Psychology

Department Website: http://psychology.uchicago.edu

PROGRAM OF STUDY

Psychology is the study of the mental states and processes that give rise to behavior. It seeks to understand the basic mechanisms and functions of perception, cognition, emotion, and attitudes in guiding behavior. Although it focuses on the level of the individual, individual behavior depends on the social relationships and structures in which people are embedded and the biological systems of which we are comprised. Thus, psychological study encompasses a broad set of topics that overlap with a number of disciplines across the social and biological sciences. The requirements of the major are designed to acquaint students with the research methods psychologists use and to provide a foundation of core knowledge covering the major areas of psychology. This broad foundation allows students to pursue a more advanced understanding of subfields related to their own particular interests and goals for the major. The program may serve as preparation for graduate work in psychology or related fields (e.g., neuroscience, education), as well as for students interested in careers in social work, public policy, business, or medicine. Students are encouraged to become actively engaged in research in the department and should consult with the director of undergraduate research about their interests as early as possible.

PROGRAM REQUIREMENTS

Although no special application is required for admission to the major, majors are required to subscribe to the Psychology Majors Listhost at lists.uchicago.edu/web/info/psychology-majors (https://lists.uchicago.edu/web/info/psychology-majors/). The listhost is the primary means of communication between the program and its majors or students interested in being majors. We use it to notify students of events relevant to psychology majors, such as research opportunities, job postings, fellowship announcements, and any changes in the course schedule, or curriculum updates.

NOTE: When planning your course schedule, please consult Class Search at registrar.uchicago.edu/classes (http://registrar.uchicago.edu/classes/) and the Courses section of the Psychology Department Undergraduate Program (https://psychology.uchicago.edu/content/undergrad-major/) website, which lists courses and the quarters they are offered for the current academic year.

Statistics/Methodology Sequence (must be completed by end of third year)

By the end of their third year, psychology majors are required to complete PSYC 20200 Psychological Research Methods and one of the following courses: PSYC 20250 Introduction to Statistical Concepts and Methods or STAT 22000 Statistical Methods and Applications. It is strongly recommended that these courses be taken as early as possible in a student’s training as they provide foundational concepts that facilitate understanding of subject area courses. These two courses cover the conceptual and methodological issues (PSYC 20200) and the statistical methods (PSYC 20250, STAT 22000) used in psychological science. PSYC 20200 is typically taught in the Autumn Quarter and PSYC 20250 in the Winter Quarter. We advise students to take PSYC 20200 Psychological Research Methods prior to taking statistics, but either order is acceptable.

Beginning with the Class of 2019, students with AP examination credit for STAT 22000 Statistical Methods and Applications may not count that credit toward the major and should instead replace that requirement with a higher-level statistics course or an additional psychology elective. Students interested in graduate programs in psychology or other empirical sciences are strongly encouraged to take a higher level statistics course.

Breadth Requirement

Students are required to take four of the following five courses, each of which will be offered every year:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisite</th>
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</thead>
<tbody>
<tr>
<td>PSYC 20300</td>
<td>Biological Psychology</td>
<td></td>
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<tr>
<td>PSYC 20400</td>
<td>Cognitive Psychology</td>
<td></td>
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<tr>
<td>PSYC 20500</td>
<td>Developmental Psychology</td>
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<tr>
<td>PSYC 20600</td>
<td>Social Psychology</td>
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</tr>
<tr>
<td>PSYC 20700</td>
<td>Sensation and Perception</td>
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Additional Courses

At least six additional courses (for a total of twelve in the major) must be chosen from among the courses offered by the Department of Psychology. Courses without a PSYC number must be approved by the Undergraduate Student Affairs and Curriculum Committee; petitions must be submitted to the department’s student affairs administrator. Only one independent study course can count toward the twelve courses required of students who are majoring in psychology (PSYC 29200 Undergrad Rdgs: Psychology or PSYC 29700 Undergraduate Research in Psychology). In addition to the six electives, students pursuing honors in psychology must also take the PSYC 29800 Honors Seminar: Psychology. Independent study courses can be taken for P/F grading, but all other courses must be taken for a quality grade. NOTE: Before registering for an elective, students should confirm that they have met any prerequisites for the course.
Research

Students are strongly encouraged to gain additional research experience by working on a research project under the guidance of a faculty member.

Calculus

Students are required to take two quarters of calculus as part of the College general education requirements.

NOTE: For psychology students, a maximum of three courses can be transferred into the major from outside the University of Chicago.

SUMMARY OF REQUIREMENTS

GENERAL EDUCATION

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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<tbody>
<tr>
<td>MATH 13100-13200</td>
<td>Elementary Functions and Calculus I-II (or higher)</td>
<td>200</td>
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<tr>
<td>Total Units</td>
<td>200</td>
<td></td>
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MAJOR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 20200</td>
<td>Psychological Research Methods (by end of third year)</td>
<td>100</td>
</tr>
<tr>
<td>One of the following (by end of third year):</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>PSYC 20250</td>
<td>Introduction to Statistical Concepts and Methods</td>
<td></td>
</tr>
<tr>
<td>STAT 22000</td>
<td>Statistical Methods and Applications</td>
<td></td>
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<tr>
<td>Four of the following:</td>
<td>400</td>
<td></td>
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<tr>
<td>PSYC 20300</td>
<td>Biological Psychology</td>
<td></td>
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<tr>
<td>PSYC 20400</td>
<td>Cognitive Psychology</td>
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<td>Social Psychology</td>
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<td>PSYC 20700</td>
<td>Sensation and Perception</td>
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<tr>
<td>Six electives</td>
<td>600</td>
<td></td>
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<tr>
<td>Total Units</td>
<td>1200</td>
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† Credit may be granted by examination.

