

# PHARMACY (PHAR)

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## **PHAR 100 - Intro Pharm Practice for Techs. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq., admission into Pharmacy Technology program. This course offers information regarding careers in pharmacy. It includes the history of pharmacy practice and defines roles of personnel relating to pharmaceutical services. Ethical standards of the occupation and federal and state laws regulating pharmacy practice with emphasis on Montana State Pharmacy Law regulating pharmacy technicians are studied. Day-to-day operations including preparation, maintenance, and storage of pharmaceuticals and records, and basic concepts of computer operations and latest technologies are reviewed. Skills will be developed with are necessary for the pharmacy technician to communicate effectively in the following ways: 1) as a representative of the profession of pharmacy, 2) as an intermediary between the pharmacist and patient, and 3) as an intermediary between the pharmacist and other health care professionals.

## **PHAR 101 - Pharmacy Calculations. 3 Credits.**

Offered autumn. Offered at Missoula College. Calculations used in pharmacy practice; includes various systems of weights and measures, dosage determinations, percentage preparations, reducing and enlarging formulas, dilution, and concentration.

## **PHAR 102 - Pharmacology for Technicians. 6 Credits.**

Offered autumn. Offered at Missoula College. Prereq., admission into Pharmacy Technology program. Study of the properties, reactions, and therapeutic value of the primary agents in the major drug classes.

## **PHAR 104 - Pharmacy Dispensing Lab. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq., admission into Pharmacy Technology Program. Develop dispensing and distributive skills with hands-on lab, and lecture format.

## **PHAR 110N - Use & Abuse of Drugs. 3 Credits.**

Offered autumn and spring. Drug dependence and abuse.  
Gen Ed Attributes: Natural Science Course (N)

## **PHAR 120 - Medication Safety. 3 Credits.**

Offered spring online only. Offered at Missoula College. Prereq., PHAR 100, 101, 102, 104 and second semester standing in Pharmacy Technology Program. This course will introduce students to national safety initiatives developed by the Institute of Medicine, The Joint Commission, The Institute of Safe Medicine Practices and others. This awareness will help students become part of the solution in promoting safe medication practices.

## **PHAR 121 - Preparation for the PTCB Exam. 1 Credit.**

Offered at Missoula College. Prereq., PHAR 100, PHAR 101, PHAR 102 and PHAR 104. This course will offer strategies in test taking, and help students refresh their knowledge in all knowledge areas included in the exam as identified by PTCB.

## **PHAR 191 - Special Topics. 1-6 Credits.**

(R 16) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics.

## **PHAR 192 - Independent Study. 1-6 Credits.**

(R-6) Offered at Missoula College. Offered intermittently. Course material appropriate to the needs and objectives of the individual student.

## **PHAR 198 - Internship: Pharmacy. 4 Credits.**

(R-8) Offered spring. Offered at Missoula College. Prereq., PHAR 100, 101, 102, 104 and second semester standing in Pharmacy Technology Program. Training and experience in either hospital, compounding, home infusion, nursing home or other alternative pharmacy settings under supervision of a pharmacist. Emphasizes special skills unique to that pharmacy setting.

## **PHAR 300 - Pharmacy Practice I. 4 Credits.**

Offered autumn. Prereq., M 162 and admission to the professional pharmacy program. An introduction to the prescription and pharmaceutical calculations and to the role of the pharmacist in systems involved in health care delivery.

## **PHAR 310 - Pharmacy Practice II. 2 Credits.**

Offered spring. Prereq., PHAR 300. Federal and state laws and regulations pertaining to pharmacy practice. Introductory dispensing laboratory.

## **PHAR 311 - Healthy People. 1 Credit.**

Spring semester. Determinants of health, teamwork, communication, reflection, and self- and peer-assessment methods are explored in the classroom, through writings, and team projects in the community.

## **PHAR 320 - Am Ind Health Issues. 3 Credits.**

Offered spring. An overview of the health issues, health care delivery, health disparities, and social determinants of health that impact American Indians. Also, provides an overview in careers in health and cultural awareness for students.

## **PHAR 322 - Ayurvedic Medicine. 1 Credit.**

Ayurveda is an ancient East Indian tradition of health and healing that involves diet, lifestyle, and herbal supplements. This course will focus on understanding the basic principles of Ayurveda in terms of Dosha, diet, lifestyle, herbs, body therapies, and the disease process. Students will create an individualized lifestyle plan focusing on diet and lifestyle aimed to improve health and well-being.

## **PHAR 324 - Medicinal Plants. 2-3 Credits.**

Offered autumn. Plants and other natural substances which nourish, heal, injure, or alter the conscious mind.

## **PHAR 328 - Antimicrobial Agents. 3 Credits.**

Offered spring. Prereq., BIOM 400. Chemical characteristics, biochemical mechanisms, and pharmacological properties of drugs used in treating infections caused by microorganisms.

