NEUROSCIENCES PROGRAM

Director: Eric I. Knudsen (Professor of Neurobiology)
Committee: Russell D. Fernald, David Heeger, John A. Huguenard, Liqun Luo, M. Bruce MacIver, V. Daniel Madison, Susan McConnell, U. J. McMahan, Daria Mochly-Rosen, William T. Newsome, Richard H. Scheller, Thomas Schwarz, Edith Sullivan

Participating Faculty:
Anesthesia: Rona Giffard (Associate Professor), Joan E. Kendig (Professor), M. Bruce MacIver (Assistant Professor, Research)
Biological Sciences: Bruce Baker (Professor), William F. Gilly (Professor), H. Craig Heller (Professor), Ron Kopito (Professor), Liqun Luo (Assistant Professor), Susan McConnell (Professor), Robert M. Sapolsky (Professor), Stuart Thompson (Professor)
Developmental Biology: Matthew P. Scott (Professor)
Genetics: David R. Cox (Professor)
Molecular and Cellular Physiology: Richard Aldrich (Professor), Brian Kobilka (Professor), Richard S. Lewis (Associate Professor), V. Daniel Madison (Associate Professor), Richard H. Scheller (Professor), Stephen Smith (Professor), Richard Tsien (Professor)
Molecular Pharmacology: Helen Blau (Professor), Daria Mochly-Rosen (Professor)
Neurobiology: Ben Barres (Associate Professor), Denis A. Baylor (Professor), Eric I. Knudsen (Professor), U. J. McMahan (Professor), William T. Newsome (Professor), Jennifer Raymond (Assistant Professor), Howard Schulman (Professor), Eric M. Shooter (Professor), Lubert Stryer (Professor)
Neurology and Neurological Sciences: John A. Huguenard (Associate Professor, Research), William C. Mobley (Professor), David A. Prince (Professor), Thomas A. Rando (Assistant Professor), Lawrence Steinman (Professor)
Neurosurgery: Gary K. Steinberg (Professor)
Pathology: Lawrence F. Eng (Professor, Research)
Psychiatry and Behavioral Sciences: William C. Dement (Professor), Judith Ford (Associate Professor, Research), Terrence A. Ketter (Associate Professor), Edith Sullivan (Associate Professor, Research)
Psychology: Russell D. Fernald (Professor, Teaching), John Gabrieli (Associate Professor), David Heeger (Associate Professor), Brian Wandell (Professor), Jeffrey J. Wine (Professor)

GRADUATE PROGRAM

DOCTOR OF PHILOSOPHY

University requirements for the Ph.D. are described in the "Graduate Degrees" section of this bulletin.

The interdepartmental Neurosciences Program offers instruction and research opportunities leading to a Ph.D. in Neurosciences. The requirements for a Ph.D. degree follow those of the University and in addition are tailored to fit the background and interests of the student. Accepted students receive an award covering tuition, a basic health plan, and a living stipend. Qualified applicants should, where possible, apply for the predoctoral fellowships in open competition, especially those from the National Science Foundation and the Howard Hughes Medical Institute. December 15 is the deadline for receipt in the Neurosciences Program office of applications with all supporting material.

Applicants should familiarize themselves with the research interests of the faculty and indicate their preferences clearly on the application form.

Since students enter with differing backgrounds and the labs in which they may elect to work cover several different disciplines, the specific program for each student is developed individually with an advisory committee. All students are required to complete the basic courses in neurobiology (Neurobiology 200 or its equivalent). Students are also required to take at least five advanced neuroscience courses. At least one course must be taken from each of the following categories: Clinical Neurosciences, Developmental Neuroscience, Integrative and Behavioral Neurosciences, Membrane Excitability; and one course in either Computational Neuroscience or Neuronal Communication.

Students usually rotate through several labs during their first year, although they may choose to begin thesis research on entry. After the first rotation, students may rotate both within and outside the Neurosciences Program. Required course work should be completed by the end of the second year. Passing of a comprehensive oral preliminary examination given by the student's advisory committee is required for admission to Ph.D. candidacy. This examination is usually taken by the end of the second year. The student is required to present a Ph.D. dissertation which is the result of independent investigation contributing to knowledge in an area of neuroscience and to defend his or her dissertation in a University oral examination, which includes a public seminar.

Medical students may participate in this program provided they meet the prerequisites and satisfy all the requirements of the graduate program as listed above. The timing of the program may be adjusted to fit their special circumstances.

COURSES

Course and lab instruction in the Neurosciences Program conforms to the "Policy on the Use of Vertebrate Animals in Teaching Activities," the text of which is available at http://www.stanford.edu/dept/DoR/rph/8-2.html.

The following courses fulfill program requirements. Consult the course selections of individual departments for complete descriptions.

399. Research—Prerequisite: consent of instructor.
1-18 units, any quarter (Staff)

BIOLOGICAL SCIENCES

258. Neural Development
4 units (McConnell) alternate years, given 2002-03

MOLECULAR AND CELLULAR PHYSIOLOGY

210. Principles of Cell Development
4 units, Spr (Aldrich, Lewis)

215. Synaptic Transmission
5 units, Aut (Smith, Madison)

NEUROBIOLOGY

200. The Nervous System
9 units, Win (Barres, Baylor, Knudsen, McMahan, Newsome, Raymond, Schulman, Shooter, Stryer)

218. Neural Basis of Behavior
4 units (Knudsen, Newsome) alternate years, given 2002-03

220. Central Mechanisms in Visual Perception
4 units, Spr (Newsome) alternate years, given 2002-03

230. Signal Transduction Mechanisms
4 units, Aut (Stryer) alternate years, not given 2002-03

254. Molecular and Cellular Neurobiology
4 units, Aut (L. Luo, H. Schulman)

300. Professional Development and Integrity in Neuroscience
2 units, Aut, Win, Spr (Newsome, Raymond)

NEUROLOGY AND NEUROLOGICAL SCIENCES

205. Clinical Neuroscience
2 units, Win (Huguenard)

PSYCHOLOGY

276. Computational Neuroscience
1-3 units (Heeger) not given 2001-02