* Examination credit for PSYC 20250 Introduction to Statistical Concepts and Methods or STAT 22000 Statistical Methods and Applications will not count toward the requirements for the major. Students with credit for PSYC 20250 or STAT 22000 should replace that requirement with a higher level Statistics course or an additional psychology elective.

+ Courses without a PSYC number must be approved by the Undergraduate Student Affairs and Curriculum Committee; petitions must be submitted to the department’s student affairs administrator.

GRADING

All courses in the major must be taken for quality grades except for the independent study course, which is available for either a quality grade or for P/F grading.

HONORS

To qualify for honors, students must meet the following requirements:

1. Students must have a GPA of at least 3.0 overall, and a GPA of at least 3.5 in the major by the beginning of the quarter in which they intend to graduate.
2. Students should arrange to carry out a research project with a faculty advisor from the Department of Psychology and submit a scientific report of this research for an honors thesis. Papers must represent a more substantial treatment of the research topic than the average term paper. After the paper has been approved by the faculty advisor, the paper must then be read and approved by a second faculty member.
3. Students are required to take PSYC 29800 Honors Seminar: Psychology in Winter Quarter of their third or fourth year. This is in addition to the twelve required courses for the major. It is expected that students will be actively working on the thesis project during the quarter they are taking the honors research seminar.
4. Students are required to present their findings in Spring Quarter of their fourth year at an honors day celebration.
5. For more guidance on honors projects, visit psychology.uchicago.edu/content/honors (https://psychology.uchicago.edu/content/honors/).

Students pursuing honors in more than one major should note that:

1. The student’s thesis adviser for psychology cannot be the same person as the student’s thesis adviser for the second major.
2. The student must meet all the requirements listed in the preceding Honors section, including taking the Honors Seminar and presenting at an honors day celebration.

PROFESSIONAL AND ACADEMIC DEVELOPMENT

The undergraduate studies program runs a series of cocurricular events throughout the year to foster students' professional and academic development. Programming takes many forms, including informational meetings regarding the undergraduate program, guest speaker career panels, specialized workshops, conference field trips, and informal receptions. For a list of events currently planned, please visit psychology.uchicago.edu/content/professional-academic-development-events.

SPECIALIZED COURSES OF STUDY

Faculty members (or the undergraduate program chair) are available to help individual students design a specialized course of study within psychology. For example, particular course sequences within and outside of psychology may be designed for students who wish to pursue specializations in particular areas. These areas include, but are not limited to, cognitive neuroscience, language and communication, computational psychology, behavioral neuroscience and endocrinology, sensation and perception, and cultural psychology.

EARL R. FRANKLIN RESEARCH FELLOWSHIP

The Earl R. Franklin Research Fellowship is awarded to select third-year students who are majoring in psychology. It provides financial support during the summer before their fourth year to carry out psychological research that will be continued as a senior honors project. Applications, which are submitted at the beginning of Spring Quarter, include a research proposal, personal statement, transcript, and letter of recommendation.

PSYCHOLOGY COURSES

PSYC 20200. Psychological Research Methods. 100 Units.
This course introduces concepts and methods used in behavioral research. Topics include the nature of behavioral research, testing of research ideas, quantitative and qualitative techniques of data collection, artifacts in behavioral research, analyzing and interpreting research data, and ethical considerations in research.
Instructor(s): A. Light Terms Offered: Autumn

PSYC 20250. Introduction to Statistical Concepts and Methods. 100 Units.
Statistical techniques offer psychologists a way to build scientific theories from observations we make in the laboratory or in the world at large. As such, the ability to apply and interpret statistics in psychological research represents a foundational and necessary skill. This course will survey statistical techniques commonly used in psychological research. Attention will be given to both descriptive and inferential statistical methodology.
Instructor(s): Heald, S. Terms Offered: Winter
Prerequisite(s): It is recommended that students complete MATH 13100 and MATH 13200 (or higher) before taking this course.
Equivalent Course(s): ENST 20250

PSYC 20300. Biological Psychology. 100 Units.
What are the relations between mind and brain? How do brains regulate mental, behavioral, and hormonal processes; and how do these influence brain organization and activity? This course introduces the anatomy, physiology, and chemistry of the brain; their changes in response to the experiential and sociocultural environment; and their relation to perception, attention, behavioral action, motivation, and emotion.
Instructor(s): J. Yu Terms Offered: Winter
Prerequisite(s): Some background in biology and psychology.
Note(s): This course does not meet requirements for the Biological Sciences Major.
Equivalent Course(s): BIOS 29300, CHDV 20300, NSCI 21015

