PHARMACEUTICAL SCIENCES (PHSC)

PHSC 5012. Clinical Pharmacology. 2 Credit Hours.
A clinically oriented course in pharmacology with emphasis on those drugs most commonly used in Dentistry. The clinical aspects, mechanisms, interactions and contraindications of drugs taken by the dental patient are stressed.
Course Type: Lecture

PHSC 5031. Oral/Written Presentation Skills in the Social & Administrative Pharmaceutical Sciences. 1 Credit Hour.
Prerequisites: Permission of the instructor May be repeated; maximum credit 2 hours. The course will provide training in the comprehensive and presentation of cutting-edge primary literature in the field of social & administrative pharmaceutical sciences, which include, but are not limited to applications in/of sociology, psychology, management, marketing, economics, finances, epidemiology, and public health: and at the same time in developing scientific literature evaluation and general writing skills.
Course Type: Lecture

PHSC 5042. Antimicrobial Chemicotherapy. 2 Credit Hours.
Prerequisites: Permission of the instructor This course integrates basic information on the chemotherapy of infectious diseases with a special emphasis on resistance to antimicrobial chemotherapy and development of new antimicrobial agents.
Course Type: Lecture

PHSC 5103. Pharmaceutical Technology. 3 Credit Hours.
Prerequisites: Permission from course coordinator The students will learn the basic technologies associated with pharmaceutical research. The course is designed to introduce fundamentals of working in a pharmaceutical, drug development and delivery research environment. The laboratory component is included in order to provide demonstration of the underlying principles associated with common techniques/ equipment used in such research.
Course Type: Lecture

PHSC 5133. Biotechnology and Protein Drugs. 3 Credit Hours.
Recent developments in the synthesis, structure, and function of biologically active peptides and their relationship to the treatment of disease in man.
Course Type: Lecture

PHSC 5153. Immunopharmacology. 3 Credit Hours.
Prerequisites: None The purpose of this course is to provide an expanded understanding of immunopharmacology, beyond that presented in a basic immunology course, to include an understanding of the mechanistic and research basis of the science. Basic principles of pharmacology, and the development and use of immunotherapeutics will also be emphasized.
Course Type: Lecture

PHSC 5211. Drug Metabolism and Transporters. 1 Credit Hour.
Prerequisites: PHSC 5561 General Principles of Pharmacology. Introduce topics on drug metabolism and transporters that are important for drug disposition, drug-drug interaction (DDIs) and toxicities; describe contemporary methodologies in studying drug metabolism and transporters; provide hands-on training of Simcyp Simulator software to predict drug disposition and DDIs in humans. (SP I, II, & III)
Course Type: Lecture

PHSC 5324. Radionuclide Methodology. 4 Credit Hours.
Principles of radioactive tracer methodology used in health research. Basic radiation physics, radionuclide calculations, interactions of radiation with matter, methods of radiation detection and determination experimental design, radiological safety and application of radionuclides to research. Laboratory included.
Course Type: Laboratory

PHSC 5334. Nuclear Pharmacy. 4 Credit Hours.
Prerequisites: None Cross Listed: PHAR 7334 Introduction to the field of Nuclear Pharmacy. Topics include radiopharmaceutical quality control, stability and labeling techniques. Laboratory included.
Course Type: Lecture

PHSC 5433. Social and Behavioral Issues in the Medication Use Process. 3 Credit Hours.
Prerequisites: Permission of the instructor Introduction to psychosocial theories of patient and health provider behavior, evaluation of literature in which these theories are tested, and development of proposals to conduct theory-based research. Social and behavioral aspects of patient and health provider roles and relationships as they relate to medication use are emphasized.
Course Type: Lecture

PHSC 5523. Clinical Toxicology. 3 Credit Hours.
The clinical toxicology of common agents ingested in overdoses. The practical management including stabilization of the patient, drug evacuation, drug elimination and prevention of organ damage. The evaluation of poison information literature and how to answer a poison related question.
Course Type: Lecture

