

# PHARMACY (PHAR)

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## PHAR 001. SERVICE LEARNING. (0 Credits)

Engage in a service-learning or community engagement experience where skills and knowledge are applied to meet an authentic community-identified need. The experience will integrate meaningful community service with reflection. Through readings and discussions, critically reflect on the service in order to increase understanding of the discipline, gain a broader appreciation of the discipline, enhance a sense of civic responsibility, and strengthen connections with communities.

## PHAR 002. LEADERSHIP. (0 Credits)

Provides basic personal and interpersonal leadership skills that can be used within and outside of a work setting. Through practice, the leadership experience helps explore motivation, decision-making, time management, power, team building, conflict, ethics, dealing with change, communication skills, and diversity issues.

## PHAR 201. PHARMACY ORIENTATION. (1 Credit)

Career opportunities in pharmacy including community and institutional practice, government, and industry. Discussion of available educational pathways. Open to non-pharmacy students. Graded P/N.

## PHAR 210. TERMINOLOGY OF THE HEALTH SCIENCES. (2 Credits)

Provides the student in any of the health science disciplines or pre-professional studies with a working knowledge of the terminology used in the health sciences. Open to non-pharmacy students.

## PHAR 401. RESEARCH. (1-16 Credits)

*This course is repeatable for 16 credits.*

## PHAR 403. THESIS. (1-16 Credits)

*This course is repeatable for 16 credits.*

## PHAR 405. READING & CONFERENCE. (1-16 Credits)

*This course is repeatable for 16 credits.*

## PHAR 407. SEMINAR. (1-16 Credits)

One-credit section. Graded P/N.

*This course is repeatable for 16 credits.*

## PHAR 501. RESEARCH. (1-16 Credits)

*This course is repeatable for 16 credits.*

## PHAR 503. THESIS. (1-16 Credits)

*This course is repeatable for 999 credits.*

## PHAR 505. READING & CONFERENCE. (1-16 Credits)

*This course is repeatable for 16 credits.*

## PHAR 507. SEMINAR. (1-16 Credits)

One-credit section. Graded P/N.

*This course is repeatable for 16 credits.*

## PHAR 525. FOUNDATIONS OF DRUG ACTION I. (3 Credits)

Introductory course presenting actions of chemicals on physiological systems. Concepts encompass drug absorption and distribution, drug design and characterization of drug interactions with specialized cellular components, and drug biotransformation or excretion.

## PHAR 526. FOUNDATIONS OF DRUG ACTION III. (3 Credits)

Drug actions in the autonomic nervous system (ANS) provide a template for understanding drug actions throughout the body. This course provides a complete consideration of pharmacologic and medicinal chemistry principles as they relate to drug interactions with the ANS. Treatment options for selected diseases that respond to drugs acting on the ANS are also addressed.

## PHAR 527. FOUNDATIONS OF DRUG ACTION II. (3 Credits)

Introductory course presenting actions of chemicals on physiological systems. Concepts encompass drug activation of biological response via biochemical or molecular transduction mechanisms, pharmacogenetics and pharmacogenomics, and drug-induced toxicities.

## PHAR 537. BIOORGANIC CHEMISTRY. (3 Credits)

A contemporary treatment of the chemistry, enzymology and molecular genetics techniques used in studying major natural products biosynthesis pathways in nature. Offered alternate years.

**Recommended:** (CH 530, CH 531, CH 535) and (BB 590, BB 591, BB 592)

## PHAR 563. CANCER AND CHEMOPREVENTION. (2 Credits)

A summary of mechanisms of cancer progression, how cancer is detected, and introduction to chemoprevention using targeted therapy and alternative medicine.

**Recommended:** (BB 451 or BB 551) and BI 314 and (BI 460 or BI 560) or second year standing in the PharmD program

## PHAR 571. EXPERIMENTAL APPROACH TO BIOPHARMACEUTICS. (3 Credits)

Experimental protocol, rationale, and procedures in clinical pharmacokinetic, pharmacokinetic, and biopharmaceutical experiments.

