

DEPARTMENT OF PSYCHOLOGY

Chair

- Katherine D. Kinzler

Professors

- Edward S. Awh
- Jean Decety
- David A. Gallo
- Susan Goldin-Meadow
- Leslie M. Kay
- Boaz Keysar
- Katherine D. Kinzler
- Susan Cohen Levine
- Daniel Margoliash, Organismal Biology and Anatomy
- Howard C. Nusbaum
- Brian Prendergast
- Steven K. Shevell
- Richard Shweder, Human Development
- Edward K. Vogel
- Amanda Woodward

Associate Professors

- Marc G. Berman, Associate Chair
- Sarah London
- Greg J. Norman
- Alex Shaw

Assistant Professors

- Wilma A. Bainbridge
- Lin Bian
- Akram Bakkour
- Yuan Chang Leong
- Monica Rosenberg
- Jai Yu

Emeritus Faculty

- Abraham Bookstein, Humanities Division
- Norman M. Bradburn
- William Goldstein
- Jerre Levy
- Frederick F. Lighthall, Education
- John A. Lucy, Comparative Human Development
- Martha McClintock
- David McNeill
- Joel M. Pokorny, Ophthalmology and Visual Science
- Vivianne Smith, Ophthalmology and Visual Science
- Nancy Lou Stein

Department website: <http://psychology.uchicago.edu>

Originally founded as the Laboratory of Psychology in 1893, the Department of Psychology has been for a century a leading center of scholarship, research and teaching in psychology and related fields. Among its distinguished faculty and students have been James Rowland Angell, John Dewey, George Herbert Mead, John B. Watson, the founder of behaviorism, L. L. Thurstone, a pioneer in psychological measurement, Karl Lashley, Klüver and Bucy, Kleitman, discoverer of REM sleep, Frank Beach, founder of behavioral endocrinology, W. C. Allee who viewed biology as a social phenomenon, and Roger Sperry, Nobel Prize winner for his work in

cerebral lateralization. The present Department of Psychology is conscious of its distinguished intellectual forebears and continues to reflect its heritage in its commitment to research, the scope of its inquiry, and the diversity of its programs of graduate study.

The Department of Psychology is organized into specialized programs that reflect the contemporary state of the discipline and the wide-ranging interests of its own faculty. The areas of concentration are cognition, developmental psychology, integrative neuroscience, and social psychology. Consistent with the multidisciplinary traditions of the University of Chicago, many faculty members serve on more than one of the department's programs. Faculty and students participate in courses, colloquia, workshops and joint research ventures with scholars in other departments. These include biology, computer science, education, human development, linguistics, neuroscience, philosophy, and others, as well as the University's professional schools of business, public policy, law, medicine, and social service administration.

Doctoral study in the University of Chicago's Department of Psychology typically spans five years and includes a common curriculum of eight courses with other requirements set by the student's area of specialization. In addition, each student will complete a trial research project under the guidance of a faculty advisor or advisors, and complete a dissertation. Students are evaluated yearly to determine progress. Advisors are a critical component of students' experience in the doctoral program, providing guidance and collaboration in conducting research and academic advising.

DEGREES

Programs of graduate study offered by the department lead to the PhD degree at the University of Chicago. The Department of Psychology does not offer courses of study leading to the degree of Master of Arts (MA). However, students admitted to doctoral study may take the MA degree as an optional step in the doctoral program. Similarly, a student admitted who must leave the program, for whatever reason, may apply for a terminal MA degree, providing the student has met the program requirements of the particular program of the Department of Psychology.

PSYCHOLOGY LINGUISTICS JOINT PHD PROGRAM

Students in the Department of Linguistics in the Division of the Humanities who wish to work toward a joint PhD in Psychology's Cognition Program and in Linguistics must be admitted to the Department of Psychology through the Division of the Social Sciences.

PSYCHOLOGY-BUSINESS JOINT PHD PROGRAM

The Joint Program in Psychology and Business was established in 2009, and is overseen jointly by the Behavioral Science dissertation area (<https://www.chicagobooth.edu/phd/dissertation-areas/behavioral-science/>) at Chicago Booth and the Department of Psychology. The aim of this program is to connect the large number of social, cognitive, and organizational psychologists at Chicago Booth and within the Department of Psychology. To qualify for the joint program, a student must be admitted into either the Psychology or the Business graduate program. PhD students in Psychology or Business who want to take the Joint Degree will need an adviser in both schools. The adviser from the program the student was initially admitted into will be a primary adviser and the one from the other program, the secondary adviser. Normally this would be done, after arrival, during the first year of studies. Once the student and the faculty member agree on the advising relationship, the student applies for Joint status. The application is then reviewed by the faculty in the program that the student wants to join.

ADMISSION

Students are admitted by application to the Department of Psychology to pursue courses of doctoral study that are formulated by the individual programs. Candidates for admission are expected to have some background in psychology as well as mathematics and statistics.

