

# UCI Master of Pharmacology

## Schedule of Classes

	Fall	Winter	Spring
YEAR 1	<b>PHARM 270</b> Applied Pharmacology (3) Intro Course	<b>PHARM 281</b> Neuropharmacology (3)	<b>PHARM 283</b> Cardiovascular Pharmacology (3)
	<b>PHARM 271</b> Principles of Pharmacology (3)	<b>PHARM 282</b> Behavioral Pharmacology	<b>PHARM 284</b> Endocrine, Respiratory and GI Pharmacology (3)
	<b>PHARM 272</b> Receptors and Drug Targets (3)		
YEAR 2	<b>PHARM 274</b> Research Techniques in Pharmacology (3)	<b>PHARM 280</b> Masters Project in Pharmacology (3)	<b>PHARM 278</b> Concepts in Drug Discovery (3)
	<b>PHARM 276</b> Concepts in Drug Discovery (3)	<b>PHARM 277</b> Ethics in Scientific Research (3)	<b>PHARM 279</b> Special Topics in Pharmacology (3)

## Online Courses

### **PHARM 271 Principles of Pharmacology (3 units)**

Principles of pharmacology: pharmacodynamics, pharmacokinetics, pharmacogenetics, drug interactions and toxicity.

### **PHARM 272 Receptors and Drug Targets (3 units)**

Molecular basis of drug-receptor interaction. Receptor properties including gene and protein structure, signaling mechanisms, trafficking and physiological effects: G-protein linked receptors, ligand-gated ion channels, receptor tyrosine kinases, nuclear receptors, and ligand regulated transcription factors.

**PHARM 274 Research Techniques in Pharmacology (3 units)**

Experimental techniques and model systems used in pharmacological research. Receptor analysis, bioassay, molecular biology, in vitro pharmacology, biochemical pharmacology, imaging, electrophysiology, in vivo pharmacology, disease models.

**PHARM 276 Experimental Design and Data Analysis (3 units)**

Experimental design, data analysis and interpretation. Population and sample statistics, hypothesis testing, analysis of variance, nonparametric statistics, and power calculations.

**PHARM 277 Ethics in Scientific Research (3 units)**

Ethical conduct in research including data handling, authorship, conflict of interest, animal rights and handling of misconduct.

**PHARM 278 Concepts in Drug Discovery (3 units)**

Online. Critical steps involved in discovery and optimization of a new drug. Target selection, relationship of molecular structure to pharmacological activities, screening methods, strategies to identify lead compounds, and preclinical characterization necessary for development of the drug for clinical trials.

**PHARM 279 Special Topics in Pharmacology (3 units)**

Topics of current interest in pharmacology; discussion of recent research publications.

**PHARM 280 Masters Project in Pharmacology (3 units)**

Capstone research paper on topic of interest in pharmacology.

**PHARM 281 Neuropharmacology (3 units)**

Autonomic and central nervous system pharmacology, including major drug classes and therapeutic uses. Mechanisms underlying chemical signaling processes in the brain and peripheral nervous system, including neurotransmitter synthesis, inactivation and receptor action.

**PHARM 282 Behavioral Pharmacology (3 units)**

Pharmacology of integrative function and behavior. Drug treatment of pain. Mechanisms of reward, addiction and drugs of abuse.

**PHARM 283 Cardiovascular Pharmacology (3 units)**

Basic understanding of drugs used in the prevention and treatment of cardiovascular disease. Mechanisms of action, clinical and adverse effects.

**PHARM 284 Endocrine, Respiratory and Gastrointestinal Pharmacology (3 units)**

Basic understanding of drugs used in endocrine, respiratory and gastrointestinal conditions, including hormone replacement, contraceptives, and drugs for diabetes, asthma, obesity, ulcer and gastric reflux. Mechanisms of drug action, clinical and adverse effects.

*For questions regarding the UCI Master in Pharmacology class of schedules and online courses contact [pharmsci-grad@uci.edu](mailto:pharmsci-grad@uci.edu).*