PSC—PHARMACEUTICAL SCIENCE

BOUVÉ COLLEGE OF HEALTH SCIENCES

PSC U301 Human Physiology 1 3 SH
Provides students with an understanding of the principles of physiology. Discusses physiological information mostly related to cardiovascular, respiratory, digestive, urinary, and endocrine systems. Focuses on the physiological mechanisms of the major organ systems. Physiological information is related to the specific areas of pharmacology. Coreq. PSC U302. Prereq. BIO U113 and second-year PharmD standing.

PSC U302 Human Anatomy Lab 1 SH
Accompanies PSC U301. Focuses on the anatomy of the major organ systems. Interactive CD-ROMs allow each student to study in-depth the structure of each organ system. Coreq. PSC U301. Prereq. BIO U113 and second-year PharmD standing.

PSC U303 Human Physiology 2 3 SH
Continues PSC U301. Provides students with an understanding of the principles of physiology. Discusses physiological information mostly related to cell physiology, muscle physiology, and physiology of the nervous system. Focuses on the physiological mechanisms of the major organ systems. Physiological information is related to the specific areas of pharmacology. Coreq. PSC U304. Prereq. PSC U301, PSC U302, and second-year PharmD standing.

PSC U304 Human Physiology Lab 1 SH
Accompanies PSC U303. Covers topics from the course through various experiments. Coreq. PSC U303. Prereq. PSC U301, PSC U302, and second-year PharmD standing.

PSC U320 Biochemistry 4 SH
Introduces the structures, functions, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Discusses the mechanisms of enzyme reactions, enzyme kinetics, vitamins, biological oxidation-reduction reactions, and bioenergetics, as well as various inborn errors of metabolism. Prereq. PSC U301, BIO U113, and CHM U313.

PSC U330 Immunology 3 SH
Provides students with an understanding of the principles, mechanisms, organs, cells, and molecules of the innate and adaptive immunity. Monoclonal antibodies, organ transplant immunity, hypersensitivity, tolerance, tumor immunity, autoimmunity, and immunodeficiencies are discussed in light of potential therapeutic interventions. Weekly journal club-style presentation of related assigned topic is required. Prereq. PSC U303 and PSC U320.

PSC U340 Pharmacology for the Health Professions 4 SH
Provides the fundamentals of pharmacology to students entering the health professions. Topics include the general principles of drug action, drug distribution, and drug elimination, with attention to the development of reasoning skills necessary to identify, avoid, and solve practical drug-related problems. Drugs are presented according to therapeutic or functional classification. Prereq. PSC U303 and BIO U119.

PSC U360 Medical Microbiology 3 SH
Reviews the structure and physiology of bacteria, fungi, parasites, and viruses, and then surveys the members of each of these groups of organisms that commonly colonize and/or cause significant disease in humans. The survey focuses on human organ systems such as skin and mucous membranes, gastrointestinal, respiratory, and urinary tracts, central nervous system, blood and lymphatics, and others. When possible, demonstration cultures of microorganisms are made available to students, and computer study guides or Kodachrome slide sets are available for review. Prereq. PSC U320 and third-year PharmD standing.

PSC U411 Pharmaceutics 1 4 SH
Develops an understanding of pharmaceutical dosage forms, with emphasis on solids, liquids, semisolids, parenterals, inhalation, and novel drug delivery systems. Combines the discussion of pharmaceutical products developed in industry and those compounded in local pharmacies. Focuses on application of mathematical principles and problem-solving skills in pharmaceutical compounding. Prereq. MTH U141, CHM U313, PHY U149, and third-year PharmD standing.

PSC U412 Pharmaceutics 2 4 SH
Continues PSC U411. Examines the physical and chemical properties of the drug as it relates to pharmaceutical product development. Covers concepts of thermodynamics, colligative properties, ionic equilibriums and buffers, solubility, complexion and protein binding, reaction kinetics, mass transport, interfacial phenomena and dispersion, and rheology. Prereq. PSC U411 and third-year PharmD standing.

PSC U419 Pharmaceutics Laboratory 1 SH
Formulates pharmaceutical dosage forms such as powders, capsules, solutions, suspensions, emulsions, ointments, gels, creams, lotions, and suppositories, and tests the quality of the products in the lab using approved methods of analysis. Also provides an understanding of the physical and chemical properties of drugs as they relate to formulation development through experimental observation of dissolution, stability, and effects of pH and co-solvent on solubility of drugs. Prereq. PSC U411 and third-year PharmD standing.
PSC U430 Pharmacokinetics and Biopharmaceutics 3 SH
Focuses on the basic principles and methods of biopharmaceutics and pharmacokinetics. Covers the kinetics of drug absorption, distribution, metabolism, and excretion; linear and nonlinear pharmacokinetics; general concept of one- and two-compartment models with instantaneous (i.v. bolus), zero order (i.v. infusion), or first order (oral administration or i.m. injection) input; evaluation of bioavailability and investigation of the factors affecting drug availability; influence of the route of administration, dosage form, and regimen on bioavailability of drugs; bioequivalence study; multiple dosing kinetics; general approaches to dosage adjustment in renal disease; noncompartmental analysis; and pharmacokinetic-pharmacodynamic modeling. Prereq. PSC U412 and fourth-year PharmD standing.

PSC U501 Pharmacology/Medicinal Chemistry 1 5 SH
Introduces the principles and basic concepts of pharmacology and the general mechanisms of drug action including drug receptor interactions. Discusses the major drug classes affecting the peripheral autonomic and central nervous systems including anxiolytics, sedative-hypnotics, anesthetics, anticonvulsants, neuroleptics, antidepressants, and antimanic agents. Considers therapeutic uses, mechanisms of drug action, and undesirable actions including side effects and adverse reactions. Prereq. PSC U303 and third-year PharmD standing.

PSC U502 Pharmacology/Medicinal Chemistry 2 5 SH

PSC U921 Directed Study 1 SH
PSC U922 Directed Study 2 SH
PSC U923 Directed Study 3 SH
PSC U924 Directed Study 4 SH
Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. Prereq. Permission of instructor.

PSC U921 Directed Study 1 SH
PSC U922 Directed Study 2 SH
PSC U923 Directed Study 3 SH
PSC U924 Directed Study 4 SH
Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. Prereq. Permission of instructor.

PSC U964 Research 4 SH
Extends current knowledge or offers novel insights through faculty-directed and supervised individual undergraduate research or creative projects. The project must be designed in concert with and obtain formal prior approval from relevant faculty and program director. Prereq. Permission of instructor.

PSC U970 Junior/Senior Honors Project 1 4 SH
Focuses on in-depth project in which a student conducts research or produces a product related to the student’s major field. Culminating experience in the University Honors Program. Combined with Junior/Senior Project 2 or college-defined equivalent for 8-credit honors project. Prereq. Honors program participation.

PSC U971 Junior/Senior Honors Project 2 4 SH
Focuses on second semester of in-depth project in which a student conducts research or produces a product related to the student’s major field. Culminating experience in the University Honors Program. Prereq. PSC U970 and honors program participation.