Pharmacological Sciences

Graduate Student Affairs: (949) 824-7651 (Program administered by the Department of Pharmacology)  

Frederick J. Ehlert, Graduate Program Director/Advisor for the Interdisciplinary Program

The Department of Pharmacology and Pharmaceutical Sciences join forces to offer an interdisciplinary program leading to the Ph.D. degree in Pharmacological Sciences with a concentration in Pharmacology or in Pharmaceutical Sciences. For complete program information, see the Interdisciplinary Studies (http://catalogue.uci.edu/previouseditions/2014-15/interdisciplinarystudies/pharmacologyandtoxicology) section of the Catalogue.

The Department of Pharmacology also admits students through the following two gateway programs:

Graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP). The one-year graduate MCP Gateway Program is designed to function in concert with selected department programs, including the Ph.D. in Pharmacological Sciences. Upon successful completion of the MCP curriculum at the end of their first year, students choose a faculty advisor who is affiliated with one of the participating departments, and transition into their “home” department to complete the remaining degree requirements. They will receive their Ph.D. degree from the department of their chosen advisor. Detailed information is available at Department of Pharmacology (http://www.pharmacology.uci.edu) website.

The Department also participates in the Interdepartmental Neuroscience Gateway Program, described in the Francisco J. Ayala School of Biological Sciences section of the Catalogue. Students who select a focus in Neuroscience and a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year and will receive their Ph.D. from the department of their chosen advisor. Detailed information is available at Interdepartmental Neuroscience Gateway Program (http://www.inp.uci.edu/about) website.

Faculty

Geoffrey W. Abbott, Ph.D. University of London, Professor of Pharmacology; Physiology and Biophysics

James D. Belluzzi, Ph.D. University of Chicago, Adjunct Professor of Pharmacology

Stephen C. Bondy, Ph.D. University of Birmingham, Professor of Medicine; Environmental Health Sciences; Pharmacology; Program in Public Health

Emiliana Borrelli, Ph.D. University of Strasbourg, Professor of Microbiology and Molecular Genetics; Pharmacology

Catherine M. Cahill, Ph.D. Dalhousie University, Acting Associate Professor of Anesthesiology and Perioperative Care; Anesthesiology and Perioperative Care; Pharmacology

A. Richard Chamberlin, Ph.D. University of California, San Diego, Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology (chemical biology, organic and synthetic)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology and Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences (novel neuroactive molecules)

Sue P. Duckles, Ph.D. University of California, San Francisco, Professor Emerita of Pharmacology

Frederick J. Ehler, Ph.D. University of California, Irvine, Professor of Pharmacology

Pietro R. Galassetti, Ph.D. Vanderbilt University, Associate Professor of Pediatrics; Pharmacology

Kelvin W. Gee, Ph.D. University of California, Davis, Professor of Pharmacology

Frances L. Gonzalez, Ph.D. University of California, San Francisco, Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology (organic chemistry)

Naoto Hoshi, Ph.D. Kanazawa University, Assistant Professor of Pharmacology; Physiology and Biophysics

Mahtab F. Jafari, Ph.D. University of California, San Francisco, Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology

Diana N. Krause, Ph.D. University of California, Los Angeles, Adjunct Professor of Pharmacology

Arthur D. Lander, Ph.D. University of California, San Francisco, Donald Bren Professor and Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology (systems biology of development, pattern formation, growth control)
Courses

PHARM 210. Chemical Neuroanatomy. 4 Units.
Organization of the nervous system, especially with respect to chemical identity of elements, for students of pharmacology. Major cell types, methods of study, ultrastructure, synaptic organization of functionally defined systems, localization of chemically defined cells and receptors, and brain development.

Restriction: Graduate students only.

PHARM 241. Advanced Topics in Pharmacology. 2 Units.
Application of pharmacological principles in disease therapy. Advanced pharmacological mechanisms and in-depth study of drug action. Discussion of several major drug classes/therapeutic strategies: molecular mechanisms of action, physiological consequences of administration, and clinical use.

PHARM 241B. Graduate Pharmacology. 6 Units.

Prerequisite: PHYSIO 206A and PHYSIO 206B and BIOCHEM 210A.

PHARM 252. Neurotransmitter and Drug Receptors. 6 Units.
Ligand gated ion channels, G protein linked receptors, receptor tyrosine kinases, ligand regulated transcription factors, their signaling mechanisms, trafficking and physiological responses. Analysis of receptor properties by pharmacological methods, radioligand binding, and molecular biology.

PHARM 254. Introduction to Pharmacology. 4 Units.
Receptor analysis: bioassay measuring contraction, calcium mobilization, second messenger responses; operant conditioning; whole animal, single neuron; radioligand binding; quantitative autoradiography; immunocytochemistry; in situ hybridization for analysis of mRNA; Western and Northern analysis; transgenic mouse knock in and knock out techniques.

PHARM 255. Chemical Transmission. 4 Units.
Mechanisms underlying chemical signaling processes in the brain and periphery. Molecular biology, signal transduction, transmitter synthesis and inactivation, pharmacology of integrative function and behavior.

PHARM 256. Experimental Design for Pharmacologists. 1 Unit.
Population and sample statistics, hypothesis testing, analysis of variance, nonparametric statistics, experimental design, power, and the use of statistical computer software.

Prerequisite: PHARM 252.
PHARM 257. Ethics in Research. 1 Unit.
Ethical conduct in research including data handling, authorship, conflict of interest, animal rights, handling of misconduct.

Prerequisite: PHARM 299.

Repeatability: May be taken for credit 2 times.

PHARM 298. Seminar. 2 Units.
Presentation and discussion of current problems and methods in teaching and research in pharmacology, toxicology, and therapeutics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHARM 299. Research. 1-12 Units.
Independent research with Pharmacology and Toxicology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.