written and oral presentation of results will be stressed. (Same course as Ecology/Entomology 225.)—III. (I, III) Korb

231. Mathematical Methods in Population Biology (3) Lecture—3 hours. Prerequisite: Mathematics 16C or 21C or the equivalent. Mathematical methods used in population biology. Linear and nonlinear difference equation and differential equation models are studied, using stability analysis and qualitative methods. Partial differential equation models are introduced. Applications to population biology models are stressed. (Same course as Ecology 231.)—I. (I) Hastings

233. Computational Methods in Population Biology (3) Lecture/laboratory—2 hours; discussion/laboratory—1 hour. Prerequisite: a course in theoretical ecology (e.g., Ecology 231 or an equivalent to Environmental Science and Policy 121 from your undergraduate institution) or consent of instructor; previous programming experience required. Numerical methods for simulating population dynamics using the computational software package R. Emphasis placed on model formulation and development, theoretical concepts and philosophical principles to guide simulation efforts, model parameterization, and implementing simulations with R. (Same course as Ecology 233.) Offered in alternate years. (S/U grading only.)—II. (II) Basket, Schreiber

250A. Interdisciplinary Approaches to Biological Invasions (4) Lecture/discussion—4 hours. Prerequisite: graduate standing. An integrative consideration of biological invasions, including an overview of concepts from ecology, ecological theory, evolution, genetics, philosophy, and other areas. Emphasis on potential contributions of each area for interdisciplinary problem solving.—I. (I)

250B. Interdisciplinary Approaches to Biological Invasions (4) Lecture/discussion—4 hours. Prerequisite: graduate standing. An integrative consideration of biological invasions, including an overview of concepts from history, sociology, communications, law, policy, management, and other areas. Emphasis on potential contributions of each area for interdisciplinary problem solving.—II. (II)

251. Collaborative Project in Biological Invasions (3) Project, discussion—1 hour. Prerequisite: course 250A, 250B, or equivalent and consent of instructor. A year-long interdisciplinary collaborative project focusing on biological invasions, resulting in a paper or other suitable product presented at a symposium at the conclusion of the project. May be repeated up to five times. (S/U grading only.)—I, II, III. (I, II, III)

271. Research Conference in Ecology (1) Seminar—1 hour. Prerequisite: consent of instructor. Critical presentation and evaluation of current literature and ongoing research in ecology. Requirements include active participation in weekly discussions and the presentation of a paper or chapter once per quarter. May be repeated for credit. (S/U grading only.)—II. (II) Schoener, Schreiber

287. Advanced Animal Behavior (2) Seminar—2 hours. Prerequisite: graduate standing and consent of instructor, courses in animal behavior (Neurobiology and Behavior 102 or the equivalent), and either evolution (Ecology 100 or the equivalent) or ecology (Ecology and Evolution 101 or the equivalent). Reading, reports and discussion on current topics in animal behavior, with a focus on topics that lie at the interface between animal behavior, ecology and evolution. (Same course as Animal Behavior 287.) May be repeated two times for credit.

290. Seminar (1) Seminar—1 hour. Prerequisite: graduate standing and consent of instructor. Seminars presented by visiting lecturers, UC Davis graduate students and faculty. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III)

290C. Research Conference in Population Biology (1) Discussion—1 hour. Prerequisite: graduate standing and consent of instructor; concurrent enrollment in course 299. Presentation and discussion of faculty and graduate student research in population biology. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III)

292. Topics in Ecology and Evolution (1) Seminar—1 hour. Prerequisite: graduate standing. Seminar presented by visiting lecturers, UC Davis faculty and graduate students. May be repeated for credit. (Same course as Ecology 296.) (S/U grading only.)—I, II, III. (I, II, III)

296. Seminar in Geographical Ecology (2) Seminar—2 hours. Prerequisite: Evolution and Ecology 100 or 101 or consent of instructor. Recent developments in theoretical and experimental biogeography, historical biogeography and related themes in systematics, the biology of colonizing species, and related topics. (Same course as Geography 214.) (S/U grading only.)—III. (III) Shapiro

298. Group Study (1-5) Prerequisite: graduate standing and consent of instructor. (S/U grading only.)

299. Research (1-12) Prerequisite: graduate standing and consent of instructor. (S/U grading only.)

Population Health and Reproduction

See Veterinary Medicine, School of, on page 539.

Precision Agriculture

[College of Agricultural and Environmental Sciences] The Department of Biological and Agricultural Engineering offers a minor in Precision Agriculture, the latest farming concept that optimizes fertilizer, pesticide and water use, while minimizing environmental concerns.

Minor Program Requirements:
- This minor acquaints students with recent developments and their applications to agriculture, in geographic information systems (GIS), global positioning systems (GPS), variable rate technologies (VRT), crop and soil sensors, and remote sensing.
- The minor prepares students for challenging positions in site-specific crop management as we enter the “information age” in agriculture.

UNITS

<table>
<thead>
<tr>
<th>Precision Agriculture</th>
<th>18</th>
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<tbody>
<tr>
<td>Applied Biological Systems Technology/Landscape Architecture 150</td>
<td>9</td>
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<tr>
<td>Environmental remote Sensing 186 and 186L</td>
<td>9</td>
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<tr>
<td>Select 9 or more units from Applied Biological Systems Technology 181N, 182, Plant Sciences 100A, 100AL, 100B, 100BL, 100C, 100CL, 110A, 110B, 110BL, 110C, Plant Sciences 120D, Statistics 100</td>
<td>9</td>
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Minor Advisers: S.K. Upadhyaya, D.K. Giles

Preventive Veterinary Medicine

See Veterinary Medicine, School of, on page 539.

Psychiatry

See Medicine, School of, on page 396.

Psychology

[College of Letters and Science]

Paul Hastings, Ph.D., Chairperson of the Department

Department Office. 135 Young Hall
530-752-1880, http://psychology.ucdavis.edu

Faculty
Karen L. Bailes, Ph.D., Professor
Shelley A. Blazis, Ph.D., Associate Professor
Cameron S. Carter, M.D., Professor
(Psychiatry and Behavioral Sciences)

