PSYCHOLOGY
(AS) {PSYC}

PSYC 001 is the prerequisite for Psychology courses numbered 100 and above. Students who have received a 5 on the AP test in Psychology are encouraged to enroll in any 100-level course offered.

L/R 001. Introduction to Experimental Psychology. (C) Living World Sector. All classes. Staff.

This course provides an introduction to the basic topics of psychology including our three major areas of distribution: the biological basis of behavior, the cognitive basis of behavior, and individual and group bases of behavior. Topics include, but are not limited to, neuropsychology, learning, cognition, development, disorder, personality, and social psychology.

SM 070. Psychology of Food. Rozin. Does not count for the Psych major. To apply: http://www.upenn.edu/curf/bfs/bfs-current-courses

097. PSYCH ABROAD. (C)

109. (BIBB109, BIOL109) Introduction to Brain and Behavior. (C) Living World Sector. All classes. Staff.

Introduction to the structure and function of the vertebrate nervous system, including the physiological bases of sensory activity, perception, drive, motor control and higher mental processes. The course is intended for students interested in the neurobiology of behavior. Familiarity with elementary physics and chemistry will be helpful.

L/R 111. (VLST211) Perception. (C) staff.Prerequisite(s): PSYC 001 or COGS 001.

How the individual acquires and is guided by knowledge about objects and events in their environment.

121. Learning and Memory. (C) Staff.Prerequisite(s): PSYC 001.

This course presents an analysis of the cognitive processes involved in learning and memory, primarily in humans. We will survey the major findings concerning learning and memory discovered using laboratory experiments and the major theories of learning and memory derived from those findings. A major emphasis will be on the interplay between theory and data. Class assignments will require the statistical analysis of data obtained from experimental studies, but no specific prior background is required.

127. (BIBB227) Physiology of Motivated Behaviors. (C) Grill.Prerequisite(s): PSYC 001.

This course focuses on evaluating the experiments that have sought to establish links between brain structure (the activity of specific brain circuits) and behavioral function (the control of particular motivated and emotional behaviors). Students are exposed to concepts from regulatory physiology, systems neuroscience, pharmacology, and endocrinology and read textbook as well as original source materials. The course focuses on the following behaviors: feeding, sex, fear, anxiety, the appetite for salt, and food aversion. The course also considers the neurochemical control of responses with an eye towards evaluating the development of drug treatments for: obesity, anorexia/cachexia, vomiting, sexual dysfunction, anxiety disorders, and depression.

L/R 149. (BIBB249) Cognitive Neuroscience. (C) Epstein.Prerequisite(s): PSYC 001 or COGS 001.

The study of the neural systems that underlie human perception, memory and language; and of the pathological syndromes that result from damage to these systems.

PSYCHOLOGY
(AS) {PSYC}

151. Language and Thought (formerly titled Cognitive Psychology). (C) Staff.Prerequisite(s): PSYC 001 or COGS 001.

This course describes current theorizing on how the human mind achieves high-level cognitive processes such as using language, thinking, and reasoning. The course discusses issues such as whether the language ability is unique to humans, whether there is a critical period to the acquisition of a language, the nature of conceptual knowledge, how people perform deductive reasoning and induction, and how linguistic and conceptual knowledge interact.

L/R 160. Personality and Individual Differences. (C) Staff.Prerequisite(s): PSYC 001.

This course provides an introduction to the psychology of personality and individual differences. Many psychology courses focus on the mind or brain; in contrast to those approaches of studying people in general, the focus in this course is on the question "How are people different from each other?" It will highlight research that take a multidimensional approach to individual differences and attempts to integrate across the biological, cognitive-experimental, and social-cultural influences on personality.

162. Abnormal Psychology. (C) Ruscio.Prerequisite(s): PSYC 001. The Psychology Department does NOT issue permits for College of Liberal and Professional Studies (LPS) courses.

The concepts of normality, abnormality, and psychopathology; symptom syndromes;theory and research in psychopathology and psychotherapy.