**Recommended:** PHAR 750

## PHAR 572. APPLIED BIOPHARMACEUTICS AND PHARMACOKINETICS. (3 Credits)

Pharmacokinetics and bioavailability of drugs in clinical care, including changing disease states.

## PHAR 573. CURRENT TOPICS IN PHARMACEUTICAL SCIENCES. (1-3 Credits)

Critical evaluation of contemporary pharmaceuticals and pharmacokinetics research articles.

*This course is repeatable for 9 credits.*

## PHAR 574. NANOMEDICINE. (3 Credits)

Introduction to the interdisciplinary field of nanomedicine, the use of nanoscale (1-100 nm) phenomena and materials in biomedical applications. Reviews the basic principles of nanotechnology relevant to areas such as diagnostic/molecular imaging, drug delivery, and other novel therapeutics. Topics will be described through both survey of historical developments and the latest scientific developments in the field of nanomedicine.

## PHAR 591. PHARMACOLOGY I. (5 Credits)

Principles of pharmacology; molecular, cellular, and physiologic mechanisms of drug action; pharmacological rationale for therapeutic and toxicologic treatment outcomes.

## PHAR 592. PHARMACOLOGY II. (5 Credits)

Principles of pharmacology; molecular, cellular, and physiologic mechanisms of drug action; pharmacologic rationale for therapeutic and toxicologic treatment outcomes.

## PHAR 593. PHARMACOLOGY III. (5 Credits)

Principles of pharmacology; molecular, cellular, and physiologic mechanisms of drug action; pharmacologic rationale for therapeutic and toxicologic treatment outcomes.

## PHAR 601. RESEARCH. (1-16 Credits)

*This course is repeatable for 99 credits.*

## PHAR 603. THESIS. (1-16 Credits)

*This course is repeatable for 999 credits.*

## PHAR 605. READING AND CONFERENCE. (1-16 Credits)

*This course is repeatable for 16 credits.*

**PHAR 606. PROJECTS. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**PHAR 669. INTRODUCTION TO GRANT PROPOSAL WRITING. (2 Credits)**

To introduce students to the fundamentals of writing grant proposals to the National Institute of Health (NIH), different funding mechanisms, as well as the grant reviewing process. CROSSLISTED as VMB 669.

**Equivalent to:** VMB 669

*This course is repeatable for 20 credits.*

**PHAR 699. SPECIAL TOPICS IN PHARMACEUTICAL SCIENCES. (3 Credits)**

*This course is repeatable for 99 credits.*

**PHAR 701. RESEARCH AND SCHOLARSHIP. (1-8 Credits)**

Research conducted by professional pharmacy students under faculty supervision.

*This course is repeatable for 12 credits.*

**PHAR 703. THESIS. (1-8 Credits)**

Independent study and analysis that culminates in a thesis.

*This course is repeatable for 999 credits.*

**PHAR 704. RESEARCH SEMINAR. (1 Credit)**

*This course is repeatable for 2 credits.*

**Recommended:** First or second year standing PharmD program

**PHAR 705. READING AND CONFERENCE. (1-8 Credits)**

May be repeated for credit.

*This course is repeatable for 12 credits.*

**PHAR 706. INTRODUCTION TO HEALTH DISPARITIES. (2 Credits)**

An examination of the multifaceted issue of health disparities in the U.S. healthcare system. Marginalized groups with disparities based upon racial/ethnic, gender, sexual preference and identity, disability, physical and mental health, geography and socioeconomics will be examined at the individual, systematic, and institutional levels.

**Recommended:** PHAR 707

**PHAR 707. CAREER PERSPECTIVES AND PROFESSIONAL DEVELOPMENT. (2 Credits)**

Students will explore the necessary knowledge, skills and abilities in order to support professional role formation and ongoing professional development. Students will practice skills related to identifying personal strengths and weaknesses, building self-awareness, creating professional job search materials, communicating professionally in written and oral formats, and participating as a team member.