Rand D. Conger, Ph.D., Professor (Human Ecology)
David P. Corrino, Ph.D., Professor (Linguistics)
Richard G. Coss, Ph.D., Professor
Victoria L. Cross, Ph.D., Lecturer
Arne D. Ekstrom, Ph.D., Associate Professor
Robert A. Emmons, Ph.D., Professor
Emilio Ferrer-Caja, Ph.D., Professor
Joy Geng, Ph.D., Associate Professor
Simona Ghiotti, Ph.D., Professor
Katherine W. Gibbs, Ph.D., Lecturer
Gail S. Goodman, Ph.D., Professor
Katharine Graf Este, Ph.D., Assistant Professor
Kevin J. Grimm, Ph.D., Associate Professor
Paul D. Hastings, Ph.D., Professor
Gregory M. Herek, Ph.D., Professor
Petra Janata, Ph.D., Professor
Leah A. Krubitzer, Ph.D., Professor
Kristin H. Lagattuta, Ph.D., Associate Professor
Alison M. Ledgerwood, Ph.D., Associate Professor
Debra L. Long, Ph.D., Professor
Academic Senate Distinguished Teaching Award
Steven J. Luck, Ph.D., Professor
George R. Mangun, Ph.D., Professor
Wesley G. Moons, Ph.D., Assistant Professor
Lisa M. Oakes, Ph.D., Professor
Cynthia Pickett, Ph.D., Associate Professor
Elizabeth A. Post, Ph.D., Lecturer
Charan Ranganath, Ph.D., Professor
Susan M. Rivera, Ph.D., Professor
Robert W. Robbins, Ph.D., Professor
Jeffrey C. Schank, Ph.D., Professor
Eva Schepeler, Ph.D., Lecturer
Phillip R. Shaver, Ph.D., Professor
Jeffrey W. Sherman, Ph.D., Professor
Dean K. Simonton, Ph.D., Professor
UC Davis Prize for Teaching and Scholarly Achievement
Danielle S. Stalzenberg, Ph.D., Assistant Professor
Tamaras Y. Swaab, Ph.D., Associate Professor
Ross A. Thompson, Ph.D., Professor
Brian C. Trainer, Ph.D., Associate Professor
Matthew J. Traxler, Ph.D., Professor
Keith F. Widaman, Ph.D., Professor
Brian J. Willgen, Ph.D., Assistant Professor
Andrew P. Youlenz, Ph.D., Professor
Nolan W. Zane, Ph.D., Professor
Emeriti Faculty
Linda P. Acero, Professor Emerita
Jarvis R. Bastian, Ph.D., Professor Emeritus
Alan C. Elms, Ph.D., Professor Emeritus
Karen P. Erickson, Ph.D., Professor Emerita
Albert A. Harrison, Ph.D., Professor Emeritus

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Jarvis R. Bastian, Ph.D., Professor Emeritus
Kathryn R. Bastian, Ph.D., Professor Emeritus
Jeremy C. Kring, Ph.D., Professor Emeritus
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Albert A. Harrison, Ph.D., Professor Emeritus

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2015-2016 offering in parentheses

Pre-Fall 2011 General Education (GE): Arts/Humanities: SCIL=Science and Engineering, SOC=Social Sciences; Div=Dominant Diversity; Wrt=Writing Experience

Fall 2011 and on Revised General Education (GE): AH=Arts and Humanities; SE=Science and Engineering, SS=Social Sciences; ACH=Amercian Cultures, DD=Dominant Diversity, OL=Oral Skills, QL=Quantitative, SL=Scientific, VL=Visual, WC=World Cultures; Wrt=Writing Experience
useful to the graduate for the development of careers in a variety of areas, including social work, the ministry, teaching, business, and counseling. An undergraduate education in psychology also provides excellent preparation for graduate study. Individuals with degrees in psychology may enter graduate programs to prepare for teaching, research, or clinical/counseling careers in psychology, or may go on to professional schools for training in veterinary and human medicine, law, and many other professions.

A.B. Major Requirements:

Preparatory Subject Matter ........................................ 17-20
Psychology 1 or the equivalent .................................. 4
Psychology 41 .......................................................... 4
Statistics 13 or 102 ................................................. 4

Two courses from two of the following four groups and one course from the remaining groups: 22-24

Group A: Psychology 100 or 100Y, 130, 131, 132, 135, 136
Group B: Psychology 101, 113, 121, 122, 124, 126, 127, 129, 159
Group C: Psychology 151, 152, 154, 158, 161, 162, 168
Group D: Psychology 140; or Human Development (HDE) 100A or 100B, Psychology 141/HDE 101, Psychology 142/HDE 102, 143, 146, 148

Additional units to achieve a total of 40 upper division units in psychology .................. 16-17

A maximum of 12 approved upper division Human Development units can be credited toward satisfaction of the 40-unit requirement.

Total Units for the Major ........................................ 57-60

Biology Emphasis

B.S. Major Requirements:

Preparatory Subject Matter ........................................ 53-61
Psychology 1 or the equivalent .................................. 4
Psychology 41 .......................................................... 4
Statistics 13 or 102 ................................................. 4

Two courses from: Psychology 103A ................................... 5
Psychology 103B, 104, or 108 ....................................... 4

Mathematics 16A-16B or 17A-17B or 21A-21B .......... 6-8
Physics 10 or 7A-7B ................................................. 6-8

Biological Sciences 2A; or a combination of
Mathematics 16A-16B or 17A-17B or 21A-21B .......... 6-8
Chemistry 8A-8B or 118A-118B or 128A-128B .......... 6-8

Depth Subject Matter ................................................. 49

Seven Psychology courses distributed as specified:

Group A: Two courses from: Psychology 100 or 100Y, 130, 131, 132, 135, 136 .................................. 8
Group B: Three courses from: Psychology 101, 113, 121, 122, 123, 126, 127, 129, 159 .................................. 11-12
Group C: One course from: Psychology 151, 152, 154, 158, 161, 162, 168 .................................. 4
Group D: One course from: Psychology 140 (or Human Development (HDE) 100A or 100B), Psychology 141/HDE 101, Psychology 142/HDE 102, 143, 146, 148 .................................. 4

Additional units to achieve a total of 40 upper division units in psychology.................. 12-13

A maximum of 12 approved upper division Human Development units can be credited toward satisfaction of the 40-unit requirement.

Mathematics 101 ....................................................... 4
Neurobiology, Physiology, and Behavior 101 ............ 5

Total Units for the Major ........................................ 102-110

Recommended


Mathematics Emphasis

B.S. Major Requirements:

Preparatory Subject Matter ........................................ 41-54
Psychology 1 or the equivalent .................................. 4
Psychology 41 .......................................................... 4
Statistics 13 or 102 ................................................. 4

Two courses from: Psychology 100, 130, 131, 132, 135, 136 .................................. 8
Group B: Two courses from: Psychology 101, 113, 121, 122, 123, 126, 127, 129, 159 .................................. 7-8
Group C: One course from: Psychology 151, 152, 154, 158, 161, 162, 168 or

Group D: One course from: Psychology 140 (or Human Development (HDE) 100A or 100B), Psychology 141/HDE 101, Psychology 142/HDE 102, Psychology 143, 146, 148 .................................. 4
Psychology 103A ....................................................... 5

One course from: Psychology 103B, 104, or the equivalent

Additional units to achieve a total of 40 upper division units in psychology .................. 11-12

A maximum of 12 approved upper division Human Development units can be credited toward satisfaction of the 40-unit requirement.

Total Units for the Major ........................................ 90-103

Recommended for All Majors, Students who plan to do graduate work in any area of psychology are strongly encouraged to complete Statistics 13 and Psychology 103A or both Statistics 13 and 102. Psychology 41 is a prerequisite for most upper division courses. Psychology 41 and Statistics 13 or 102 should be completed in the first year.

Major Advisers


Human Development course credit, Human Development 102, 100B, 100C, 101, 102, 120, and 121 can be used to extend the 40-unit
upper division major requirement to a maximum of 12 units. Students who have completed Human Development 100A or 100B will receive 2 units of credit for Psychology 140.