170. Social Psychology. (C) Society Sector. All classes. Staff.Prerequisite(s): PSYC 001.

An overview of theories and research across the range of social behavior from intra-individual to the group level including the effects of culture, social environment, and groups on social interaction.

181. Intro to Developmental Psychology. (C) Brannon.Prerequisite(s): PSYC 001.

The goal of this course is to introduce both Psychology majors and non-majors majors to the field of Developmental Psychology. Developmental Psychology is a diverse field that studies the changes that occur with age and experience and how we can explain these changes. The field encompasses changes in physicalgrowth, perceptual systems, cognitive systems, social interactions and and much more. We will study the development of perception, cognition, language,academic achievement, emotion regulation, personality, moral reasoning,and attachment. We will review theories of development and ask how these theories explain experimental findings. While the focus is on human development, when relevant, research with animals will be used as a basis for comparison.

193. Study Abroad.

231. (BIBB231, BIOL231) Animal Behavior. (C) Seyfarth/Cheney.Prerequisite(s): PSYC 00l or BIOL 102 or COGS 001.

The evolution of social behavior in animals, with special emphasis on group formation, cooperation among kin, mating systems, territoriality and communication.

PSYCHOLOGY
(AS) {PSYC}

L/R 207. (CIS 140, COGS001, LING105, PHIL044) Introduction to Cognitive Science. (C) Brainard/ Ungar.Prerequisite(s): An Introductory Course in Computer Science, Linguistics, Neuroscience, Philosophy, or PSYC 001.

Cognitive Science is founded on the realization that many problems in the analysis of human and artificial intelligence require an interdisciplinary approach. The course is intended to introduce undergraduates from many areas to the problems and characteristic concepts of Cognitive Science, drawing on formal and empirical approaches from the parent disciplines of computer science, linguistics, neuroscience, philosophy and psychology. The topics covered include Perception, Action, Learning, Language, Knowledge Representation, and Inference, and the relations and interactions between such modules. The course shows how the different views from the parent disciplines interact, and identifies some common themes among the theories that have been proposed. The course pays particular attention to the distinctive role of computation in such theories, and provides an introduction to some of the main directions of current research in the field. It is a requirement for the BA in Cognitive Science, the BAS in Computer and Cognitive Science, and the minor in Cognitive Science, and it is recommended for students taking the dual degree in Computer and Cognitive Science.

L/R 217. (BIBB217, VLST217) Visual Neuroscience. (B) staff.Prerequisite(s): PSYC 109.

An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, color vision, anatomy and physiology of the visual pathways, and the cognitive neuroscience of vision.

225. (BIBB270) Drugs, Brain, and Mind. (B) Nelson.Prerequisite(s): PSYC 109 or BIBB 109.

The course will begin with a review of basic concepts in pharmacology: routes of drug administration, drug metabolism, the dose response curve, tolerance, and sensitization. Following a brief overview of cellular foundations of neuropharmacology (cell biology,synaptic and receptor function), the course will focus on various classes of drugs used to treat neuropsychiatric disorders including, among others, depression, schizophrenia,and anxiety. We will additionally consider mechanisms mediating the mind-altering, addictive and neurotoxic effects of abused drugs.

235. (LING135) Psychology of Language. (C) Dahan.Prerequisite(s): PSYC 151 or LING 001.

This course describes the nature of human language, how it is used to speak and comprehend, and how it is learned. The course raises and discusses issues such as whether language ability is innate and unique to humans, whether there is a critical period for the acquisition of a language, and how linguistic and conceptual knowledge interact.

239. (BIBB260) Neuroendocrinology. (C) Staff.

This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates.

PSYCHOLOGY
(AS) {PSYC}

247. (BIBB247, PSYC549) Neuroscience and Society. (C) Farah.Prerequisite(s): PSYC 109 or PSYC 149.

Cognitive, social,and affective neuroscience have made tremendous progress in in the last two decades. As this progress continues, neuroscience is becoming increasingly relevant to all of the real-world endeavors that require understanding, predicting and changing human behavior. In this course we will examine the ways in which neuroscience is being applied in law, criminal justice, national defense, education, economics, business,and other sectors of society. For each application area we will briefly review those aspects of neuroscience that are most relevant, and then study the application in more detail.

