NEUROSCIENCE (NSCI)

NSCI 61. First-Year Seminar: Drug Addiction: Fact and Fiction. 3 Credits.
The course will tackle questions through classroom discussions, lectures, movies, writing assignments, and a visit to a research laboratory and a treatment facility. Students will be introduced to fundamental concepts in addiction research. Honors version available
Gen Ed: PL, CI.
Grading status: Letter grade.

NSCI 61H. First-Year Seminar: Drug Addiction: Fact and Fiction. 3 Credits.
The course will tackle questions through classroom discussions, lectures, movies, writing assignments, and a visit to a research laboratory and a treatment facility. Students will be introduced to fundamental concepts in addiction research.
Gen Ed: PL, CI.
Grading status: Letter grade.

NSCI 225H. Sensation and Perception. 3 Credits.
Topics in vision, audition, and the lower senses. Receptor mechanisms, psychophysical methods, and selected perceptual phenomena will be discussed. Previously offered as PSYC 225. Honors version available
Requisites: Prerequisite, NSCI 175 or PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 225. Sensation and Perception. 3 Credits.
Topics in vision, audition, and the lower senses. Receptor mechanisms, psychophysical methods, and selected perceptual phenomena will be discussed. Previously offered as PSYC 225.
Requisites: Prerequisite, NSCI 175 or PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 320. Neuropsychopharmacology. 3 Credits.
This course provides an introduction to the scientific study of psychopharmacology, with emphasis on drugs of abuse and psychotherapeutic drugs. Previously offered as PSYC 320.
Requisites: Prerequisite, NSCI 175, or both PSYC 101 and PSYC 220.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 325. Neurosciences of Psychiatric Disorders. 3 Credits.
This course will examine the molecular, cellular, and neurocircuitry substrates of psychiatric disorders. Topics covered will include neurobiological theories of the major classes of psychiatric disorders, genetic susceptibility, neurotransmitter systems involved, neuroplasticity, and others.
Requisites: Prerequisite, NSCI 175 or both PSYC 101 and PSYC 220.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 390. Current Topics In Neuroscience. 3 Credits.
Various special areas of neuroscience study, offered as needed.
Requisites: Prerequisite, NSCI 175.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

NSCI 222. Learning. 3 Credits.
Topics in Pavlovian and operant (instrumental) conditioning, learning theory, higher order cognitive learning, and application of those principles to mental-health related situations. Previously offered as PSYC 222.
Requisites: Prerequisite, NSCI 175 or PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.
NSCI 395. Independent Research. 3 Credits.
Supervised research resulting in a written report. May be repeated for credit up to eight hours. Up to three hours may count as a neuroscience methods elective.
Requisites: Prerequisites, NSCI 175 and two additional NSCI courses, at least one of which must be numbered 200 or greater; a minimum of a 3.0 cumulative grade point average.
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit. 8 total credits. 1 total completions.
Grading status: Letter grade.

NSCI 401. Animal Behavior. 3 Credits.
Ethological, genetic, and physiological variables will be studied in relation to their behavioral effects. Previously offered as PSYC 401.
Requisites: Prerequisites, NSCI 175 or PSYC 101 and PSYC 220, and NSCI 270 recommended.
Gen Ed: PL.
Grading status: Letter grade
Same as: NBIO 401.

NSCI 403. Advanced Biopsychology Laboratory. 3 Credits.
"Hands on" laboratory course designed to introduce students to experimental protocols emphasizing "brain-behavior" relationships. Topics include gross neuroanatomy, stereotaxic surgery, and the effects of drugs on behavior. Previously offered as PSYC 403. Honors version available
Requisites: Prerequisite, NSCI 175 or PSYC 101 and 220.
Gen Ed: PX, EE- Mentored Research.
Grading status: Letter grade.

NSCI 403H. Advanced Biopsychology Laboratory. 3 Credits.
"Hands on" laboratory course designed to introduce students to experimental protocols emphasizing "brain-behavior" relationships. Topics include gross neuroanatomy, stereotaxic surgery, and the effects of drugs on behavior. Previously offered as PSYC 403H.
Requisites: Prerequisite, NSCI 175 or PSYC 101 and 220.
Gen Ed: PX, EE- Mentored Research.
Grading status: Letter grade.

NSCI 405. Advanced Molecular Neuropharmacology. 3 Credits.
This course will examine the molecular basis of drug action in the brain. Primary literature will be used to investigate pharmacological principles, receptor structure-function relationships, and receptor-ligand interactions, including ligand gated-ion channel and G-protein coupled receptor signaling.
Requisites: Prerequisites, NSCI 175 or both PSYC 101 and PSYC 220, and NSCI 320/PSYC 320.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 415. History of Neuroscience. 3 Credits.
In this class, we will consider how neuroscience emerged as a multidisciplinary field. The class will cover key research findings that propelled the field forward. We will also delve into the autobiographies of some of the pioneering researchers who made these important discoveries. Previously offered as PSYC 415.
Requisites: Prerequisite, NSCI 175, or both PSYC 101 and 220.
Gen Ed: SS.
Grading status: Letter grade.

