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:

1. Inform the Department of Psychology by completing an enrollment form available from the department student affairs administrator in Beecher 109 and inform their College adviser.
2. 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: The following revised requirements are in effect for students who matriculated September 2014 and after. Students who matriculated prior to September 2014 should consult the College Catalog archives (http://collegecatalog.uchicago.edu/thecollege/archives/) for the requirements that pertain to them.

NOTE: When planning your course schedule, please consult Class Search at registrar.uchicago.edu/classes (http://registrar.uchicago.edu/classes/) and the Courses section (http://psychology.uchicago.edu/content/courses-2017-18/) of the Psychology Department Undergraduate Program website for any changes in the course offerings.

Statistics/Methodology Sequence

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, STAT 22000 Statistical Methods and Applications, or PSYC 20100 Psychological Statistics (if taken Autumn Quarter 2018 or earlier). It is strongly recommended that these courses be taken as early as possible 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, or PSYC 20100) used in psychological science and are typically taught in Autumn and Winter Quarters. 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>
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<tbody>
<tr>
<td>PSYC 20300</td>
<td>Biological Psychology</td>
</tr>
<tr>
<td>PSYC 20400</td>
<td>Cognitive Psychology</td>
</tr>
<tr>
<td>PSYC 20500</td>
<td>Developmental Psychology</td>
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<tr>
<td>PSYC 20600</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSYC 20700</td>
<td>Sensation and Perception</td>
</tr>
</tbody>
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100

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 Curriculum
Committee; petitions must be submitted to the undergraduate program chair. 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 required to take PSYC 20200 Psychological Research Methods. Students are encouraged to gain additional 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

<table>
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<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>MATH 13100-13200</td>
<td>200</td>
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<tr>
<td>Total Units</td>
<td>200</td>
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</table>

MAJOR

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>PSYC 20200 Psychological Research Methods (by end of third year)</td>
<td>100</td>
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<tr>
<td>One of the following (by end of third year):</td>
<td>100</td>
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<tr>
<td>PSYC 20250 Introduction to Statistical Concepts and Methods</td>
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<tr>
<td>STAT 22000 Statistical Methods and Applications</td>
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<tr>
<td>PSYC 20100 Psychological Statistics</td>
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<tr>
<td>Four of the following:</td>
<td>400</td>
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<tr>
<td>PSYC 20300 Biological Psychology</td>
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<tr>
<td>PSYC 20400 Cognitive Psychology</td>
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<td>PSYC 20500 Developmental Psychology</td>
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<td>PSYC 20600 Social Psychology</td>
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<td>PSYC 20700 Sensation and Perception</td>
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<tr>
<td>Six electives</td>
<td>600</td>
</tr>
<tr>
<td>Total Units</td>
<td>1200</td>
</tr>
</tbody>
</table>

† Credit may be granted by examination.

* Examination credit for PSYC 20250 Introduction to Statistical Concepts and Methods, PSYC 20100 Psychological Statistics, or STAT 22000 Statistical Methods and Applications will not count toward the requirements for the major. Students with credit for PSYC 20250, PSYC 20100, 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 Curriculum Committee; petitions must be submitted to the undergraduate program chair.

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 write an honors paper with a faculty advisor from the Department of Psychology. Papers must represent a more substantial research project than the average term paper. After the paper has been approved by the faculty sponsor, 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. For details, visit psychology.uchicago.edu (http://psychology.uchicago.edu).

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.

Double Majors

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 his or her 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.

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 his or her 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): K. Ledoux

Terms Offered: Autumn

**PSYC 20209. Adolescent Development. 100 Units.**

Adolescence represents a period of unusually rapid growth and development. At the same time, under the best of social circumstances and contextual conditions, the teenage years represent a challenging period. The period also affords unparalleled opportunities with appropriate levels of support. Thus, the approach taken acknowledges the challenges and untoward outcomes, while also speculates about the predictors of resiliency and the sources of positive youth development.