253. (PPE 153) Judgment and Decisions. (C) Staff.Prerequisite(s): One semester of statistics OR microeconomics.

Thinking, judgment, and personal and societal decision making, with emphasis on fallacies and biases.

265. (PPE 203) Behavioral Economics and Psychology. (C) Bhatia.Prerequisite(s): Microeconomics,AND PSYC 001.

This course will introduce you to the study of choice, and will examine in detail what we know about how people make choices, and how we can influence these choices. It will utilize insights from psychology and economics, and will apply these insights to domains including consumer choice, risky decision making, and prosocial decision making.

L/R 266. Introduction to Positive Psychology. (B) Staff.Prerequisite(s): PSYC 001.

An introduction to the study of positive emotions, positive character traits, and positive institutions. The positive emotions consist of emotions about the past (e.g., serenity, satisfaction, pride), about the future (e.g., hope, optimism, faith), and emotions about the present (pleasure and gratification). The distinction among the pleasant life, the good life, and the meaningful life is drawn. The positive traits include wisdom, courage, humanity, justice, temperance, and spirituality, and the classification of these virtues is explored. The positive institutions are exemplified by extended families, free press, humane leadership, and representative government.

SM 311. (VLST212) Research Experience in Perception. (C) Rust.Prerequisite(s): One semester of statistics, and one of the following: PSYC 111, 149, 151, 217, or permission of instructor. Dept permission required. Undergraduates only.

In this research course, students will begin by first replicating earlier experiments to measure human visual memory capacity. After several class discussions to discuss ideas, each student will design and conduct their own experiment to further investigate visual and/or familiarity memory.

PSYCHOLOGY
(AS) {PSYC}

275. (PPE 275) Introduction to Political Psychology. (C) Tetlock.Prerequisite(s): PSYC 001 or COGS 001. NOTE: Students who are more interested in business-related issues may want Wharton 276x which is a modified version of this course specifically for Wharton undergraduates.

This course will explore psychological approaches to understanding political beliefs, attitudes, and actions at the levels of both individual citizens and national leaders. It will also explore the possibility that psychological science itself is not immune to the political debates swirling around it. Specific topics will include: the workings of belief systems (and their power to shape what we "see"), cognitive biases (and their power to cause miscalculations), sacred values and their role in stabilizing belief systems and social interaction, personality and ideology (the linkages between the personal and the political), and clashing conceptions of morality and distributive and corrective justice (striking variations among people in what they consider to be fair). We shall also explore some topics that have sparked controversy in the psychological research literature and that tend to polarize opinion along political lines, including work on intelligence and unconscious bias.

280. Developmental Psychology. (C) Staff.Prerequisite(s): PSYC 001. PSYC 280-601 is an LPS class.

This course will cover theory and research related to the development of attachment, emotional regulation, peer and intimate relationships, personality, moral reasoning, and emotional and behavioral disorders. The course will emphasize the degree to which family, peer, and community contexts influence development from infancy into adulthood. Efforts will be made to integrate biological and environmental accounts of development across the lifespan.

281. Cognitive Development. (C) Swingley or Weisberg.Prerequisite(s): PSYC 001 or COGS 001.

What infants and young children come to know about the world, and how they learn it. Topics will include changes in children's thinking, perceptual development, language acquisition, and current theories of cognitive development.

SM 327. Research Experience in Behavioral Neuroscience. (C) Grill.Prerequisite(s): PSYC 127 and one semester of statistics. Dept permission required

Students conduct supervised experiments on the physiological basis of motivation. Topics will be chosen from the intersection of issues in taste and nutrition, such as the ability of animals to take in specific food substances needed to maintain themselves. Class meets for lecture, discussion, and conduct of an experiment.

SM 362. Research Experience in Abnormal Psychology. Dr. Melissa Hunt.Prerequisite(s): PSYC 162 and one semester of statistics. Psych majors only. Instructor permission required. PSYC 362-301 is a two-semester course starting in the Fall.

