PHARMACEUTICAL SCIENCES (PHM SCI)

PHM SCI 310 — DRUGS AND THEIR ACTIONS
2 credits.
Introduces students to the biological effects of drugs on human health. Emphasis on how drugs, especially those used in diseases of major human health significance, act in the body. Drugs that are abused also will be covered. This course is not intended for medical, nursing, pharmacy, and physician assistant students. Not open for cr to Nursing, Phys Asst, School of Pharm stdts
Requisites: HS or coll chem biol, or cons inst.
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 401 — SURVEY OF PHARMACOLOGY
3 credits.
Pharmacological and toxicological actions and therapeutic use of important drugs. Not open for credit to School of Pharm stdts
Requisites: PHYSIOI 335; Biochem 201 or 501 or BMOLCHEM 314.
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 420 — INTRODUCTION TO DRUG ACTION AND DRUG DELIVERY I
4 credits.
Applications of physical principles and modern methods of analysis to pharmaceutical systems.
Requisites: DPM-1 or TOX-3 st; CHEM 103-104 343, 344, 345, MATH 221, PHYSICS 103-104
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 421 — INTRODUCTION TO PHARMACODYNAMICS AND PHARMACOKINETICS
4 credits.
A conceptual introduction to the way that drugs act and are processed in vivo, including receptor theory, ligand-macromolecule binding, biopharmaceutics, drug metabolism, pharmacokinetics, and pharmacodynamics.
Requisites: PHM SCI 420, PHYSIOI 335, and declared in the Doctor of Pharmacy program
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 432 — PHARMACEUTICAL BIOCHEMISTRY
4 credits.
Chemistry of metabolic processes and products of living matter with emphasis on pharmaceutical and medicinal aspects as well as recombinant DNA technology. Laboratory experience with the chemistry of metabolic processes, products of living matter and recombinant DNA.
Requisites: DPH-1 or TOX-3 st
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 490 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Graded on a lettered basis; requires cons inst
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

PHM SCI 491 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

PHM SCI 493 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2015

PHM SCI/B ME 430 — BIOLOGICAL INTERACTIONS WITH MATERIALS
3 credits.
This course addresses the range of materials currently being utilized for various biomedical applications, the biological systems governing biomaterial applications, analytical techniques pertinent to biomaterial evaluation, and selected major medical applications in which biomaterials play an important role.
Requisites: 1 yr of general biol or two semesters of zool, 1 semester of organic chem, or cons inst
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 432 — PHARMACEUTICAL BIOCHEMISTRY
4 credits.
Chemistry of metabolic processes and products of living matter with emphasis on pharmaceutical and medicinal aspects as well as recombinant DNA technology. Laboratory experience with the chemistry of metabolic processes, products of living matter and recombinant DNA.
Requisites: DPH-1 or TOX-3 st
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 490 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Graded on a lettered basis; requires cons inst
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

PHM SCI 491 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

PHM SCI 493 — SELECTED TOPICS IN PHARMACEUTICAL SCIENCES
1-4 credits.
Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2015