Instructor(s): M. Spencer

Terms Offered: Spring

Prerequisite(s): Students will have previously taken one other course in CHDV

Note(s): CHDV Distribution: B

Equivalent Course(s): EDSO 20209, CHDV 20209

**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): TBD

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, EDSO 20250

**PSYC 20260. Introduction to Behavioral Research Methods: From Design to Statistical Analysis. 100 Units.**

The course will take a novel approach to these topics that integrates an understanding of research designs and methods with the descriptive and inferential statistical techniques used to interpret and learn from data. The primary goal of the course is for students to learn how to establish an empirical relationship between theory and data, and identify the inferences this relationship licenses. More specifically, students will gain experience in how to (1) form testable hypotheses, (2) devise and implement appropriate research methods and designs, (3) describe and analyze resulting data, and (4) interpret and report results. Through this process, students will learn to recognize and understand a variety of research designs, data collection methods, and statistical models that psychologists and other social scientists use to address research questions about the psychological states and processes that drive individual behavior. While topics will include naturalistic observation of behavior and large-scale surveys, the primary focus of the course will be on experimental methods and designs and the statistical methods and models appropriate to them. In addition to designing studies and collecting data, students will also learn how to use statistical software for data management and analysis, and how to report the results of their studies in accordance with APA guidelines. This course will expose students in a very direct way to the process by which psychological science is done.

Terms Offered: Summer
Psychology

Equivalent Course(s): SOSC 20260

**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): S. London, L. Kay 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. Rosenberg Terms Offered: Spring
Equivalent Course(s): NSCI 22015, EDSO 20400

**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): EDSO 20500, CHDV 25900

**PSYC 20600. Social Psychology. 100 Units.**
This course examines social psychological theory and research that is based on both classic and contemporary contributions. Topics include conformity and deviance, the attitude-change process, social role and personality, social cognition, and political psychology.
Instructor(s): K. Meidenbauer 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 Terms Offered: 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): S. Numanbayraktaroglu Terms Offered: Autumn
Prerequisite(s): CHDV majors or intended majors.
Note(s): Required Course for Comparative Human Development Majors
Equivalent Course(s): HLTH 20000, CHDV 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: Winter
Note(s): Required Course for Comparative Human Development Majors
Equivalent Course(s): CHDV 20100, HLTH 20100, EDSO 20100
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: Winter

PSYC 21260. Psychology Research Incubator. 100 Units.
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 add 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.
Instructor(s): A. Henly Terms Offered: Winter
Prerequisite(s): PQ: PSYC 20200 Psychological Research Methods
Note(s): Open to second and third year students only.

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: Spring
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): NSCI 21400, BIOS 24248, HLTH 21750

PSYC 22250. Social Neuroscience. 100 Units.
Social species, by definition, create emergent organizations beyond the individual - structures ranging from dyads and families to groups and cultures. Social neuroscience is the interdisciplinary field devoted to the study of neural, hormonal, cellular, and genetic mechanisms, and to the study of the associations and influences between social and biological levels of organization. The course provides a valuable interdisciplinary framework for students in psychology, neuroscience, behavioral economics, and comparative human development. Many aspects of social cognition will be examined, including but not limited to attachment, attraction, altruism, contagion, cooperation, competition, dominance, empathy, isolation, morality, and social decision-making.
Instructor(s): J. Decety Terms Offered: Autumn
Equivalent Course(s): HLTH 22350, CHDV 22350, NSCI 21000, ECON 21830, BIOS 24137

PSYC 22580. Child Development in the Classroom. 100 Units.
This discussion-based, advanced seminar is designed to investigate how preschool and elementary students think, act, and learn, as well as examine developmentally appropriate practices and culturally responsive teaching in the classroom. This course emphasizes the application of theory and research from the field of psychology to the realm of teaching and learning in contemporary classrooms. Course concepts will be grounded in empirical research and activities geared towards understanding the nuances and complexities of topics such as cognitive development (memory, attention, language), early assessment systems, standardized testing, “mindset”, “grit”, exercise/nutrition, emotion regulation, and more.
Instructor(s): Kate O’Doherty Terms Offered: Autumn
Equivalent Course(s): HLTH 22580, CHDV 22580, EDSO 22580