PSYC 362-301 is a two-semester course starting in the Fall. Class size limited to 8 students.

SM 370. Research Experience in Social Psychology. Staff.Prerequisite(s): PSYC 170 AND one semester of statistics. Dept permission required. Psychology majors only.

In this course, students will work in small groups to develop, empirically test , and report on a research question within one of the domains of cultural psychology, such as emotion, motivation, social perception, morality, or food and eating. Depending on the nature of the project, students will employ survey,experimental, or observational research methodology, and learn how to to conduct and report the appropriate statistical tests with Excel and/or SPSS (typically, correlations, t-tests, ANOVA and ANCOVA, multiple regression, , factor analysis, and measures of reliability). Class discussions will help students craft their projects, and in-class presentations will provide the opportunity to develop and refine presentation skills. Psychology majors only. Class size is limited to 14 students.

PSYCHOLOGY
(AS) {PSYC}

399. Individual Empirical Research. (C) Dept permission required

Individual research involving data collection. Students do independent empirical work under the supervision of a faculty member, leading to a written paper. Normally taken in the junior or senior year.

SM 400. Senior Honors Seminar in Psychology. Thompson-Schill.Prerequisite(s): acceptance into the Honors Program in Psychology. Dept permission required

Open to senior honors candidates in psychology. A two-semester sequence supporting the preparation of an honors thesis in psychology. Students will present their work in progress and develop skills in written and oral communication of scientific ideas.

SM 407. (BIBB451) Behavioral Genetics. (C) Price.Prerequisite(s): Basic statistics or permission of instructor.

This course will cover basic principles of human and animal behavior genetics, including the genetics of normal variation as well as extreme phenotypes represented by behavioral, psychiatric and neurologic disorders. The course will focus on methods necessary to critically evaluate research findings on normal and abnormal human behavior. Animal models will also be reviewed.

SM 411. Seminar in Perception. (C) Stocker.Prerequisite(s): PSYC 111.

421. (BIBB442, BIOL442, NGG 575) Neurobiological Basis of Learning and Memory. (C) staff.

This advanced course focuses on the current state of our knowledge about neurobiological basis of learning and memory. Students will explore the molecular and cellular basis of learninginvertebrates and vertebrates from a behavioral and neural perspective.

SM 423. (BIBB423) Seminar in Motivation. (C) Staff.Prerequisite(s): Permission of the instructor.

SM 431. (BIBB432, BIOL432) Seminar in Animal Cognition. (C) Cheney.Prerequisite(s): PSYC 231/ Biol 231/ BIBB 231.

The aim of this course will be to provide advanced undergraduates with a detailed review of a number of research areas in behavioral ecology. Topics will change each year, and students will be able to take the course more than once.

SM 429. SEMINAR HUMAN MEMORY. Kahana.Prerequisite(s): A background in (a) elementary statistics and (b) computer programming, preferably using Matlab.

Advances in brain recording methods over the last decade have generated vastly more brain data than had been collected by neuroscientists during the previous century. To understand the human brain, scientists must now use computational methods that exploit the power of these huge data sets.This course will introduce you to the use of big data analytics in the study of human memory and its neural basis. Through hands-on programming projects, we will analyze multi-terabyte data sets both to replicate existing phenomena and to make new discoveries. Although the course has no formal neuroscience or psychology prerequisites it does require a background in (a) elementary statistics and (b) computer programming, preferably using Matlab.

SM 435. Psycholinguistics. Dahan.Prerequisite(s): PSYC 151, or PSYC 235, or LING 001, or permission of instructor.

PSYCHOLOGY
(AS) {PSYC}

SM 439. (BIBB460) Neuroendocrinology. (C) Flangan-Cato.Prerequisite(s): PSYC 109.

This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then, we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates. We will focus on sexual and parental behaviors, stress, metabolism, neuroendocrine-immune interactions, and mental health.

440. SLEEP AND SLEEP DISORDER.

SM 449. Seminar in Cognitive Neuroscience. DiRocco (449-601) or Epstein (449-301).Prerequisite (s): PSYC 149 or BIBB 249. PSYC 449-601 is an LPS course.