PHSC 5561. General Principles of Pharmacology: The ins and outs of drug action. 1 Credit Hour.
Prerequisites: BMSC 6052 Cellular Systems II Course will discuss the role of drug disposition (uptake, distribution, metabolism and elimination) on pharmacokinetics and efficacy. Principles and utility of inverse agonism, biased agonism and paradoxical pharmacology, methods of receptor quantification (in vivo and in vitro), effect of chronic drug treatment and immunosuppressant pharmacology also will be addressed.
Course Type: Lecture

PHSC 5563. General Pharmacology. 3 Credit Hours.
Prerequisites: Permission of Course Coordinator Coverage of basic principles of drug action, including in depth assessments of mechanism of action of drugs that influence the central and peripheral nervous systems, cardiovascular/renal system, endocrine system and immune system.
Course Type: Lecture

PHSC 5571. Neuropharmacology. 1 Credit Hour.
Prerequisites: PHSC 5561 Principles of General Pharmacology: The ins and outs of drug action. Course will address the biochemical, molecular and physiological mechanisms of drugs affecting the central nervous system, potential new drug targets for each condition, and methods for assessing the effectiveness of potential therapeutic agents.
Course Type: Lecture

PHSC 5572. Pharmacother Considerations in Pediatrics. 2 Credit Hours.
Prerequisites: Permission of course coordinator; College of Pharmacy residents, fellows, or graduate students only. This course will provide students with the knowledge and skills to develop rational pharmacotherapy for pediatric patients. Instruction will primarily involve case-based learning, with an emphasis on evaluation of pertinent literature.
Course Type: Lecture

PHSC 5581. Principles of Toxicology. 1 Credit Hour.
Prerequisites: PHSC 5561 Principles of General Pharmacology: The ins and outs of drug action. General principles of toxicology and systemic sites of action of toxicants, to include an understanding of the mechanistic and research basis of the science.
Course Type: Lecture

PHSC 5591. Cardiovascular, Renal and Endocrine Pharmacology. 1 Credit Hour.
Prerequisites: PHSC 5561 General principles of Pharmacology; PHYO 6410 Genes to physiology: integrated cardiovascular and renal systems. Coverage of the mechanism of action of drugs that modulate cardiovascular, renal and endocrine systems, as well as methods and relevant model systems in which these methods can be employed to answer basic science questions and screen for clinical efficacy.
Course Type: Lecture

PHSC 5643. Pharmacokinetics. 3 Credit Hours.
Fundamental principles, mathematical models, and clinical applications of pharmacokinetics.
Course Type: Lecture

PHSC 5653. Advanced Pharmacokinetics and Pharmacodynamics. 3 Credit Hours.
Prerequisites: PHSC 5643 Pharmacokinetics Introduction to advanced topics that add complexity in pharmacokinetic and pharmacodynamic (PK/PD) data interpretation and analysis; description and development of physiologically-based PK models and diverse empirical and mechanism-based PD models to appropriately describe PK/PD data; and scaling up findings from animals to humans.
Course Type: Lecture

PHSC 5703. Pharmacy Administration Research Methods. 3 Credit Hours.
Research procedures in pharmacy administration including definition of the problem, scaling and measurement methods, sample size determination, questionnaire development, and selection of experimental or quasi-experimental designs.
Course Type: Lecture

PHSC 5713. Advanced Pharmacy Management. 3 Credit Hours.
Principles of management in providing ambulatory pharmaceutical services with emphasis on the efficient management of a community pharmacy within the dynamics of the health care system.
Course Type: Lecture

PHSC 5723. Pharmacy Service Evaluation. 3 Credit Hours.
Principles of cost effectiveness analysis (CEA) and cost benefit analysis (CBA) applied to the evaluation of pharmacy services and related health care programs.
Course Type: Lecture

PHSC 5741. Numerical Tools for Quantitative Systems Pharmacology. 1 Credit Hour.
Prerequisites: None This course introduces the use of numerical methods for the analysis of data and the development of computational models. Lectures provide both theoretical background and practical examples (using Matlab). Three major components are analysis of experimental data, implementation of dynamic models, and identification of model parameters. (Fall I, II, III, IV)
Course Type: Lecture