## **PHAR 329 - Microbes & Medicines. 4 Credits.**

Offered spring. Microorganisms that cause disease in humans plus the chemical characteristics, biochemical mechanisms, and pharmacological properties of drugs used in treating infections caused by microorganisms.

## **PHAR 331 - Pharmaceuticals. 4 Credits.**

Offered spring. Prereq., CHMY 222, first professional year standing. Physical pharmacy and dosage forms.

## **PHAR 341 - Pharmaceutical Pathophysiology I. 4 Credits.**

Offered autumn. Prereq., CHMY 222, PHSX 205N, BIOB 260/261. Principles of anatomy, normal and abnormal physiology.

## **PHAR 342 - Pharmaceutical Pathophysiology II. 4 Credits.**

Offered spring. Prereq., PHAR 341. Continuation of 341.

**PHAR 350 - Drug Info. 1 Credit.**

Offered autumn. Prereq., WRIT 101 or equivalent, one intermediate writing course and first professional year standing in pharmacy. Introduction to sources of drug information and the use of medical literature and clinical guidelines to respond to drug information requests from patients and healthcare providers.

Gen Ed Attributes: Writing Course-Advanced

**PHAR 360 - Pharmacy Practice Lab I. 1 Credit.**

Offered autumn. Coreq., PHAR 300. This lab is designed to introduce the student to the technical and legal aspects of drug dispensing, prescription and OTC drug counseling, and sterile intravenous (IV) admixture in a simulated pharmacy environment.

**PHAR 361 - Pharm Sci Lab I. 1 Credit.**

Offered autumn. Coreq., PHAR 300, PHAR 341. Laboratory experience in the pharmaceutical sciences.

**PHAR 362 - Pharm Sci Lab II. 1 Credit.**

Offered spring. Prereq., PHAR 361; coreq., PHAR 331 and 342. Continuation of 361.

**PHAR 371 - Integrated Studies I. 1 Credit.**

Offered autumn. Prereq., first professional year standing in pharmacy. Small group conferences designed to develop professional skills while integrating material from other pharmacy courses.

**PHAR 372 - Integrated Studies II. 1 Credit.**

Offered spring. Prereq., PHAR 371. Continuation of 371.

**PHAR 381 - Pharmaceutical Biochemistry. 4 Credits.**

Offered autumn. Prereq., admission to Pharmacy School. Fundamental biochemistry from a pharmaceutical sciences perspective; management of genetic information, molecular structure and function, and metabolic reactions, especially as relating to drug actions and targets.

**PHAR 390 - Undergraduate Research. 1-3 Credits.**

(R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

**PHAR 391 - Special Topics. 1-9 Credits.**

(R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

**PHAR 392 - Independent Study. 1-3 Credits.****PHAR 395 - Pharmacy Practicum. 1-2 Credits.**

(R-3) Offered autumn and spring. Prereq., PHAR 309. Supervised professional experience in the Student Health Service Pharmacy.

**PHAR 412 - Pharmacy Practice III. 2 Credits.**

Offered spring. Prereq., second professional year standing and a course in communication. The social, economic, legal, ethical, and psychological factors involved in professional and patient relationships of pharmacists.

**PHAR 421 - Medicinal Chem I. 3 Credits.**

Offered autumn. The chemistry of organic compounds used medicinally and their biochemical mechanisms of action.

**PHAR 422 - Medicinal Chem II. 3 Credits.**

Offered spring. Prereq., BMED 421. Continuation of 421.

**PHAR 430 - Pharmacogenetics. 2 Credits.**

Offered each semester. Prereq. Phar 341, Phar 381. The genetic basis of differential drug activity.

**PHAR 432 - Clinical Pharmacokinetics. 3 Credits.**

Offered autumn. Principles of pharmacokinetics including the processes of ADME (absorption, distribution, metabolism, and elimination) and applications in the clinical setting.

**PHAR 443 - Pharmacol & Toxicol I. 4 Credits.**

Offered autumn. Prereq., second professional year standing. Basic principles of pharmacology, toxicology and therapeutics.

**PHAR 444 - Pharmacology & Toxicol II. 4 Credits.**

Offered spring. Prereq., BMED 443. Continuation of 443.

**PHAR 445 - Immunopharm/Immunotox. 3 Credits.**

Offered in alternating years. Prereq., consent of instr. This course is designed to introduce advanced undergraduate students and professional Pharmacy students to various aspects involved in the development and mechanisms of action of immunomodulatory drugs and chemicals.

**PHAR 451 - Therapeutics I. 3 Credits.**

Offered autumn. Prereq., second professional year standing; coreq., PHAR 471; prereq., PHAR 381, PHAR 331, PHAR 342. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

**PHAR 452 - Therapeutics II. 3 Credits.**

Offered spring. Prereq., PHAR 451; coreq., PHAR 472; prereq. or coreq., PHAR (BMED) 422, 432 and 444. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care.

