

PHAR - PHARMACY

PHAR 600 Dean's Hour

Credits 0. 0 Lecture Hours. The theme of the Dean's Hour is to involve students in the college's leadership and strategic initiatives and engage them in academic excellence. It allows them to provide input into programmatic issues. This course also provides an opportunity for students to participate in reflective thought and writing. Offered: Fall and spring semesters. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 601 Forum / Student Portfolios / Professional Development I

Credits 0-1. 0-1 Lecture Hours. In this two-semester course, students are exposed to leaders within the profession, practitioners from various settings, leading researchers and scientists, and other renowned individuals who discuss career opportunities, latest research results and the practice of pharmacy. Student portfolio assignments are due each semester. Offered: Fall and spring semesters. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 602 Core Recitation (P1)

Credits 0. 0 Lecture Hours. Core Recitation provides additional interaction for students with their teachers/facilitators in order to further their knowledge, skills and abilities. These sessions are dedicated to reviewing, in a different format, and clarifying material previously presented in a professional course. Most formative exams are scheduled during this course. Must be taken on a satisfactory/unsatisfactory basis. Offered: Fall and spring semesters. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 605 IPPE I: Introductory Pharmacy Practice Experiences

Credit 1. 1 Lecture Hour. Foundational concepts necessary to practice pharmaceutical care and develop the attitudes, values, skills and knowledge of a professional pharmacist; participation in simulated training, didactic lectures, service learning and reflection throughout the semester to implement didactic knowledge learned from the general academic curriculum; exposure to real patients and serves the needs of the community through organized activities under the supervision of health-care-practitioners; training includes basic patient assessment skills and communication skills to interact with patients at service learning events. Offered fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program. **Corequisite:** PHAR 672.

PHAR 606 IPPE II: Introductory Pharmacy Practice Experiences

Credit 1. 1 Lecture Hour. This course continues the IPPE course sequence dedicated to developing the attitudes, values, skills, and knowledge required to participate actively in the pharmacy profession. The student continues simulated training, didactic lectures, service learning, and reflection throughout the semester. Basic Medical Spanish and telephone prescription transcribing skills are taught and assessed. The student is expected to apply cumulative knowledge and skills from the didactic curriculum and is provided supervised opportunities to work with health-care practitioners. Offered: Spring semester. **Prerequisites:** PHAR 605 IPPE I, PHAR 672 Intro to Patient Care. **Corequisites:** PHAR 657 and PHAR 673.

PHAR 610 Principles Drug Action I

Credits 2. 2 Lecture Hours. The course provides an introduction to pathology, pathophysiology, pharmacology and medicinal chemistry. This course introduces the basic principles of drug action and covers chemical properties, stability, solubility, mechanisms of action and structure-activity relationships of the major drug classes. Offered: Fall semester.

Prerequisite: Admission to Doctor of Pharmacy Program. **Corequisite:** PHAR 627.

PHAR 611 Principles Drug Action II

Credits 2. 2 Lecture Hours. The second of a two-class sequence. This course covers the pharmacology and medicinal chemistry of adrenergic and cholinergic agonists and antagonists, serotonergics and amino acid neurotransmitters. Offered: Spring semester. **Prerequisite:** PHAR 610.

PHAR 626 Human Physiology

Credits 4. 4 Lecture Hours. This course provides core knowledge of human physiology and pathophysiology with elements of anatomy needed to understand: (1) normal function of the body systems, (2) common disease states, and (3) the role of pharmacologic agents in various physiologic disorders and pathological conditions. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 627 Biochemistry

Credits 3. 3 Lecture Hours. This course introduces the basic concepts in biochemistry with a focus on structure and function of carbohydrates, proteins, hormones, and lipids. It establishes the biochemical basis for cell structure, cellular metabolism, disease, drug function, and genetic information flow in prokaryotic and eukaryotic cells. Common metabolic pathways of drugs, enzyme induction, and metabolic regulation are presented. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program. **Corequisite:** PHAR 610.

PHAR 628 Research Methods/Biostatistics

Credits 2. 2 Lecture Hours. This course introduces statistical concepts, analytical methods and the fundamentals of research design and methodology. The primary goals are to familiarize students with experimental design, research terminology, statistical testing of data as well as ethical considerations of conducting research. Offered: Spring semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

Corequisite: PHAR 658.

PHAR 641 Pharmaceutical Calculations

Credits 2. 2 Lecture Hours. This course requires the application of basic mathematics and quantitative reasoning to pharmaceutical calculations encountered by pharmacists in professional practice. Emphasis is given to dosage calculations, compounding and dispensing of formulations. Interpretation and filling of prescriptions are also discussed. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 642 Pharmaceutics I

Credits 4. 3 Lecture Hours. 1 Lab Hour. The first of a two-course series introduces the principles of pharmaceutical dosage forms and discusses the effects of the physicochemical and biological properties of pharmaceutical products on the stability of drugs in dosage forms. The basic properties of radiopharmaceuticals and the role of nuclear pharmacy are also discussed. The laboratory portion of the course involves students in the preparation and evaluation of dosage forms. Offered: Spring semester. **Prerequisite:** PHAR 641.

