PHARMACOLOGY (PHA) (PHA)

PHA 540 Medical Pharmacology 7 cr
This course is designed to provide the student with a basic understanding of the actions of drugs and their clinical uses. Basic principles, including dose-response relationships and receptor theory, are emphasized. Current concepts of drug effects, mechanisms, and sites of action are explored in detail with respect to major classes of drugs. Important considerations are also given to drug interactions and the toxicology of therapeutic agents, chemicals in the environment, and other biologically active substances.

PHA 546 Pharmacology Lit Reports 1 cr
Students and faculty participate in a supervised reading of the current literature and meet periodically (usually once a week) to interact in a discussion of the selected article or topic. The goal of this course is to maintain the faculty's and students' level of information at a "state of the art" in both methods and theory in the discipline and to develop critical skills in reviewing the literature. Student presentation is required to receive credit.

PHA 547 Dir St in Pharmacology 1-6 cr
Students participate in research under the direction of a graduate faculty member. The student may pursue independent research or participate in a literature project. This course should be taken by students who have completed their laboratory rotations, but have not yet submitted a formal research proposal.

PHA 548 Physiological Pharmacology 6 cr
This course covers both cellular and organ system physiology It is designed to prepare graduate students for Medical Pharmacology (PHA 540), and for research in pharmacology.

PHA 590 Sp Top - 1-3 cr
Each course provides in-depth tutorial exposure to specific areas in the discipline. Student and/or faculty presentations followed by group discussions (usually in the Socratic mode), examine the subject matter in an area of current interest either to one student or to a group of students. Credit and title are arranged with an individual faculty member.

PHA 640 Molecular-Cellular Pharmacolgy 3 cr
This course consists of presentations and literature discussions. The central themes of signal transduction from cellular receptor to amplified response, structure-activity relationships, and drug design are studied comprehensively. Specific topics include receptor-ligand interactions, receptor structure and coupling mechanisms, the biochemical and molecular aspects of G-proteins, protein phosphorylation mechanisms, molecular modeling and protein crystallography. A comprehensive course in biochemistry is prerequisite for this course.

PHA 643 Molecular-Cellular Toxicology 3 cr
This course is concerned with the mechanisms by which toxic substances exert their effects at the molecular and cellular level. Detailed analysis of the processes by which toxic materials are metabolized to toxic intermediates is addressed. The mode of action of how toxic compounds interact with structural proteins and other macromolecules, enzymes and receptors, and the genome is included. Examples of toxicity of the heart, liver, lung, pancreas, brain, including teratogenic, mutagenic and carcinogenic effects are discussed at the mechanistic level.

PHA 646 Cell Signaling Seminar 1 cr
Students present a research topic for discussion before members of the department. The presentations are usually on a rotational basis. The student may present research data for critique by the faculty.

PHA 799 Research Dissertation 1-6 cr
Independent research by the student under the sponsorship of the graduate faculty in individual departments in the Basic Medical Sciences. Students are required to submit a research project description form before enrolling in this course. Progress reports of the work accomplished are required every six months.