**Minor Program Requirements:**

**UNITS**

Psychology 1 or the equivalent.**...**

One course each from the following four groups.**...**

Group A: Psychology 100, 130, 131, 132, 135, 136

Group B: Psychology 101, 113, 121, 122, 123, 126, 127, 129, 159

Group C: Psychology 151, 152, 154, 158, 161, 162, 168

Group D: Psychology 140, 141 142, 143, 146, 148

Additional units to achieve a total of 20 upper division units.**...**

One course selected from: Human Development 100A, 100B, 100C, 101, 102, 120, 121 can be used toward satisfying the minor upper division unit requirement.

**Honors and Honors Program.** In order to be eligible for high or highest honors in Psychology, the student must both meet the college criteria for honors and complete a research project involving a mini-

mum of six units of course work over at least two quarters which represents an original analysis of data on a psychological phenomena. Course 194HA-194HB or other approved courses can be used to satisfy the unit requirement. This project is to be written in thesis form and approved by the department.

The quality of the thesis work will be the primary determinant for designating high or highest honors at graduation.

**Graduate Study.** The Department offers programs of study and research leading to the Ph.D. degree in Psychology. Detailed information regarding graduate study may be obtained at the Department Office or on our website.

**Graduate Adviser.** See http://gradstudies.ucdavis.edu/programs/program-detail; clid=79

**Courses in Psychology (PSC)**

**Lower Division**

1. **General Psychology (4)**

   Lecture—4 hours. Introduction emphasizing empiri-

   cal approaches. Focus on perception, cognition, per-

   sonality and social behavior. Limited enrollment.

   41. Research Methods in Psychology (4)

   Lecture—3 hours; laboratory—2 hours. Prerequisite:

   course 13 or 121. Introduction to experimental de-

   sign, research methods to examine these questions. Criti-

   cal thinking will be encouraged by expository writ-

   ing and problem-solving based on empirical data.

   120. Agent-Based Modeling (4)

   Lecture/laboratory—4 hours. Prerequisite: course

   101. The biology of behavioral development; sur-

   vey and integration of the organismic and envi-

   ronmental processes that regulate the development of

   behavior.—I, II, III (III) Schank

   121. Physiological Psychology (4)

   Lecture—3 hours; laboratory—3 hours. Prerequisite:

   courses 1, 41, 101. Pass One open to Psychology

   majors. Introduction to experimental design, pro-

   cedures, or special activities such as fieldwork or lab-

   oratory work. May not be repeated for credit. Offered

   regularly.

   99. Special Study for Lower Division

   Students (1-5)

   [P/NP grading only.]

   100. Introduction to Cognitive Psychology (4)

   Lecture—4 hours. Prerequisite: courses 1 and 41.

   Introduction to human information processing, men-

   tal representation and transformation, imagery,

   attention, memory, language processing, concept

   formation, problem solving, and computer simula-

   tion. Not open for credit to students who have com-

   pleted former course 136.—I, II, III (II, III, III) v,

   Ekstrom, Gibbs, Long, Luck

   100Y. Introduction to Cognitive Psychology (4)

   Web virtual lecture—3 hours; discussion—1 hour;

   lecture—1 hour. Prerequisite: courses 1; 41. In-

   troduction to human information processing, mental

   representation and transformation, imagery, atten-

   tion, memory, language processing, concept forma-

   tion, problem solving, and computer simulation. Not

   open for credit to students who have completed for-

   mer course 136 or current course 100.—II, III, (II, III) Luck

   101. Introduction to Psychology (4)

   Lecture—4 hours. Prerequisite: courses 1, 41. Sur-

   vey and integration of the relationships between

   behavior and biological processes, including physi-

   ology, genes, development, ecology, and evolu-

   tion.—I, II, III (II, III, III) Coss, Krubitzer, Schank,

   Stolzenberg, Trainor

   103A. Statistical Analysis of Psychological Data (5)

   Lecture—4 hours; laboratory—2 hours; term paper.

   Prerequisite: course 1, 41 and Statistics 13 or 102.

   Pass One open to Psychology majors. Design and

   statistical analysis of psychological investigations

   and the interpretation of quantitative data in psychol-

   ogy. Not open for credit to students who have com-

   pleted course 103. GE credit: QL—II, II, (II, II)

   Blazos, Grimm, Widaman

   103B. Statistical Analysis of Psychological Data (5)

   Lecture—4 hours; laboratory—2 hours. Prerequisite:

   course 103A, Statistics 13 or 102. Pass One open to

   Psychology majors. Probability theory, sampling

   distributions, statistical inference, and hypothesis

   testing using standard parametric and correlational

   approaches. Simple regression analysis, multiple

   regression analysis, non-parametric statistics, intro-

   duction to multivariate statistics, with applications in

   psychology. Not open for credit to students who have

   completed course 105. GE credit: QL—II, II, (II, II)

   Blazos, Ferrer, Grimm, Widaman

   104. Applied Biometrics: An Introduction to Measurement

   Theory (4)

   Lecture—4 hours. Prerequisite: upper division stand-

   ing in Psychology, courses 41 and 103, Statistics

   13. Examination of the basic principles and applica-

   tions of classical and modern test theory. Topics

   include test construction, reliability theory, validity

   theory, factor analysis and latent trait theory.

   Offered irregularly. GE credit: QL—Grimm, Wida-

   man

   107. Questionnaire and Survey Research Methods (4)

   Lecture/discussion—2 hours; laboratory/discus-

   sion—2 hours. Prerequisite: consent of instructor;

   course 1, course 41 or an equivalent course on

   social or behavioral research methods. Limited

   enrollment. Introduction to survey and questionnaire

   research methods with emphasis on theory and tech-

   niques. Social and psychological factors that influence

   survey response. Practical aspects of fielding survey

   and questionnaire research. Limited enrollment.

   Offered irregularly. GE credit: QL—Herlitz

113. Developmental Psychology (4)

   Lecture—3 hours; laboratory—2 hours. Prerequisite:

   course 101. The biology of behavioral development;

   survey and integration of the organismic and envi-

   ronmental processes that regulate the development of

   behavior.—I, II, III (III) Schank

   120. Agent-Based Modeling (4)

   Lecture/laboratory—4 hours. Prerequisite: course

   101. Introduction to agent-based computer simulation and analysis with emphasis on learning how to model animals, including humans, to achieve insight into social and group behavior. Limited enrollment. GE credit: QL—Herlitz

122. Advanced Animal Behavior (4)

   Lecture—3 hours; laboratory—3 hours. Prerequisite:

   course 101 or Neurobiology, Physiology, and

   Behavior 102. Pass One open to Psychology majors.

   Advanced integrative survey of biological principles

   of behavioral organization, emphasizing historical

   roots, current research directions, conceptual issues

   and controversies. Laboratory exercises on the

   description and analysis of the behavior of captive

   and free living animals. (Same course as Neurobiol-

   ogy, Physiology, and Behavior 150.) Not open for

   credit to students who have completed course 108.

   (Former course 150.) Offered irregularly.