PHSC 5980. Research for Master's Thesis. 1-12 Credit Hours.
Prerequisites: Permission. May be repeated; maximum credit 24 hours. Research Master's Thesis.
Course Type: Independent Study

PHSC 5990. Special Studies in Pharmaceutical Sciences. 1-5 Credit Hours.
Prerequisites: Permission of instructor. May be repeated with a change of subject matter, maximum credit 12 hours. This course provides laboratory and library work to give qualified students an opportunity to pursue an original investigation or an interest in a special problem.
Course Type: Laboratory

PHSC 6000. Research Rotations in Pharmaceutical Sciences. 1-3 Credit Hours.
Prerequisites: Permission of the instructor May be repeated; maximum credit 6 hours. This course provides the opportunity for students to learn and experience an in-depth knowledge and appreciation for scientific skills and emphasizes techniques, instrumentation, and experimental design in a specific discipline within a multidisciplinary research environment.
Course Type: Laboratory

PHSC 6002. Pharmacogenomics: The Foundation of Personalized Medicine. 2 Credit Hours.
Prerequisites: Permission of the instructor Cross Listed: OCNS 6002/ GENC 6002 This course will prepare the graduate students to understand the influence of genetic variations among individuals and their contribution to differences in drug response. The students will learn basic principles of genetics and pharmacology and how genetic, environmental, lifestyle and nutritional factors affect drug response.
Course Type: Lecture

PHSC 6042. Advanced Pharmacology. 2 Credit Hours.
Prerequisites: PHSC 5563, General Pharmacology or an equivalent course This course provides instruction in drug transport and elimination, drug-receptor interactions, cancer chemotherapy, and immunopharmacology that are not addressed in introductory pharmacology courses.
Course Type: Lecture

PHSC 6103. General and Systemic Toxicology. 3 Credit Hours.
General principles of toxicology and systemic sites of action of toxicants.
Course Type: Lecture

PHSC 6120. Advanced Topics in Pharmaceutical Sciences. 1-4 Credit Hours.
Prerequisites: Permission of the instructor May be repeated; maximum credit 10 hours. This course provides advanced instruction in topics that were introduced in existing courses, or it may be used to teach emerging concepts that are not currently included in the curriculum. Topics for this course may be chosen from the basic pharmaceutical sciences, clinical sciences, or the social and administrative sciences.
Course Type: Lecture

PHSC 6131. Journal Club in Pharmaceutical Sciences. 1 Credit Hour.
Prerequisites: None May be repeated; maximum credit 2 hours. The objectives of this course are for students to be able to critically analyze and appraise publications, organize and prepare a coherent presentation, and prepare a written critique of a selected article. This will help students interpret the relevance of findings in biological context and understand ethical responsibilities required for the scientific pursuit.
Course Type: Lecture

PHSC 6663. Physical Pharmacy. 3 Credit Hours.
Advanced theoretical applications of physical and chemical principles to pharmaceutical systems.
Course Type: Lecture

PHSC 6712. Research and Educational Methods. 2 Credit Hours.
Prerequisites: Graduate standing. Overview of research and educational methods for graduate students in the pharmaceutical sciences. This course will cover hypothesis development, grant writing, the patent process, course development, course assessment and grading.
Course Type: Lecture

PHSC 6960. Readings in Pharmaceutical Sciences. 1-2 Credit Hours.
May be repeated with change in subject matter; maximum credit two hours. Discussion and reports on assigned readings relative to different divisions in pharmaceutical sciences. Subject areas are: Medicinal Chemistry, Pharmacognosy (natural products), Nuclear Pharmacy, Pharmacodynamics/Toxicology, Hospital/Clinical Pharmacy, Pharmaceutics, and Pharmacy Management.
Course Type: Independent Study

PHSC 6970. Seminar in Pharmaceutical Sciences. 1-2 Credit Hours.
May be repeated with change in subject matter; maximum credit four hours. A general seminar for all divisions of graduate study in pharmaceutical sciences.
Course Type: Discussion

PHSC 6980. Research for Doctoral Dissertation. 1-16 Credit Hours.
May be repeated to a maximum of 45 semester hours. A maximum of 16 hours per semester is allowed.
Course Type: Independent Study