PSYC 20400. Cognitive Psychology. 100 Units.
Viewing the brain globally as an information processing or computational system has revolutionized the study and understanding of intelligence. This course introduces the theory, methods, and empirical results that underlie this approach to psychology. Topics include categorization, attention, memory, knowledge, language, and thought.
Instructor(s): M. Berman Terms Offered: Spring
Equivalent Course(s): EDSO 20400, NSCI 22015

PSYC 20500. Developmental Psychology. 100 Units.
This is an introductory course in developmental psychology, with a focus on cognitive and social development in infancy through early childhood. Example topics include children's early thinking about number, morality, and social relationships, as well as how early environments inform children's social and cognitive development. Where appropriate, we make links to both philosophical inquiries into the nature of the human mind, and to practical inquiries concerning education and public policy.
Instructor(s): K. O'Doherty Terms Offered: Spring
Note(s): CHDV Distribution, B
Equivalent Course(s): CHDV 25900, EDSO 20500
PSYC 20550. From Data to Manuscript in R. 100 Units.
This course tackles the basic skills needed to build an integrated research report with the R programming language. We will cover every step from data to manuscript including: Using R's libraries to clean up and reformat messy datasets, preparing data sets for analysis, running statistical tools, generating clear and attractive figures and tables, and knitting those bits of code together with your manuscript writing. The result will be a reproducible, open-science friendly report that you can easily update after finishing data collection or receiving comments from readers. Never copy-paste your way through a table again! The R universe is large, so this course will focus specifically on: The core R libraries, the tidyverse library, and R Markdown! Students will also learn about the use of GitHub for version control.
Instructor(s): N. Dowling Terms Offered: Winter
Prerequisite(s): This is a project-based course. Students must already be in possession of a (partial or whole) dataset for which they would like to create a preliminary research report (e.g., for thesis submission, publication, or similar). No prior programming experience necessary.
Equivalent Course(s): PSYC 30550, MAPS 30550, CHDV 20550, MACS 30550, CHDV 30550

PSYC 20600. Social Psychology. 100 Units.
This course introduces students to the field of social psychology - the scientific study of how people think about, feel about, interact with, influence, and relate to one another. Topics covered include self and social perception, social influence, beliefs and attitudes, altruism, and intergroup processes. Where relevant, we will discuss if and how findings in social psychology can be applied in real-world contexts such as health, work, and relationships.
Instructor(s): Y.C. Leong Terms Offered: Autumn
Equivalent Course(s): CHDV 26000

PSYC 20700. Sensation and Perception. 100 Units.
What we see and hear depends on energy that enters the eyes and ears, but what we actually experience-perception-follows from human neural responses. This course focuses on visual and auditory phenomena, including basic percepts (for example, acuity, brightness, color, loudness, pitch) and also more complex percepts such as movement and object recognition. Biological underpinnings of perception are an integral part of the course.
Instructor(s): K. Ledoux, R. Lange, Autumn; R. Lange, Winter. Terms Offered: Autumn Winter
Equivalent Course(s): NSCI 20140

PSYC 20850. Introduction to Human Development. 100 Units.
This course introduces the study of lives in context. The nature of human development from infancy through old age is explored through theory and empirical findings from various disciplines. Readings and discussions emphasize the interrelations of biological, psychological, and sociocultural forces at different points of the life cycle.
Instructor(s): R. Shweder Terms Offered: Autumn
Prerequisite(s): CHDV majors or intended majors.
Note(s): Required Course for Comparative Human Development Majors
Equivalent Course(s): CHDV 20000, HLTH 20000

PSYC 21100. Human Development Research Design. 100 Units.
The purpose of this course is to expose CHD majors in college to a broad range of methods in social sciences with a focus on human development research. The faculty in Comparative Human Development is engaged in interdisciplinary research encompassing anthropology, biology, psychology, sociology, and applied statistics. The types of data and methods used by faculty span the gamut of possible methodologies for addressing novel and important research questions. In this course, students will study how appropriate research methods are chosen and employed in influential research and will gain hands-on experience with data collection and data analysis. In general, the class will meet as a whole on Mondays and will have lab/discussion sections on Wednesdays. The lab/discussion sections are designed to review the key concepts, practice through applying some of the methods, and prepare students for the assignments. Students in each section will be assigned to small groups. Some of the assignments are group-based while others are individual-based.
Instructor(s): E. Abdelhadi Terms Offered: Summer Winter
Note(s): Required Course for Comparative Human Development Majors
Equivalent Course(s): HLTH 20100, EDSD 20100, CHDV 20100, SOC1 20549

PSYC 21109. Concepts and Categories. 100 Units.
Despite how central categories and concepts are in theories of cognition, there is a lack of consensus within the scientific community as to the nature of concepts and categories. This course serves to introduce students to this ever-growing dialogue regarding concepts and categories. During the course we will analyze both classical and current theories of categorization. We will also briefly focus on how the process of categorization may change from infancy to adulthood. From this we will go on to discuss topics regarding the function and use of concepts and categories, as well as how concepts and categories may be acquired and maintained.
Instructor(s): S. Heald Terms Offered: Autumn