PSYC 23000. 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): CRES 21100, GNSE 31000, AMER 33000, CHDV 21000, ANTH 24320, EDSO 21100, ANTH 35110, GNSE 21001, CHDV 3100, PSYC 33000

PSYC 23165. Multidisciplinary Perspectives on Morality. 100 Units.
The past decade saw an explosion of empirical research in the study of morality. Among the most exciting and novel findings and theories, evolutionary biologists and comparative psychologists have shown that moral cognition has evolved to facilitate cooperation and smooth social interactions, and that certain components of morality are present in non-human animals. Developmental psychologists came up with ingenious paradigms, demonstrating that the elements that underpin morality are in place much earlier than we thought, and clearly in place before children turn two. Social neuroscientists have begun to map brain circuits implicated in moral decision-making and identify the contribution of neurometabolites to moral sensitivity. Changes in the balance of brain chemistry, or in connectivity between regions can cause changes in moral behavior. The lesson from all this new knowledge is clear: human moral behavior cannot be separated from human biology, its development, and past evolutionary history. As our understanding of the human brain improves, society at large, and justice and the law in particular, are and will be increasingly challenged. Discoveries in neuroscience will soon impact our legal system in ways that hopefully lead to a more cost-effective, humane and flexible system than we have today. The intent of this class is to provide an overview of the current research on the morality, and examine this topic from a range of relevant interdisciplinary perspectives.

Instructor(s): J. Decety Terms Offered: Winter
Equivalent Course(s): PSYC 33165

PSYC 23370. Bright and Dark Sides of Empathy. 100 Units.
This course invites students to critically explore the science of empathy by examining its scope and its limits. It delves into cutting-edge research from evolutionary theory, neurobiology, developmental and social psychology, social neuroscience, clinical neuroscience, and behavioral economics to illuminate the mechanisms behind feeling for and with others. Questions explored in this course include: What are the evolutionary roots of empathy? What are the neural and neuro-endocrinological mechanisms that facilitate empathy? How does empathy develop in young children? Is empathy a limited-capacity resource? How is empathy modulated by unconscious processing and implicit attitudes (e.g., group dynamics, social status)? Is empathy necessarily a good thing for social decision-making? Why empathy can make us act unfairly? Why do some individuals (i.e., psychopaths) lack empathy and concern for the well-being of others? How does empathy improve the overall effectiveness of medical care? This course introduces undergraduate students to current research and theories of empathy. The study of empathy serves as the basis for integrating a variety of perspectives including evolutionary biology, behavioral economics, affective neuroscience, developmental psychology, social psychology, behavioral neurology and psychiatry.

Instructor(s): J. Decety Terms Offered: Autumn
Equivalent Course(s): CHDV 33165

PSYC 23660. The Disordered Mind. 100 Units.
What are disorders of the mind? What are some of the theoretical and practical issues surrounding the identification, classification, and treatment of such disorders? What do mental disorders have to teach us about the typically-functioning mind? This seminar course will address these and other questions within biological, psychological, and sociocultural perspectives to attempt to understand the current and historical paradigms that have influenced our perception of what it means for the mind to be "disordered." Included will be discussion of behavioral, emotional, cognitive, and developmental disorders.

Instructor(s): K. Ledoux Terms Offered: Spring

PSYC 23800. 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: Winter
Equivalent Course(s): NSCI 22415, EDSO 23800

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. Awh, E. Vogel Terms Offered: Winter
Prerequisite(s): PQ: NSCI 20110 (Fundamental Neuroscience) is required for Neuroscience majors only.
Equivalent Course(s): NSCI 21600