123. Hormones and Behavior (3)

   Lecture—3 hours. Prerequisite: Neurobiology, Physi-

   ology, and Behavior 101 and either course 101 or

   Neurobiology, Physiology, and Behavior 102. Pass One open to Psychology majors. Advanced

   integrative survey of biological principles of

   behavioral organization, emphasizing historical

   roots, current research directions, conceptual issues

   and controversies. Laboratory exercises on the

   description and analysis of the behavior of captive

   and free living animals. (Same course as Neurobiol-

   ogy, Physiology, and Behavior 150.) Not open for

   credit to students who have completed course 150.

   (Former course 150.) Offered irregularly.

124. Comparative Neuroanatomy (4)

   Lecture—3 hours; laboratory—2 hours. Prerequisite:

   course 101 or Neurobiology, Physiology, and

   Behavior 101 or 102. Overview of the neuroanat-

   omy of the nervous system in a variety of mamma-

   lian and non-mammalian vertebrates. Examine

   changes or modifications to neural structures as a

   result of morphological or behavioral specializa-

   tions. (Same course as Neurobiology, Physiology,

   and Behavior 124.) GE credit: SL—II, (II) Krubitzer,

   Recanzone

125. Behavioral Genetics and Epigenetics (3)

   Lecture—3 hours. Prerequisite: course 101. Review

   of basic principles in genetics and select topics in

   epigenetics with emphasis on behavior. Use of mod-

   ern molecular methods to outline complex relation-

   ships between genes, environment, and behavior.—

   II, III (III) Stolzenberg, Trainor
126. Health Psychology (4)
Lecture—4 hours. Prerequisite: course 1, 41, 101. Pass One open to Psychology majors only. Psychological factors affecting health and illness. Topics include stress and coping, personality and health, symptom perception and reporting, heart disease, cancer, smoking, nutrition, mental health maintenance and promotion. Not open for credit to students who have completed course 160.—II, III (II, III) Emmons, Moons

127. Animal Cognition (4)
Lecture—3 hours; term paper or discussion.—1 hour. Prerequisite: course 110, 101. Pass One open to Psychology majors. Integrative review of the historical backdrop, theoretical issues, and scientific methods underlying animal cognition in a wide range of species. Emphasis on learning processes, pattern recognition, and the neurobiology of learning and memory. Not open for credit to students who have completed course 134 (former course 134). Offered irregularly.—Coss

130. Human Learning and Memory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1, 41, 100, and either Statistics 13 or 102 or consent of instructor. Consideration of major theories of human learning and memory with critical examination of relevant experimental data.—I, II, III. (II, III) Ranganath, Yonelinas

131. Perception (4)
Lecture—3 hours; independent library work. Prerequisites: introductory psychology and upper-division courses in language, higher-level perceptual and motor processes, related to measurable physical energy changes mediated through sensory channels. The perception of objects, space, motion, events.—II. (II) Geng

132. Cognitive Neuroscience: The Biological Foundations of the Mind (4)
Lecture—4 hours; Prerequisite: course 1, 41, or consent of instructor. Introduction to the cognitive processes involved in language comprehension and production. Topics include the biological foundations of language, speech perception, word recognition, syntax, reading ability, and pragmatics. GE credit: WE.—I, II, III. (II, III) Long, Swaab, Traxler

133. Learning, Intelligence, and Development (4)
Lecture—3 hours; term paper. Prerequisites: courses 1, 41, 100, or consent of instructor. Consideration of the neural processes involved in language comprehension and production. Topics include the biological foundations of language, speech perception, word recognition, syntax, reading ability, and pragmatics. GE credit: WE.—I, II, III. (II, III) Eksstrom, Geng, Janata, Mungan, Ranganath

136. Psychology of Music (4)
Lecture/discussion—3 hours; term paper. Prerequisite: courses 1, 41, and either 100 or 131 or Music 6C; or consent of instructor. Introduction to the mental and neural representations of musical structures and processes involved in perceiving, remembering, and performing music. Music and emotion. GE credit: WE. —II, III. (III) Janata

137. Neuroscience of Learning and Memory (4)
Lecture—4 hours. Prerequisite: courses 1, 41, 109. Overview of the neural basis of learning and memory and their role in behavior. Prerequisite: course 110 or 140 or Human Development 100A. Not open for credit to students who have completed course 168 (former course 133). GE credit: WE. —II, III. (III) Ekstrom

140. Developmental Psychology (4)
Lecture—4 hours. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Ontogenetic account of human behavior through adolescence with emphasis on the role of brain, intelligence, abilities, motivation, and social interaction. Two units of credit allowed to students who have completed Human Development 100A or 100B. Not open for credit to students who have completed course 112. (Former course 112.)—I, II, III. (II, III) Cross, Goff, Gibbs, Goodman, Graf Estes, Lagattuta, Oakes

141. Cognitive Development (4)
Lecture—3 hours; term paper. Prerequisite: Human Development 100A or 100B or course 140. Pass One open to Psychology major. Cognitive development of the young child. Emphasis on research in child psychology major. Topics, methods, evidence, and debates in the field of cognitive development, such as nature/nurture, constraints on learning, and the role of plasticity. Topics include conceptualization, language, memory, concepts about the physical and social world, and language. (Same course as Human Development 100.) GE credit: Writ | WE.—I, II, III. (II, III) Chen, Cross, Goff, Gibbs, Goodman, Graf Estes, Lagattuta, Rivera

142. Social and Personality Development (4)
Lecture—3 hours; term paper. Prerequisite: Human Development 100A or 100B or course 140. Pass One open to Human Development or Psychology majors. Social and personality development of children, infancy through adolescence. Topics include the development of social identity and self-concept, motivation, self-understanding, sex-role identity, and antisocial behavior. Emphasis on the interface between biological and social factors. (Same course as Human Development 102.) GE credit: SocSci, Writ | WE, SS.—I, II, III. (II, III) Beksky, Gibbs, Hastings, Thompson

143. Infant Development (4)
Lecture—3 hours; extensive writing. Prerequisite: courses 1 and 41, or consent of instructor. Cognition and emotion, attachment, and social relationships of human infants. Not open for credit to students who have completed course 144. (Former course 133.) GE credit: WE. —II, III. (III) Goff, Rivera

146. The Development of Memory (4)
Lecture—3 hours; term paper. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Theory and research on memory development with focus on infancy and childhood. Not open for credit to students who have completed course 133. (Former course 133.) GE credit: WE.—II, III. (III) Goff, Rivera

148. Developmental Disorders (4)
Lecture/discussion—3 hours; term paper. Prerequisite: courses 1, 41, and either 140 or 141 or Human Development 100A or 100B. Current scientific knowledge of the influences of biological, cognitive, and environmental factors on the emergence of disorders with onset in childhood. Examples include autism spectrum disorder, ADHD, Tourette's, and dyscalculia. Emphasis placed on understanding these disorders, their causes and their treatments.—I, II, III. (II, III) Rivera

151. Social Psychology (4)
Lecture—4 hours. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Behavior of the individual in the group. Examination of basic psychological processes in social situations, including variables such as roles and status. Not open for credit to students who have completed course 145. (Former course 145.)—I, II, III. (II, III) Pickett, Legderwood, Moons, Sherman

152. Social Cognition (4)
Lecture—4 hours. Prerequisites: courses 1 and 41. Examines how social factors influence how we attend to, encode, and process information and how these mental processes influence judgments and behavior.—II, III. (II, III) Pickett, Sherman