The application process for admission and financial aid for the Psychology graduate program is administered through the Dean of Students Office in the Division of the Social Sciences. The application for admission, with instructions, deadlines and department-specific information, is available online at: <http://apply-ssd.uchicago.edu/apply/>.

GENERAL REQUIREMENTS FOR DOCTORAL STUDENTS

All doctoral students in the Department of Psychology must complete the common graduate curriculum. In addition, each student must complete the course requirements specified by one of the department's specialized training and research programs. In exceptional cases, a student may design an individual sequence of courses. This sequence must be approved by the curriculum and student affairs committee before the student undertakes it. Completion of these course requirements is a prerequisite for Ph.D. candidacy.

Practical pedagogical experience is a program requirement in the doctoral program. Students in the Department of Psychology will be required to complete five mentored teaching experiences (MTEs), with the possibility of additional teaching experiences for those students seeking advanced pedagogical training. These

experiences may include being a Course TA, a Course Intern (for College Core courses), and/or a Mentored Instructor of a stand-alone course (when applicable).

COMMON GRADUATE CURRICULUM

The common curriculum consists of eight courses. Other requirements for graduate students will be set by the student's area of specialization.

Proseminar

One-quarter course in which faculty members whose primary affiliation is the Department of Psychology give a summary of their ongoing research and students write a research proposal, to be submitted for an NSF graduate fellowship if the student is eligible for this funding. Professional development topics are also covered.

Statistics Requirement: Three courses passed with a grade of B or better

STAT 22000	Statistical Methods and Applications (or BUSF 41000 or equivalent approved by the Graduate Curriculum Committee. More advanced courses, for which these courses are prerequisites, also fulfill this requirement.)	100
PSYC 37300	Experimental Design and Statistical Modeling I	100
PSYC 37900	Experimental Design and Statistical Modeling II	100

TRIAL RESEARCH SEMINAR

All graduate students are required to take the trial research seminar in the spring of the first year. The purpose of this seminar is to help students formulate and complete their trial research projects.

BREADTH REQUIREMENT

Students are required to take a minimum of three doctoral level courses in Psychology, extending across different areas of psychological science. These courses should be chosen in consultation with the student's advisor and program area. These courses must be passed with a grade of B or better.

DEPARTMENT OF PSYCHOLOGY RESEARCH REQUIREMENTS

TRIAL RESEARCH PROJECT

Each student will complete a trial research project under the guidance of a faculty advisor or advisors by the end of the spring quarter of the second year.

At the start of the project, each student must form a trial research committee, composed of three faculty members. Typically, the chair of the committee is the student's primary research advisor. The chair of the committee must be a faculty or emeritus faculty member in the Psychology Department. At least one other member of the committee must be a faculty, emeritus faculty or affiliated faculty member in the Psychology Department. The third member of the committee may be from outside of the Psychology Department, provided that the chair of the trial research committee gives his or her approval.

By the end of autumn quarter of the second year, the student's trial research committee should meet to approve the proposed trial research project. At a minimum, this meeting consists of a student presentation of the proposed work and discussion of the plan with the committee. Essential to this approval is the committee's decision that the project can feasibly be completed by the end of the second year.

By the end of spring quarter of the second year, students must submit their written trial research paper to their committee, in preparation for the trial research defense meeting. By the end of spring quarter, students should defend their trial research project at a meeting with their trial research committee, which will also assess the depth and breadth of students' knowledge of their research problem.

Successful completion of the trial research project is a prerequisite for PhD candidacy.

DISSERTATION

To begin the dissertation process, a student must form a three-member dissertation committee consisting of a chairperson and two other faculty members. Typically, the chair is the student's primary research advisor. The chair of the dissertation committee must be a faculty or emeritus faculty member in the Psychology Department. At least one other member of the committee must be a faculty, emeritus faculty or affiliated faculty member in the Psychology Department. The third member of the committee must be from the University of Chicago, but may be from outside of the Psychology Department, provided that the chair of the dissertation committee gives his or her approval.

Once a dissertation committee exists, the student must formulate an independent research project to be carried out under the committee's guidance. The student will then prepare a written dissertation proposal and submit it to his or her committee. When the student's advisor agrees, the student may schedule an oral defense of the proposal.

To be admitted to PhD candidacy, a student must have successfully completed: (a) the Common Graduate Curriculum (including the statistics and breadth requirement); (b) the course requirements specified by a program or an individual course of study approved by the Curriculum Committee; (c) a trial research project; (d)

approval of the dissertation proposal by all members of the student's dissertation committee following the oral defense.

The completed thesis must be submitted to all three committee members. When the student's advisor agrees, the student may schedule an oral defense of the dissertation. The oral exam is administered by four members of the University community: the three members of the dissertation committee and an outside reader. The outside reader may be a faculty member at the University of Chicago, or a scientist at another institution. The outside reader must be approved by the thesis advisor. If, after the oral defense, all committee members approve the thesis, the student has met the Psychology Department's requirements for the PhD degree.