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: Winter

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): NSCI 20130, BIOS 24130

PSYC 24060. Understanding Practical Wisdom. 100 Units.
Thinking about the nature of wisdom goes back to the Greek philosophers and the classical religious sages, but the concept of wisdom has changed in many ways over the history of thought. While wisdom has received less scholarly attention in modern times, it has recently re-emerged in popular discourse with a growing recognition of its potential importance for addressing complex issues in many domains. But what is wisdom? Is it often used with a meaning more akin to “smart” or “clever.” Is it just vast knowledge? This course will examine the nature of wisdom-how it has been defined in philosophy and psychological science, how its meaning has changed, and what its essential components might be. We will discuss how current philosophical and psychological theories conceptualize wisdom and consider whether, and how, wisdom can be studied scientifically; that is, can wisdom be measured and experimentally manipulated to illuminate its underlying mechanisms and understand its functions? Finally, we will explore how concepts of wisdom can be applied in business, education, medicine, the law, and in the course of our everyday lives. Readings will be drawn from a wide array of disciplines including philosophy, classics, history, psychology, behavioral economics, medicine, and public policy. The course will include lectures by philosophers and psychologists. This course is offered in association with the Chicago Moral Philosophy Project and the Good Life program (the Hyde Park Institute).
Instructor(s): H. Nusbaum, A. Henly Terms Offered: Spring
Prerequisite(s): PQ: Third- or fourth-year standing
Equivalent Course(s): BPRO 24050, PSYC 34060, CHDV 24050, RLST 24055

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 20111 or BIOS 24110 or consent of instructor
Equivalent Course(s): PSYC 34133, NSCI 22400, NURB 34133, CPNS 34133, BIOS 24133

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): S. Bensmaia, D. Freedman, M. Kaufman Terms Offered: Winter.
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. Examples of thematic areas covered in lectures include: (a) cellular anatomy of the nervous system, (b) development and evolution of the nervous system, (c) sensory systems, (d) motor systems, (e) cognition and behavior.
Instructor(s): D. Freedman, P. Kratsios Terms Offered: Autumn
PSYC 25790. Psychology of Race, Ethnicity, and Social Class: Perspectives and Impact. 100 Units.
This course will explore contemporary theories, findings, and social issues concerning the study of race, ethnicity, and social class as they relate to human behavior from the perspective of the individual in various social contexts. Drawing from disciplines such as cognitive, developmental, and social psychology, this course will also incorporate perspectives from social epidemiology, health disparities research, and critical race theory. Therefore, this course will be guided by a critical analysis lens that recognizes the intersection of gender, race/ethnicity, and social class, using the United States as a "case study" to evaluate the complexities of social inequality.

Instructor(s): G. Norman Terms Offered: Autumn
Equivalent Course(s): CHDV 25750, BIOS 29271, NSCI 22535
Note(s): This course does not meet the requirements for the Biological Sciences Major.
Prerequisite(s): Third and fourth-year students only. Priority will be given to third-year students.
Learning will take place through a series of lectures, in-class activities, and weekly readings, and will emphasize interdisciplinary research, multilevel analysis, and critical evaluation of empirical research articles.

Instructor(s): C. Cardenas-Iniguez
Terms Offered: Winter
Prerequisite(s): PSYC 20200. Third or fourth-year standing.
Equivalent Course(s): CRES 25790

**PSYC 26010. Big Data in the Psychological Sciences. 100 Units.**

Innovative research in Psychology has been pushing the bounds of traditional experiments through the usage of "Big Data", where experiments are conducted at humungous scales—at the levels of thousands to millions of participants, images, or neurons. With these developments in the field, fluency in these new technologies, methods, and computational skills are becoming increasingly important. In this course, students will develop an understanding of these new directions, and will learn practical plug-and-play tools that will allow them to easily incorporate Big Data in their lives and research. We will also discuss the looming ethical issues and societal implications that come with Big Data. The class will culminate in a final project in which students will be able to collect and analyze their own Big Data.

Instructor(s): W. Bainbridge
Terms Offered: Winter
Prerequisite(s): Familiarity with basic statistics and Excel. PSYC 20100 (Statistics) and PSYC 20200 (Research Methods) recommended but not required.