153. Psychology and Law (4)
Prerequisite: courses 1, 41. Pass One open to Psychology majors. Current theoretical and empirical issues in the study of psychology and law. Topics include eyewitness testimony, child abuse, jury decision making, juvenile delinquency and criminality, prediction of violence, insanity defense, and memory for traumatic events. Not open for credit to students who have completed course 115. (Former course 115.) Offered in alternate years.—II. Goodman

154. Psychology of Emotion (4)
Lecture—4 hours. Prerequisite: course 1, 41. Pass One open to Psychology majors. Introduction to current theories and research on emotion. Emphasis on the role of emotion on behavior and mental processes. Topics include stress and coping, personality and health, symptom perception and reporting, heart disease, cancer, smoking, nutrition, mental health maintenance and promotion. Not open for credit to students who have completed course 145.—II, III. (II, III) Moons, Shaver

155. Environmental Awareness (4)
Lecture—4 hours. Prerequisite: course 1, 41. Pass One open to Psychology majors. Interactions of people and the environment they construct. Research methods for evaluating design and environmental reviews of current research in environmental psychology. Not open for credit to students who have completed course 144. (Former course 145.) Offered irregularly. GE credit: SocSci | SS.—Coss

157. Stereotyping, Prejudice, and Stigma (4)
Lecture/discussion—4 hours. Prerequisite: course 151. Social psychological underpinnings of stereotypic prejudice and stigma. Topics include origins, maintenance, change, effects on person perception and memory, and the automatic vs. controlled processing of stigmatizing information. GE credit: Div. —II. (II) Sherman

158. Sexual Orientation and Prejudice (4)
Lecture/discussion—4 hours. Prerequisite: course 1, 41. Pass One open to Psychology majors. Current scientific knowledge about sexual orientation and prejudice based on sexual orientation. Emphasis on learning the skills necessary for a critical understanding of scientific and public policy issues relevant to sexuality. GE credit: SocSci, Div. Writ | AGCH, DD, SS, WE. —II. (III) Herek

159. Gender and Human Reproduction (4)
Lecture—4 hours. Prerequisite: course 1 and 41. Pass One open to Psychology majors. Psychology of reproduction. Reproductive events over the course of an individual's life, including sexual development, mate choice, relationships, and reproduction. Biological and social psychological explanations at the levels of mechanism and evolutionary function. Not open for credit to students who have completed former course 149. (Formally course 149.)—III. (III) Scheib

161. Psychology of the Self (4)
Lecture—4 hours. Prerequisite: courses 1 and 41. Psychological theory and research on the self. Topics include self-knowledge, self-esteem, self-regulation, self-presentation, cognitive and emotional aspects of the self, and the role of the self in shaping social interaction.—I. (I) Pickett

162. Introduction to Personality Psychology (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 41. Pass One open to Psychology majors. An empirical and scientific study of personality. Overview of current research and theory in the field of personality psychology. Not open for credit to students who have completed former course 147. GE credit: SocSci, Writ | SS.—II, III. (II, III) Robins, Shaver

165. Introduction to Clinical Psychology (4)
Lecture—4 hours. Prerequisites: courses 1, 41, 168, and either 140 or 151. Major theoretical formulations in the history of clinical psychology, from classical psychodynamic to contemporary existentialist and behavior modification. A survey, based on lectures, films, and tapes, of classical psychological ideas, including methods of appraisal, professional roles, and approaches to treatment.—III. (III) Zane

168. Abnormal Psychology (4)
Lecture—4 hours. Prerequisite: course 1, 41. Abnormal psychological conditions and their treatment. Descriptive and functional analyses of behavioral disorders, with primary consideration given to neurotic and psychotic behavior. GE credit: SocSci | SS.—I, II, III. (II, III) Schepeler, Zane
170. Psychology of Religion (4) Lecture—4 hours. Prerequisite: courses 1 and 41. Major theories, issues, data, and research methodology of the psychology of religion. Religious experience and expression; religious development in childhood, adolescence, and adulthood; conversion; religious issues in physical and mental health, cross-cultural perspectives. GE credit: Div. Wrt | WE.—III. (III.) Emmons

175. Genius, Creativity, and Leadership (4) Lecture—3 hours; term paper. Prerequisite: course 1 and 41 or the equivalent or consent of instructor. The phenomenon of genius as examined from a diversity of theoretical, methodological, and disciplinary perspectives; with an emphasis on outstanding creativity and leadership in art, music, literature, philosophy, science, war, and politics. GE credit: SocSci. Wrt | SS, WE.—I, II, III. (I, II, III.) Simonton

180A. Research in Cognitive and Perceptual Psychology (4) Lecture—2 hours; laboratory—4 hours. Prerequisite: course 41 and four upper-division Psychology courses and consent of instructor. Empirical research on selected topics in general experimental psychology (general research design and analysis, perception, cognition, cognitive development, etc.). Specific content will vary from quarter to quarter. May be repeated one time for credit when content differs. Offered irregularly.

180B. Research in Psychobiology (4) Lecture—2 hours; laboratory—4 hours. Prerequisite: course 101, three additional upper-division courses in Psychology, and consent of instructor. Empirical research on selected topics in psychobiology (animal learning and memory, physiological and sensory psychology, developmental psychobiology, computer modeling of neural systems). Content varies. May be repeated one time for credit when content differs. Offered irregularly.

180C. Research in Personality and Social Psychology (4) Lecture—2 hours; laboratory—4 hours. Prerequisite: course 41, and four upper-division Psychology courses and consent of instructor. Empirical research on selected topics in personality and social psychology (personality, social psychology, organizational psychology, etc.). Content will vary from quarter to quarter. May be repeated one time for credit when specific content differs. Offered irregularly.

185. History of Psychology (4) Lecture—3 hours; term paper. Prerequisite: courses 1, 41, upper division standing or consent of instructor. Past and present directions in psychology majors. Development of psychological thought and research in context of history of philosophy and science. Not open for credit to students who have completed course 120. (Former course 120.) GE credit: SocSci. Wrt | SS, WE.—I. (I.) Simonton

190. Seminar in Psychology (4) Seminar—4 hours. Prerequisite: junior or senior standing; major in psychology or consent of instructor. Intensive treatment of a special topic or problem of psychological interest. May be repeated for credit in different subject area.—I, II, III. (I, II, III.)

190X. Upper Division Seminar (1-2) Seminar—1-2 hours. Prerequisite: upper division standing and consent of instructor. In-depth examination at an upper division level of a special topic in Psychology. Emphasis on student participation in learning. May not be repeated for credit. Limited enrollment.

192. Fieldwork in Psychology (1-6) Fieldwork—1-6 hours. Prerequisite: upper division standing in psychology and consent of instructor. Supervised intership off and on campus, in community and/or industrial settings. Maximum of four units may be used towards satisfaction of upper division major requirement. May be repeated one time for credit. Limited enrollment (P/NP grading only.)

194HA-194HB. Special Study for Honors Students (3-3) Independent study—9 hours. Prerequisite: senior standing in Psychology and qualifications for admission into college honors program, and consent of instructor; at least one course from 180A, 180B, 180C or 199 strongly recommended. Directed research. Supervision and writing leading to submission of a Senior Honors thesis under the direction of faculty sponsor. (Deferred grading only, pending completion of sequence.) GE credit: WE.—II. (II.)