Topics vary each semester.

SM 451. (BIBB431) Seminar in Cognitive Psychology. (C) Staff.Prerequisite(s): PSYC 231.

Topics vary each semester.

SM 453. (PPE 475) Seminar in Decision Making. (C) Staff.Prerequisite(s): PSYC 253 (formerly PSYC 153). Undergraduates only.

Topics vary each semester.

SM 462. Seminar in Abnormal Psychology. staff.Prerequisite(s): PSYC 162. Undergraduates only.

Topics vary each semester.

SM 464. Seminar in Personality. (C) Staff.Prerequisite(s): PSYC 160.

Topics vary each semester.

SM 466. Seminar in Positive Psychology:Imagination and Creativity in Psychology. Forgeard and Seligman.Prerequisite(s): PSYC 001. Instructor permission required. Course does not fulfill the research requirement for psych majors.

By forming mental representations of things not immediately present to the senses (imagination), and/or simulating possible futures (prospection), humans can generate novel ideas and products (creativity) that contribute to human progress and flourishing. This course will specifically focus on imagination and creativity within the field of psychology. Students will learn about the cognitive, motivational, and social processes that shaped important creative insights (or big moments) in the history of the discipline. In addition, students will be given the opportunity to apply knowledge gained from the course by designing their own original creative research proposal as the final project for the course. Note: This course constitutes a research study designed to investigate how scientific creativity can best be taught to undergraduate students. Student participation in the research study is voluntary, subject to informed consent, and will not affect their performance in the course.

SM 470. Seminar in Social Psychology. (C) Staff.Prerequisite(s): PSYC 170. Undergraduates only.

Topics vary each semester.

PSYCHOLOGY
(AS) {PSYC}

SM 472. Evolutionary Psychology. (C) Kurzban.Prerequisite(s): PSYC 272.

The purpose of this seminar is to explore state-of-the-art research and theory in the discipline of evolutionary psychology, with an emphasis on particularly challenging problems such as the evolution of conscious experience (phenomenology) and human (pro-)social behavior, especially altruism, cooperation, and morality. By the end of the class, students should be familiar with the current avenues of research in these areas and the controversies that surround these areas.

SM 473. (BIBB473) Neuroeconomics. (C) Kable.Prerequisite(s): PSYC 149, 253, or 265.

This course will review recent research that combines psychological, economic and neuroscientific approaches to study human and animal decision-making. A particular focus will be on how evidence about the neural processes associated with choices might be used to constrain economic and psychological theories of decision-making. Topics covered will include decisions involving risk and uncertainty, reinforcement learning, strategic interactions and games, and social preferences.

SM 474. Cultural Psychology. Staff.Prerequisite(s): PSYC 170 or PSYC 272.

Humans are a cultural species, constantly navigating a complex web of culturaly bound practices, norms, and worldviews. This seminar will survey the theory and research of the young but rapidly expanding field of cultural psychology. In the seminar, we will explore how culture shapes and is shaped by an array of psychological domains, ranging from perception, information processing, and language, to concepts of the self, motivations, emotion, morality, and physical and mental health.

SM 475. (PPE 475) Behavioral Law and Economics. (C) Staff.Prerequisite(s): PSYC 253 or PSYC 265. Undergraduates only.

Topics vary each semester.

SM 481. Seminar: Cognitive Development. Swingley.Prerequisite(s): PSYC 281 or PSYC 280.

SM 477. Seminar in Animal Behavior. (C) Staff.Prerequisite(s): PSYC 131/231.

Seminar in Animal Behavior: Social Brains, Social Behavior, and Social Evolution. This course will take an integrative approach to the study of social behavior across a variety of animal species. We will primarily take an ecological approach to studying social behavior at different levels of analysis, including physiological mechanism, development, and function.

SM 478. (PPE 475) OBEDIENCE. Royzman.Prerequisite(s): PSYC 170.