**Recommended:** First-year standing in the PharmD program

**PHAR 708. INTRODUCTORY PHARMACY PRACTICE EXPERIENCES: COMMUNITY CARE I. (2 Credits)**

Students will be placed in community pharmacies for experiential rotations. Students will gain an understanding of the scope of practice and roles of pharmacy personnel while demonstrating skills related to processing and dispensing functions in the community setting. Students will observe patient counseling and have an opportunity to conduct medication reviews to identify any drug-related problems. In-class discussions of patient cases will explore concepts relating to ethical decision-making, cultural sensitivity and coordinated pharmacy practice topics with other first-year courses.

**Recommended:** PHAR 707

**PHAR 709. INTRODUCTORY PHARMACY PRACTICE EXPERIENCES: COMMUNITY CARE II. (2 Credits)**

Students will be placed in community pharmacies for experiential rotations. Students will gain an understanding of the scope of practice and roles of pharmacy personnel while demonstrating skills related to processing and dispensing functions in the community setting. Students will observe patient counseling and have an opportunity to conduct medication reviews to identify any drug-related problems. In-class discussions of patient cases will explore concepts relating to ethical decision-making, cultural sensitivity and coordinated pharmacy practice topics with other first-year courses.

**Recommended:** PHAR 708

**PHAR 711. FUNDAMENTALS OF INTERPROFESSIONAL COLLABORATION. (1 Credit)**

The first professional year IPE Series is a yearlong course focusing on interprofessional education for students from local colleges (LBCC/OSU/WesternU) representing programs in medical assistant, pharmacy, nursing and osteopathic medicine. Students develop a positive perspective of working with other disciplines, enhanced understanding of their specific role and responsibilities on an interprofessional team, recognize the value of other disciplines providing patient-centered care, and develop a shared accountability for providing patients with safe, high-quality health care.

**Recommended:** First-year standing in the PharmD program

**PHAR 712. FOUNDATIONS OF PATIENT SAFETY AND INTERPROFESSIONAL PRACTICE. (1 Credit)**

Techniques, best practices and opportunities for improving patient safety through interprofessional teamwork. Graded P/N.

**PHAR 713. SPANISH FOR PHARMACY PROFESSIONALS. (2 Credits)**

For the pharmacy professional with little or no Spanish language background (those with some Spanish language skills would find it beneficial). The course is presented in a video format with in-class facilitator for discussion. Provides basic Spanish grammar instruction but the focus will be on vocabulary and communication in a community pharmacy environment.

**PHAR 714. COMPLEMENTARY MEDICINE. (3 Credits)**

Covers vitamins and microminerals and their role in biochemical processes, maintaining health and preventing disease. The course also covers the etiology of obesity and treatment modalities. The course builds upon the general background of students in biochemistry and physiology to provide a common baseline of knowledge and allow for integration of concepts required to understand preventive medicine.

**Recommended:** PHAR 729 and PHAR 735

**PHAR 715. PRESCRIPTION DRUG ABUSE. (2 Credits)**

Examines the issue of prescription drug abuse among the general population. Graded P/N.

**PHAR 716. HEALTHCARE CHALLENGES FOR PERSONS WITH DISABILITIES. (1 Credit)**

Students develop an understanding of healthcare challenges faced by persons with physical and mental disabilities. Graded P/N.

*This course is repeatable for 2 credits.*

**PHAR 717. SENIOR CARE PHARMACY. (2 Credits)**

Provides an overview of senior care pharmacy practice including an introduction to the senior patient, the senior care healthcare environment, medication-related problems in the elderly, the role of the pharmacist as a member of the interdisciplinary senior healthcare team, and employment opportunities in senior care pharmacy. Graded P/N.