197T. Tutoring in Psychology (1-3) Tutoring—1-3 hours. Prerequisite: upper-division standing and consent of instructor. Intended for advanced undergraduate students who will lead discussion sections in Psychology courses. May be repeated for credit for a total of 8 units. (P/NP grading only.)

198. Directed Group Study (1-5) Prerequisite: consent of instructor. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5) (P/NP grading only.)

Graduate

200. Proseminar in Psychology (3) Seminar—2 hours; independent study—1 hour. Prerequisite: graduate standing in Psychology or consent of instructor. Introduces matriculating graduate students to research activities of departmental faculty. (S/U grading only.)—I. (I.)

201. Research Preceptoryship (4) Laboratory—3-4 hours; discussion—3-5 hours. Prerequisite: consent of instructor. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

202. Research Seminar (1) Seminar—1 hour. Prerequisite: graduate standing in psychology. Presentation of graduate research to program faculty and graduate students. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

204A. Statistical Analysis of Psychological Experiments (5) Lecture—4 hours; laboratory—2 hours. Prerequisite: Statistics 102 or equivalent; graduate standing in Probability theory, sampling distributions, statistical inference, and hypothesis testing using standard parametric and correlational approaches. Analysis of variance, factorial and repeated measures, and tests of trends. Not open for credit to students who have completed course 206—II. (II.) Ferrer, Widaman

204B. Causal Modeling of Correlational Data (4) Lecture—4 hours. Prerequisite: course 204A or the equivalent or consent of instructor. Examination of the methods used to make causal inferences from correlational data in the behavioral sciences. Emphasis on testing rival causal models using correlations among observed variables. Beginning with multiple regression analysis, discussion advances to path analysis and related techniques.—II. (II.) Widaman

204D. Advanced Statistical Inference from Psychological Experiments (5) Lecture—4 hours; laboratory—2 hours. Prerequisite: course 204A or consent of instructor. Advanced topics in statistical inference, which may include probability theory, sampling distributions, statistical inference and hypothesis testing, nonparametric statistics, Bayesian approaches, and advanced issues in analysis of variance. Not open for credit to students who have completed course 205—III. (III.)

204F. Applied Multivariate Analysis of Psychological Data (4) Lecture—4 hours. Prerequisites: three courses from 204A, 204B, 204C, 204D or the equivalents, or consent of instructor. Review of the major methods of multivariate data analysis for psychological data. Statistical routines using a linear algebra-based computer program language. Topics include multivariate analysis of variance, discriminant analysis, canonical analysis, factor analysis, and correlation analysis. Not open for credit to students who have completed course 207B. (Former course 207B.) Offered in alternate years.—II. Ferrer

205B. Factor Analysis (4) Lecture—4 hours. Prerequisite: graduate standing, course 204A and 204B or the equivalent or consent of instructor. Theory and methods of factor analysis, including exploratory factor analysis, confirmatory factor analysis, and principal component analysis. Offered in alternate years.—II. Widaman

205C. Structural Equation Modeling (4) Lecture—3 hours; term paper. Prerequisite: graduate standing; course 204A and 204B or the equivalent or consent of instructor. Theory and methods of structural equation modeling, including path analysis, confirmatory factor analysis, multiple-group modeling and latent growth curve modeling. Offered in alternate years.—Ferrer, Grimm, Widaman

205D. Multilevel Models (4) Lecture—4 hours. Prerequisite: course 204A, graduate standing or consent of instructor. Introduction to statistical techniques for the analysis of normal, hierarchically structured data, such as cross-classification of clustered data or repeated-measures data. Topics include hierarchical linear models, latent growth curve models, and how these methods handle unbalanced and/or missing data.—II. (II.)

205E. Applied Psychometrics and Measurement Theory (4) Lecture—4 hours. Prerequisite: course 204A or equivalent; graduate standing in Psychology or consent of instructor. Examination of the basic principles and techniques of psychometrics and measurement theory. Topics include test construction, reliability theory, validity theory, factor analysis, and latent trait theory. Not open for credit to students who have completed courses 204A or 204B. Offered in alternate years.—III. Widaman

205F. Item Response Theory (4) Lecture—3 hours; term paper. Prerequisite: course 204A or the equivalent; graduate standing in Psychology or consent of instructor. Item response theory allows for the creation of precise measurement instruments in psychological testing. Review Classical Test Theory, and then cover basic IRT models through advanced applications. Offered in alternate years.—III. (III.) Pickett, Shum

206A. Theoretical Foundations: Research Methods in Psychology (4) Lecture/discussion—3 hours; lab paper. Restricted to graduate student status. Examines the philosophy and research practices underlying experimental psychology. Topics to be covered include philosophy of science/epistemology, research methods, and bias in research, theory development, validity, the social context of research, and critical thinking about research. Offered irregularly.—III. (III.) Grimm

206B. Research Methods in Psychology: Applications in Social-Personality Research (4) Lecture/discussion—3 hours; lab paper. Restricted to graduate student status. Examines the philosophy and research practices underlying experimental psychology. Focus on the practical issues that arise when using each method in specific research contexts. Offered in alternate years.—II. (II.)

207. Survey and Questionnaire Research Methods (4) Lecture/discussion—4 hours. Prerequisite: completion of a course on social or behavioral research methods, graduate standing. Survey and questionnaire research methods with emphasis on how to ask questions, Cognitive, motivational, and social processes that influence how respondents answer questions; sampling techniques; Internet resources; practical aspects of fielding survey and questionnaire research. Offered irregularly.—I. (I.) Herik

Quarter Offered: T=Fall, II=Winter, III=Spring, IV=Summer; 2015-2016 offering in parentheses

Pre-Fall 2011 General Education (GE): ArtHum—Arts and Humanities; SCIEng—Science and Engineering, SocSci—Social Sciences; Div=Domestic Diversity; Wrt=Writing Experience

Fall 2011 and on Revised General Education (GE): AH=Arts and Humanities; SE=Science and Engineering, SS=Social Sciences; ACHG=American Cultures, DD=Domestic Diversity, OL=Oral Skills, QL=Quantitative, SL=Scientific, VL=Visual, WC=World Cultures; Wrt=Writing Experience
208. **Physiological Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. A conceptual analysis of the research in endocrinology, neuroendocrinology, neurophysiology, and neurochemistry to an understanding of animal and human behavior.—III. Bales

208A. **Fundamentals of Human Electrophysiology (4)**
Lecture/discussion—1.5 hours; laboratory—3 hours; extensive problem solving—1.5 hours; project—3 hours. Restricted to 15 students. In-depth introduction and hands-on experience with the event-related potential (ERP) method in the study of attention, executive control, memory, language and social cognitive neuroscience.—II. (II.) Luck, Swaab

209A. **Introduction to Programming: Matlab (4)**
Lecture/laboratory—3 hours. Prerequisite: graduate standing or consent of instructor. Matlab programming environment as a means of organizing, analyzing, and visualizing scientific data. Basic programming concepts such as variables, loops, conditional branching, and efficient programming techniques will be emphasized. Offered irregularly.

