Anatomy and Neurobiology

Christine M. Gall, Department Chair
David C. Lyon, Department Vice Chair
Robert Hunt, Departmental Graduate Advisor
Med Sci 1, B240
949-824-2583
anatomy.uci.edu (http://anatomy.uci.edu/)

Research programs in the Department of Anatomy and Neurobiology in the School of Medicine focus on the neurosciences. Faculty interests range across broad areas of basic and clinical neuroscience research, including cellular and molecular neurobiology, cellular mechanisms of development, ion channel electrophysiology, functional synaptic plasticity, mechanisms of learning and memory, experimental neuroanatomy, structure and function of sensory and motor systems, and response to injury and regeneration. Students performing graduate work in the Department are encouraged to become proficient in multiple areas of study using interdisciplinary techniques.

The Department offers graduate training in the School of Medicine in conjunction with the Interdepartmental Neuroscience Program (INP) and the Medical Scientist Training Program (MSTP). Students are eligible to enter the Departmental program after meeting the specific requirements of the INP gateway curriculum or MSTP or by direct application to the Department. The Departmental program leads to a Ph.D. degree in Biomedical Sciences, awarded after successful completion of all requirements.

In concert with other departments, a combined neuroscience core curriculum has been developed which includes offerings in systems neurobiology, neurophysiology, and cellular, molecular, and developmental neurobiology that may be taken as complete or partial fulfillment of the requirements of the INP. Students admitted into the INP or MSTP who subsequently select a research advisor in the Department will begin to follow the departmental requirements for their Ph.D. at the beginning of their second year. Students may take additional elective courses at their own option, but they are required to attend departmental seminars, to participate in the Journal Club and an annual “Grad Day” symposium, and to make presentations to Progress in Neuroscience sessions when invited. The research topic for a student’s dissertation is chosen by the student in close consultation with their research advisor. Students are expected to advance to candidacy by the end of the third year by presenting progress on their own research and providing a proposal for their dissertation research. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Munjal Acharya, Ph.D. Maharaja Sayajirao University of Baroda, *Associate Professor of Radiation Oncology; Anatomy and Neurobiology*

Yama Akbari, Ph.D. University of California, Irvine, *Associate Professor of Neurology; Anatomy and Neurobiology; Neurological Surgery*

Aileen J. Anderson, Ph.D. University of California, Irvine, *Director of the Sue and Bill Gross Stem Cell Research Center and Professor of Physical Medicine and Rehabilitation; Anatomy and Neurobiology*

Tallie Z. Baram, M.D., Ph.D. University of Miami, *Weizmann Institute of Science and Danette "Dee Dee" Shepard Endowed Chair in Neurological Studies and Donald Bren Professor of Pediatrics; Anatomy and Neurobiology; Neurology; Physiology and Biophysics* (neuroscience, neurobiology, psychiatric disorders, epigenetics, epilepsy, epileptogenesis, learning and memory, stress, corticotropin-releasing hormone, hippocampus, development, programming)

Anne L. Calof, Ph.D. University of California, San Francisco, *Professor of Anatomy and Neurobiology; Developmental and Cell Biology*

Lulu Y. Chen, Ph.D. University of California, Irvine, *Assistant Professor of Anatomy and Neurobiology*

Brian J. Cummings, Ph.D. University of California, Irvine, *Associate Dean of Faculty Development - Senate and Professor of Physical Medicine and Rehabilitation; Anatomy and Neurobiology; Neurological Surgery*

Javier Diaz Alonso, Ph.D. Complutense University of Madrid, *Assistant Professor of Anatomy and Neurobiology*

Laura A. Ewell, Ph.D. University of Wisconsin, *Associate Director of Interdepartmental Neuroscience Program and Assistant Professor of Anatomy and Neurobiology*

Mark J. Fisher, M.D. University of Cincinnati, *Professor of Neurology; Anatomy and Neurobiology; Pathology and Laboratory Medicine; Political Science*

Lisa Flanagan, Ph.D. University of California, San Diego, *Professor of Neurology; Anatomy and Neurobiology; Biomedical Engineering*

Christine M. Gall, Ph.D. University of California, Irvine, *Department Chair and Distinguished Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Alan L. Goldin, M.D. Ph.D. University of Michigan, *Professor of Microbiology and Molecular Genetics; Anatomy and Neurobiology; Physiology and Biophysics* (ion channels and central nervous system disease)

Ranjan Gupta, M.D. Albany Medical College, *Professor of Orthopaedic Surgery; Anatomy and Neurobiology; Biomedical Engineering*

Robert F. Hunt, Ph.D. University of Kentucky, *Director of Epilepsy Research Center and Graduate Advisor and Associate Professor of Anatomy and Neurobiology*

Kei Igarashi, Ph.D. University of Tokyo, *Associate Professor of Anatomy and Neurobiology; Biomedical Engineering*

Kwang M. Jung, Ph.D. Chung-Ang University, *Associate Adjunct Professor of Anatomy and Neurobiology*

Gary S. Lynch, Ph.D. Princeton University, *Distinguished Professor of Psychiatry and Human Behavior; Anatomy and Neurobiology*