**Equivalent to:** PHAR 721

**Recommended:** First-year standing PharmD program and PHAR 723 and PHAR 735 and PHAR 739

**PHAR 718. NATURAL PRODUCT DRUG DEVELOPMENT. (2 Credits)**

Overview of the process of drug development, with an emphasis on natural product sources of lead components. Top-selling and mainstay drugs will be researched in literature assignments and discussed to illustrate historical and current drug development paradigms. In addition, future approaches to drug discovery and paradigm shifts to incorporate concepts such as network pharmacology will be explored.

**Equivalent to:** PHAR 722

**Recommended:** Second-year standing in PharmD program

**PHAR 719. POISONS AND TOXINS. (2 Credits)**

Covers many different types of substances, including common household poisons, poisonous plants and mushrooms, toxic gases/metals, shellfish toxins, and other natural toxins. Aspects of the chemistry and pharmacology of the poisons, antidotes/treatments, and occasional case studies will be covered. Historical examples and current events will also be incorporated into the course materials.

**Equivalent to:** PHAR 723

**Recommended:** PHAR 735

**PHAR 720. PHARMACY PRACTICE I-PRINCIPLES OF INTEGRATED PATIENT CARE. (4 Credits)**

Pathophysiology of common conditions, self-care therapeutics, clinical data collection and documentation, prescription drug information and education, patient counseling skills, basic pharmacy calculations.

**Recommended:** First-year standing in PharmD program

**PHAR 721. PHARMACY PRACTICE II. (3 Credits)**

Pathophysiology of common conditions, self-care therapeutics, clinical data collection and documentation, prescription drug information and education, patient counseling skills, basic pharmacy calculations.

**Recommended:** PHAR 720

**PHAR 722. PHARMACY PRACTICE III: PRINCIPLES OF INTEGRATED PATIENT CARE. (4 Credits)**

Pathophysiology of common conditions, self-care therapeutics, clinical data collection and documentation, prescription drug information and education, patient counseling skills, basic pharmacy calculations.

**Recommended:** PHAR 721

**PHAR 726. PRINCIPLES OF EVIDENCE-BASED MEDICINE II: DRUG LIT EVAL. (3 Credits)**

Students will learn to critique and evaluate health-related scientific journal articles using valid established techniques.

**Recommended:** Second-year standing in PharmD program

**PHAR 728. PHARMACY LAW. (2 Credits)**

Introduces the student to the federal and state agencies and regulations that govern pharmacy practice and provides students with foundational knowledge and skills to comply with state and federal regulations. Emphasis will be on regulations from the Food and Drug Administration, Drug Enforcement Administration, and Oregon Board of Pharmacy.

**Recommended:** First year standing in PharmD program

**PHAR 729. PRINCIPLES OF EVIDENCE-BASED MEDICINE I: INFORMATION SCIENCE. (3 Credits)**

Students will learn to identify appropriate information resources and will systematically collect, arrange, and analyze pertinent information related to a particular patient or drug product problem.

**Equivalent to:** PHAR 739

**Recommended:** First-year standing in PharmD program

**PHAR 733. PHARMACEUTICS I. (3 Credits)**

Foundational perspectives in physical pharmacy with an emphasis on liquid and parenteral products. Properties and processes that influence compatibility and stability in drug formulation are discussed. Varied types of sterile and non-sterile formulations, including product optimization for drug delivery and patient specific considerations, are examined.

**Recommended:** PHAR 735

**PHAR 734. PHARMACEUTICS II. (3 Credits)**

Preformulation and formulation factors affecting the development, production and use of pharmaceutical dosage forms, including ingredients in, and physical, chemical, and biological properties affecting storage, stability, and handling of dosage forms. Lec/lab. Approved for use on a graduate program of study.

**Recommended:** PHAR 733 and PHAR 735

**PHAR 735. FOUNDATIONS OF DRUG ACTION I. (3 Credits)**

Introductory course into actions of chemicals on physiological systems. Concepts encompass drug absorption and distribution, drug design and characterization of drug interactions with specialized cellular components, drug activation of biological response via biochemical or molecular transduction mechanisms, drug-induced toxicities and drug biotransformation or excretion. Approved for use on a graduate program of study.

