Medical Pharmacology (PHARM)

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.