The completed dissertation must be formatted and submitted to the dissertation office by the quarterly deadline for graduation established by the dissertation office. For information about formatting the dissertation and submission deadlines, please visit the dissertation office's website (<https://www.lib.uchicago.edu/research/scholar/phd/>).

AREAS OF SPECIALIZATION

The Department of Psychology is organized into four areas of specialization: Cognition, Developmental Psychology, Integrative Neuroscience, and Social Psychology.

COGNITION PROGRAM

The goal of the doctoral program in Cognitive Psychology is to train graduate students to be well-rounded researchers and scholars. Our unique approach fosters integrative thinking that crosses disciplinary boundaries, and focuses on research questions that have both theoretical and practical significance. Faculty, students, and post docs collaborate on projects spanning a variety of cognitive domains, such as human memory, language and communication, perception, attention and action, and conflict resolution and negotiation. Not only do we focus on fundamentally cognitive questions, but we also situate these questions within a broader context, including the biological bases and the social manifestations of cognitive phenomena. Our integrative approach allows graduate students to benefit from the university as a whole, by interacting with faculty from the Biological Sciences, the Humanities and the Social Sciences.

Curriculum

There are three elements in the graduate curriculum of the Cognition Program.

1. Departmental curriculum. Students must complete the departmental core graduate curriculum.
2. Basic courses. Three basic courses. The following list includes possible courses, including those that are not offered every year. The purpose of this requirement is to develop a deeper understanding of the theories and methods used to scientifically study cognition, and how these approaches are central to many areas of psychological inquiry. Pre-approved courses are:

PSYC 31200 Systems Neuroscience

PSYC 37400 Long Term Memory

PSYC 38655 Environmental Neuroscience

PSYC 40107 Behavioral Neuroscience

PSYC 41115 Social Cognitive Development

PSYC 42350 Advanced Topics in Human Neuroimaging

PSYC 42570 Integrating the Real World into Perception and Memory

PSYC 42950 Memory and Decision Making

PSYC 43200 Seminar in Language Development

PSYC 43600 Processes of Judgement and Decision Making

Students may also propose other courses, based on course offerings in a given year. Such student-proposed courses should be approved by the cognition area chair prior to taking them.

3. Advanced courses and seminars. Students are strongly encouraged to participate in advanced courses and seminars, particularly in their area of interest.

THE DEVELOPMENTAL PSYCHOLOGY PROGRAM

The Developmental Program provides a rich environment for scientific inquiry, mentorship, and training. Our faculty pursue a wide range of topics that span cognitive, emotional and social development. In cognitive development, our work focuses on infants' and children's mathematical, spatial, and language development along with interventions to improve educational outcomes. In terms of social and emotional development, we examine infants' and children's affective, intentional, and moral understanding. Other research examines how

interacting with their environment affects children's cognition and social behavior, and how their bodies can shape learning and thinking. Not only do our faculty, post-docs, and students investigate multiple exciting questions with behavioral methods, but they also supplement this approach with other methods including behavioral economics, gestural analyses, functional MRI, eye tracking, EEG/ERPs, and computational models. Moreover, the faculty interact with faculty from other disciplines, bringing rich interdisciplinary expertise to bear on their research questions. The faculty are also involved with the Science of Learning Center (<https://scienceoflearning.uchicago.edu/>), Center for Gesture Sign and Language (<https://gslcenter.uchicago.edu>), and the Committee on Education (<https://coe.uchicago.edu>). These diverse perspectives and methodologies provide a comprehensive picture of how the mind works and is shaped throughout development.

Curriculum

1. The following requirements are in addition to the common Graduate Curriculum required of all graduate students.
2. Students must take an advanced course in the three areas of Developmental Psychology listed below. Certain seminars may also fulfill these requirements. Below are a few examples of courses that will fulfill these requirements. Students may petition the developmental area chair to count courses not included on this list.
 - a) Cognitive/Intellectual Development:
PSYC 42550 Topics in Cognitive Development; PSYC 42040 Seminar: Mathematical Development
 - b) Language Development:
PSYC 43200 Seminar in Language Development; PSYC 43680 Topics in Language and Gesture
 - c) Social/Emotional Development:
PSYC 41115 Social Cognitive Development; PSYC 33165 Multidisciplinary Perspectives on Morality
3. Students are expected to attend the weekly developmental brown bag seminar (Topics in Developmental Psychology) each quarter.
4. Students are encouraged to take additional coursework in areas of interest and in statistics or methods as needed.
5. In their third year, students will present their trial research findings in the developmental brown bag seminar.
6. By the spring of the third year students must write and submit a theoretical review paper to their adviser and a reader. Ideally, this review could be a publishable article, suitable for a journal such as Psychological Bulletin or Developmental Review and will help in formulating the dissertation. Students will do a presentation of the theoretical review paper in the developmental brown bag seminar by the end of their fourth year.

