

# PHAR - PHARMACY (PHAR)

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## PHAR 527 - Problems in Pharmacy I (1-6 Credits)

Conferences, assignments, and laboratory. Elective course. Contract approved by instructor, advisor, and department head is required for undergraduate students.

## PHAR 700 - Principles of Pharmacology, Medicinal Chemistry, and Pharmaceutics (4 Credits)

This four credit hour course instructs students on the important fundamentals that define pharmaceutical sciences. Important concepts of pharmacology, medicinal chemistry and pharmaceutics are taught with the broad goal of understanding pharmaceutical agents at a molecular level. It is the introductory graduate level course for graduate students in the pharmaceutical sciences. It is also intended for graduate students in other related fields of biological, chemical, and biomedical sciences who wish to learn the principles of pharmaceutical sciences.

## PHAR 701 - Current Topics in Pharmaceutical Sciences (4 Credits)

Addresses recent concepts and technology in the pharmaceutical and biomedical sciences. Assists students in interpreting and evaluating published literature; and, understanding and presenting, in oral or written formats, scientific research in the pharmaceutical and biomedical sciences.

**Prerequisites:** PHAR 700.

## PHAR 703 - Advanced Medicinal Chemistry I (2 Credits)

The interaction of natural and synthetic drugs with biological systems at the molecular and quasi-molecular level.

## PHAR 704 - Advanced Medicinal Chemistry II (1-3 Credits)

An advanced study of natural and synthetic drugs by pharmacological classes, with emphasis on the application of principles covered in PHAR 703.

## PHAR 705 - Advanced Medicinal Chemistry III (2-5 Credits)

A continuation of PHAR 704.

## PHAR 706 - Advanced Medicinal Analysis (3 Credits)

A study of the medicinal analyses of an advanced nature with special emphasis on instrumental methods of medicinal analysis.

## PHAR 707 - Heterocyclic Medicinal Chemistry (3 Credits)

A study of the fundamentals of heterocyclic nomenclature and the chemistry of both the heterocyclic medicinal products and the intermediates for their synthesis.

## PHAR 708 - Natural Products Medicinal Chemistry (3 Credits)

The chemistry and biogenesis of alkaloids and antibiotics.

## PHAR 709 - Advanced Biochemistry (3-4 Credits)

Lectures, seminars, demonstrations and laboratory work on recent and more technical advances in the field of biochemistry.

## PHAR 710 - Advanced Biochemistry (3-4 Credits)

Lectures, seminars, demonstrations and laboratory work on recent and more technical advances in the field of biochemistry.

## PHAR 711 - Seminar in Pharmacy Administration (1 Credit)

Discussion and presentation of current topics in pharmacy administration. Required of all master's degree (2 credit hours) and Ph.D. degree (3 credit hours) candidates in the Department of Pharmacy Practice.

## PHAR 711A - Seminar in Pharmacy Administration (1 Credit)

Discussion and presentation of current topics in pharmacy administration. Required of all master's degree (2 credit hours) and Ph.D. degree (3 credit hours) candidates in the Department of Pharmacy Practice.

## PHAR 711B - Seminar in Pharmacy Administration (1 Credit)

Discussion and presentation of current topics in pharmacy administration. Required of all master's degree (2 credit hours) and Ph.D. degree (3 credit hours) candidates in the Department of Pharmacy Practice.

## PHAR 711C - Seminar in Pharmacy Administration (1 Credit)

Discussion and presentation of current topics in pharmacy administration. Required of all master's degree (2 credit hours) and Ph.D. degree (3 credit hours) candidates in the Department of Pharmacy Practice.

## PHAR 711D - Seminar in Pharmacy Administration (1 Credit)

Discussion and presentation of current topics in pharmacy administration. Required of all master's degree (2 credit hours) and Ph.D. degree (3 credit hours) candidates in the Department of Pharmacy Practice.

## PHAR 712 - Seminar in Pharmaceutical Sciences (1 Credit)

Discussion of current topics in pharmaceutics, medicinal chemistry, and pharmacology. Required of all students. A maximum of 4 credit hours may be earned in PHAR 712 A-D.

## PHAR 712A - Seminar in Pharmaceutical Sciences (1 Credit)

Discussion of current topics in pharmaceutics, medicinal chemistry, and pharmacology. Required of all students. A maximum of 4 credit hours may be earned in PHAR 712 A-D.

## PHAR 712B - Seminar in Pharmaceutical Sciences (1 Credit)

Discussion of current topics in pharmaceutics, medicinal chemistry, and pharmacology. Required of all students. A maximum of 4 credit hours may be earned in PHAR 712 A-D.

## PHAR 712C - Seminar in Pharmaceutical Sciences (1 Credit)

Discussion of current topics in pharmaceutics, medicinal chemistry, and pharmacology. Required of all students. A maximum of 4 credit hours may be earned in PHAR 712 A-D.