**Equivalent to:** PHAR 762

**Recommended:** First-year standing in PharmD program

**PHAR 736. DRUG ACTION III: AUTONOMIC DRUG ACTION. (3 Credits)**

Drug actions in the autonomic nervous system (ANS) provide a template for understanding drug actions throughout the body. This course provides a complete consideration of pharmacologic and medicinal chemistry principles as they relate to drug interactions with the ANS. Treatment options for selected diseases that respond to drugs acting on the ANS are also addressed.

**Recommended:** PHAR 735 and PHAR 737

**PHAR 737. DRUG ACTION II: PHARMACOGENOMICS, PHARMACOLOGY & TOXICOLOGY. (3 Credits)**

Introductory course presenting actions of chemicals on physiological systems. Concepts encompass drug activation of biological response via biochemical or molecular transduction mechanisms, pharmacogenetics and pharmacogenomics, and drug-induced toxicities. Approved for use on graduate program of study.

**Recommended:** PHAR 735

**PHAR 738. HEALTHCARE SYSTEMS I. (3 Credits)**

Examination of the U.S. healthcare industry and how it relates to pharmacy. Emphasis is given to changing relationships between healthcare systems, patients, providers of care, hospitals, insurers, employers and the government.

**Recommended:** First-year standing in the PharmD program

**PHAR 739. HEALTHCARE SYSTEMS II. (2 Credits)**

Population-based strategies for improving health and wellness with an emphasis on prevention rather than treatment. We will also look at how social determinants of health affect peoples' ability to be healthy and how the safety net seeks to close the gap for those who have limited access or resources.

**Recommended:** PHAR 738

**PHAR 740. PHARMACY PRACTICE IV. (3 Credits)**

Basic physical assessment skills and identification of therapeutic endpoints and monitoring parameters for drugs presented in the medicinal chemistry/pharmacology sequence. Students will gain experience in basic physical assessment skills, interviewing skills, history taking, organizing pharmacy notes, and documenting information.

**Recommended:** PHAR 722 and concurrent enrollment in PHAR 752

**PHAR 741. PHARMACY PRACTICE V. (3 Credits)**

Basic physical assessment skills and identification of therapeutic endpoints and monitoring parameters for drugs presented in the medicinal chemistry/pharmacology sequence. Students will gain experience in basic physical assessment skills, interviewing skills, history taking, organizing pharmacy notes, and documenting information. Lec/lab.

**Recommended:** PHAR 740. Concurrent enrollment in PHAR 744 and PHAR 753

**PHAR 742. PHARMACY PRACTICE VI. (3 Credits)**

Basic physical assessment skills and identification of therapeutic endpoints and monitoring parameters for drugs presented in the medicinal chemistry/pharmacology sequence. Students will gain experience in basic physical assessment skills, interviewing skills, history taking, organizing pharmacy notes, and documenting information. Lec/lab.

**Recommended:** PHAR 741. Concurrent enrollment in PHAR 745 and PHAR 754

**PHAR 743. INTRODUCTORY PHARMACY PRACTICE EXPERIENCE: COMMUNITY III. (2 Credits)**

Students are assigned to community, institutional and ambulatory care pharmacy settings, and experiences emphasize topics and communication methods covered in the corresponding pharmacy practice course.

**Recommended:** Concurrent enrollment in PHAR 740

**PHAR 744. INTRODUCTORY PHARMACY PRACTICE EXPERIENCE: AMBULATORY CARE I. (2 Credits)**

Students are assigned to institutional or ambulatory care pharmacy settings, and experiences emphasize topics and communication methods covered in the corresponding pharmacy practice course.

**Recommended:** Concurrent enrollment in PHAR 741 and PHAR 753

**PHAR 745. INTRODUCTORY PRACTICE EXPERIENCES: AMBULATORY CARE II. (2 Credits)**

Students are assigned to institutional or ambulatory care pharmacy settings, and experiences emphasize topics and communication methods covered in the corresponding pharmacy practice course. Graded P/N.