INTEGRATIVE NEUROSCIENCE

The notion that 100 billion neurons give rise to human behavior proved daunting up through the 20th Century because neuroscientists were limited by existing technologies to studying the properties of single neurons or small groups of neurons. Characterizing simple neural circuits has led to an understanding of a variety of sensory processes, such as the initial steps in vision, and motor processes, such as the generation of locomotion patterns. However, unraveling the neural substrates of more complex behaviors, such as the ability to pay attention to relevant events in its surroundings or the ability to understand the likely events going through the mind of another, remains one of the major challenges for the neurosciences in the twenty-first century. In contrast to simple behaviors, these complex behaviors depend on interactions within a network of different brain structures. Studying the neural bases of complex behaviors, thus, requires an integrative neuroscience approach.

The Integrative Neuroscience graduate program at the University of Chicago is designed to provide the training and research opportunities for the next generation of behavioral, cognitive, and social neuroscientists. Behavioral, cognitive, and social neuroscience represent three complementary and partially overlapping aspects of this integrative neuroscience of mind and behavior. Behavioral neuroscience places an emphasis on the biological mechanisms underlying basic behavioral processes; cognitive neuroscience places an emphasis on the biological mechanisms underlying cognition, with a specific focus on the neural substrates of mental processes and their behavioral manifestations; and social neuroscience places an emphasis on the biological mechanisms underlying social processes and behavior, including the ability to perceive and communicate mental states including the beliefs and desires of others and to form and maintain interpersonal and group relationships. The University of Chicago is optimally positioned to meet this challenge because its unique academic structure facilitates interactions across disciplinary perspectives.

Curriculum

Students must complete the departmental core graduate curriculum.

As part of this curriculum and with one additional course, IN students complete:

TWO PSYCHOLOGY DEPARTMENT BREADTH COURSES

IN students will take two advanced courses within the Department of Psychology.

TWO OF THREE CORE NEUROSCIENCE COURSES

CPNS 30000 Cellular Neurobiology

CPNS 30107 Behavioral Neuroscience

CPNS 30116 Survey of Systems Neuroscience

It is suggested that most students take at least Cellular and Behavioral, but we understand that needs depend on research focus.

IN students are encouraged to take additional advanced courses. The program offers the following advanced courses. All of these courses will not be offered every year.

- PSYC 32750 Advanced Topics in Chronobiology
- PSYC 34133 Neuroscience of Seeing
- PSYC 36655 Advanced Topics in Epigenetics of the Brain
- PSYC 37250 Foundations of Neuroscience: Historical Perspective
- PSYC 37400 Long Term Memory
- PSYC 41210 Psychophysiology: Methods, Concepts, and Applications
- PSYC 42350 Advanced Topics in Human Neuroimaging
- PSYC 42650 Working Memory
- PSYC 43130 Stress and the Social Brain
- PSYC 43780 Basics of conducting EEG and ERP research
- PSYC 34810 Neuroeconomics
- PSYC 46050 Principles of Data Science and Engineering for Laboratory Research

THE SOCIAL PSYCHOLOGY PROGRAM

The general philosophy of the curriculum is to provide students with the requisite knowledge and skills to excel in mainstream, academic social psychology. In addition to Departmental requirements, graduate students in the University of Chicago Social Psychology Program must fulfill the following course requirements:

1. General Courses:
 - a. PSYC 40600 Advanced Seminar in Social Psychology: Introductory course in experimental social psychology. This course will also fulfill part of the core course requirements of the common graduate curriculum.
2. Topics in Experimental Social Psychology: An ongoing seminar taught collectively by the Core Faculty each quarter. Required of Social Area Students in Years 1-3. Please note: This course is neither required of Joint students nor is it available to them.
3. An advanced course or seminar in at least two of the following Areas of Emphasis:
 - Self
 - Social Cognition
 - Social and Cognitive Neuroscience
 - Decision Making
 - Attitudes and Affect
 - Stereotyping and Prejudice
 - Communication and Language Processes
 - Interpersonal Relations and Group Processes
 - Political Psychology
 - Cultural Psychology
4. PSYC 45200 Advanced Methods In Experimental Social Psychology plus two additional courses in advanced methods and statistics.
5. Finally, students are expected to take advanced courses and seminars in their area of interest.

PSYCHOLOGY COURSES

PSYC 30401. Psycholinguistics: Language Processing. 100 Units.

This is an advanced introduction to the field of psycholinguistics. We will do an in-depth overview of both the empirical findings and the methodologies used on various topics in language comprehension/production, including areas of speech perception, lexical processing, syntactic parsing, and semantic/pragmatic processing. Models at both the computational and the mechanistic levels will also be examined.

Instructor(s): Monica Do Terms Offered: Autumn

Equivalent Course(s): LING 30401

PSYC 30550. 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 re-format 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): MACS 30550, CHDV 30550, CHDV 20550, MAPS 30550

PSYC 31900. The Neuroscience of Narratives. 100 Units.