Though almost half a century old, Milgram's 1961-1962 studies of "destructive obedience" continue to puzzle, fascinate, and alarm. In this seminar, we will take an in-depth look at these famous studies (along with the more recent replications) and explore their various psychological, historical, and philosophical ramifications. This course has a number of intellectual goals that go beyond simply rarifying one's understanding of a particular content area (important and generative as it may be). One such a goal is to enable you to think critically (though not disparagingly) about other people's researh and theoretical claims that ensue from it, all with the hope that you can then apply the self-same critical acumen to your own future work. Second, this course will offer a hospitable environment for developing (and exchanging) creative ideas of your own. Your work on your individual reaction papers and on the term paper in particular will be a key element in achieving this goal.

SM 480. Seminar in Developmental Psychology. Staff.Prerequisite(s): PSYC 001. Undergraduates only.

511. PROB MODELS OF PERCEPTIO.

PSYCHOLOGY
(AS) {PSYC}

L/R 547. FNDTIONS SOC COG NEUROSC.

549. (PSYC247) NEUROSCIENCE AND SOCIETY.

579. EXP METHODS PERCEPTION.

671. (CRIM671) Violence: A Clinical Neuroscience Approach. (A) Raine. Graduate students only.

Developed for both Psychology and Criminology graduate students, this interdisciplinary course outlines a clinical neuroscience approach to understanding violence in which the tools of neuroscience- neuroanatomy, neurophysiology, neurocognition, neuroendocrinology, neuropharmacology, molecular and behavioral genetics- are used to help inform the etiology and treatment of violence. Clinical components include psychopathy, proactive and reactive aggression, homicide domestic violence, conduct disorder, oppositional defiant disorder, antisocial personality disorder, crime, and delinquency as well as their comorbid conditions (schizophrenia, drug abuse, hyperactivity). The interaction between social, psychological, and neurobiological processes in predisposing to violence will be highlighted, together with neurodevelopmental perspectives on violence focusing on prospective longitudinal and brain imaging research. Key implications for the criminal justice system, neuroethics, forensics psychology, and intervention will also be outlined.

SM 712. REGRESSION & ANOVA II. (C)

SM 790. (COMM890) SELF-REGULATION & BEHAV. ALBARRACIN.

This seminar will cover psychologicaltheories of goals, research on self-control, and models of behavior change, tailored to the interests of the students. We will read classic and contemporary research related to goal setting, conscious and unconscious goal processes, and mechanisms of behavior change.

251. Special Topics in Cognitive Psychology. (C) staff.Prerequisite(s): PSYC 151. Topics for this course vary each semester. Dept permission required.

SM 270. CULTURAL PSYCHOLOGY. (C)

First-Year Graduate Courses

501. (COGS501, LING545) Mathematical Foundations for Language and Communication Science I. (D) Liberman.

This two-semester sequence will provide basic mathematical modeling and algorithmic tools for interdisciplinary research in animal, human or machine communication, in association with the IRCS IGERT program. Topics include signal processing, statistical modeling and machine learning, information theory, game theory, and formal language theory. The courses will be taught in a laboratory setting, and will emphasize practical skills as well as basic concepts.

502. (COGS502, LING546) Mathematical Foundations for Language and Communication Science II. (D) Liberman.

This two-semester sequence will provide basic mathematical modeling and algorithmic tools for interdisciplinary research in animal, human or machine communication, in association with the IRCS IGERT program. Topics include signal processing, statistical modeling and machine learning, information theory, game theory, and formal language theory. The courses will be taught in a laboratory setting, and will emphasize practical skills as well as basic concepts.

PSYCHOLOGY
(AS) {PSYC}

539. (BIBB585, NGG 594, PHYS585) Theoretical and Computational Neuroscience. (M) Balasubramanian.

This course will develop theoretical and computational approaches to structural and functional organization in the brain. The course will cover: (i) the basic biophysics of neural responses, (ii) neural coding and decoding with an emphasis on sensory systems, (iii) approaches to the study of networks of neurons, (iv) models of adaptation, learning and memory, (v) models of decision making, and (vi) ideas that address why the brain is organized the way that it is. The course will be appropriate for advanced undergraduates and beginning graduate students. A knowledge of multi-variable calculus, linear algebra and differential equations is required (except by permission of the instructor). Prior exposure to neuroscience and/or Matlab programming will be helpful.