**Recommended:** Concurrent enrollment in PHAR 742 and PHAR 754

**PHAR 746. PHARMACY MANAGEMENT. (3 Credits)**

Using a case-based format, students will work in groups to "solve" (using SOAP notes) real-world scenarios based in different pharmacy settings. The cases are organized around the major focus areas listed in the schedule. Each group will present their solution and a recap of the actual outcome will be provided whenever available.

**PHAR 747. INFECTIOUS DISEASES AND TREATMENTS. (3 Credits)**

Introduction to infectious disease processes and antimicrobial agents, including general clinical microbiology, and structure mechanism of action of anti-bacterials and anti-fungal agents.

**PHAR 748. DRUG ACTIONS IN IMMUNOLOGY AND INFLAMMATION. (3 Credits)**

Review of foundational concepts in immunology, inflammation and tissue repair; and modification of these processes therapeutically through an understanding and application of anti-inflammatory agents and immune system modulators.

**PHAR 750. PHARMACOKINETICS AND BIOPHARMACEUTICS. (4 Credits)**

Pharmacokinetics and bioavailability of drugs in clinical care, including changing disease states. Approved for use on a graduate program of study.

**Recommended:** PHAR 735

**PHAR 752. INTEGRATED DRUG STRUCTURE, ACTION AND THERAPEUTICS I. (7 Credits)**

Drug therapy of central nervous system disorders; molecular, cellular and physiologic basis of drug action; chemical and physical properties affecting drug metabolism, action and toxicities; treatment options; patient and disease-specific therapeutic considerations.

**Recommended:** PHAR 736

**PHAR 753. INTEGRATED DRUG STRUCTURE, ACTION AND THERAPEUTICS II. (7 Credits)**

Drug therapy of pulmonary and cardiovascular disorders; molecular, cellular and physiologic basis of drug action; chemical and physical properties affecting drug metabolism, action and toxicities; treatment options; patient and disease-specific therapeutic considerations.

**Recommended:** PHAR 752

**PHAR 754. INTEGRATED DRUG STRUCTURE, ACTION AND THERAPEUTICS III. (7 Credits)**

Drug therapy of endocrine disorders, and men's and women's health issues; molecular, cellular and physiologic basis of drug action; chemical and physical properties affecting drug metabolism, action and toxicities; treatment options; patient and disease-specific therapeutic considerations.

**Recommended:** PHAR 753

**PHAR 760. INTRODUCTORY PHARMACY PRACTICE EXPERIENCES: INSTITUTIONAL. (2 Credits)**

Students gain familiarity with the provision of patient centered care through the variety of pharmacy services within a health system. Experiences include introduction to acute care services, transitions of care, and introduction to health systems pharmacy. Emphasis is on learning how to ensure patient medication safety by understanding the process of preparing and distributing medication, collecting and analyzing relevant patient information, and providing guidance regarding medication administration and monitoring.

*This course is repeatable for 6 credits.*

**Recommended:** Concurrent enrollment in PHAR 761 and PHAR 764

**PHAR 761. ADVANCED INTEGRATED DRUG THERAPY I. (8 Credits)**

Pathophysiologic basis of disease and drug therapy management.

**Recommended:** Concurrent enrollment in PHAR 764 and PHAR 770

**PHAR 762. ADVANCED INTEGRATED DRUG THERAPY II. (8 Credits)**

Pathophysiologic basis of disease and drug therapy management.

**Recommended:** Concurrent enrollment in PHAR 765

**PHAR 763. PATHOPHYSIOLOGY AND THERAPEUTICS III. (7 Credits)**

Pathophysiologic basis of disease and drug therapy management.