**PSYC 26020. Habits of a Free Mind: Psychology for Democracy. 100 Units.**

Are we capable of engaging across lines of difference without feeling traumatized and without dehumanizing? How can we navigate "cancel culture" in which a misinterpreted word, heterodox views, or guilt-by-association can result in ostracization on college campuses, mobbing on social media, and retractions and redactions of published works? Texts will include The Coddling of the American Mind, Man’s Search for Meaning by Viktor Frankl, On Tyranny by Timothy Snyder, and a variety of short readings in philosophy, poetry, social science, theatre, and historical and contemporary essays. You will begin by identifying why being a free thinker matters to you. Then, through in-class exercises, experiential assignments, and an emphasis on playfulness, you will spend the quarter developing and practicing mental and interpersonal habits designed to increase your capacity to tolerate discomfort, expand your facility with civil dialogue and productive disagreement, and strengthen your ability to make a difference in an area that matters to you. At its core, this course is about what it means to be human. You must be willing to engage in authentic critical self-examination, abide by an unfamiliar set of class rules and norms, experience psychological discomfort, and be playful.

Instructor(s): Pamela Paresky
Terms Offered: Spring
Equivalent Course(s): SOSC 26020, HIPS 26020, KNOW 26020

**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 their shared neurobiological mechanisms and evolutionary theories to their psychological impact on behavior, this course will trace the commonalities between emotion and motivation. Topics will include autonomic correlates of emotions, the motivational utility of positive and negative emotions, and relationships to development, cognition, social behavior, and mental health. Interdisciplinary research will be emphasized, particularly in the critical evaluation of current theories and empirical research.

Instructor(s): F. Rockwood
Terms Offered: Spring
Prerequisite(s): Prior coursework in psychology and/or neuroscience recommended but not required.

**PSYC 26880. Comparative Chronobiology and Timed Behavior. 100 Units.**

From bacteria to blue whales, organisms keep time. The importance of time is unquestionable. Imagine if a willow flowered in the dead of winter or a mouse emerged at noon; the outcomes are not pleasant. Such occurrences, though, are the exception not the norm. So perhaps it is important to ask why don’t plants flower in the dead of winter or nocturnal rodents emerge during the day? How do they track the days and seasons, and modify their reproductive, social and self-regulatory behaviors accordingly? Decades of research have come to one basic answer: engrained in their genomes lay a network of genes that collectively generates hyperprecise timekeeping mechanisms which impact diverse aspects of cellular- and organismal-level processes. These timing mechanisms are called ‘biological clocks’. This course will address how biological clocks are constructed out of the genes, RNAs, and proteins expressed over the course of the lifespan. The material will consist of scientific articles (empirical studies and review papers) surveying the mechanisms of clocks in organisms ranging from bacteria to humans. After understanding how clocks measure circadian time intervals, we will turn to clocks that impact behavior and physiology over non-circadian intervals (years, tidal cycles, menstrual/and estrus cycles) and to still more mysterious timing mechanisms that generate ultradian (>24h) oscillations.

Instructor(s): J.P. Riggle
Terms Offered: Winter
Prerequisite(s): This course assumes that students are comfortable with reading structured reports from generalist and specialist scientific journals; possess a basic understanding of genetics; have familiarity with neuroscience via an introductory course on biopsychology or the equivalent. The completion of Biological Clocks and Behavior (PSYC 21750) accomplishes all prerequisites, but it is not required. Experience in 200 level biology or neuroscience courses is preferred.
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): Eszter Ronai (Autumn), Jason Riggle (Spring) Terms Offered: Autumn Spring
Equivalent Course(s): LING 27010

PSYC 28610. Neuroendocrine Mechanisms of Human Behavior. 100 Units.
This course aims to explore the role hormones play in the study of human behavior and development across various stages in the life course. We will explore how biological mechanisms take part in explaining many different aspects of human behavior, and how these explanations fit into discourse from the fields of evolutionary biology, psychology, and behavioral economics.
Instructor(s): N. Nickels Terms Offered: Spring
Prerequisite(s): N/A
Note(s): CHDV Distribution: A
Equivalent Course(s): CHDV 28600