605. (NGG 582, PHRM540) Behavioral Neuropharmacology. (C) Lucki and Staff.Prerequisite(s): Permission of course director.

The effects of various drug classes on animal behavior are examined. Behavioral studies identifying the neurochemical mechanisms of action of psychotropic drugs are reviewed. Animal models of neurological and psychiatric illnesses are discussed.

SM 600. Proseminar in General Psychology. (C) Staff. Dept permission required

Choice of half or full course units each sem. covering a range of subjects and approaches in academic psychology.

SM 603. (NGG 595) Behavioral Neuroscience. (H) Grill. Fulfills the "Brain" requirement

Current research on the neural basis of behavior is organized in six subsections: animal communication, sex behavior, circadian rhythms, variety energy and water balance, synaptic plasticity and learning, andcommunication, addiction. Topics are selected based on excitement surrounding recent research developments. Each topic is analyzed initially at thernal receptors behavioral level, followed by the systems and the cell and molecularntrol of levels. Throughout the course, attention is paid to the analysison of behavior interesting stereotyped behaviors, e.g., bird song, lordosis, licking,. whose description and neurology has provided insights into the neuralal basis systems that contribute to overall neural control of behavior. Attention is also paid to the development of understanding of the neuroanatomy of selected neural systems.

SM 604. (NGG 592) Cognitive Neuroscience. (C) Farah.

Review of what has been learned about the neural mechanisms underlying intelligent behavior in humans and animals. Traditional topic areas of cognitive science are covered, specifically: vision (early vision through object recognition), attention, learning and memory, motor control, planning and problem-solving, and language. Attempts are made to integrate results of different neuroscience approaches to each topic, including the study of human neurological patients, lesion studies in animals, single unit recordings, neural network modelling, and functional imaging techniques.

608. (OIDD900) Judgment and Decisions. (C) Baron.

Thinking, judgment, decision making, beliefs, and probability, with emphasis on faclacies and errors.

609. (NGG 573) Systems and Integrative Neuroscience. (A) Staff. Fulfills the Brain requirement

610. (STAT501) Mathematics for Psychologists. (M) Staff. A two-term course.

611. (BSTA550, STAT500) Statistics for Psychologists. (A) Staff.

PSYCHOLOGY
(AS) {PSYC}

612. (STAT501) Introduction to Nonparametric Methods and Log-linear Models. (B) Staff.

SM 630. (NGG 630) Cognitive Neuroscience of Memory. (C) Staff. Fulfills the Brain requirement

This course will review the neural mechanisms of learning and memory. Readings will include both seminal and cutting-edge papers on topics ranging from perceptual memory to higher order functions, including working memory, declarative memory, skill learning, and semantic memory. Within each topic we will attempt to integrate the results of different neuroscience approaches, including the study of human neurological patients, lesion studies and single unit recordings in animals, neural network modeling, event-related potentials, and functional imaging techniques.

631. (NGG 631) Cognitive Neuroscience of Affect. (C) Farah.

We will survey, and as far as possible, snythesize, three bodies of literature on emotion and the brain, specifically: (1) neuroimaging and pharmacologic studies of emotion and the normal human brain; (2) the neuroscience of affective disorders in humans; and (3) relevant studies of reinforcement and learning in animals.

632. (NGG 632) Cognitive Neuroscience of Vision. (C) Epstein.

This course will review the neural basis of visual cognition. Emphasis will be placed on linking cognitive theory to neuroscientific methods. Topics will include object and face recognition, scene perception, visual attention, mental imagery, and visual awareness.

699. Individual Research for First-Year Graduate Students. (E)

SM 705. Neuroethics. (C) Farah. Dept permission required.

