Pharmacology Courses (Neuroscience and Pharmacology) (PCOL)

PCOL Courses
This is a list of courses with the subject code PCOL. For more information, see Neuroscience and Pharmacology (Carver College of Medicine) in the catalog.

PCOL:2220 Drug Use and Abuse  3 s.h.
Effects of common drugs on the body and how they occur; consumer education in easy-to-understand language; basic principles of pharmacology and toxicology; drugs that work on specific systems including antibiotics, oral contraceptives, sedatives, stimulants, hallucinogens, narcotics, steroids, diabetes drugs, and cancer drugs; for students with little to no science background. Offered spring semesters. GE: Natural Sciences without Lab.

PCOL:3101 Pharmacology I: A Drug’s Fantastic Journey  3 s.h.
Introduction to basic pharmacological principles by following a drug’s journey from its site of administration to its site of elimination; common mechanisms by which drugs affect the body and mechanisms underlying drug actions on two primary body systems—nervous and cardiovascular; structured learning environment bolstered by highly interactive application sessions where students apply course material via collaborative work on problem sets/activities; for students interested in medicine, pharmacy, research, and industry. Offered fall semesters. Prerequisites: (CBE:3205 or BIOL:1411) and CHEM:1110. Recommendations: additional higher-level biology and chemistry courses helpful.

PCOL:3102 Pharmacology II: Mechanisms of Drug Action  3 s.h.
Expansion of basic pharmacological concepts and further exploration of how they are applied to define a drug’s actions on the body; students continue their exploration of the body by discussing various disorders including neuropsychiatric and immune disorders, cancer, diabetes, and microbial infections in conjunction with current treatments; structured learning environment bolstered by highly interactive discussion sessions where students learn to apply course material via collaborative work on problem sets/activities; for students interested in medicine, pharmacy, research, and industry. Offered spring semesters. Prerequisites: PCOL:3101. Recommendations: additional higher-level courses in biology and chemistry helpful.

PCOL:4130 Fundamentals of Pharmacology  3 s.h.
Basic pharmacological principles underlying drug absorption, distribution, and metabolism; how these processes determine drug toxicity; drug receptor interactions and their quantitation; impact of genetic variation on the actions and metabolism of drugs; mechanisms of neurotransmission focusing on synthesis, release, actions, and degradation; central nervous system (CNS) pathways for major neurotransmitters; disease states involving various abnormal neurotransmitter function. Offered spring semesters.

PCOL:5135 Principles of Pharmacology  1 s.h.
Basic pharmacological principles underlying drug absorption, drug distribution throughout the body, drug metabolism, and drug elimination; how these processes determine drug dosing and the means by which dosing parameters are characterized; drug receptor interactions and their quantitation. Offered spring semesters.

PCOL:5136 Pharmacogenetics and Pharmacogenomics  1 s.h.
Impact of genetic variation on the actions and metabolism of drugs; database search techniques to identify variants. Offered spring semesters. Recommendations: PCOL:5135, and undergraduate or graduate biochemistry and/or genetics.

PCOL:5137 Neurotransmitters  1 s.h.
Mechanisms of neurotransmission focusing on mechanisms of synthesis, regulation of release, mechanisms of action, means of degradation, and CNS pathways for major neurotransmitters; disease states involving various neurotransmitter systems. Offered spring semesters.

PCOL:6090 Principles of Pharmacology  1 s.h.
Overview of theory of experimental design and data analysis in biological sciences; types of analyses available for common types of data generated in biomedical sciences; review of statistical methods used in published studies; cursory coverage of mathematical computations involved in various analytical tests. Offered fall semesters.

PCOL:6095 Topics in Pharmacology and Neuroscience  1 s.h.
Recent advances in pharmacology, neuropharmacology, developmental neurobiology, neuroendocrinology, and related neurosciences.

PCOL:6096 Pharmacology Seminar  1 s.h.

PCOL:6099 Graduate Research in Pharmacology  arr.

PCOL:6203 Pharmacology for Graduate Students  5 s.h.
Pharmacology of all major drugs in use today; discussion of basic principles underlying drug actions and disposition; physiology, biochemistry, and pathophysiology of specific organ systems; how various drugs impact these systems; how drugs are used to treat disorders of each system; major adverse effects of drugs and how those occur; differences among drugs within each drug group. Offered fall semesters. Prerequisites: BMED:5207 and MPB:5153.

PCOL:6204 Pharmacology for Health Sciences: Nurse Anesthetist  5 s.h.
Pharmacology of all major drugs in use today; discussion of basic principles underlying drug actions and disposition; physiology, biochemistry, and pathophysiology of specific organ systems; how various drugs impact these systems; how drugs are used to treat disorders of each system; major adverse effects of drugs and how those occur; differences among drugs within each drug group. Offered fall semesters. Prerequisites: MPB:5200 and NURS:6000. Requirements: enrollment in Anesthesia Nursing Program.
PCOL:6207 Ion Channel Pharmacology  1 s.h.
Heuristic, semi-quantitative approach to concepts in ion channel
physiology and pharmacology; up-to-date physical principles, 
classification, and structure/function relationships for major voltage-
gated ion channels that facilitate application of abstract concepts to  
physiological, pharmacological, and general biological problems. 
Offered spring semesters.

PCOL:6210 Receptors and Cell Signaling  3 s.h.
Mechanisms of signaling by growth factors, cytokines and related 
molecules; principles of ion channel physiology and pharmacology;  
structure-function relationships of small molecular weight and  
hetromeric G proteins; G protein-coupled receptors; genomic and 
nongenomic actions of intracellular receptors; basis for actions of  
novel new ligands on intracellular receptors. Offered spring semesters.

PCOL:6225 Growth Factor Receptor Signaling  1 s.h.
Mechanisms of signaling by growth factors, cytokines and related 
molecules that regulate cell proliferation, development, differentiation,  
and survival; emphasis on molecular mechanisms of signaling and 
relevance of these signaling processes to various human diseases.  
Offered fall semesters.

PCOL:6250 Advanced Problem Solving in Pharmacological 
Sciences  1 s.h.
Discussion of methodologies, strategies, and approaches commonly  
used to solve pharmacological sciences problems; use of interpersonal  
problem-solving skills to develop experimental study plans for solving  
contemporary scientific problems in pharmacology. Offered fall and  
spring semesters.