**PHAR 460 - Pharmaceutical Care Lab II. 1 Credit.**

Offered autumn. Prereq., second professional year standing, PHAR 310. Introduction to parenteral practice application, applied patient interview assessment, and communication skills for practice.

**PHAR 463 - Pharmaceutical Care Lab III. 1 Credit.**

Offered spring. Coreq. PHAR 412. Practice counseling and patient-care skills with emphasis on non-prescription drugs and devices. Includes individual in-service presentations.

**PHAR 471 - Integrated Studies III. 1 Credit.**

Offered autumn. Prereq., second professional year standing in pharmacy. Small group conferences designed to develop professional skills while integrating material from first and second year professional pharmacy courses.

**PHAR 472 - Integrated Studies IV. 1 Credit.**

Offered spring. Prereq., PHAR 471. Continuation of 471.

**PHAR 480 - Community Pharmacy IPPE. 3 Credits.**

(R-6) Offered every term. Prereq., completion of first professional year. Supervised professional experience in community pharmacy.

**PHAR 481 - Hospital Pharmacy IPPE. 3 Credits.**

(R-6) Offered every term. Prereq., completion of first professional year. Supervised professional experience in a hospital pharmacy.

**PHAR 484 - Introduction to Toxicology. 3 Credits.**

Offered autumn. Prereq., Biology, Chemistry, and Biochemistry; or consent of instructor. Online instruction provides students with a comprehensive introduction to environmental health and the principles of toxicology. Included: Human toxic substance exposure, processing of toxic substances and the impact on cells and tissues including genetic and epigenetic factors. Graduate increment includes design of a research study in toxicology and leading class

**PHAR 485 - Environmental and Rural Health. 3 Credits.**

Offered spring. Prereq., Biology, Chemistry, Biochemistry, and Intro. Toxicology; or consent of instructor. Online instruction for the principles, concepts and applications of environmental health. Included: Methods and paradigm used in the field ranging from ecology to epidemiology, from toxicology to environmental psychology, from genetics to ethics. This course will provide students with a comprehensive introduction to environmental health. This includes an overview of the methods and paradigms used in the field, ranging from ecology to epidemiology, from toxicology to environmental psychology, and from genetics to ethics.

**PHAR 486 - Epidemiology and Clinical Translational Research. 3 Credits.**

Offered autumn. Prereq., Biology, Chemistry, Biochemistry, Statistics, and Intro. Toxicology; or consent of instructor. Online instruction to introduce the principles and methods for epidemiologic and clinical investigation, including biostatistical applications. Students will learn to conduct and interpret epidemiological and clinical studies on environmental toxicology. Graduate increment includes design and analysis of an epidemiological study and leading class discussions.

**PHAR 490 - Undergraduate Research. 1-3 Credits.**

(R-6) Offered autumn and spring. Prereq., consent of instr. Individual participation in library or laboratory research.

**PHAR 491 - Special Topics. 1-9 Credits.**

(R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

**PHAR 494 - Seminar. 1-6 Credits.**

(R-6) Offered intermittently. Varying topics.

**PHAR 498 - Internship. 1-6 Credits.****PHAR 505 - Pharmacy Practice IV. 3 Credits.**

Offered autumn. Prereq., third professional year standing in Pharm.D. program. Applications of advanced drug therapy monitoring and disease state management. Level: Graduate

**PHAR 506 - Pharmacy Practice V. 3.000 Credits.**

Offered spring. Prereq., PHAR 505. Aspects of dispensing, management, communications, disease state monitoring, and legal issues related to the provision of pharmaceutical care. Level: Graduate

**PHAR 514E - Case Studies Pharm Ethics. 3.000 Credits.**

Offered spring. Prereq., third professional year standing or consent of instr. A practical discussion of pharmacy ethics, as it relates to pharmacy practice. Level: Graduate

Gen Ed Attributes: Ethical & Human Values Course

**PHAR 550 - Drug Literature Eval. 3.000 Credits.**

Offered autumn. Prereq., WRIT 101 or equivalent, one intermediate writing course and third professional year standing in pharmacy. Scientific and statistical evaluation of the drug and medical research literature to formulate solutions for patient-specific pharmacotherapy problems. Level: Graduate

Gen Ed Attributes: Writing Course-Advanced

**PHAR 553 - Therapeutics III. 4 Credits.**

Offered autumn. Prereq., PHAR 452, 472; prereq. or coreq., PHAR 571. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care. Level: Graduate