Narratives have a powerful hold over the human mind. People are more often convinced by a compelling story than by concrete facts. More broadly, people use narratives to organize their thoughts and communicate their ideas. Recent advances in natural language processing (NLP) tools and neuroscience methods provide exciting new opportunities to study how the brain understands and constructs narratives. The goal for this seminar is to provide an in-depth look into the cutting-edge research on the neuroscience of narratives. We will begin with a review of the burgeoning literature on the use of narratives in cognitive and social neuroscience. We will then introduce NLP approaches that provide a framework to model narratives computationally, and discuss how NLP models can be combined with neuroscience measures in a synergistic manner. Finally, we will discuss how studying the neuroscience of narratives can provide insights into people's mental models of the world. Background in cognitive neuroscience or natural language processing is a prerequisite. Please email the instructor for consent.

Instructor(s): Y.C. Leong Terms Offered: Spring

PSYC 32750. Advanced Topics in Chronobiology. 100 Units.

This seminar will explore the mechanisms by which circadian clocks influence the development and adult functioning of the brain to generate adaptive changes in behavior. In addition to being immersed in theoretical aspects of chronobiology, students will be trained in critical reading of primary research literature, the construction of testable hypotheses, and designing experiments to test these hypotheses. In addition to participating in weekly discussions, course members will survey the literature to determine how circadian issues affect how research is conducted across disciplines.

Instructor(s): B. Prendergast Terms Offered: Autumn

Prerequisite(s): Students should have taken or currently be taking PSYC 21750.

PSYC 33000. 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: Autumn

Prerequisite(s): Undergraduates must be in third or fourth year.

Note(s): CHDV Distribution: B, C

Equivalent Course(s): GNSE 31000, ANTH 24320, ANTH 35110, AMER 33000, CHDV 21000, EDSO 21100, CRES 21100, GNSE 21001, CHDV 31000, PSYC 23000

PSYC 33165. 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 2022, only a graduate-level course will be offered.

Equivalent Course(s): PSYC 23165, KNOW 33165

PSYC 33200. 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): LING 21600, CHDV 31600, EDSO 23200, LING 31600, PSYC 23200, CHDV 23900

PSYC 33360. 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 23360, LING 33360, LING 23360, CHDV 33360, PSYC 23360

PSYC 33600. Cognition in Infancy. 100 Units.

In this course, we explore the development of human perceptual, cognitive, motor, and social abilities during the first two years of life. The study of infants provides a window into issues of nature and nurture, and the ways in which structure in the organism and structure in the environment converge in developing systems. We cover both classical and current models, giving special attention to the role of changing empirical methods in informing theory.

Instructor(s): A. Woodward Terms Offered: Autumn

Prerequisite(s): PSYC 20500, or consent of instructor.

Equivalent Course(s): PSYC 23600

PSYC 33830. 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): PSYC 23820, NSCI 21600

PSYC 34133. 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, BIOS 24133, PSYC 24133, CPNS 34133, NURB 34133

PSYC 35201. Communication in humans and non-humans. 100 Units.

This seminar will compare communication in humans and non-humans. Topics to be covered include the reliance of communication on more general cognitive processes, the learnability of communicative systems, referential intent, honest signaling, and deception. These issues will be explored through readings that cover recent work at the intersection of human and animal communication.

Instructor(s): J. Mateo Terms Offered: Winter

Equivalent Course(s): CHDV 35201

PSYC 36210-36211. Mathematical Methods for Biological Sciences I-II.

PSYC 36210. Mathematical Methods for Biological Sciences I. 100 Units.

This course builds on the introduction to modeling course biology students take in the first year (BIOS 20151 or 152). It begins with a review of one-variable ordinary differential equations as models for biological processes changing with time, and proceeds to develop basic dynamical systems theory. Analytic skills include stability analysis, phase portraits, limit cycles, and bifurcations. Linear algebra concepts are introduced and developed, and Fourier methods are applied to data analysis. The methods are applied to

diverse areas of biology, such as ecology, neuroscience, regulatory networks, and molecular structure. The students learn to implement the models using Python in the Jupyter notebook platform.

Instructor(s): D. Kondrashov Terms Offered: Autumn. L.

Prerequisite(s): BIOS 20151 or BIOS 20152 or equivalent quantitative experience by consent of instructor, and three courses of a Biological Sciences Fundamentals Sequence or consent of the instructor.

Equivalent Course(s): CPNS 31000, BIOS 26210

PSYC 36211. Mathematical Methods for Biological Sciences II. 100 Units.

This course is a continuation of BIOS 26210. The topics start with optimization problems, such as nonlinear least squares fitting, principal component analysis and sequence alignment. Stochastic models are introduced, such as Markov chains, birth-death processes, and diffusion processes, with applications including hidden Markov models, tumor population modeling, and networks of chemical reactions. In computer labs, students learn optimization methods and stochastic algorithms, e.g., Markov Chain, Monte Carlo, and Gillespie algorithm. Students complete an independent project on a topic of their interest.

