, framing effects, intertemporal choice, and rationality.

**210. Skill Acquisition and Development of Expertise (4)**

The course examines the transition from novice to highly skilled performance and the transfer of that skill to novel problems and contexts. Emphasis will be on information processing accounts of learning and performance for relatively simple cognitive tasks.

**211. The Development of Social Cognition (3)**

This seminar will cover the development of concepts about people. Topics include emotional understanding, "theory of mind," trait thinking, social categories, psychological essentialism, achievement motivation, and social and cultural influences on person perception.

**212. Current Topics in Visual Science (3)**

Each year a different topic in visual science is selected for in-depth review and discussion based on current readings. *Prerequisite: consent of instructor.*

**213. Professional Procedures and Survival in Psychology (3)**

This course provides a forum for presentation and discussion of the basic issues associated with surviving in a professional (particularly, academic) psychology environment. It covers such issues as: 1) how to get a job; 2) how to keep a job; 3) general issues in professional survival. The course will include the presence of a number of the psychology faculty in topic specific areas (e.g., journal editors from our faculty; faculty sitting on grant review panels, etc.). The issue of ethics will be examined and discussed relative to each topic raised.

**214. Applied Developmental Psychology (4)**

This seminar deals with how developmental psychologists conduct scientific studies that have direct practical implications for children's well-being. Major issues to be discussed are: child witnesses, literacy, school violence, impact of media on child development, and developmental psychopathology.

**215. Language Acquisition (4)**

Discussion of the acquisition of language by young children, including such topics as its stages, mechanisms, and relation to nonlinguistic development.

**217A. Proseminar in Developmental Psychology I (3)**

The course examines cognitive development through the school-age period. It begins with an examination of early neurological, sensory, motor, and perceptual functions and then focuses on issues in linguistic and cognitive development.

**217B. Proseminar in Developmental Psychology II (3)**

The course examines social and personality development from infancy through early adolescence. The class will first discuss general developmental theory and methods and then topics such as attachment, temperament, self-concept, aggression, family relations, play, and peers.

**218A-B. Cognitive Psychology (3-3)**

A two-quarter survey of basic principles and concepts of cognitive psychology. This course is intended to serve as the basic introduction for first-year students. Basic areas include knowledge, memory, thought, perception, and performance. The areas are taught by faculty members who work within the specialty. *Prerequisite: graduate status in psychology or consent of instructor.*

**219. Proseminar in Learning and Motivation (3)**

An overview of the experimental and applied analysis of behavior including topics such as the principles of operant and classical conditioning, stimulus control, choice, conditioned reinforcement, aversive control, biological and economic contexts, verbal behavior,

and the modification of human behavior in a variety of applied settings.

**220. Proseminar in Social Psychology (3)**

An introduction to social psychology. Psychology and the law, health psychology, attitudes, emotions, person perception and aggression are some of the topics to be covered.

**221. Proseminar in Sensation and Perception (3)**

Fundamentals of vision, audition, and other senses. Emphasis will be upon psychophysical approaches to the study of these sensory modalities, as well as some essential aspects of their neurophysiological bases.

**222. Biological Psychology (3)**

A survey of the functional neuroanatomical, neurodevelopmental, neurophysiological, and pharmacological correlates of psychological phenomena.

**223. Advanced Topics in Vision (4)**

An in-depth analysis of empirical and theoretical issues in a specialized area of vision or visual perception. Emphasis most likely will be on a topic of ongoing vision research at UCSD. *Prerequisite: Psychology 212 or special consent of instructor.*

**224. Parental Behavior: Evolution and Mechanisms (4)**

This course will broadly address evolutionary, endocrine, psychological, and neurobiological aspects of parental behavior. Topics will include the social/environmental factors which promote parental care, the role of steroid and peptide hormones in parental care, and the evolutionary forces that promote different patterns of paternal and maternal investment in young. *Prerequisite: a basic understanding of brain function.*

**225. Topics in Neural Timing (4)**

This seminar will introduce fundamentals in chronobiology research and then address specific problems in greater detail. Proposed topics include oscillator coupling, masking, circannual rhythms, photoperiodism, and non-photic influences on circadian rhythms. The seminar will read classic and contemporary literature.

**226. Color Appearance Models: Cognition and Perception (3)**

This course covers color appearance models (e.g., CIE models, OSA, etc.) and their use in perception and cognition research. Emphasis will be given to the theories underlying color appearance spaces; the derivation and interpretation of corresponding "metrics"; color-difference tolerances; plausible linking propositions for color models and neurophysiology; and the ways these models are used in psychological and psychophysical experimentation.