Neuroscience is increasingly affecting all aspects of human life, from the relatively familiar medical applications in neurology and psychiatry, to new applications in education, business, law,and the military. Today's neuroscience graduate students will be among the scientists, citizens,and policymakers who will lead society through the maze of decisions regarding the appropriate uses of neuroscience.This course provides a survey of the key ethical, legal,and social issues at the intersection of neuroscience and society.It will include a combination of traditional classroom lectures, discussion and debates, as well as an online component coordinated with a course at Wisconsin's Neuroscience and Public Policy graduate program.

SM 715. Teaching Seminar. (C) Rozin.Prerequisite(s): For graduate students in Psychology.

This course is designed to aid graduate students in developing fundamental teaching skills. The focus will be on lecturing, applicable to job talks as well as classroom lectures, but there will also be some attention to discussion sections and handling of questions.

Seminars

SM 703. Special Topics in Psychology. (C) Staff.

SM 719. Experimental Methods in Perception. Brainard. This is an IGERT foundational course.

This IGERT foundational course covers experimental methods and data analysis techniques used in the study of human perception.

PSYCHOLOGY
(AS) {PSYC}

SM 704. Research Methods and Statistical Procedures for Social and Clinical Sciences. (C) Staff.

This course has three primary objectives: 1) developing criteria and strategies for strong inference of causal relationships in social and clinical psychology research; 2) examining the array of research designs employed in the social/clinical sciences together with the threats to internal and external validity associated with each; 3) learning and applying statistical analytical methods appropriate for questions in the social/clinical sciences. The course will employ a seminar format and a project-oriented approach to learning. Students will be encouraged to utilize examples from their own research programs in applying the design and analysis concepts covered in the course.

SM 709. Special Topics in Clinical Psychology. (C) Staff. Graduate students only.

In this seminar we will survey substantive, methodological and statistical issues that arise in the planning, conduct, and interpretation of empirical inquiries about the effects of psychotherapies. Challenges presented in efforts to disseminate evidence-based clinical practices will also be addressed.

SM 711. Basic Problems in Developmental II. (C) Staff.

SM 730. Special Topics in Motivation. (C) Staff.

SM 733. Special Topics in Vision. (C) Staff.

SM 736. Special Topics in Language. (C) Staff.

SM 739. Special Topics in Perception. (C) STOCKER.

Probability theory has become an increasingly popular and successful framework for modeling human perceptual and cognitive behavior. This course will provide a careful introduction to probability theory and the various ways it has been applied in psychology and neuroscience. Goal is to make students understand the most important state-of-the-art probabilistic models in perception and cognition, what they reveal about the brain's underlying computations and strategies in dealing with uncertainty, and how such computations can potentially be performed by populations of neurons.

SM 745. (NGG 583) Special Topics in Cognitive Neuroscience. (C) Staff.

750. (NGG 576, PHRM550) Special Topics in Neuropsychopharmacology. (C) Lucki and Staff.Prerequisite(s): Permission of Instructor.

Biological issues relevant to neuropsychiatric illnesses are covered in detail in four sections. The first section covers clinical aspects of major psychiatric disorders and includes some contact with patients. The second section presents the neuroanatomy of the limbic systgem. In the third section, emphasis is on the mechanisms of action of psychotropic drugs, including antidepressants, antipsychotics, anxiolytics, and stimulants. The final section covers information relevant to understanding biological processes that may be abnormal in neuropsychiatric illnesses, such as stress, sleep, and circadian rhythms, as well as quantitative genetics.

SM 751. Special Topics in Cognitive Psychology. (C) Staff.

SM 757. Language and Communication Sciences Research Seminar. (M) Trueswell.

SM 770. (PSCI770) Special Topics in Social Psychology. (C) Staff.

PSYCHOLOGY
(AS) {PSYC}

SM 810. Psychodiagnostic Testing. (A) Staff.

SM 811. Psychodiagnostic Interviewing. (A) Staff.

SM 815. Introductory Practicum. (B) Staff.

SM 820. Advanced Practicum. (C) Staff.

Intensive studies of single individuals including interviews, tests, and experiments; also clinical experience at appropriate community agencies.

999. Individual Study and Research. (C)