PSYC 28791. Behavioral Science and Public Policy. 100 Units.
Many policies are aimed at influencing people’s behavior. The most well-intentioned policies can fail, however, if they are not designed to be compatible with the way people actually think and make decisions. This course will draw from the fields of cognitive, social, and environmental psychology to (1) examine the ways in which human behavior deviates from the standard rational actor model typically assumed by economics, and (2) provide strategies for improving the design, implementation, and evaluation of public-facing policies. The basic premise of this course is that a foundational understanding of human behavior can lead not only to more effective policies, but enhanced decision-making and well-being.
Instructor(s): K. Wolske Terms Offered: Spring
Equivalent Course(s): PBPL 28791

PSYC 28810. From Fossils to Fermi’s Paradox: Origin and Evolution of Intelligent Life. 100 Units.
The course approaches Fermi’s question, "Are we alone in the universe?," in the light of recent evidence primarily from three fields: the history and evolution of life on Earth (paleontology), the meaning and evolution of complex signaling and intelligence (cognitive science), and the distribution, composition and conditions on planets and exoplanets (astronomy). We also review the history and parameters governing extrasolar detection and signaling. The aim of the course is to assess the interplay between convergence and contingency in evolution, the selective advantage of intelligence, and the existence and nature of life elsewhere in the universe - in order to better understand the meaning of human existence.
Instructor(s): P. Sereno; L. Rogers; S. London Terms Offered: Winter
Prerequisite(s): Third or fourth-year standing
Equivalent Course(s): BIOS 29142, BPRO 28800, ASTR 18700

PSYC 28850. 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. NO BIOLOGICAL SCIENCES MAJORS OR NON-MAJOR PRE-MED STUDENTS, except by petition.
Equivalent Course(s): BIOS 16120

PSYC 28910. Animal Models in the Study of Cognition. 100 Units.
This course will be a combination of lecture and seminar. In the first half of the course we will read and discuss seminal literature in the study of cognitive questions using animal models (primarily rodents). In the second half of the course we will learn about study design and design two different types of studies in smaller groups. Evaluation will be through short weekly papers, class discussion and a final paper.
Instructor(s): L. Kay Terms Offered: Spring
Prerequisite(s): Completion of PSYC 20300 Biological Psychology or equivalent background in neuroscience and/or biological psychology.
Equivalent Course(s): NSCI 21300
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, 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, 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): B. Prendergast
Terms Offered: Winter
Note(s): Open to third- or fourth-year students who are majoring in psychology and have begun their thesis project. Available for either quality grades or for P/F grading.

PSYC 29941. XCAP: The Experimental Capstone - The Affect System. 100 Units.
The Affect system in Medicine and the Political Science is a multidisciplinary course that aims to explore the concept of "affect" from different angles and unique perspectives. Drawing broadly from Medicine, philosophy and the political science, this course seeks to understand the affect system in different cultures and environments. The term "affect" typically refers to feelings beyond those of the traditional senses, with an emphasis on the experience of emotions and variations in hedonic tone. The structure and processes underlying mental contents are not readily apparent, however, and most cognitive processes occur non-consciously with only selected outcomes reaching awareness. Over millions of years of evolution, efficient and manifold mechanisms have evolved for differentiating hostile from hospitable stimuli and for organizing adaptive responses to these stimuli. These are critically important functions for the evolution of mammals, and the integrated set of mechanisms that serve these functions can be thought of as an "affect system." It is this affect system - its architecture and operating characteristics, as viewed from neural, psychological, social, and political perspectives, that is the focus of the course.
Instructor(s): Stephanie Cacioppo and Eric Oliver
Terms Offered: Winter
Note(s): This course is one of three offered in The Experimental Capstone (XCAP) in the 2019-20 academic year. Enrollment in this course is restricted to 3rd and 4th year undergraduates in the College. For more information about XCAP, visit https://sifk.uchicago.edu/courses/xcap/
Equivalent Course(s): KNOW 29941