**227. Gender and Development (4)**

Topics will include methodology, gender differences, culture, the development of knowledge of sex roles, stereotype formation, gender as a social category, and the role of gender in peer relationships, family relationships, and achievement motivation. Gender development will be approached from different perspectives within psychology, including developmental, cognitive, and social. The course will draw from areas outside of psychology, including anthropology and sociology.

**228. Conceptions of Intelligence (3)**

This course surveys major issues in the study of intelligence. Issues to be considered are the structure of intelligence, its heritability, and significance for real-world behavior. Special emphasis will be given to accounts of intelligence based on elementary processes.

**229. Happiness (4)**

This course will address the psychology of happiness. The discussions and readings, consisting largely of original research articles, will explore such questions as: What is happiness? How do we measure it, and how do we tell who has it? What is the biology of happiness and what is its evolutionary significance? What makes people happy—youth, fortune, marriage, chocolate? Is the pursuit of happiness pointless?

**233A. Topics in Learning and Motivation (3)**

Advanced topics in learning and motivation, with special emphasis on current research. *Prerequisite: Psychology 210.*

**234. Memory and Amnesia (3)**

This course traces the history of research into animal and human short-term memory. Classic models, current viewpoints, and their attendant epistemological presuppositions will be considered. The relationship between empirical analyses of memory in animals and humans will also be reviewed.

**236. Substance Abuse (3)**

Theory and research on the development, progression, and resolution of substance use and abuse will be reviewed and evaluated. Normal and abnormal patterns of substance involvement will be contrasted across the life span.

**237. Human Rationality (4)**

The traditional view of rationality is based upon abstract, content-independent rules for behavior. People sometimes violate these rules in a laboratory setting, but the violations are often systematic and appear to reflect adaptation to the environment outside the laboratory. Such findings raise questions about what it means to be rational. Readings will be empirically oriented and cover the areas of deductive reasoning, inductive reasoning, and choice.

**239. Psychology of Sport (3)**

This seminar will focus on the applications of social psychological principles and findings to the understanding of sports.

**241. Groups (4)**

This course examines the role of groups in buffering stress, validating attitudes, improving efficiency, consolidating power, permitting loafing, rejecting deviates, and insulating its members from unpleasant outside influence. *Prerequisite: consent of instructor.*

**242A-B-C. Research Topics in Developmental Psychology (4-4-4)**

Advanced seminar concentrating on methods of research and current experimental literature. May be taken by undergraduate senior majors concurrently enrolled in Psychology 194. *Prerequisite: consent of instructor. (S/U grades permitted.)*

**243. Sound and Music Perception (3)**

This course will deal with anatomy and physiology of the ear, central auditory pathways, and neurological disorders of sound and music perception.

**244. Special Topics in Psycholinguistics (4)**

Discussion of the psychological reality of grammatical models, competence versus performance, learnability and innateness in theories of language acquisition, and questions of autonomy of "modularity" of grammatical versus semantic processing. Studies of lexical accessing, sentence comprehension, sentence production, and acquisition will all be considered, as well as some recent work in aphasia.

**245. Aphasia (4)**

Research and theory on language breakdown in brain-damaged adults is surveyed. Topics include an historical overview from linguistics, psycholinguistics, and neuroscience (especially brain imaging techniques). Credit may not be received for both Psychology 245 and Cognitive Science 251.

**247. Neuroendocrinology of Social Variation (4)**

Students will read and discuss primary literature on the general topic of how steroid and peptide hormones contribute to the production of social variation and diversity. This diversity includes seasonal variation, intersexual variation, and divergence between species in patterns of sociality and space use, pair-bonding and mating tactics, aggression, and use of communication signals.

**249A-B-C. Advanced Topics in Applied Behavior Analysis (3-3-3)**

Research and discussion on selected topics in applied behavior analysis.