210. **Fundamentals of Cognitive Neuroimaging (3)**
Lecture/discussion—3 hours. Prerequisite: basic knowledge of inferential statistics and experimental psychology. Introduction to empirical foundations and methodology of neuroimaging, emphasizing pragmatics of functional magnetic resonance imaging (fMRI) to study cognition. Topics include MRI physics, the relationship between neural activity and the BOLD signal, brain activity design, and analysis of fMRI data.—Ranganath

211. **Advanced Topics in Neuroimaging (2)**
Seminar—2 hours. Prerequisite: course 210 or consent of instructor. Restricted to 16 students. Critical presentation and discussion of the most influential advanced issues in neuroimaging, emphasizing fMRI design/analysis and the integration of fMRI with EEG/MEG (Same course as Neuroscience 211 and Neurobiology, Physiology, and Behavior 211)(S/U grading only).—II. (II.) Miller

212A. **Developmental Psychology: Cognitive and Perceptual Development (4)**
Seminar—4 hours. Prerequisite: graduate standing or consent of instructor, completion of undergraduate or graduate course on developmental psychology or human development. Theories and empirical findings concerning human cognitive and perceptual development. Topics include perception, memory concepts (e.g., theory of mind, concepts about number), problem solving, and language from infancy to adolescence.—I. Gheiti, Goodman, Graf Estes, Lagattuta

212B. **Developmental Psychology: Social, Emotional, and Personality Development (4)**
Seminar—4 hours. Prerequisite: graduate standing or consent of instructor, completion of a undergraduate or graduate course on developmental psychol ogy or human development. Theories and empirical findings concerning human social, emotional, and personality development. Development of emotions, moral reasoning and behavior, personality, self-concept, and social cognition from infancy to adolescence (may include adulthood).—Thompson

212D. **Behavioral Genetics (4)**
Lecture—3 hours; laboratory/discussion—1 hours; term paper. Prerequisite: graduate standing. Restricted to 20 students. Review basic principles in genetics and select topics in molecular genetics with emphasis on behavior. Use of modern molecular methods to outline complex relationships between genes, environment, and behavior. Not open for credit to students who have completed course 221—II. (II.) Trainor

218A. **Fundamentals of Animal Behavior (5)**
Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; upper-division undergraduate introduction to the biology of behavior, such as course 101, 122, 123, Neurobiology, Physiology, and Behavior 102, 103, 152, Wildlife, Fish, and Conservation Biology 141, Entomology 104, or Animal Science 105. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ethology, neuroethology, neurobiology, endocrinology, and animal science. (Same course as Animal Behavior 218A).—I. (I.) Sih

218B. **Fundamentals of Animal Behavior (5)**
Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; course 209A. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ethology, neuroethology, neurobiology, endocrinology, and animal science. (Same course as Animal Behavior 218B).—II. (II.) Dukas

220. **History of Psychology (4)**
Lecture—2 hours; seminar—2 hours. Prerequisite: graduate standing in psychology or consent of instructor. A lecture-seminar on the history of psychology and on the applicability of early psychologi cal theory and research to contemporary investigations. Offered in alternate years.—Simonton

221. **Academic Writing in Psychology (4)**
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Class size limited to 10. Strategies for developing and honing academic writing skills and writing productivity, with a particular focus on how to produce a clear and compelling empirical journal article in psychology. May be repeated four times for credit with consent of instructor if student chooses to focus on a substantially different writing project. Offered irregularly.—I. Ledgerwood

230. **Cognitive Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Analysis of the mental processes by which knowledge is acquired, manipulated, stored, retrieved and used. Offered in alternate years—II. (II.) Long, Mangan

231. **Sensation and Perception (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Analysis of the role of sensory processes and perception in experience and their effects on behavior. Offered in alternate years.—III. (III.)

241. **Attitudes and Social Influence (4)**
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Survey of theory and research in the study of social influence. Topics include attitude definition and measurement, major theories of attitude formation and change, the relationship between attitudes and behavior, and recent directions and controversies. Offered irregularly.—Ledgerwood

243. **Social Cognition (4)**
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Processes underlying the perception, memory, and social stimuli, the effects of social and affective factors on cogni tion, and the interpersonal consequences of those processes. Topics include automaticity/control, motivated cognition, stereotyping, attitudes, and persuasion. Offered irregularly.—Pickett, Sherman

244. **Stereotyping, Prejudice, and Stigma (4)**
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. This course examines the social psychological underpinnings of stereotyping, prejudice, and stigma, including sociocultural, motivational, and evolutionary factors. Offered irregularly.—Herek, Sherman

245. **Social Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Theory and research in social psychology.—III. (III.) Johnson, Pickett, Robins

247. **Personality (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Theory and research in personality—II. (II.) Robins

250. **Comparative Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. The study of animal behavior in an evolutionary and comparative framework.—II.

251. **Topics in Genetic Correlates of Behavior (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Critical study in a selected area of psychology. May be repeated for credit when topics differ. Offered in alternate years.

261. **Cognitive Neuroscience (4)**
Lecture—4 hours; discussion—1 hour. Prerequisite: graduate student standing in Psychology or Neuroscience or consent of instructor. Graduate core course for neuroscience. Neurobiological bases of higher mental function in feeding attention, memory, and language. One of three in three-quarter sequence. (Same course as Neuroscience 223.)—I. (I.) Ran ganath, Swaab

263. **Topics in Cognitive Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Selected topics in language processing, memory, perception, problem solving, and thinking, with an emphasis on the common underlying cognitive processes. May be repeated for credit when content differs. Offered in alternate years.

264. **Topics in Psycholinguistics (4)**
Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Discussion of fundamental issues in the psychology of language. May be repeated for credit when content differs. Offered in alternate years.

270. **Topics in Personality and Social Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing or consent of instructor. Critical study of a selected area of personality or social psychology. May be repeated for credit when content differs.

272. **Topics in Developmental Psychology (4)**
Seminar—4 hours. Prerequisite: graduate standing in Psychology or consent of instructor. Selected topics in developmental psychology, including development of fundamental neuroscience, memory development, infancy, cognitive development, social development, child maltreatment, children and law, perceptual development, emotional development, children and adolescence, with emphasis on developmental processes and developmental theory. May be repeated for credit. Offered irregularly.

289A. **Current Research in Psychology (2)**
Seminar—2 hours. Prerequisite: graduate standing in Psychology or consent of instructor. Contemporary theory and empirical research in specialized topics in psychology. Topics include developmental attachment, social neuroscience, mental health, emotion, sexual orientation and identity. May be repeated for credit if topic differs. (Deferred grading only, pending completion of sequence.)

289B. **Current Research in Psychology (2)**
Discussion—2 hours. Prerequisite: course 289A; graduate standing in Psychology or consent of instructor. Intensive examination of contemporary theory and empirical research on a specialized topic.
in psychology. Sample topics include developmental attachment, social neuroscience, culture and mental health, electroencephalography and cognitive neuroscience, emotion, implicit cognitive processes, sexual orientation and identity, and attention. May be repeated for credit if content differs. (Deferred grading only, pending completion of sequence.)