PSYC 21116. The Development of Social Cognition. 100 Units.
Our species is notably social, with both positive and negative consequences: we thrive in groups, yet we often discriminate against those who are not like us. This course focuses on social cognitive development in childhood, with the goal of understanding the foundations of human nature in a social context. Topics include theories of
mind, social learning, motivation and achievement, moral development, social categorization and the origins and development of our tendency to divide the world into “us” versus “them.”
Instructor(s): K. Kinzler Terms Offered: Spring

PSYC 21260. Psychology Research Incubator. 100 Units.
This course is designed for anyone interested in carrying out psychological research; it is strongly advised for students considering Honors in Psychology. Answering questions about how minds work, how choices are made, or about the forces that shape behavior depends on understanding how to carry out research. This course guides you through the process of developing an original research project of your own design. Whether your questions come from research you are already working on in a lab or reflect independent interests of your own, this course will lead you through the process of designing an empirical study to address an issue that interests you. From the first stages of turning an idea into a study, you will work either individually or with a group to develop your research questions scientifically to address issues that can contribute new knowledge to psychological science. In this course you will learn to: (1) generate testable hypotheses that are informed by prior research, (2) design and implement methods for testing these hypotheses, and (3) write an IRB protocol in order to collect data. The course culminates with drafting a research grant proposal so you will be well positioned to take advantage of the increased funding opportunities available for undergraduate research within the university and beyond.
Instructor(s): K. O'Doherty Terms Offered: Winter
Prerequisite(s): PQ: PSYC 20200 Psychological Research Methods or approval of the instructor.

PSYC 21690. Media and Psychology: Causes and consequences of media use across the lifespan. 100 Units.
This course will examine the influence of media on individuals and groups from both a developmental and socio-cultural perspective. Topics will include young children’s academic and social-emotional skill learning from television, video and tablets; adolescents’ social media identities and experiences including cyber-bullying; media influences on adults’ health behaviors, aggression, prejudice, and more. Students will engage in both qualitative and quantitative research on media and psychology as part of this course.
Instructor(s): K. O'Doherty Terms Offered: Winter

PSYC 21750. Biological Clocks and Behavior. 100 Units.
This course will address physiological and molecular biological aspects of circadian and seasonal rhythms in biology and behavior. The course will primarily emphasize biological and molecular mechanisms of CNS function, and will be taught at a molecular level of analysis from the beginning of the quarter. Those students without a strong biology background are unlikely to resonate with the course material.
Instructor(s): B. Prendergast Terms Offered: Autumn
Prerequisite(s): A quality grade in PSYC 20300 Introduction to Biological Psychology. Additional biology courses are desirable. Completion of Core biology will not suffice as a prerequisite.
Equivalent Course(s): HLTH 21750, NSCI 21400, BIOS 24248

PSYC 22350. Social Neuroscience. 100 Units.
Human beings are intensely social creatures. Our health and well-being depend on others. Social neuroscience provides an overarching paradigm to investigate social cognition and behavior, and to determine where we as a species fit within a broader biological context. The course examines how the brain mediates social cognition and behavior. It spans diverse species and disciplines (evolution, neuroscience, psychology, behavioral economics, political science). A wide range of topics is examined, including behavioral synchrony, friendship, cooperation, social decision-making, social status and hierarchies, empathy, group affiliation and identity, social influence, etc. Interdisciplinary analyses, by integrating approaches from social sciences and biological sciences, significantly expand our knowledge, and have the potential to improve our social and living conditions.
Instructor(s): J. Decety Terms Offered: Autumn
Equivalent Course(s): HLTH 21750, NSCI 21400, BIOS 24248

PSYC 22400. Cultural Psychology. 100 Units.
There is a substantial portion of the psychological nature of human beings that is neither homogeneous nor fixed across time and space. At the heart of the discipline of cultural psychology is the tenet of psychological pluralism, which states that the study of “normal” psychology is the study of multiple psychologies and not just the study of a single or uniform fundamental psychology for all peoples of the world. Research findings in cultural psychology thus raise provocative questions about the integrity and value of alternative forms of subjectivity across cultural groups. In this course we analyze the concept of “culture” and examine ethnic and cross-cultural variations in mental functioning with special attention to the cultural psychology of emotions, self, moral judgment, categorization, and reasoning.
Instructor(s): R. Shweder Terms Offered: Winter
Prerequisite(s): Undergraduates must be in third or fourth year.
Note(s): CHDV Distribution: B, C
Equivalent Course(s): GNSE 21001, ANTH 24320, CHDV 31000, EDSO 21100, AMER 33000, ANTH 35110, GNSE 31000, KNOW 31000, PSYC 33150, CRES 21100, CHDV 21000

PSYC 23120. Human Language and Interaction. 100 Units.

Language may be learned by individuals, but we most often use it for communication between groups. How is it that we manage to transmit our internal thoughts to others' minds? How is it that we can understand what others mean to express to us? Whether we are greeting a passerby, ordering a meal, or debating politics, there are a number of invisible processes that bring language to life in the space between individuals. This course investigates the social and cognitive processes that enable us to successfully communicate with others. The theories we cover are built on observations of adult language use and child development in multiple cultural settings, taking inspiration also from non-human animal communication. It is expected that, by the end of the course, students will be able to explain the limitations of language for communication and will be able to elaborate on a number of social and other cognitive processes that critically support communicative language use.