**Equivalent to:** PHAR 736

**Recommended:** PHAR 762. Concurrent enrollment in PHAR 766 and PHAR 774

**PHAR 764. PHARMACY PRACTICE VII. (3 Credits)**

Development of skills for advanced drug therapy problem identification, assessment, and plan resolution for patients with diseases discussed in PHAR 752, 753, 754, 761 and PHAR 762. Students will integrate interviewing, physical assessment, and problem-solving to identify, assess, and resolve drug therapy problems and communicate findings in SOAP notes, care plans, and case presentations.

**Recommended:** PHAR 742 and concurrent enrollment in PHAR 761

**PHAR 765. PHARMACY PRACTICE VIII. (3 Credits)**

Development of skills for application of didactic learning to case-based drug therapy problem identification, assessment, and plan. Content draws on PHAR 761, and PHAR 762, as well as earlier course work. Students will integrate knowledge from multiple courses to problem-solve drug therapy concerns, and communicate findings both orally and in written format.

**Recommended:** PHAR 761 and PHAR 764. Concurrent enrollment in PHAR 762

**PHAR 766. PHARMACY PRACTICE IX. (3 Credits)**

Development of skills for advanced drug therapy problem identification, assessment, and plan resolution for patients with diseases discussed in PHAR 761, PHAR 762, PHAR 763. Students will integrate interviewing, physical assessment, and problem-solving to identify, assess, and resolve drug therapy problems, and communicate findings in SOAP notes, care plans, and case presentations. Lec/lab/rec.

**Recommended:** PHAR 762 and PHAR 765. Concurrent enrollment in PHAR 760 and PHAR 763 and PHAR 772

**PHAR 767. PRE-APPE READINESS AND COMPLEX CASE ANALYSIS. (3 Credits)**

Confidence and competence needed for advanced practice settings are enhanced utilizing a mixture of benchmark assessment tools and small case discussions of complex patient cases. The focus is to assure readiness to integrate into inter-professional collaborative health care settings and serve diverse patient populations. Knowledge, skills, attitudes, and professional values are assessed and developed. Formative and summative feedback delivered through faculty, peer and self-evaluation help guide student preparation for advanced experiences and life-long learning. Graded P/N.

**Recommended:** PHAR 760 and PHAR 762 and PHAR 765 and PHAR 773

**PHAR 768. ETHICAL AND LEGAL DECISION MAKING. (1 Credit)**

Student understanding of pharmacy law is assessed, and discussed in the context of pharmacists' ability to properly respond when legal concepts may not align with ethical decision making in a health profession. Students will apply a framework for ethical decision making and identify personal strategies to maintain currency in pharmacy law and applied ethical decision making.

**Recommended:** PHAR 760 and PHAR 762 and PHAR 765 and PHAR 773

**PHAR 770. ADVANCED PHARMACOKINETICS. (4 Credits)**

A physiologic approach to understanding advanced pharmacokinetic principles. Approved for use on a graduate program of study.

**Recommended:** PHAR 750

**PHAR 773. EVIDENCE BASED MEDICINE III. (3 Credits)**

Covering the principles required for evidence-based medicine, including interpreting and applying results from clinical, humanistic, and economic research to medical decision-making.

**Recommended:** PHAR 726

**PHAR 774. EVIDENCE BASED MEDICINE IV. (3 Credits)**

Covers a variety of topics related to drug policy and drug use management. Population-based strategies to improve drug use will be emphasized along with developing an evidence-based process for evaluating new drugs. A major course project, evaluating a new drug, will focus on application of principles taught in this and previous courses.

**Recommended:** PHAR 773

**PHAR 776. PHARMA-CSI. (2 Credits)**

Application of PK, PD, and P'genomic concepts, principles, and equations in computer workshops to solve drug therapy misadventures. Approved for use on a graduate program of study.

**Recommended:** PHAR 770 and third-year standing in the PharmD program

**PHAR 777. ACUTE MEDICAL EMERGENCIES. (2 Credits)**

Drug therapy management in the critically ill patient. Graded P/N.