NSCI 420. Functional Neuroanatomy. 3 Credits.
For advanced undergraduate and graduate students. An introduction to human neuroanatomy, covering function of the neuroanatomy of each major system and relation to neuropsychiatric disorders associated with damage to the neuroanatomy of the system. Previously offered as PSYC 420.
Requisites: Prerequisite, NSCI 175 and BIOL 455, or combination of PSYC 101, 220, and BIOL 455.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 421. Principles of Brain Circuits. 3 Credits.
This course is designed for upper-level undergraduates who are interested in how brain circuits control behavior. A major focus will be the new technique of optogenetics that is revolutionizing our approach to systems neuroscience. Circuits that control movement, sensation, sleep, memory, and fear will be explored in detail. Points of emphasis will be circuits mediating pain as related to actions of opiates and circuits mediating feeding behavior as related to obesity.
Requisites: Prerequisites, NSCI 175, or both PSYC 101 and PSYC 220; BIOL 101 recommended.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 422. Genetics of Brain Diseases. 3 Credits.
This course will explore the manifestations and causes of important neurological and psychiatric diseases. A particular focus will be the impact of advances in genetics on our understanding of these disorders. Disorders that affect large numbers of patients including Alzheimer’s disease, autism, and schizophrenia will be studied in detail.
Requisites: Prerequisite, NSCI 175, or both PSYC 101 and PSYC 220.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 423. Neurotechnology in Modern Neuroscience Research. 3 Credits.
This course addresses fundamental challenges inherent in studying the brain and explores the theory, applications, and limitations of new and traditional neurotechnology. The unique ethical issues and significance of interdisciplinary approaches in neuroscience will also be highlighted. Students will analyze research literature and focus on cellular, molecular, and genetic techniques that are essential staples in the neuroscientist’s toolkit. Students will also design experiments, utilize publicly available resources, and analyze big data generated by high-throughput approaches.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 424. Neural Connections: Hands on Neuroscience. 3 Credits.
This class will explore links between the brain and behavior through neuroscience outreach activities. Students will also reflect on the meaning of community engagement. By the end of the semester, each student must complete a minimum of 30 hours of service within the community. Previously offered as PSYC 424.
Requisites: Prerequisite, NSCI 175, or both PSYC 101 and 220.
Gen Ed: PL, EE- Service Learning.
Grading status: Letter grade.
NSCI 427. Neurobiology of Aging. 3 Credits.
This course will survey clinical and experimental literature regarding the neurobiology of aging, considering different theories of aging, how aging is studied in the laboratory, and recent findings. Biochemical, molecular, physiological, and behavioral changes associated with both "normal" and pathological aging will be considered. Previously offered as PSYC 427.
Requisites: Prerequisites, NSCI 175, or both PSYC 101 and 220.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 428. Neuroscience, Society, and the Media. 3 Credits.
Neuroscience is a "hot" topic in popular media. We will consider media coverage of neuroscientific research by reading the popular press versions of studies alongside the findings from primary sources and what kinds of topics are most often covered by the media and why. Previously offered as PSYC 428.
Requisites: Prerequisite, NSCI 175, or both PSYC 101 and 220.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 434. Cognitive Neuroscience. 3 Credits.
Introduction to cognitive neuroscience. Higher mental processes including attention, memory, language, and consciousness will be covered, with an emphasis on the neural mechanisms that form the substrates of human cognition. Previously offered as PSYC 434.
Requisites: Prerequisites, NSCI 175 and PSYC 230, or a combination of PSYC 101, 220 and 230.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 437. Neurobiology of Learning and Memory. 3 Credits.
This course surveys current knowledge about and research into the neurobiological basis of learning and memory. Using a combination of lectures and student-led discussions, we will critically evaluate the neurobiological substrates of human cognition. Previously offered as PSYC 437.
Requisites: Prerequisites, NSCI 175, or both PSYC 101 and 220; BIOL 101 recommended.
Gen Ed: PL.
Grading status: Letter grade.

NSCI 490. Current Topics in Neuroscience. 3 Credits.
Various special areas of neuroscience study, offered as needed. Honors version available
Requisites: Prerequisite, NSCI 175.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

NSCI 490H. Current Topics in Neuroscience. 3 Credits.
Various special areas of neuroscience study, offered as needed.
Requisites: Prerequisite, NSCI 175.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

NSCI 493. Internship in Neuroscience. 3 Credits.
Required preparation, minimum of two other neuroscience courses and junior/senior standing. Designed for highly motivated neuroscience majors interested in exploring professional opportunities in neuroscience-related areas. Juniors and seniors only.
Requisites: Prerequisites, NSCI 175 and two additional NSCI courses.
Grading status: Letter grade.

NSCI 497. Honors in Neuroscience. 3 Credits.
To be taken in the fall of the last year of studies as the second course in the two-semester honors sequence. Students conduct research under the direction of a faculty advisor and receive classroom instruction in research-related topics. Required preparation, cumulative GPA of 3.3, neuroscience GPA of 3.5, one semester of NSCI 395, and acceptance through application to the honors committee.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

NSCI 498. Mentored Research. 3 Credits.
To be taken in the fall of the last year of studies as the second course in the two-semester honors sequence. Students conduct research under the direction of a faculty advisor and receive classroom instruction in research-related topics. Admission to the neuroscience honors program required.
Requisites: Prerequisite, NSCI 693H.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.