PHM SCI/B MCOL-M 521 — PHARMACOLOGY I
3 credits.
Pharmacological actions of important drugs, including drugs that affect the peripheral nervous system, the central nervous system, and the gastrointestinal tract.
Requisites: DPH-2 or Tox-4 standing; MICROBIO 303, PHYSIOI 335, PHM SCI 432, PATH 404
Repeatable for Credit: No
Last Taught: Fall 2016
PHM SCI/PHMCOL-M 522 — PHARMACOLOGY II
3-4 credits.
Pharmacological actions of important drugs, including hematopoietic, thrombolytic, antihyperlipidemic, immunopharmacologic, anticancer, anti-inflammatory, diuretic, antihypertensive, antianginal, and anti-arrhythmic agents, and agents used to treat congestive heart failure.
Requisites: PHM SCI/PHMCOL-M 521
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 531 — MEDICINAL CHEMISTRY I
2 credits.
Chemistry of medicinal products, including cholinergic, adrenergic, dopaminergic and serotoninergic agents, antidepressants, sedative/hypnotics, antianxiety drugs, opioid drugs acting at histamine receptors, and inhibitors of mediator release.
Requisites: PHM SCI 432
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 532 — MEDICINAL CHEMISTRY II
2 credits.
Chemistry of medicinal products, including antihyperlipidemics, glucocorticoids, estrogens, progestins, nonsteroidal anti-inflammatories, antitumor agents, and enzyme inhibitors.
Requisites: PHM SCI 531
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 540 — DRUG DELIVERY SYSTEMS
4 credits.
The application of physical, chemical and biological principles to the study of drug delivery using a variety of solid, solution and disperse systems as dosage forms. Rationale for therapeutic use, formulation and manufacture, and evaluation of stability and bioavailability.
Requisites: PHM SCI 420, 421; con reg in PHM SCI 541
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 541 — DRUG DELIVERY SYSTEMS LABORATORY I
3 credits.
Introductory laboratory course in compounding and dispensing of pharmaceutical dosage forms, including sterile products. Includes practice in interpretation of prescription orders, pharmaceutical calculations, compounding procedures, physical manipulation of drugs and dosage form components, and product packaging and labeling.
Requisites: PHM SCI 420, 421; con reg in PHM SCI 540
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 542 — DRUG DELIVERY SYSTEMS LABORATORY II
3 credits.
Advanced extemporaneous prescription compounding and preparation of sterile products, with emphasis on physico-chemical stability and compatibility of drugs and dosage forms. Also addresses principles of appraisal, comparison, and selection of appropriate commercial brand name and generic products.
Requisites: PHM SCI 540, 541, STAT/B MI 541; concurrent registration in PHM PRAC 570, S&A PHM 511
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 558 — LABORATORY TECHNIQUES IN PHARMACOLOGY AND TOXICOLOGY
2 credits.
Basic laboratory techniques employed in pharmacological and toxicological research. S. Pharmacology Toxicology program
Requisites: Jr st in the B.
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 623 — PHARMACOLOGY III
3 credits.
Pharmacological actions and underlying basic and clinical science of antimicrobial and antiviral drugs. Pharmacology of hormones and other drugs affecting the endocrine system.
Requisites: PHM SCI/PHMCOL-M 522
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI/M&ENVTOX/MEDICINE/ONCOLOGY/PAT/PHMCOL-M/POP HLTH 625 — TOXICOLOGY I
3 credits.
Basic principles of toxicology and biochemical mechanisms of toxicity in mammalian species and man. Correlation between morphological and functional changes caused by toxicants in different organs of the body. Path 401 Phmcol 401 or equiv recommended
Requisites: BIOCHEM 501 PHYSIOL 335 or consent of instructor.
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2016
PHM SCI/M&ENVTOX/MEDICINE/PATH/PHMCOL-M/POP HLTH 626 — TOXICOLOGY II
3 credits.
A course surveying the basic methods and fundamental biochemical mechanisms of toxicity. Toxicity in mammalian organ systems, techniques for evaluating toxicity, as well as mechanisms of species specificity, and environmental interactions (with toxicant examples) are presented.
Requisites: Env Tox 625 or consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 679 — PHARMACOLOGY AND TOXICOLOGY SEMINAR
1 credit.
Senior student presentations of independent research or of published papers on a specific topic approved by the course coordinator. Faculty-led seminars on selected topics regarding responsible conduct of research. The course also provides a venue for career talks by Pharmacology-Toxicology alumni and guests working in a variety of professional settings - research, industry (pharmaceutical; biotech; contract research; consumer products; etc.), a variety of healthcare professions, and law. S. Pharmacology Toxicology program
Requisites: Junior or Senior standing in the B.
Repeatable for Credit: Yes, for 2 number of completions
Last Taught: Spring 2017

PHM SCI 691 — SENIOR THESIS
2 credits.
Repeatable for Credit: No
Last Taught: Fall 2010

PHM SCI 692 — SENIOR THESIS
2 credits.
Repeatable for Credit: No
Last Taught: Spring 2011