Instructor(s): M. Casillas Terms Offered: Spring
Note(s): Distribution: Undergrads: B, M; Grad: 2, M
Equivalent Course(s): CHDV 23100, EDSO 23101, LING 21150

PSYC 23155. Methods in Child Development Research. 100 Units.

This course engages with one current topic (the topic differs each year) from research on child social and/or language development. We will read and discuss a collection of research studies related to this topic to gain familiarity with its primary questions, theories, and methods. We will also, together as a class, conduct a replication of an experiment- or recording-based research study related to the topic. Students should be prepared to read and discuss scientific research articles and to do hands-on research activities. Students will complete the class with expertise on the topic of focus, including experience with its associated methods.

Instructor(s): M. Casillas Terms Offered: Winter
Note(s): Distributions: Grad 2, M; Undergrads: B, M
Equivalent Course(s): CHDV 23150, EDSO 23150, CHST 23150, CHDV 33150, PSYC 33150, LING 33150, EDSO 33150

PSYC 23165. Multidisciplinary Perspectives on Morality. 100 Units.

Morality is essential for societal functioning and central to human flourishing. People across all cultures seem to have the same sense about morality. They simply know what morality is, often without being able to concretELY define what exactly it means to label something as a moral kind. But when one tries to more precisely and scientifically define what morality is, things become less clear and more complex. As we'll see in the class, the field of morality is incredibly dynamic and characterized more by competing theories and perspectives than by scientific consensus. The past decades have seen an explosion of theoretical and empirical research in the study of morality. Amongst the most exciting and novel findings and theories, evolutionary biologists and anthropologists have shown that morality has evolved to facilitate cooperation and social interactions.

Developmental psychologists came up with ingenious paradigms, demonstrating that some elements underpinning morality are in place much earlier than we thought in preverbal infants. Social psychologists and behavioral economists examine the relative roles of emotion and reasoning, as well as how social situations affect moral or amoral behavior. Social neuroscientists are mapping neural and hormonal mechanisms implicated in moral decision-making. The lesson from all this new knowledge is clear: moral cognition and behavior cannot be separated from biology, human development, culture, and social context.

Instructor(s): J. Decety Terms Offered: Spring. In Spring 2023, only a graduate-level course will be offered.
Equivalent Course(s): PSYC 33165, KNOW 33165

PSYC 23200. Introduction to Language Acquisition. 100 Units.

This course addresses the major issues involved in first-language acquisition. We deal with the child’s production and perception of speech sounds (phonology), the acquisition of the lexicon (semantics), the comprehension and production of structured word combinations (syntax), and the ability to use language to communicate (pragmatics).

Instructor(s): S. Goldin-Meadow Terms Offered: Spring. In Spring 2023, only an undergraduate section of this course will be offered.
Equivalent Course(s): EDSO 23200, PSYC 33200, CHDV 31600, LING 21600, LING 31600, CHDV 23900

PSYC 23249. Animal Behavior. 100 Units.

This course introduces the mechanism, ecology, and evolution of behavior, primarily in nonhuman species, at the individual and group level. Topics include the genetic basis of behavior, developmental pathways, communication, physiology and behavior, foraging behavior, kin selection, mating systems and sexual selection, and the ecological and social context of behavior. A major emphasis is placed on understanding and evaluating scientific studies and their field and lab techniques.

Instructor(s): J. Mateo (odd years) Terms Offered: Winter
Prerequisite(s): Three quarters of a Biological Sciences Fundamentals Sequence.
Note(s): CHDV Distribution: A, E.
PSYC 23360. Methods in Gesture and Sign Language Research. 100 Units.
In this course we will explore methods of research used in the disciplines of linguistics and psychology to investigate sign language and gesture. We will choose a set of canonical topics from the gesture and sign literature such as pointing, use of the body in quotation, and the use of non-manuals, in order to understand the value of various effective methods in current use and the types of research questions they are best equipped to handle.
Instructor(s): S. Goldin-Meadow, D. Brentari Terms Offered: Autumn
Equivalent Course(s): CHDV 23249, BIOS 23249, PSYC 23360

PSYC 23370. Bright and Dark Sides of Empathy. 100 Units.
The experience of empathy is a powerful phenomenon. It motivates prosocial behavior, especially parental care, and facilitates cooperation and group living. As an important aspect of the patient-doctor relationship, empathy is associated with better health outcomes. Yet, empathy is limited and fragile. It is susceptible to many biases and can lead to poor moral decisions. This course invites students to critically explore the science of empathy by examining its scope and its limits. It delves into cutting-edge, interdisciplinary research from the social sciences and the biological sciences to understand the mechanisms and functions of empathy. The topics examined in this course include: The evolution of empathy; The neural and neuro-endocrinological mechanisms; How empathy develops in young children; The impact of biases and implicit attitudes on empathy; The social situations and group dynamics that influence empathy; The lack of empathy in psychopathy and narcissistic personalities; Why and how empathy improves health outcomes in medicine.
Instructor(s): J. Decety Terms Offered: Autumn
Equivalent Course(s): CHDV 23370

