Neuroscience, PhD

Requirements

The Doctor of Philosophy program in neuroscience requires a minimum of 72 s.h. of graduate credit. Students must maintain a cumulative grade-point average of 3.00. The program's curriculum is designed around three tracks: molecular/cellular, developmental/systems, and cognitive/behavioral. Following broad-based instruction in a core curriculum, students specialize in one of the tracks.

Within a framework of core, track-specific, and elective courses, students pursue a program of study individually designed according to their undergraduate training and graduate research goals. After enrolling in the neuroscience program, entering students consult with the advisory committee regarding their level of preparation for the program's required courses.

The Student Advisory Committee meets with all first- and second-year graduate students once each semester, helping students explore their research interests and select faculty mentors for the required laboratory rotations. Each student is expected to complete three rotations in faculty laboratories before selecting a thesis advisor. Rotations ordinarily last 12 weeks but may last from 8 to 16 weeks. Under special circumstances, two rotations may be in the same laboratory, an arrangement that permits a student to learn a variety of techniques and approaches before settling down to work on the dissertation project. Students usually choose a dissertation lab at the end of their first year.

Background Requirements

Successful students will have demonstrated preparedness for graduate training in neuroscience by completing a bachelor's degree and substantive prior research experience in one or more of the following areas: biochemistry, general physiology, cell biology, and statistics. Didactic coursework in quantitative methods, statistics, and/or computer programming is also beneficial.

Neuroscience Core

The following courses form the core of the neuroscience graduate curriculum.

Course #	Title	Hours
NSCI:5653	Fundamental Neurobiology I	3
NSCI:7235	Neurobiology of Disease	3
ACB:6252	Functional Neuroanatomy	arr.
BMED:7270	Scholarly Integrity/ Responsible Conduct of Research I	0
BMED:7271	Scholarly Integrity/ Responsible Conduct of Research II	0
PSY:6370	Principles of Neuropsychology	3
One statistics course		3-4
In addition, students register for the following two courses each semester:		
NSCI:6265	Neuroscience Seminar	0-1
NSCI:7305	Neuroscience Research	arr.

Electives

Elective requirements may be met by completing 8 s.h. from a list of courses offered by the departments of Anatomy and Cell Biology, Biology, Molecular Physiology and Biophysics, Neuroscience and Pharmacology, Psychological and Brain Sciences, and other departments as appropriate. With permission of the Student Advisory Committee, students may satisfy the elective requirement wholly or in part by registration in the following courses.

Course #	Title	Hours
NSCI:5212	Foundations in Behavioral and Cognitive Neuroscience	4
NSCI:5365	Seminar: Neuropsychology and Neuroscience	arr.
BIOL:3343	Animal Physiology	3
BIOL:4213	Bioinformatics	2,4
BMED:5207	Principles of Molecular and Cellular Biology	3
CSD:5234	Acquired Cognitive-Communication Disorders	arr.
CSD:6230	Psychoacoustics	2-3
GENE:6200	Current Topics in Genetics	1
HHP:6300	Motor Control Seminar	1
MATH:5750	Mathematical Biology I	3
MICR:5218	Microscopy for Biomedical Research	arr.
MMED:6220	Mechanisms of Cellular Organization	3
MMED:6226	Cell Cycle Control	1
MMED:6227	Cell Fate Decisions	1
PCOL:5135	Principles of Pharmacology	1
PCOL:5137	Neurotransmitters	1
PCOL:6207	Ion Channel Pharmacology	1
PCOL:6225	Growth Factor Receptor Signaling	1
PSY:3320	Psychopathology	3
PSY:5070	Programming for Psychologists	3
PSY:5080	Foundations in Cognitive Neuroscience	4
PSY:5610	Proseminar in Cognition and Perception	3
PSY:6440	Developmental Cognitive Neuroscience	3
PSY:7150	Current Topics in Psychology	3
PSY:7210	Seminar: Advanced Topics in Behavioral and Cognitive Neuroscience	3
RHET:7500	Science Communication in the Digital Age	2-3
STAT:6300	Probability and Stochastic Processes I	3