**251. Advanced Topics in Learning and Motivation (3)**

Weekly meetings for graduate students actively engaged in research on conditioning. *Prerequisite: consent of instructor.*

**252. Seminar on Cognitive Neuroscience (3)**

This is a series of weekly seminars on current trends in neuropsychology. The seminars will deal with the concept of "localization" of function in different parts of the brain and the effects of damage to these parts on cognitive functions such as perception, memory and language. Active student participation will be encouraged in preparing these seminars

**253. Cognitive Psychology and Cognitive Neuroimaging (4)**

This seminar in cognitive neuroscience focuses on modern approaches to cognitive psychology as revealed through cognitive neuroimaging. A major goal of the course is to evaluate what (if anything) neuroimaging evidence has added to classic cognitive models/evidence in major areas of cognition (working memory, categorization, executive processes, decision-making, emotion, and memory).

**254. Functional Brain Imaging (3)**

Principles of magnetic resonance imaging (MRI) of the human brain, focusing on recently developed techniques for brain activation on mapping. Includes principles of NMR and imaging, anatomic MRI, and a detailed survey of functional imaging techniques and data analysis.

**255A-B-C. Advanced Topics in Biological Psychology (3-3-3)**

Research and discussion on selected topics in biological psychology.

**258. Delay of Gratification (3)**

This course will review the research on delay of gratification. We will cover what makes it in general so tough, what situations make it possible, who can do it, and what the implications of this ability are. We will draw from research in social, personality, and animal psychology as well as economics.

**259. Social Psychology/Psycho-aesthetics (3)**

This course will be an intensive examination of social psychology (legal decision-making, emotion, aggressive behavior) and the psychology of visual art and music (psycho-aesthetics).

**260. Cognitive 'Subcultures': Methodologies and Analysis (3)**

Several methods of systematic data collection (e.g., judged similarity, paired comparisons, direct scaling) and analysis (e.g., consensus modeling, principal components analysis, multidimensional scaling) are explored in a hands-on computer lab and reading seminar. The ways in which these methodologies and data handling techniques bear upon basic research issues in psychology will be illustrated, and differences in data structures arising from qualitative variation in subjects will be explored.

**261. Proseminar in History of Psychology (3)**

This course will consider the intellectual context in the nineteenth century from which psychology developed as an independent discipline. Emphasis will be on early German psychology and evolutionary theory. The second part of the course will consider the histories of different areas of psychology (e.g., behavioral, cognitive).

**262. Functional Construction of the Vertebrate Brain's Social Behavior Network (4)**

The vertebrate brain contains a network of strongly interconnected structures that play essential roles in the regulation of social behavior. In this seminar we will read and discuss primary literature that details the structure and behavioral functions of this network.

**263. Psychopharmacology (3)**

This course will explore the basic neuropharmacological mechanism of action of the major classes of drugs, including neuroleptics, stimulants, anti-depressants, minor and major tranquilizers, and sedative hypnotics. It will focus on the use of behavioral techniques for evaluating the neural mechanisms by which these drugs act.

**264A-B-C. Advanced Topics in Language Processes (4-4-4)**

Research and discussion on selected topics in language processes.

**267A-B-C. Advanced Topics in Behavior Medicine (3-3-3)**

Research and discussion on selected topics in behavior medicine.

**268A-B-C. Advanced Topics in Experimental Psychopathology (3-3-3)**

Research and discussion on selected topics in experimental psychopathology.

**269A-B-C. Advanced Topics in Sound & Music Perception (3-3-3)**

Research and discussion on selected topics in sound and music perception.

**270A-B-C. Introduction to Laboratory Experimentation (1-4)**

A basic laboratory course, designed to introduce first-year graduate students to experimental methods in psychology. The student will select a research topic, do a thorough literature review of the area, design and carry out new, original studies of problems in the selected area, and prepare a final formal report of the study at the end of the spring quarter. This course is required of all first-year graduate students in the department. *Prerequisite: first-year psychology graduate students only.*

**272. Selected Topics in Cognitive Psychology (3)**

An in-depth analysis of selected empirical and theoretical topics in cognitive psychology. The course will focus on areas where notable progress appears to be taking place in contemporary research.

**280. Seminar in Communication and Information Processing (1)**

(S/U grades only.)

**296. Research Practicum (1-12)**

Research in psychology under supervision of individual staff members. (S/U grades only.) (F,W,S)

**298. Library Research (1-12)**

Reports and surveys of the literature on selected topics. *Prerequisite: graduate students in psychology.* (S/U grades only.) (F,W,S)

**299. Independent Research (1-12)**

Independent research and thesis research. (S/U grades only.) (F,W,S)

**500. Apprentice Teaching (4)**

Required teaching practicum for students enrolled in graduate program in psychology. One four-unit course per year for four years. (S/U grades only.)