PSYC 23380. Introduction to Learning and Memory. 100 Units.
This course examines basic questions in learning and memory. We discuss the historical separation and division of these two areas as well as the paradigmatic differences in studying learning and memory. We also discuss basic research methods for investigating learning and memory and survey established and recent research findings, as well as consider several different kinds of models and theories of learning and memory. Topics include skill acquisition, perceptual learning, statistical learning, working memory, implicit memory, semantic vs. episodic memory, and memory disorders.
Instructor(s): A. Bakkour Terms Offered: Spring
Equivalent Course(s): EDSO 23800, NSCI 22415

PSYC 23820. Attention and Working Memory in the Mind and Brain. 100 Units.
This course will provide a broad overview of current work in psychology and neuroscience related to attention and working memory. We will discuss evidence for sharp capacity limits in an individual's ability to actively monitor and maintain information in an "online" mental state. Readings will be primarily based on original
source articles from peer-reviewed journals, with a focus on behavioral and neural approaches for measuring and understanding these basic cognitive processes.

Instructor(s): E. Vogel, E. Awh

Terms Offered: Winter

Prerequisite(s): PQ: NSCI 20101 (Foundations of Neuroscience) is required for Neuroscience majors only.

Equivalent Course(s): NSCI 21600, PSYC 33830

PSYC 23860. Beyond Good and Evil: The Psychology of Morality. 100 Units.

Morality is a mysterious and possibly uniquely human capacity that influences how we make decisions in a number of domains. In this course we will explore how and why human beings have the moral intuitions that they do and also where these intuitions come from—what about our moral intuitions are built in and how are these intuitions shaped by experience? To achieve these goals, we will discuss literature from developmental, social, and evolutionary psychology, as well as some literature from behavioral economics and experimental philosophy. We will briefly review the history of moral psychology, but spend the bulk of our time discussing contemporary debates and findings from research on moral psychology.

Instructor(s): A. Shaw

Terms Offered: Spring

PSYC 24010. Systems Neuroscience. 100 Units.

This course covers vertebrate and invertebrate systems neuroscience with a focus on the anatomy, physiology, and development of sensory and motor control systems. The neural bases of form and motion perception, locomotion, memory, and other forms of neural plasticity are examined in detail. We also discuss clinical aspects of neurological disorders.

Instructor(s): J. MacLean

Terms Offered: Spring

Prerequisite(s): NSCI 20101, NSCI 20111 or consent of instructors

Equivalent Course(s): BIOS 24130, NSCI 20130

PSYC 24133. Neuroscience of Seeing. 100 Units.

This course focuses on the neural basis of vision, in the context of the following two questions: 1. How does the brain transform visual stimuli into neuronal responses? 2. How does the brain use visual information to guide behavior? The course covers signal transformation throughout the visual pathway, from retina to thalamus to cortex, and includes biophysical, anatomical, and computational studies of the visual system, psychophysics, and quantitative models of visual processing. This course is designed as an advanced neuroscience course for undergraduate and graduate students. The students are expected to have a general background in neurophysiology and neuroanatomy.

Instructor(s): W. Wei, J. Maunsell, M. Sherman, S. Shevell

Terms Offered: Autumn

Prerequisite(s): NSCI 20101 and NSCI 20111, or consent of instructor

Equivalent Course(s): NSCI 22400, CPNS 34133, BIOS 24133, NURB 34133, PSYC 34133

PSYC 24231. Methods in Computational Neuroscience. 100 Units.

Topics include (but are not limited to): relating neural data to behavior, Signal Detection theory, models of vision and artificial neural networks, Information Theory, Generalized Linear Models, dimensionality reduction, classification, and clustering.

Instructor(s): M. Kaufman

Terms Offered: Spring

Prerequisite(s): For Neuroscience Majors: NSCI 20130, BIOS 26210 and BIOS 26211 which must be taken concurrently, or consent of instructor

Equivalent Course(s): NSCI 23700, BIOS 24231, CPNS 34231

PSYC 24450. Foundations of Neuroscience. 100 Units.

This course is an introduction to the broad field of neuroscience. This is a lecture-based course that aims to introduce undergraduate students to concepts and principles that explain how the nervous system is built and how it functions. Topics include (but are not limited to): relating neural data to behavior, Signal Detection theory, models of vision and artificial neural networks, Information Theory, Generalized Linear Models, dimensionality reduction, classification, and clustering.

Instructor(s): M. Kaufman

Terms Offered: Autumn

Prerequisite(s): For Neuroscience Majors: NSCI 20130, BIOS 26210 and BIOS 26211 which must be taken concurrently, or consent of instructor

Equivalent Course(s): NSCI 23700, BIOS 24231, CPNS 34231

PSYC 24470. Cellular Neurophysiology. 100 Units.

This course describes the cellular and subcellular properties of neurons, including passive and active electrophysiological properties, and their synaptic interactions. Readings are assigned from a general neuroscience textbook.