PHM SCI 699 — ADVANCED INDEPENDENT STUDY
3 credits.
Requisites: Cons inst
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Summer 2017

PHM SCI 760 — GRADUATE STUDENT SEMINAR IN DRUG DELIVERY
1 credit.
Graduate seminar course for students in Drug Delivery Core of the Division of Pharmaceutical Sciences; students present original laboratory research or review literature in the setting of their fellow graduate student colleagues and the drug delivery faculty.
Requisites: Grad st in the Division of Pharmaceutical Sciences (Drug Delivery Core)
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2009

PHM SCI/CHEM 766 — MOLECULAR RECOGNITION
2-3 credits.
Requisites: CHEM 561 or equiv physical chem or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI 768 — PHARMACOKINETICS
3 credits.
Quantitative aspects of drug absorption, distribution, metabolism, and excretion. Philosophy and applications of pharmacokinetic modeling and its use in clinical practice.
Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 773 — MOLECULAR SOLIDS
2 credits.
Describes the structures, properties, formation, and transformation of molecular solids, with emphasis on pharmaceutical solids. In each area, relevant theory, experiments, and case studies are presented.
Requisites: Two semesters of general undergraduate chemistry or consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2016
PHM SCI 775 — POLYMERIC DRUG DELIVERY
2 credits.

Introduction to polymers used in drug delivery, specifically polymers used in the spatial and temporal control of drugs. Discussion of basic reactions for the synthesis of polymers, biodegradable polymers, water-soluble polymer-drug conjugates, polymer assembly and nanoscale devices, and stimuli-sensitive polymers.

Requisites: An intro crse in polymers or organic chem or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2015

PHM SCI 780 — PRINCIPLES OF PHARMACEUTICAL SCIENCES
3 credits.

Introductory-level graduate course providing overview of the drug development process, involving drug discovery, drug action, and drug delivery. Exposes students to cutting-edge research and the chemistry, biology, physical chemistry, and engineering that underpin pharmaceutical sciences research.

Requisites: Cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2016

PHM SCI 786 — NATURAL PRODUCT SYNTHESIS, BIOSYNTHESIS AND DRUG DISCOVERY
3 credits.

Synthesis and biosynthesis of natural products in drug discovery. Topics include: natural products in drug discovery; biosynthetic pathways and synthetic strategies for major natural product classes; and basic bioorganic chemistry and enzyme mechanisms in biosynthesis.

Requisites: CHEM 345 or equiv; BIOCHEM 508 or equiv
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

PHM SCI/B M E 801 — SEMINAR ON DEVELOPMENT OF MEDICAL DEVICES AND DRUGS
1 credit.

This course will give an overview of three major sectors of medical product and technology development including pharmaceuticals, medical devices and combination products. Regulatory framework, disclosure and patenting, technical design and development strategy, academia-specific development challenges will be among the major lecture topics.

Requisites: Graduate student or consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

PHM SCI 890 — HIGHLIGHTS AT THE CHEMISTRY-BIOLOGY INTERFACE I
1 credit.

Principles of key discoveries at the chemistry-biology interface. This course is required of all Chemistry-Biology Interface trainees.

Requisites: Graduate standing; consent of program director
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

PHM SCI 891 — HIGHLIGHTS AT THE CHEMISTRY-BIOLOGY INTERFACE II
1 credit.

Principles of key discoveries at the chemistry-biology interface. This course is required of all Chemistry-Biology Interface trainees.

Requisites: Grad standing; consent of program director
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

PHM SCI 931 — PHARMACEUTICAL SCIENCES SEMINAR
1 credit.

Continuation of 931.

Requisites: Grad st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

PHM SCI 932 — PHARMACEUTICAL SCIENCES SEMINAR
1 credit.

Continuation of 932.

Requisites: Grad st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

PHM SCI 990 — RESEARCH
1-12 credits.

Requisites: Grad st
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Summer 2017

PHM SCI 999 — ADVANCED INDEPENDENT STUDY
1-12 credits.

Requisites: Grad st cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016