Instructor(s): D. Kondrashov Terms Offered: Winter. L.

Prerequisite(s): BIOS 26210 or equivalent.

Equivalent Course(s): BIOS 26211, CPNS 31100

PSYC 36520. 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 millennia. 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 36520, LING 26520, PSYC 26520, COGS 20001, PHIL 26520, PHIL 36520

PSYC 37950. 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. Maestriperi Terms Offered: Autumn

Note(s): CHDV Distribution: Undergraduate subject area: A, Graduate distribution: 1

Equivalent Course(s): BIOS 29265, PSYC 27950, CHDV 27950, CHDV 37950, ECON 14810

PSYC 39019. Theory, Method & Evidence: Finding Persons in the Social. 100 Units.

There has been a disconnect between the theories and methods we use to examine the world. The veritable explosion of methodologies, or ways to find evidence on the world and persons, leaves many with a lack coherent understanding of what exactly is being produced. This class will examine methods and forms of evidence across multiple fields of social inquiry to ground students, with some focus on the methods of biological and physical sciences. This class will examine critically what counts as evidence and what counts as a method--including a historically situating of the conceptualizations of method and evidence for the respective fields. We will pay special attention to shifts in the formulation of our scientific triad of Data, Evidence, and Ideas across space and time. By the end of the class, students will have a deeper understanding of evidence and method across multiple fields of social inquiry, including the relevance of the replication crisis.

Instructor(s): Gugwor, Resney Terms Offered: Winter

Equivalent Course(s): MAPS 41501, CHDV 22550, SOCI 30333, CHDV 42550

PSYC 40107. Behavioral Neuroscience. 100 Units.

This course provides an introduction to neuroethology, examining brain activity relative to behaviors and organisms evaluated from an adaptive and evolutionary perspective. It starts with a brief introduction to classical ethology, and then develops a series of example animal model systems. Both invertebrate and vertebrate models are considered although there is a bias towards the latter. Many of these are "champion" species. There is a heavier demand for reading original data papers than typical in introductory graduate level courses. An integral part of the course is a series of assignments where you develop grant proposals describing novel science experiments in the animal models, thereby challenging your knowledge of the material and teaching aspects of scientific writing. In recent years there has been more computational material presented. The course is not available to undergraduates without prior approval of the instructor.

Instructor(s): D. Margoliash Terms Offered: Spring

Note(s): The course is not available to undergraduates without prior approval of the instructor.

Equivalent Course(s): CPNS 30107, NURB 30107

PSYC 40450-40451-40452. Topics in Cognition I-II-III.

Broadly speaking, this workshop will address fundamental topics in cognitive psychology such as attention, memory, learning, problem solving, and language. One unique aspect of this workshop is that we will not only explore topics central to the study of cognition, but we will also explore how the study of cognitive psychology can be used to enhance human potential and performance in a variety of contexts. These contexts range from an exploration of optimal teaching practices to enhance the acquisition of mathematical knowledge in the classroom, to issues regarding how individuals communicate best to foster the optimal exchange of information in, for instance, medical settings, to the optimal strategies older adults can use to help stave off the deleterious effects of aging on cognitive functioning and the performance of everyday activities.

PSYC 40450. Topics in Cognition I. 100 Units.

Discussion of current research in psychology.

Instructor(s): A. Bakkour Terms Offered: Autumn

PSYC 40451. Topics in Cognition II. 100 Units.

Discussion of current research in psychology.

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

PSYC 40452. Topics in Cognition III. 100 Units.

Discussion of current research in psychology.

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

PSYC 40460. Computation and the Identification of Cultural Patterns. 100 Units.

Culture is increasingly becoming digital, making it more and more necessary for those in both academia and industry to use computational strategies to effectively identify, understand, and (in the case of industry) capitalize on emerging cultural patterns. In this course, students will explore interdisciplinary approaches for defining and mobilizing the concept of "culture" in their computational analyses, drawing on relevant literature from the fields of Anthropology, Psychology and Sociology. Additionally, they will receive hands-on experience applying computational approaches to identify and analyze a wide range of cultural patterns using the Python programming language. For instance, students will learn to identify emerging social movements using social media data, predict the next fashion trends, and even decipher ancient symbols using archaeological databases.

Instructor(s): Clindaniel, Jon Terms Offered: Autumn Winter

Prerequisite(s): No previous coding experience required. A Python boot camp will be held at the beginning of the quarter to teach the coding skills necessary to succeed in the course. Open to Advanced Undergraduates with Instructor Permission.

Equivalent Course(s): MAPS 40401, CHDV 40404, MACS 20400, MACS 40400

PSYC 40710. Early Childhood: Human Capital Development and Public Policy. 100 Units.