Instructor(s): M. Sheffield, W. Wei

Terms Offered: Winter

Prerequisite(s): NSCI 20101, and MATH 13100, or MATH 15100, or MATH 16100. Or consent of instructor

Equivalent Course(s): BIOS 24111, NSCI 20111

PSYC 25280. The Psychology of Close Relationships. 100 Units.

Humans are an innately social species, and our romantic partners, close friends, and family members are arguably the most central features of our social experience. In this seminar, we dive into the psychology of relationships. We will cover topics related to attraction, love, commitment, relationship satisfaction, and relationship dissolution. We will explore not only the factors that predict the success of a relationship, but will also delve into the ways that relationship partners can affect the individual’s sense of self, success, and
general well-being. We will focus primarily on romantic relationships, but will also discuss other influential relationships, including friends, family members, and social networks.

Instructor(s): A. Light Terms Offered: Spring

**PSYC 25500. Cognitive and Social Neuroscience of Aging. 100 Units.**

As the baby boom generation ages, the rising prevalence of aging-related cognitive decline has become a major challenge for individuals, families and society. However, not all cognitive systems are negatively impacted by aging, and aging also causes complex social and emotional changes. How does aging affect our brains and our minds, and are these changes inevitable? This seminar provides an introduction to the scientific literature of the aging mind, focusing on both normal and pathological (e.g., Alzheimer's disease) changes in late adulthood. We will cover contemporary research from cognitive and social neuroscience perspectives. Topics include different psychological domains (e.g., attention, memory, metacognition, affective control) and applied issues (e.g., physical exercise, mental training, stereotype threat).

Instructor(s): D. Gallo Terms Offered: Winter

**PSYC 25620. How Children Think. 100 Units.**

The goal of this course is to help you understand how children’s thinking develops from infancy on. We will discuss the content of children’s knowledge across a variety of domains and evaluate the major theories and explanations of intellectual growth. We will review and evaluate both classic findings and state-of-the-art research on cognitive development. We will also apply classroom knowledge to real-world issues that pertain to children’s cognitive development.

Instructor(s): L. Bian Terms Offered: Winter

Equivalent Course(s): EDSO 25620

**PSYC 25750. The Psychology and Neurobiology of Stress. 100 Units.**

This course explores the topic of stress and its influence on behavior and neurobiology. Specifically, the course will discuss how factors such as age, gender, and social context interact to influence how we respond to stressors both physiologically and behaviorally. The course will also explore how stress influences mental and physical health.

Instructor(s): G. Norman Terms Offered: Autumn

Note(s): This course does not meet the requirements for the Biological Sciences Major.

Equivalent Course(s): NSCI 22535, CHDV 25750, BIOS 29271

**PSYC 25950. The Psychology of Stereotyping and Prejudice. 100 Units.**

This course introduces concepts and research in the study of stereotyping and prejudice. Topics include the formation of stereotypes and prejudice; the processes that underlie stereotyping and prejudice; stereotyping and prejudice from the target’s perspective; and prejudice and stereotype reduction. The course will cover a variety of groups (e.g., race, gender, weight, and sexual orientation) and explore the implications of stereotyping and prejudice across a number of settings (e.g., educational, law, and health).

Instructor(s): A. Light Terms Offered: Winter

Equivalent Course(s): CRES 25950

**PSYC 26520. Mind, Brain and Meaning. 100 Units.**

What is the relationship between physical processes in the brain and body and the processes of thought and consciousness that constitute our mental life? Philosophers and others have puzzled over this question for millenia. Many have concluded it to be intractable. In recent decades, the field of cognitive science--encompassing philosophy, psychology, neuroscience, computer science, linguistics and other disciplines--has proposed a new form of answer. The driving idea is that the interaction of the mental and the physical may be understood via a third level of analysis: that of the computational. This course offers a critical introduction to the elements of this approach, and surveys some of the alternatives models and theories that fall within it. Readings are drawn from a range of historical and contemporary sources in philosophy, psychology, linguistics and computer science. (B) (II)

Instructor(s): J. Bridges; L. Kay; C. Kennedy Terms Offered: Autumn

Equivalent Course(s): LING 26520, PHIL 26520, NSCI 26520, LING 26520, PSYC 26520, COGS 26520

**PSYC 26780. Emotion and Motivation. 100 Units.**

What are emotions and how do they motivate us? In this course we will explore the universally experienced concept of emotion and how it is fundamentally inseparable from that of motivation. From shared neurobiological mechanisms and evolutionary theory to psychological impacts on behavior, this course will trace the commonalities between emotion and motivation. Topics will include autonomic correlates of emotion, the motivational utility of positive and negative emotions, and interactions with development, cognition, social behavior, and mental health. Interdisciplinary research will be emphasized, particularly in the critical evaluation of current theories and empirical findings. Prior coursework in psychology and/or neuroscience is recommended.

Instructor(s): F. Rockwood Terms Offered: Winter

**PSYC 27010. Psycholinguistics. 100 Units.**

This is a survey course in the psychology of language. We will focus on issues related to language comprehension, language production, and language acquisition. The course will also train students on how to read primary literature and conduct original research studies.