290. Seminar (4) Seminar—4 hours. Prerequisite: graduate standing in psychology or consent of instructor. Seminar devoted to a highly specific research topic in any area of basic psychology. Special topic selected for a quarter will vary depending on interests of instructor and students. |I, II, III, (I, II, III)

298. Group Study (1-5) (S/U grading only)

299. Research (2-9) (S/U grading only)

299D. Dissertation Research (1-12) Prerequisite: consent of director. (S/U grading only.)

Professional

390A-390B. The Teaching of Psychology (6-4) Discussion, lecture, practice. Prerequisite: advanced graduate standing in psychology or a closely related discipline and consent of instructor. Methods and problems of teaching psychology at the undergraduate and graduate levels; curriculum design and evaluation. Practical experience in the preparation and presentation of material. (S/U grading only; deferred grading only, pending completion of sequence.) |I, II, III, (I, II, III)

396. Teaching Assistant Training Practicum (1-4) Prerequisite: graduate standing. May be repeated for credit. (S/U grading only)—I, II, III, (I, II, III)

Quantitative Biology and Bioinformatics

[College of Biological Sciences]
The interdisciplinary minor in Quantitative Biology and Bioinformatics is an integrative program that introduces students to the quantitative and computational approaches that are redefining all disciplines in the biological sciences, from molecular and cell biology, through genetics and physiology, to ecology and evolutionary biology. Students in this minor will learn research tools that apply mathematical and computational methods, increase their insight into the strengths and limitations of quantitative approaches, and develop the interdisciplinary perspective that is now the foundation of modern biological research and training.

The minor in Quantitative Biology and Bioinformatics is open to all undergraduates regardless of major and is sponsored by the College of Biological Sciences.

Minor Program Requirements:

UNITS

Quantitative Biology and Bioinformatics ........................................... 18-24

Core Courses ................................................................. 8-12

Programming: Computer Science Engineering 10 or 30 or the equivalent* ................................................................. 4

Quantitative Biology: Biological Sciences 132 or Mathematics 51, 52, 53, 54, 121, 122, 123, 124

Bioinformatics: Computer Science Engineering 124 or 129 or 124 ................................................................. 4

Quantitative and Computational Preparation ........................................ 4

Complete one course from the following: Applied Science Engineering 115; Biomedical Engineering 103; Computer Science Engineering 122, 130;

Mathematics 128A, 128B, 128C, 135A;

Statistics 130A, 131A, 141A

*The program requirement may be satisfied by previous experience and therefore may not entail college course credit. Please see your minor adviser for this determination and its possible impact on your unit requirements for the minor.

Restricted Electives: 6-8

Complete two or more courses from the following list to achieve a total of 18-24 units: Biological Sciences 134, 180L, 181, 183; Biomedical Engineering 102, 117, 140, 141, 151, Biotechnology 150; Computer Science Engineering 165A, 16B, Evolution and Ecology 102, 103, 104, 175; Microbiology 105; Molecular and Cellular Biology 123, 143, 182; Neurobiology, Physiology, and Behavior 166, 167; one course from: Environmental Science and Policy 121 or Wildlife, Fish, and Conservation Biology 122.

Restrictions: No more than two upper division courses from a single department may be offered in satisfaction of the minor requirements. Only one course used to satisfy a requirement for the minor may be applied toward a student's major.

Minor Adviser. Consult the Biology Academic Success Center (BASC). 1023 Sciences Laboratory Building; 530-752-0410; http://www.biosci.ucdavis.edu/BASC

Radiation Oncology

See Medicine, School of, on page 396.

Range Science

[College of Agricultural and Environmental Sciences]
Faculty. See Plant Sciences, on page 476.

Related Program. See Ecological Management and Restoration, on page 229.

Related Courses. See Plant Sciences 101, 112, 130, 131, 135; Nutrition 115; Soil Science 105, 120; Wildlife, Fish, and Conservation Biology 151.

Religious Studies

[College of Letters and Science]
Naomi Janowitz, Ph.D., Chair
Program Office, 213 Sproul Hall 530-752-1219; http://religions.ucdavis.edu

Faculty

Catherine Chin, Ph.D., Associate Professor
Allison Coudert, Ph.D., Professor
Mark Elmore, Ph.D., Assistant Professor
Naomi Janowitz, Ph.D., Professor
Meaghan O’Keefe, Ph.D., Assistant Professor
W. Flogg Miller, Ph.D., Associate Professor
Mairaj Syed, Ph.D., Assistant Professor
Baki Tezcan, Ph.D., Associate Professor
Archana Venkatesan, Ph.D., Assistant Professor
Keith Waterpaugh, Ph.D., Associate Professor

Emeriti Faculty

Whalen W. Lai, Ph.D., Professor Emeritus

The Major Program

Religion is a major force in human experience. It has shaped the world’s history, literature, art, culture, politics, ethics, and economics. In addition to offering courses in all the major religious traditions (Judaism, Christianity, Islam, Hinduism, and Chinese and Japanese religions), the Religious Studies Program has developed cross-cultural courses dealing with religious symbols, myths, and rituals in written texts, art, theater, and film, and the Internet, as well as thematic courses dealing with such topics as religion and the body, the rise of fundamentalism, religion and science, and religion and violence.

The Program. The major introduces students to the academic study of religion. Students can choose from a broad range of courses both in the program itself and in other departments and programs—history, philosophy, psychology, sociology, anthropology, American studies, classics, and medieval studies. In addition to studying religious thought per se, students in the major can also study the way religion has shaped human behavior in such matters as family life, gender roles, ethics, artistic life, concepts of individual freedom, the pursuit of science, and economics. For some students, Religious Studies is an appropriate second major and combines well with anything from philosophy to international agricultural development, political science, and the physical sciences.

Career Alternatives. Because of the program’s focus on developing critical thinking, writing, and research skills, students who major in Religious Studies are well prepared to enter a variety of careers, including teaching, the health professions, law, business, and government. In an increasingly global society, knowledge of the world’s religious traditions and practices has become an essential part of a student’s education.

A.B. Major Requirements:

1. Preparatory Subject Matter .................. 20

(A) One course from the Religious Studies 1 series .................................................. 4

(B) Four courses from other Religious Studies lower division offerings .................................. 16

2. Depth Subject Matter ....................... 40

Religious Studies 100 ...................................................... 4

Nine upper division Religious Studies courses** .................................................. 36

* Four of these courses must be upper division courses related to religion that are offered by other departments and taken with the approval of a Religious Studies adviser.

3. Total Units for the Major ..................... 60

Recommended. A reading knowledge of a foreign language is highly recommended.

Course Equivalents. The major advisers have a list of lower and upper division courses that can be substituted for courses suggested above.

Major Advisers. Consult the Program office.

Minor Program Requirements:

1. Religious Studies ....................... 20

Lower division course .................................. 4

Upper division courses .................................. 16

Religious Studies 100 required. Some substitutions from other departments or programs allowed with consent of adviser.

Minor Advisers. Same as major advisers.

Honors and Honors Program. A student becomes eligible for graduation with honors by meeting the minimum GPA and course requirements established by the College of Letters and Science. Upon successful completion of the additional requirements of the College of Letters and Science and Honors Program, individual students may be recommended for honors.