**PHAR 554 - Therapeutics IV. 4 Credits.**

Offered spring. Prereq., PHAR 553, 571; prereq. or coreq., PHAR 572. Intended for Pharm.D. students. Pharmacotherapeutics of common disease states emphasizing pathophysiology and the selection, monitoring, and individualization of drug therapy. Applies the basic pharmaceutical sciences to patient care. Level: Graduate

**PHAR 556 - Psychopharmacotherapeutics. 2 Credits.**

Offered autumn. Prereq., PHAR 452 or consent of instr. A discussion of the more common childhood and adult psychiatric disorders with emphasis on a pharmacologic approach to their treatment. Level: Graduate

**PHAR 557 - Public Health In Pharmacy. 2 Credits.**

Offered autumn. Prereq., PHAR 452, 472. Discussion of the roles and responsibilities of pharmacists in public health and the role of drugs in public health programs. Level: Graduate

**PHAR 559 - Public Health and Pharmacoeconomics. 3 Credits.**

Offered autumn. Covers concepts in public health, epidemiology, pharmacoeconomics, and outcomes research that shape health policy and professional practice.

**PHAR 560 - Pharmaceutical Care Lab IV. 1 Credit.**

Offered autumn. Coreq., PHAR 505. Practice in professional communication and pharmaceutical care interventions and recommendations. Level: Graduate

**PHAR 563 - Pharmaceutical Care Lab V. 1 Credit.**

Offered spring. Coreq., PHAR 554. Practice in professional communication and pharmaceutical care interventions and recommendations. Level: Graduate

**PHAR 565 - Pharmacy APPE Preparation. 3 Credits.**

Offered spring. Coreq., PHAR 563 Review/updates on pharmacotherapeutic topics and preparation/orientation for the final experiential year of the professional pharmacy program.

**PHAR 571 - Integrated Studies V. 1 Credit.**

Offered autumn. Prereq., third professional year standing in Pharm.D. program. Small group conferences designed to develop the professional skills needed to practice pharmaceutical care while integrating material from the professional pharmacy curriculum. Level: Graduate

**PHAR 572 - Integrated Studies VI. 1 Credit.**

Offered spring. Prereq., third professional year standing in Pharm.D. program. Small group conferences designed to develop professional skills while integrating material from other pharmacy courses. Level: Graduate

**PHAR 579 - Comm Pharm APPE. 1-12 Credits.**

(R-12) Offered every term. Prereq., completion of didactic courses in the Pharm. D. program. Supervised professional experience in the patient care functions of the pharmacist in the community pharmacy setting. Level: Graduate

**PHAR 580 - Hosp Pharm APPE. 4 Credits.**

(R-12) Offered every term. Prereq. Completion of didactic courses in the Pharm.D. program. Supervised professional experience in the patient care functions of the pharmacist in the hospital pharmacy setting. Level: Graduate

**PHAR 581 - Inpatient APPE. 4-12 Credits.**

(R-12) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in the inpatient hospital setting. Level: Graduate

**PHAR 582 - AMB Care APPE. 4-16 Credits.**

(R-16) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in the ambulatory care setting. Level: Graduate

**PHAR 583 - Drug Information APPE. 4 Credits.**

(R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the provision of drug information by the pharmacist. Level: Graduate

**PHAR 584 - Specialized Services APPE. 4 Credits.**

(R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in specialized practice settings, such as home infusion, compounding, and nuclear pharmacies.. Level: Graduate

**PHAR 585 - Geriatric APPE. 4 Credits.**

(R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience with geriatric patients in the long term care and/or other pharmacy setting. Level: Graduate

**PHAR 586 - Clinical Speciality APPE. 4 Credits.**

(R-16) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the clinical functions of the pharmacist in specialty settings or with specialized groups of patients. Level: Graduate

**PHAR 587 - Administrative APPE. 4 Credits.**

(R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in the administrative aspects of providing pharmaceutical care. Level: Graduate

**PHAR 588 - Research APPE. 4 Credits.**

(R-8) Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in a research setting. Level: Graduate

**PHAR 589 - Education APPE. 4 Credits.**

Offered every term. Prereq., completion of didactic courses in the Pharm.D. program. Supervised professional experience in teaching in a pharmacy curriculum. Level: Graduate

**PHAR 591 - Special Topics. 1-12 Credits.**

(R-12) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics.

**PHAR 596 - Independent Study. 1-9 Credits.**

(R-9) Offered every term. Course material appropriate to the needs and objectives of the individual student. Level: Graduate

**PHAR 603 - Professional Practice IV. 4 Credits.**

Offered autumn. Prereq., third professional year standing in Pharm.D. program and acceptance into M.B.A. program. Aspects of dispensing, management, communications, disease state monitoring, and legal issues related to the provision of pharmaceutical care. Level: Graduate

**PHAR 604 - Professional Practice V. 4 Credits.**

Offered spring. Prereq., PHAR 603. Applications of advanced drug therapy monitoring and disease state. Level: Graduate