The goal of this course is to introduce students to the literature on early child development and explore how an understanding of core developmental concepts can inform social policies. Our substantive foci will be on early childhood poverty, the role of parenting and the home environment in shaping children's development, and the evidence base for intervention in early childhood for economically disadvantaged children. The course will cover evidence from neuroscience, psychology, economics, sociology, and public policy as it bears on these questions. In particular, we will explore how the principles of early childhood development can guide the design of policies and practices that enhance the healthy development of young children, particularly for those living in adverse circumstances, and thereby build a strong foundation for promoting equality of opportunity, reducing social class disparities in life outcomes, building human capital, fostering economic prosperity, and generating positive social change. In doing so, we will discuss the evidence on whether the contexts of children's development are amenable to public policy intervention and the costs and benefits of different policy approaches.

Instructor(s): Kalil, A Terms Offered: Winter

Equivalent Course(s): CHDV 40770, PPHA 40700

PSYC 40850. Seminar on Mathematical Development. 100 Units.

We will examine the development of numerical and spatial skills in young children, which have been found to predict their long term mathematical outcomes. The course will examine the role of children's early mathematical skills and concepts, domain general abilities such as executive functioning and math attitudes (e.g., math anxiety, math ability self-concepts, mindset, and math gender stereotypes) on their math learning trajectories. Finally, we will consider how key socializers - parents and teachers - contribute to children's math learning and math attitudes.

Instructor(s): S. Levine Terms Offered: Spring

PSYC 40851-40852-40853. Topics in Developmental Psychology I-II-III.

Brown-bag discussion of current research in psychology.

PSYC 40851. Topics in Developmental Psychology I. 100 Units.

Brown-bag discussion of current research in psychology.

Instructor(s): S. Levine Terms Offered: Autumn

PSYC 40852. Topics in Developmental Psychology II. 100 Units.

Brown-bag discussion of current research in psychology.

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

PSYC 40853. Topics in Developmental Psychology III. 100 Units.

Brown-bag discussion of current research in psychology.
Instructor(s): S. Goldin-Meadow Terms Offered: Spring

PSYC 41115. Social Cognitive Development. 100 Units.

Human beings inhabit a very complex social world and our mind has structures that enable us to navigate this complexity. Where do these concerns come from? Are we blank slates that passively absorb cues from our environment? If not, what early competencies enable us to learn? How do these competencies interact with our culture? To answer these questions, this class will cover literature from infants, toddlers, children, and adults to give a rich picture of what changes and remains constant across development. We will cover topics such as children's understanding of intentions, theory of mind, communication, ownership, morality, and inter-group attitudes.

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

PSYC 41400. Evolutionary Cognitive Psychology. 100 Units.

TBD

PSYC 42100. Trial Research Seminar. 100 Units.

PSYC 42100 is required of first-year Psychology graduate students. The purpose of this seminar is to assist students in formulating their trial research project.

Instructor(s): S. London Terms Offered: Spring

PSYC 42220. Understanding Inequality as a Psychologist. 100 Units.

Inequality within and across social groups has risen sharply in the past few decades. What are the early traces and psychological mechanisms of this pervasive phenomenon? In this seminar, we will discuss these questions from multiple angles, integrating developmental, social and cognitive psychology. Specifically, this course will cover topics in early social cognition, including social categorization, essentialism, structural reasoning, normative reasoning, stereotypes and prejudice, etc. Students will evaluate past studies throughout the course and propose original research at the end.

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

PSYC 42950. Memory and Decision Making. 100 Units.

What are the cognitive and neural mechanisms by which learning, memory, and decision making interact? In this seminar, we will review current theories that bridge learning and decision making, consider the strengths and weaknesses of the cognitive neuroscience tools used to test these theories, and discuss how memories of the past enable decisions for the future.

Instructor(s): A. Bakkour Terms Offered: Autumn

PSYC 43110. Affective Neuroscience. 100 Units.

This course aims to provide an overview of and historical basis for the study of the neural mechanisms of emotion. Emphasis will be on mapping affective experience and behavior to brain function, including multilevel integration of social, psychological, neurobiological, and genetic data. Readings will come from the current literature. Course requirements include in-depth weekly discussion of assigned readings and a final paper.

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

PSYC 43910. Current Topics in Working Memory and Attention. 100 Units.

This will cover a broad range of topics in the working memory and attention literature.

Instructor(s): E. Awh Terms Offered: Winter

Note(s): We strongly advise students without a prior background in these areas to consider auditing our undergraduate course "Attention and working memory in the mind and brain."

PSYC 44550. Cognitive Neuroscience Core Course. 100 Units.

This course will cover broad topics in cognitive neuroscience, including attention, memory, perception, and reasoning. Strong integration of behavioral and neural approaches will be emphasized.

Instructor(s): Awh, E. Terms Offered: Autumn

PSYC 45300. When Cultures Collide: The Multicultural Challenge in Liberal Democracies. 100 Units.

