PHARMACEUTICAL SCIENCES (RXPS)

Courses

RXPS 511. Pharmaceutics I. 2 Units.
The first in a series of three courses that presents the physicochemical and biological factors affecting the stability, kinetics, bioavailability, and bioequivalence of drugs in dosage forms. Applies this knowledge to dosage form design, formulation, and drug-delivery systems. Focuses on the theory, technology, formulation, evaluation, and dispensing of solid, semisolid, and liquid dosage forms. Laboratory sessions involve students in the preparation and evaluation of dosage forms.

RXPS 512. Pharmaceutics II. 4 Units.
Surveys conventional dosage forms—including oral, topical, and parenteral medications—with emphasis on formulation, preparation, and effectiveness. Continues RXPS 511.

RXPS 513. Pharmaceutics III. 3 Units.
Studies the mathematical, physicochemical, and biological principles concerned with the formulation, preparation, and effectiveness of pharmaceutical dosage forms. Continues RXPS 512. Prerequisite: RXPS 511.

RXPS 515. Pharmaceutics Laboratory I. 0.5 Units.
Laboratory designed for the student to apply pharmaceutical principles and to develop proficiency when compounding selected formulations and employing aseptic techniques. Prerequisite: RXPS 511. Corequisite: RXPS 512.

RXPS 516. Pharmaceutics Laboratory II. 0.5 Units.
Continues RXPS 515.

RXPS 524. Physiology I. 4 Units.
The first in a sequence of three courses. Covers the nervous, endocrine, and urinary systems. Focuses on physiological processes required for maintenance of whole-body homeostasis. Presentation of anatomical relationships and structures serves to support the physiological topics discussed. Emphasizes targets for pharmaceutical intervention and the relationship between biochemical processes and drug metabolism and action.

RXPS 525. Physiology II. 3 Units.
The second in a sequence of three courses. Covers the gastrointestinal, cardiovascular, and respiratory systems. Focuses on the physiological processes required for maintenance of whole-body homeostasis. Presentation of anatomical relationships and structures serves to support the physiological topics discussed. Emphasizes targets for pharmaceutical intervention and the relationship between biochemical processes and drug metabolism and action.

RXPS 581. Biochemistry I. 3 Units.
The first in a two-part series that addresses the structure-function relationships of major biomolecules; enzymes in biochemistry; human energy metabolism; and major pathways for human protein, carbohydrate, and lipid metabolism. Discusses important organic functional groups, nomenclature and physical properties, characteristic reactions, stereochemistry, and acid-base properties that are important considerations for drug action. Emphasizes principles of biochemistry as they relate to pH and buffers; hemostasis; enzyme functions; regulation of intermediary metabolism; chemical signaling; and interconversions in the living system, including the role of vitamins, hormones, and enzyme inhibitors. Discusses biotechnological advances, when appropriate.

RXPS 582. Biochemistry II. 3 Units.
The second in a two-part series that addresses the structure-function relationships of major biomolecules; enzymes in biochemistry; human energy metabolism; and major pathways for human protein, carbohydrate, and lipid metabolism. Discusses important organic functional groups, nomenclature and physical properties, characteristic reactions, stereochemistry, and acid-base properties that are important considerations for drug action. Emphasizes principles of biochemistry as they relate to pH and buffers; hemostasis; enzyme functions; regulation of intermediary metabolism; chemical signaling; and interconversions in the living system, including the role of vitamins, hormones, and enzyme inhibitors. Discusses biotechnological advances, when appropriate.

RXPS 584. Pharmacokinetics I. 3 Units.
Teaches the basic principles of absorption, distribution, metabolism, and elimination of drugs from the body. Focuses on physical, physiological, and biochemical factors that impact these processes. Includes clinical pharmacokinetics principles and practical examples in the recitation periods. Prerequisite: Successful completion of all P1-level courses and P2; Autumn Quarter standing.

RXPS 616. Neuropsychopharmacology. 3 Units.
Introduces the fundamentals of neuropsychopharmacology, including the functional organization of the brain and the physiology and biochemistry of major neurotransmitters. Studies how drugs—including medications for neurologic and psychiatric disorders, as well as drugs of abuse—affect the brain and alter behavior. Discusses some of the most common brain disorders—such as schizophrenia, depression, Parkinson's disease, and drug addiction—with a focus on the mechanisms of action of drugs used for treatment of these disorders.