## PHAR 712D - Seminar in Pharmaceutical Sciences (1 Credit)

Discussion of current topics in pharmaceutics, medicinal chemistry, and pharmacology. Required of all students. A maximum of 4 credit hours may be earned in PHAR 712 A-D.

## PHAR 713 - Synthetic Medicinal Chemistry (3 Credits)

Application of synthetic procedures in the preparation of various medicinal and pharmaceutical chemicals and their intermediates.

## PHAR 714 - Drug Design by Molecular Modeling and Computational Techniques (3 Credits)

Application of molecular modeling, computer graphics, and other computational techniques to the design of drugs.

**PHAR 715 - Pharmacogenomics and Personalized Medicine (3 Credits)**  
Pharmacogenomics concepts and experimental approaches combined with pharmacotherapy realms.

## PHAR 717 - Special Topics in Pharmacy (3 Credits)

Lectures, readings, and discussions on special areas of experimental pharmacy not offered in other courses.

## PHAR 718 - Special Topics in Pharmacy (3 Credits)

Lectures, readings, and discussions on special areas of experimental pharmacy not offered in other courses.

**PHAR 720 - Pharmacokinetics (3 Credits)**

A study of the mathematical models used in research to describe drug changes in body fluids as related to pharmacologic effects. Includes the kinetics of dissolution, absorption, distribution, metabolism, and excretion after a drug reaches the general circulation. Three lecture and three laboratory hours per week.

**PHAR 720L - Pharmacokinetics Lab (1 Credit)**

**PHAR 725 - Advanced Pharmaceutics I (2 Credits)**

Physical, chemical, and kinetic concepts which apply to the design and evaluation of pharmaceutical systems.

**PHAR 726 - Advanced Pharmaceutics II (3 Credits)**

Application of chemical and physical concepts to the design and evaluation of pharmaceutical systems (dosage forms).

**PHAR 732 - Radiation Protection (3 Credits)**

The biological effects of ionizing radiation and the basic mechanisms which bring about these effects. Monitoring, dosimetry, hazard control, and legal responsibilities concerning ionizing radiation used in medicine.

**PHAR 734 - Selected Topics in Neuropharmacology (2 Credits)**

Neurochemical analysis of selected central nervous system neurotransmitter topics, including the kinetics of synthesis, storage and release, and the action of selected psychotherapeutic agents on these processes.

**PHAR 735 - Cancer: Causes, Treatment, Prevention (2 Credits)**

The molecular and biochemical basis of cancer and the therapeutic approaches in the prevention and treatment of cancer.

**PHAR 736 - Advanced Pharmacology I (1-4 Credits)**

Survey of drugs acting on the autonomic nervous system and the cardiovascular system; advanced topics in these areas and on antibiotics and chemotherapy.

**PHAR 737 - Advanced Pharmacology II (1-4 Credits)**

Survey of centrally acting drugs, anti-inflammatory and immunomodulating drugs, hormones, and vitamins; advanced topics in these areas and in drug design and drug toxicity/teratogenesis.

**PHAR 738 - Basic Pharmacological Principles (2 Credits)**

Factors that govern drug response, biochemical and molecular actions of drugs, and adverse effects induced by drugs.

**PHAR 740 - Socio-Economics of Pharmacy Practice (3 Credits)**

An analysis of practice environments of pharmacists. Emphasis on the drug using public and health care providers in terms of economics, social, and health factors. Detailed analysis of the third-party prescription market including prescribing behavior, drug use, cost containment, legal issues, and quality of care.

**PHAR 741 - Pharmaceutical Outcomes Database Development (3 Credits)**

Development and use of pharmaceutical outcomes databases.

**PHAR 742 - Research Methods in Pharmaceutical and Health Outcomes Sciences (3 Credits)**

The nature of the research process in the administrative and behavioral aspects of pharmacy practice. Emphasis on developing the skills to analyze the total drug use process.

**PHAR 744 - Marketing of Drug Products (3 Credits)**

The principles of marketing as applied to pharmaceutical products. Topics include various marketing institutions and the integration of these into the drug distribution system, and the duties of the market manager in a pharmaceutical firm.

**PHAR 745 - International Pharmaceutical Marketing (3 Credits)**

The principles of marketing applied to the international pharmaceutical industry. Emphasis on the marketing environment and institutions of pharmaceutical marketing in global markets.

**PHAR 746 - Drug Benefits in Health Care Programs (3 Credits)**

Detailed analysis of the third party prescription market including prescribing behavior, drug use, cost containment, legal issues, and quality of care.

**PHAR 748 - Principles of Pharmacoeconomics (3 Credits)**

Analytical techniques and theoretical principles for evaluating costs and consequences of pharmaceutical agents and services for the health care system and society.

**PHAR 799 - Thesis Preparation (1-6 Credits)**

**PHAR 896 - Doctoral Directed Research (1-6 Credits)**

Directed laboratory research and literature assignments supervised by graduate faculty.

**PHAR 899 - Dissertation Preparation (1-12 Credits)**