Instructor(s): Ming Xiang (Autumn), Monica Do (Spring) Terms Offered: Autumn Spring
PSYC 27950. Evolution and Economics of Human Behavior. 100 Units.
This course explores how evolutionary biology and behavioral economics explain many different aspects of human behavior. Specific topics include evolutionary theory, natural and sexual selection, game theory, cost-benefit analyses of behavior from an evolutionary and a behavioral economics perspective, aggression, power and dominance, cooperation and competition, biological markets, parental investment, life history and risk-taking, love and mating, physical attractiveness and the market, emotion and motivation, sex and consumer behavior, cognitive biases in decision-making, and personality and psychopathology.
Instructor(s): D. Maestripieri Terms Offered: Autumn
Note(s): CHDV Distribution: Undergraduate subject area: A, Graduate distribution: 1
Equivalent Course(s): PSYC 37950, BIOS 29265, ECON 14810, CHDV 37950, CHDV 27950

PSYC 28420. Problem Solving, Insight, and Creativity. 100 Units.
Human problem-solving and creativity are frequently cited as the workhorses of progress across many different fields of science and engineering. This course surveys classic and recent literature exploring the cognitive and neural mechanisms underlying problem solving and creativity. Students taking this class will: (1) develop critical thinking skills in evaluating psychological experiments, arguments, and practices commonly used in research on problem-solving and creativity; (2) develop an appreciation of the complexity of the research on problem-solving and creativity; and (3) be able to articulate the various ways researchers think and model the mechanisms underlying problem-solving and creativity at both a cognitive and neural level.
Instructor(s): S. Heald Terms Offered: Spring
Equivalent Course(s): PSYC 28850, BIOS 29265, ECON 14810, CHDV 37950, CHDV 27950

PSYC 28580. The Biological Nature of Psychological Problems. 100 Units.
This course is based on the strong assumption that psychology is a biological science, albeit with elements of the social sciences. The course uses a combination of lectures and classroom discussion of primary and secondary source readings assigned for each class meeting. It presents a strong biological science perspective on individual differences in emotions, motivations, and cognitions that cause distress or interfere with adaptive life functioning, but does so in a non-stigmatizing manner. The course begins with a description and discussion of the nature of psychological problems. The course will survey what is known about the genetic, environmental, and epigenetic bases of such problems and the methods used to study genetic influences and gene-environment interactions. Next, students will review what is currently known about the neural and other biological mechanisms involved in maladaptive individual difference in emotion, motivation, and cognitive processes, with discussion of the methods of studying such mechanisms in humans and nonhumans. The pros and cons of the medical model of ‘mental illness’ will be discussed as the major contrast with the natural science view advocated by the instructor.
Instructor(s): B. Lahey Terms Offered: Spring
Prerequisite(s): BIOS 10130 or BIOS 10140. NO BIOLOGICAL SCIENCES MAJORS OR NON-MAJOR PRE-MED STUDENTS, except by petition.
Equivalent Course(s): PBPL 28791

PSYC 28962. Principles and Methods of Measurement. 100 Units.
Accurate measurement of key theoretical constructs with known and consistent psychometric properties is one of the essential steps in quantitative social and behavioral research. However, measurement of phenomena that are not directly observable (such as psychological attributes, perceptions of organizational climate, or quality of services) is difficult. Much of the research in psychometrics has been developed in an attempt to properly define and quantify such phenomena. This course is designed to introduce students to the relevant concepts, principles, and methods underlying the construction and interpretation of tests or measures. It provides in-depth coverage of test reliability and validity, topics in test theory, and statistical procedures applicable to psychometric methods. Such understanding is essential for rigorous practice in measurement as well as for proper interpretation of research. The course is highly recommended for students who plan to pursue careers in academic research or applied practice involving the use or development of tests or measures in the social and behavioral sciences.
Instructor(s): Yanyan Sheng Terms Offered: Spring
Prerequisite(s): Course work or background experience in statistics through inferential statistics and linear regression.
Equivalent Course(s): SOSC 26008, CHDV 26008, SOSC 36008, CHDV 36008
PSYC 29200. Undergrad Rdgs: Psychology. 100 Units.
Students are required to submit the College Reading and Research Course Form. Available for either quality
grades or for P/F grading. Only one independent study course may count toward the twelve courses required of
students majoring in psychology.
Terms Offered: Autumn Spring Summer Winter

PSYC 29700. Undergraduate Research in Psychology. 100 Units.
Students are required to submit the College Reading and Research Course Form. Available for either quality
grades or for P/F grading. Only one independent study course may count toward the twelve courses required of
students majoring in psychology.
Terms Offered: Autumn Spring Summer Winter

PSYC 29800. Honors Seminar: Psychology. 100 Units.
This course is a reading and discussion of general papers on writing and research, and individual students
present their own projects to the group. A literature review, data from ongoing or completed empirical projects,
or portions of the thesis paper itself can be presented. Students are expected to give thoughtful feedback to others
on their presentations and written work.
Instructor(s): S. Levine Terms Offered: Winter
Note(s): Open to third- or fourth-year students who are majoring in psychology and have begun their thesis
project.