Coming to terms with diversity in an increasingly multicultural world has become one of the most pressing public policy projects for liberal democracies in the early 21st century. One way to come to terms with diversity is to try to understand the scope and limits of toleration for variety at different national sites where immigration from foreign lands has complicated the cultural landscape. This seminar examines a series of legal and moral questions about the proper response to norm conflict between mainstream populations and cultural minority groups (including old and new immigrants), with special reference to court cases that have arisen in the recent history of the United States.

Instructor(s): R. Shweder Terms Offered: Winter

Prerequisite(s): Undergraduates students: 4th year standing only.

Note(s): Subject area: Grad: 2, 3

Equivalent Course(s): CHDV 25699, HMRT 35600, ANTH 45600, GNSE 45600, CHDV 45699, KNOW 45699

PSYC 45500. 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 46050. Principles of Data Science and Engineering for Laboratory Research. 100 Units.

The quantity of data gathered from laboratory experiments is constantly increasing. This course will explore the latest concepts, techniques and best-practice to create efficient data analysis pipelines. We will focus on the python ecosystem. By the end of the course, you are expected to be able to apply appropriate tools to streamline your own data analysis.

Instructor(s): J. Yu Terms Offered: Autumn

Prerequisite(s): Familiarity with coding in python.

Equivalent Course(s): CPNS 36050, NURB 36050

PSYC 47001-47002. Language in Culture I-II.

This two-quarter course presents the major issues in linguistics of anthropological interest. These courses must be taken in sequence.

PSYC 47001. Language In Culture I. 100 Units.

The first quarter of the two-quarter Language in Culture sequence introduces a number of analytic concepts developed out of the study of "language" and its limits. We begin with the study of "interaction order" in its multifunctional complexity, teasing out its constitution through the real-time unfolding of indexical (pragmatic) and reflexive (metapragmatic) signs/functions as coherent "text." We use this attention to the dialectics of indexicality and its various implications to investigate various problematics in the philosophy of language (reference, performativity), linguistics (poetics, grammatical sense, variation, register), and sociocultural anthropology (racialization, relativity, subjectivity/identity, temporality, institutionalization).

Instructor(s): Constantine Nakassis Terms Offered: Autumn. Autumn 2022

Prerequisite(s): Consent of instructor for Undergrads

Note(s): CHDV Distribution: 5*

Equivalent Course(s): CHDV 37201, ANTH 37201, LING 31100

PSYC 47002. Language in Culture II. 100 Units.

This is the second part of a two-quarter sequence on the role of language in social life. Building on the first quarter's focus on the interaction order, this quarter explores how ideologies regiment and reflexively mediate between discursive/expressive practices of the interaction order and the wider organization of social life. How are people's ideas about ways of speaking and modes of expression shaped by their social positions and values? And how do their ideas shape interaction and vice versa? How is difference, in language and in social life, made - and unmade? How and why are some differences persuasive as the basis for action, while other differences are ignored or erased? The course proposes that ideologies are neither true nor false, they are positioned and partial visions of the world, relying on comparison and perspective; they exploit differences in expressive features - linguistic and otherwise - to construct convincing images of people, spaces and activities in sociopolitical processes.

Instructor(s): Susan Gal Terms Offered: Winter. Winter 2022

Prerequisite(s): Language in Culture-I

Note(s): CHDV Distribution: 5*

Equivalent Course(s): LING 31200, ANTH 37202, CHDV 37202

PSYC 48000. Proseminar in Psychology. 100 Units.

Required of first-year Department of Psychology graduate students. Department of Psychology faculty members present and discuss their research. This introduces new students to the range of research areas in the department.

Instructor(s): M. Rosenberg Terms Offered: Autumn

PSYC 48001-48002-48003. Mind and Biology Proseminar I-II-III.

Seminar series at the Institute for Mind and Biology meets three to four times per quarter. Sign up for three quarters; receive credit at the end of Spring Quarter.

PSYC 48001. Mind and Biology Proseminar I. 000 Units.

Students receive credit in spring quarter after attending 3 quarters of seminars.

Instructor(s): E. Vogel Terms Offered: Autumn

PSYC 48002. Mind and Biology Proseminar 2. 000 Units.

Seminar series at the Institute for Mind and Biology meets three to four times per quarter. Sign up for three quarters; receive credit at the end of Spring Quarter.

Instructor(s): E. Vogel Terms Offered: Winter

PSYC 48003. Mind and Biology Proseminar 3. 100 Units.

Seminar series at the Institute for Mind and Biology meets three to four times per quarter. Sign up for three quarters; receive credit at the end of Spring Quarter.

Instructor(s): E. Vogel Terms Offered: Spring

PSYC 49700. Readings: Psychology. 100 Units.

PSYC 49800. Research: Psychology. 300.00 Units.

PSYC 70000. Advanced Study: Psychology. 300.00 Units.

Advanced Study: Psychology

