

REGULARLY OFFERED COURSES NEUROPHILOSOPHY TRACK DEPARTMENT OF PHILOSOPHY



PHIL 6130 - PHILOSOPHY OF SCIENCE

(Formerly Phil 6430.) Varieties of scientific explanation; hypothesis formation and confirmation; paradigms, laws, and theories; the status of unobservable entities; holism and reductionism; science and values; nature and scope of scientific progress; limits of scientific explanation.

PHIL 6330 - PHILOSOPHY OF MIND

(Formerly Phil 6440.) Topics such as theories of mind; the connection between mental and physical states; the relation between mind, language, and the world; and artificial intelligence.

PHIL 8130 - SEMINAR IN PHILOSOPHY OF SCIENCE

Basic philosophical issues and problems attending any reasonably adequate discussion of the nature, function and limits of natural science and its relationship to the social sciences. Includes such topics as the logic of hypothesis construction, testability, criteria of confirmation, physical laws and their role in scientific explanation, the nature of scientific theories, scientific realism and instrumentalism, the completeness of science, the social sciences, scientism, and the difference between philosophy and science. May be repeated once if topic varies.

PHIL 8330 - SEMINAR IN PHILOSOPHY OF MIND

Examination of issues in philosophy of mind. Topics may include: dualism, behaviorism, identity theories, functionalism, eliminative materialism, mental content, mental causation, consciousness, qualia, subjectivity. May be repeated once if topic varies.

BIOL 4094 / 6094 - DEVELOPMENTAL NEUROBIOLOGY

Prerequisite: Biol 3800 with grade of C or higher, or equivalent.

Four lecture hours per week. Introduction to the development of the nervous system. Covers the field of developmental neurobiology from neural induction to the modification of neuronal connections in the adult nervous system and uses a variety of model organisms to demonstrate the rules by which nervous systems develop.

BIOL 4102 / 6102- FUNDAMENTALS OF NEUROBIOLOGY

Prerequisites: Biol 3800 and 3840 with grades of C or higher, or equivalent.

Comprehensive basis for understanding brain research, major discoveries in neuroscience, and the methods employed for those achievements. Topics include the neural basis of learning and memory, sensory perception, motor control, neurological diseases, drug action, and behavior.

BIOL 4114 / 6114- NEURAL MECHANISMS-REG BEHAVIOR

Prerequisite: Biol 4102 with grade of C or higher, or equivalent course work. (Same as Psyc 4570)

Four lecture hours a week. Brain-behavior interactions in mammals. Topics include the neurochemical/neuroanatomical basis of eating and drinking, temperature regulation, aggression, and reproductive behaviors.

BIOL 4115 / 6115- MEDICAL NEUROANATOMY

Prerequisite: Biol 3840 with grade of C or higher, or equivalent.

Four lecture hours per week. Human brain and spinal cord functional neuroanatomy and associated pathologies.

BIOL 4240 / 6240- ENDOCRINOLOGY

Prerequisite: Chem 3410 with grade of C or higher, or equivalent course work; Chem 4600 is recommended.

Four lecture hours a week. Basic biochemistry and physiology of the endocrine system, including synthesis and secretion of steroid and protein hormones, mechanisms of hormone action, and endocrinology of reproduction.

BIOL 4241 / 6241- HORMONES AND BEHAVIOR

Prerequisite: Biol 3840 with grade of C or higher, or equivalent. (Same as Psyc 4630)

Four lecture hours per week. Interaction of nervous and endocrine systems in the control of animal behavior, including humans, with emphasis on the mechanisms that adapt behavior to the changing physical and social environments.

BIOL 8010 - NEUROBIOLOGY I: CELLULAR

(Same as Psyc 8616.)

Prerequisite: Biol 4102 or Biol 6102 with grade of B or higher, or equivalent, or consent of instructor.

Four lecture hours a week. The unique cellular and molecular properties of neurons and how these properties enable neurons to perform their computational tasks. Topics include neuronal excitability, synaptic communication, and neural development.

BIOL 8020 - NEUROBIOLOGY II: INTEGRATIVE

(Same as Psyc 8617.)

Prerequisite: Biol 8010 with grade of B or higher, or equivalent, or consent of the instructor.

Four lecture hours a week. How neurons are organized into neural systems that control behavior. Topics include functional anatomy of sensory systems, sensorimotor integration, central pattern generators, motor and control systems, neuromodulation, neuroethology, and the neural basis of learning and cognition.

BIOL 8040 - FUNCTIONAL HUMAN NEUROANATOMY

(Same as Psyc 8615.)

Prerequisite: Biol 3840 or Psyc 8610, or equivalent, or consent of the instructor.

Two lecture and two laboratory hours a week. In-depth study of the neuroanatomy and function of the human central nervous system. Considers neuroanatomical techniques used to study the brain, neuroanatomical basis for the control of sensory and motor systems, as well as cortical, autonomic nervous system, and limbic system anatomy and function. Both normal brain anatomy and pathologies are covered.

PSYC 8610 (BIOL 8060) - BEHAVIORAL NEUROSCIENCE

Prerequisite: Biol 3840 or Psyc 4110, or equivalent.

Three lecture hours a week. Analysis of functional neural systems in the regulation of behavior, emphasizing the analysis of limbic, hypothalamic, and reticular-cortical mechanisms in behavior.

Course Objectives:

1. Students will learn about the history of the field of behavioral neuroscience.
2. Students will learn about the structure and function of cells of the nervous system, neural communication, and the structure of the nervous system as a whole.
3. Students will learn about methods used in behavioral neuroscience research.
4. Students will learn how the nervous system produces sensation, perception, and movement.
5. Students will also learn about the brain mechanisms of reproduction, emotion, and learning and memory.
6. Finally, students will learn about the hypothesized biological bases of mental disorders, such as schizophrenia and depression.

PSYC 8640 (BIOL 8065) - PSYCHOPHARMACOLOGY

Prerequisite: Psyc 8610 or consent of instructor.

Biological bases of psychopharmacology, including the locus of action for psychoactive substances and the mechanisms by which these substances modify neural activity and cause a change in mood and behavior. Covers neurophysiology, neurochemistry, and pharmacology of classes of psychoactive drugs used to treat mental disorders, as well as those commonly abused that may or may not have therapeutic uses.

BIOL8950 TOPICS IN BEHAVIOR & NEUROBIOLOGY: Companion Course to the Brains & Behavior Distinguished Lectures series

NOTE: This course is required for all Brains & Behavior Scholars. However, ALL graduate students with an interest in neuroscience are encouraged to apply.

NOTE 2: This course is not yet listed in GoSolar, but will be shortly.

This Graduate topics course will be a student-led discussion based on the papers of the speakers from the Brains & Behavior Distinguished Lectures series. There will be ten invited speakers for the 2005-2006 academic year representing the research interests of the four B&B groups: social behavior, adaptability, molecular, and computer science. There will be a PIZZA LUNCH for students at noon on Tuesdays following the seminar to meet the speakers and discuss the work further. Grading: S/U - In order for a student to receive credit for attending the class, the student must participate in the discussion of the papers. In addition, students are required to attend the monthly 10AM Tuesday seminars by the speakers in the B&B Lecture series. Grounds for receiving a U include: missing more than three sessions, lack of participation in class, and coming to class unprepared. Format: Discussion leaders will be chosen for each speaker. Each meeting, the class will read papers pertaining to the upcoming lectures. Students will run the discussion of the papers. Readings are not limited to the papers of the lecturer, but may include papers on the same topic. In addition, the hosting research division will provide background information.