RXPS 617. Natural Products in Current Therapeutics. 2 Units.
A journal club-style course in which students lead the discussion and dialogue. Explores specific cases of natural product-derived therapeutics from the history of discovery, synthesis, and biological activity to drug development and marketing. Students perform literature searches, read and summarize journal articles, present summaries of multiple articles on a similar topic, and prepare topical presentations for the class.

RXPS 619. Nutrition and Culinary Arts. 2 Units.
Enhances the pharmacist’s current understanding of patient care while developing new skills in basic nutrition and the culinary arts. Lecture and hands-on culinary experimentation in the School of Allied Health Profession’s (SAHP) teaching kitchen, where students follow recipes and create simple and healthy meals weekly. Students define, discuss, and understand concepts such as disease reversal, lifestyle-change programs, lifestyle medicine, culinary medicine, culinary prescription, and the whole-food plant-based diets. Chronic disease states classified, research on disease reversal discussed, and strategies to improve community health examined. Students learn to distinguish and apply the importance of label reading, to integrate appropriate portion sizes, to compare and contrast nutrients in specified recipes, and to prepare healthy meals on a student budget.

RXPS 630. Biochemical Aspects of the Obesity and Metabolic Syndrome. 2 Units.
Explores biochemical factors related to the obesity epidemic in the United States. Emphasizes the impact of these biochemical factors on currently available pharmacotherapeutic options, as well as the development of new therapies. Focuses particularly on the role of pharmacist-guided lifestyle interventions on the treatment of obesity and metabolic syndrome. Coordinator-moderated seminar/discussion format in which students present in-depth analysis and interpretation of papers from the current scientific literature.
RXPS 651. Principles of Medicinal Chemistry I. 3 Units.
The first in a three-course sequence that focuses on the chemistry of
drug entities. Effects of a drug’s chemistry on its various properties,
such as pharmacology, toxicology, absorption, distribution, metabolism,
excretion, mechanism of action, drug-drug interactions, dosage form
formulation(s), stability, cost, and use.

RXPS 652. Principles of Medicinal Chemistry II. 4 Units.
The second in a three-course sequence that focuses on the chemistry
of drug entities. Effects of a drug’s chemistry on its various properties,
such as pharmacology, toxicology, absorption, distribution, metabolism,
excretion, mechanism of action, drug-drug interactions, dosage form
formulation(s), stability, cost, and use. Prerequisite: RXPS 651.

RXPS 653. Principles of Medicinal Chemistry III. 3 Units.
The third in a three-course sequence that focuses on the chemistry of
drug entities. Effects of a drug’s chemistry on its various properties,
such as pharmacology, toxicology, absorption, distribution, metabolism,
excretion, mechanism of action, drug-drug interactions, dosage form
formulation(s), stability, cost, and use. Prerequisite: RXPS 652.

RXPS 710. Dietary Supplements. 2 Units.
Introduces the use of herbals and other supplements in patient health.
Topics include key regulatory and practical concerns; resources for
supplement information; and evidence-based use and adverse effects of
commonly used supplements for CNS, digestive, reproductive, immune,
fitness, and other conditions.

RXPS 719. Nutrition and Metabolic Syndrome. 2 Units.
Introduces the role of nutrition, including dietary supplements, in patient
health. Topics include the basics of nutrition and nutritional adequacy;
vegetarian diets, including the Adventist Health Study; and nutritional
considerations related to metabolic syndrome.

RXPS 730. Current Topics in Medicinal Chemistry and Drug Design. 1
Unit.
Focuses on discovery and design of new drugs for new therapeutic
targets, and on development of new approaches for treatment of
diseases.

RXPS 782. Special Topics in Pharmaceutical Sciences. 1-4 Units.
Lecture and discussion on a current topic in pharmaceutical sciences.
May be repeated for a maximum of 6 units.

RXPS 783. Special Topics in Pharmaceutical Sciences. 1-4 Units.
Lecture and discussion on a current topic in pharmaceutical sciences.
May be repeated for a maximum of 6 units.

RXPS 784. Special Topics in Pharmaceutical Sciences. 1-4 Units.
Lecture and discussion on a current topic in pharmaceutical sciences.
May be repeated for a maximum of 6 units.