

NEUROSCIENCE (NEUR)

NEUR 100. Introduction to Neuroscience. 1 Credit.

Offered Fall Semester Only; Lecture hours:3

A survey of the study of the nervous system and its structure and function, ranging from molecular analyses of neurons to electrical and other correlates of human cognition.

NEUR 217. Psychopharmacology. 1 Credit.

Offered Either Fall or Spring; Lecture hours:4

Psychopharmacology, the study of drugs that affect behavior, begins with an appreciation for neurochemical, pharmacological and behavioral principles in order to understand actions and effects of therapeutic compounds and addictive substances, the two major categories of psychopharmacological drugs. Prerequisite: PSYC 100 or BIOL 205. Crosslisted as PSYC 217.

NEUR 248. Developmental Psychobiology. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Addresses development in humans from conception through adolescence with some comparative analysis with non-humans. Emphasis on both normal and atypical cognitive, neuropsychological and neurobiological development. Prerequisite: PSYC 100 or NEUR 100. Crosslisted as PSYC 248.

NEUR 250. Biopsychology. 1 Credit.

Offered Both Fall and Spring; Lecture hours:3

Biological bases of behavior and their relationship to motivation, learning, and perception. Prerequisite: one of the following: NEUR 100, PSYC 100, BIOL 206, ANBE 266 or permission of the instructor. Crosslisted as PSYC 250.

NEUR 253. Cellular and Molecular Neurobiology. 1 Credit.

Offered Fall Semester Only; Lecture hours:3,Lab:3

A course focused on the molecular and cellular mechanisms that drive the firing and wiring of neurons. Topics of emphasis include excitable membrane physiology, synaptic transmission, plasticity and learning, and sensory transduction. The required co-requisite laboratory component provides hands-on neurophysiology experience with live animal models. Prerequisite: BIOL 205. Crosslisted as BIOL 375.

NEUR 254. Behavioral Neuroscience. 1 Credit.

Offered Spring Semester Only; Lecture hours:3

Study of the functions of the nervous system underlying behavioral, psychological, and cognitive processes in humans and animals. This course assumes prior knowledge in the fundamentals of cellular/molecular neuroscience. Prerequisites: NEUR 253.

NEUR 305. Developmental Psychopathology. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Addresses the behavioral phenotypes of a variety of neurodevelopmental and neuropsychiatric disorders in the context of theories and processes of normal development. Genetic and neurobiological underpinnings of disorders are discussed. Prerequisites: NEUR 248 or PSYC 248 or permission of the instructor. Crosslisted as PSYC 305 and PSYC 605.

NEUR 312. Biopsychology of Appetite and Obesity. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Reading and discussion of scholarly research on the neural, physiological, and endocrine signals that influence the psychology of appetite, food reward, eating behavior, and obesity in humans and animal models. Prerequisite: PSYC 250 or NEUR 250 or NEUR 254. Crosslisted as PSYC 312.

NEUR 313. Researching Behavioral Neuroscience. 1 Credit.

Offered Both Fall and Spring; Lecture hours:3

Following a general orientation to behavioral genetics and pharmacology using mice, we will conduct group experiments. Each student will then develop and conduct an independent research project. Prerequisites: PSYC 215 or MATH 216 and PSYC 250 or NEUR 255 or permission of instructor. Crosslisted as PSYC 313 and PSYC 613 and NEUR 613.

NEUR 319. Topics in Neuroscience. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3; Repeatable

Occasional seminars on selected topics of current interest in neuroscience. Prerequisites: permission of the instructor may be required depending on the course topics and only open to juniors and seniors.

NEUR 321. Neuroethics. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Students will consider ethical, moral, legal and social implications that come from a growing ability to understand, predict, and change human behavior. In a seminar format we'll consider right and wrong use of neuroscientific knowledge in clinical settings, law and criminal justice, national defense, economics, business and education. Crosslisted as PSYC 321.

NEUR 322. Clinical Neuroscience. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Through case studies, guest lectures, and review of primary literature this course will explore fundamental mechanisms that underlie diseases and disorders of the brain and central nervous system. Prerequisites: PSYC 250 or NEUR 250. Open to Biology, Neuroscience, and Psychology majors. Crosslisted as PSYC 322 and PSYC 622.

NEUR 332. Developmental Neurobiology. 1 Credit.

Offered Spring Semester Only; Lecture hours:3,Recitation:1

Primary literature-based senior seminar on topics in developmental neurobiology. Prerequisites: BIOL 205, BIOL 207, and either BIOL 206 or NEUR 100, junior or senior status, and permission of the instructor. Crosslisted as BIOL 332 and BIOL 632.

NEUR 340. Advanced Behavioral Neuroscience. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Advanced study of the relationship between the brain and behavior. Seminar discussion of complex problems in the field of behavior neuroscience including genetics, mood disorders, drug abuse, cognition and consciousness. Prerequisite: PSYC 250 or NEUR 254 or permission of the instructor. Crosslisted as PSYC 340 and PSYC 640 and NEUR 640.

NEUR 344. Developmental Brain Research. 1 Credit.

Offered Spring Semester Only; Lecture hours:3; Repeatable

Students learn a variety of assessment techniques in developmental neuropsychology and neuroscience (including EEG) and conduct quantitative research culminating in written and oral reports. Crosslisted as PSYC 344 and PSYC 644 and NEUR 644. Prerequisite: permission of the instructor.

NEUR 348. Behavioral Pharmacology. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

Focus on drugs that affect the nervous system, drugs of abuse, therapeutic drugs, drug action, behavioral changes as a result of long-term drug use, animal models and human studies. Prerequisites: PSYC 250 or NEUR 254 or BIOL 205 and permission of the instructor. Crosslisted as PSYC 348 and PSYC 648.

NEUR 360. Honors Thesis. 1 Credit.

Offered Both Fall and Spring; Lecture hours:Varies,Other:15; Repeatable

Prerequisite: permission of the department and permission of the instructor.

NEUR 363. Receptors of Biological Membranes. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3

A course focused on the receptors and channels that function in biological membranes. The primary research literature will be used to explore the molecular bases of cellular communication, neuronal connectivity, and sensory transduction. Prerequisites: BIOL 205 and either BIOL 206 or NEUR 253. Crosslisted as BIOL 363 and BIOL 663.

NEUR 368. Social Neuroscience. 1 Credit.

Offered Either Fall or Spring; Lecture hours:3,Other:1

Study of the brain basis of social behaviors such as bonding and attachment, parental behavior, play, social cognition, and the benefits of social support. We will investigate what is known about social function in the brains of species that have evolved to be social species, including humans. Crosslisted as PSYC 368 and PSYC 668.

NEUR 399. Undergraduate Research. .5-2 Credits.

Offered Either Fall or Spring; Lecture hours:Varies,Other:Varies; Repeatable

Research on any aspect of neuroscience. Research topics may be posed by students or faculty. Prerequisite: permission of the instructor.

NEUR 3NT. NEUR Non-traditional Study. 1-2 Credits.

Offered Fall, Spring, Summer; Lecture hours:Varies,Other:Varies

Non-traditional study course in neuroscience. Prerequisite: permission of the instructor.

NEUR 400. Senior Seminar in Neuroscience. .25 Credits.

Offered Spring Semester Only; Lecture hours:1

NEUR majors may elect to attend a lecture series in the spring semester to satisfy the Culminating Experience requirement. Students will prepare written reactions to each seminar, graded as pass/fail. Prerequisites: senior status and NEUR majors and permission of the instructor.