David C. Lyon, Ph.D. Vanderbilt University, *Department Vice Chair and Professor of Anatomy and Neurobiology; Cognitive Sciences*

Diane K. O'Dowd, Ph.D. University of California, San Diego, *Vice Provost of Academic Personnel and Professor of Developmental and Cell Biology; Anatomy and Neurobiology* (regulation of activity in developing and adult nervous systems)

Andre Obenaus, Ph.D. University of British Columbia, *Professor in Residence of Pediatrics; Anatomy and Neurobiology*

Daniele Piomelli, Ph.D. Columbia University, *Louise Turner Arnold Endowed Chair in the Neurosciences and Distinguished Professor of Anatomy and Neurobiology; Biological Chemistry; Pharmaceutical Sciences*

David J. Reinkensmeyer, Ph.D. University of California, Berkeley, *Professor of Anatomy and Neurobiology; Biomedical Engineering; Mechanical and Aerospace Engineering; Physical Medicine and Rehabilitation*

Magdalene J. Seiler, Ph.D. University of Munich, *Associate Professor in Residence of Physical Medicine and Rehabilitation; Anatomy and Neurobiology; Ophthalmology*

Oswald Steward, Ph.D. University of California, Irvine, *Director, Reeve-Irvine Research Center and Reeve-Irvine Endowed Chair in Spinal Cord Injury Research and Distinguished Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Momoko Watanabe, Ph.D University of California, Irvine, *Assistant Professor of Anatomy and Neurobiology*

John H. Weiss, M.D., Ph.D. Stanford University, *Professor of Neurology; Anatomy and Neurobiology*

Jamie Wikenheiser, Ph.D. Case Western Reserve University, *Adjunct Professor of Anatomy and Neurobiology*

Xiangmin Xu, Ph.D. Vanderbilt University, *Chancellor's Professor of Anatomy and Neurobiology; Biomedical Engineering; Computer Science*

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences*

Courses

ANATOMY 200. Research in Anatomy. 2-12 Units.
Individual research supervised by a particular faculty member.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 200R. Research in Anatomy and Neurobiology for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Anatomy and Neurobiology for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

ANATOMY 201. Human Gross Anatomy. 8 Units.
Study and dissection of the human body, including muscular, skeletal, nervous, and cardiovascular systems. Emphasis on both normal and abnormal structure and function.

Restriction: Graduate students only.

ANATOMY 202B. Human Neuroscience. 4 Units.
Study of the human nervous system at the systems level including the physiology and anatomy of sensory, motor, and integrative functions.

Prerequisite: ANATOMY 202A. ANATOMY 202A with a grade of B- or better

ANATOMY 203A. Human Microscopoic Anatomy. 3 Units.
Lecture and laboratory course on human microscopic anatomy. Emphasis is on functional implications of structure of cells and tissues.

Restriction: Graduate students only.

ANATOMY 203B. Human Microscopoic Anatomy. 3 Units.
Lecture and laboratory course on human microscopic anatomy. Emphasis is on functional implications of structure of cells and tissues.

Prerequisite: ANATOMY 203A. ANATOMY 203A with a grade of B- or better

Restriction: Graduate students only.

ANATOMY 206. Tutorial in Anatomy. 3 Units.
Series of tutorials on advanced topics in anatomy.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 206B. Neuroanatomy from a Systems Perspective: Humans to Rodents. 3 Units.
Covers structures and pathways of the functional systems of the human brain (motor, sensory, visual, auditory, and limbic) and how these are represented in rodents, emphasizing circuitry involved in learning and memory, neurodegenerative disorders, and neurotrauma.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 206C. Tutorial in Microanatomy. 3 Units.
Special topics in microanatomy. Primarily library work, but study of prepared histological slides and photographs included.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 210A. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Repeatability: May be taken for credit 2 times.

Same as NEURBIO 208.

Restriction: Graduate students only. Neurobiology and Behavior Majors only.

ANATOMY 215. Epilepsy as a Window to Mechanisms of Neuronal Plasticity. 4 Units.
Understanding the mechanisms of brain disorders provides novel insights into the normal function of neurons and circuits. Discusses approaches to studying mechanisms of brain function ranging from imaging, the use of models and others to study epilepsy.

Grading Option: Satisfactory/unsatisfactory only.

ANATOMY 227A. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 227B. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 227C. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 230. Topics in Translational Neuroscience. 2-4 Units.
One-hour seminar presentation by participating faculty or guest lecturer and open to the science community, followed by one-hour student discussion of the lecture topic or related topic. Students are responsible for presentations and readings.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Graduate students only. Interdepartmental Neuroscience Majors have first consideration for enrollment.

ANATOMY 230A. Molecular, Cellular, & Developmental Neurobiology. 4 Units.
Molecular aspects of the structure and function of neurons and glia including neurotransmission, synaptic modulation, and channels. Neural development at the cellular and molecular level including neurogenesis, pattern formation, trophic factors, axonal growth, and synaptic rearrangement.

Restriction: Graduate students only.

ANATOMY 292A. Topics in Neural Circuit Mapping. 2-4 Units.
Presentations/lectures by invited faculty and student discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.