**Recommended:** PHAR 762

**PHAR 778. ADVANCED ADULT MEDICINE. (2 Credits)**

Adult medicine elective utilizes actual patient cases to enhance knowledge of pharmacy and the pharmacologic basis of therapeutics in the setting of adult medicine, emphasizing application or current guidelines and major clinical trials for commonly encountered disease states. Graded P/N.

**Recommended:** Third-year standing in PharmD program and PHAR 761 and PHAR 762 and PHAR 764 and PHAR 765

**PHAR 780. COMMUNITY PHARMACY CLERKSHIP. (8 Credits)**

Supervised advanced professional education in ambulatory care pharmacy practice environment. Emphasis is placed on the application of direct and indirect pharmaceutical patient care and direct interactions with other health care professionals. Students will evaluate, assess and monitor pharmacotherapy of acute and chronic diseases in addition to providing drug information. Graded P/N.

**Equivalent to:** PHAR 785

*This course is repeatable for 32 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774

**PHAR 785. AMBULATORY PRIMARY CARE CLERKSHIP. (8 Credits)**

Supervised advanced professional education in ambulatory care pharmacy practice environment. Emphasis is placed on the application of direct and indirect pharmaceutical patient care and direct interactions with other health care professionals. Students will evaluate, assess and monitor pharmacotherapy of acute and chronic diseases in addition to providing drug information to patients and health care professionals. Graded P/N.

*This course is repeatable for 32 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774

**PHAR 790. GENERAL INTERNAL MEDICINE CLERKSHIP. (8 Credits)**

Supervised advanced professional education located in internal medicine inpatient pharmacy practice environment. Emphasis is placed on the application of biomedical and pharmaceutical sciences to direct and indirect pharmaceutical patient care and direct interactions with other health care professionals. Students will evaluate, assess, and monitor pharmacotherapy involved in a wide variety of acute and chronic diseases. In addition, students will provide drug information to other health care professionals and patients. Graded P/N.

*This course is repeatable for 32 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774

**PHAR 792. HOSPITAL/HEALTH SYSTEMS PATIENT CARE CLERKSHIP. (8 Credits)**

Supervised advanced professional education located in various hospital or health care systems patient care-oriented settings. Emphasis is placed on application of pharmaceutical sciences and pharmacotherapy to patient care. Graded P/N.

*This course is repeatable for 24 credits.*

**Recommended:** Fourth-year standing in the PharmD program

**PHAR 795. PATIENT CARE ELECTIVE CLERKSHIP. (8 Credits)**

Supervised advanced professional education located in various patient care-oriented settings. Emphasis is placed on the application of pharmaceutical sciences and pharmacotherapy to direct and indirect pharmaceutical care. Specialties include but are not limited to geriatrics, pediatrics, infectious disease, oncology, general patient care, nutrition support, nuclear pharmacy, home infusion, critical care, anticoagulation, pain management, etc. Graded P/N.

*This course is repeatable for 24 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774

**PHAR 797. ELECTIVE CLERKSHIP. (8 Credits)**

Supervised advanced professional education located in various pharmacy-oriented settings. Emphasis is placed on the application of pharmaceutical sciences and pharmacotherapy to a variety of environments involving pharmacy. Specialties include but are not limited to managed care, drug information, administration, pharmaceutical research, pharmaceutical industry, professional pharmacy organizations, etc. Graded P/N.

*This course is repeatable for 24 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774

**PHAR 798. PHARMACY HEALTH ADMINISTRATION. (8 Credits)**

Provides students the opportunity to integrate and apply leadership and business principles necessary to operate and manage a pharmacy business or department in a diverse organizational environment.

*This course is repeatable for 16 credits.*

**Recommended:** PHAR 760 and PHAR 763 and PHAR 766 and PHAR 772 and PHAR 774 and reading and understanding of the Advanced Experiential Manual

**PHAR 799. SELECTED TOPICS. (1-16 Credits)**

*This course is repeatable for 16 credits.*