PHAR 656 Health Care Systems

Credits 2. 2 Lecture Hours. This course provides an introduction to the structure, organization, delivery, regulation and financing of health care. The history of pharmacy and the pharmacist's current role and responsibilities as a patient-centered health professional are covered. Interactions with other health occupations are also discussed. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 657 Pharmacy Law and Ethics

Credits 3. 3 Lecture Hours. This course presents the application of ethical principles to pharmacy practice. Principles of ethical thinking and role of formal codes of professional conduct are discussed in the context of resolving conflicting ethical principles. Pharmacy law is covered as it relates to practice under federal, state and local regulations. Offered: Spring semester. **Prerequisite:** Admission to Doctor of Pharmacy Program. **Corequisite:** PHAR 606.

PHAR 658 Public Health and Pharmacoepidemiology

Credits 2. 2 Lecture Hours. Public Health and Pharmacoepidemiology. This course introduces principles of public health and application of epidemiologic methods to the study of drug use and outcomes in populations. Measures of effect size and confidence intervals in observational research designs are emphasized. Assignments are designed to develop skills in applying analytical concepts to literature evaluation and clinical decision making. Offered: Spring semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 671 Clinical Communications

Credits 2. 2 Lecture Hours. This course introduces basic skills for effective healthcare communications. It provides verbal, non-verbal, and writing training, with patient counseling emphasis. Topics include negotiation, persuasion and presentation strategies to improve therapy adherence and clinical outcomes. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 672 Introduction to Patient Care

Credits 2. 2 Lecture Hours. This course introduces the concepts of caring for patients and pharmaceutical care. Emphasis is placed on ways of collecting, organizing and evaluating information for the purpose of rendering decisions that improve patient quality of life through the SOAP format of therapy review and basic clinical skills including pharmaceutical care plans. Offered: Fall semester. **Prerequisite:** Admission to Doctor of Pharmacy Program. **Corequisite:** PHAR 605.

PHAR 673 Self Care and Non-Prescription Medications

Credits 3. 3 Lecture Hours. This course introduces the principles of self-care and nonprescription medications, herbal products, and homeopathic. Emphasis is placed on the problem-solving processes involved in the therapeutic evaluation, rational use and recommendation for treatment. An emphasis is placed on patient care and patient counseling. Offered: Spring semester. **Prerequisites:** PHAR 605, PHAR 610, PHAR 626 and PHAR 672. **Corequisite:** PHAR 606 IPPE-II.

PHAR 681 Seminar

Credit 1. 1 Lecture Hour. This course involves presentations in areas of current interest in pharmacy practice or in pharmaceutical sciences. The focus will be on promoting critical thinking skills. Emphasis will be placed on oral communications, scientific writing, and possibly grant preparation. Not graded, offered as an S/U option only. Offered: Fall, spring and summer semesters. **Prerequisite:** Permission of instructor and department chair.

PHAR 685 Independent Study

Credits 1 to 3. 1 to 3 Lecture Hours. This course provides an opportunity for students to work with individual faculty mentors on research projects of variable scope. Activities could include library, laboratory and/or survey-type research, assistance with syllabus development for future elective courses, or other activities agreed on between the student and mentor. Not graded, offered as "S/U" option only. Can be repeated twice. Offered: Fall and spring semesters. **Prerequisite:** Permission of instructor and department chair.

PHAR 689 Special Topics

Credits 1 to 3. 1 to 3 Lecture Hours. This course involves in-depth exploration of specialized topics within the college. Not graded, offered as S/U option only. Can be repeated twice, up to maximum number of hours permitted (an approved course). Offered: Fall, spring and summer semesters. **Prerequisite:** Permission of instructor and department chair.

PHAR 691 Independent Research

Credits 1 to 9. 1 to 9 Other Hours. This course involves research for thesis or dissertation. Not graded, offered as S/U option only. Can be repeated (an approved course). Offered: Fall, spring and summer semesters. **Prerequisite:** Permission of supervisory professor in chosen field and department chair.

PHAR 700 Dean's Hour

Credits 0. 0 Lecture Hours. The theme of the Dean's Hour is to involve students in the college's leadership and strategic initiatives and engage them in academic excellence. It allows them to provide input into programmatic issues. This course also provides an opportunity for students to participate in reflective thought and writing. Offered: Fall and spring semesters. **Prerequisite:** P2 standing.

PHAR 701 Forum/Student Portfolios/ Professional Development II

Credits 0-1. 0-1 Lecture Hours. In this two-semester course, students are exposed to leaders within the profession, practitioners from various settings, leading researchers and scientists, and other renowned individuals who discuss career opportunities, latest research results and the practice of pharmacy. Student portfolio assignments are due each semester. Offered: Fall and spring semesters. **Prerequisite:** P2 standing.

PHAR 702 Core Recitation (P2)

Credits 0. 0 Lecture Hours. Core Recitation provides additional interaction for students with their teachers/facilitators in order to further their knowledge, skills and abilities. These sessions are dedicated to reviewing, in a different format, and clarifying material previously presented in a core course. Most formative exams are scheduled during this course. Offered: Fall and spring semesters. **Prerequisite:** P2 standing.

PHAR 705 IPPE: Community Pharmacy Practice

Credit 1. 1 Other Hour. This course continues the IPPE sequence and is a structured introductory pharmacy practice experience in the community pharmacy under the supervision of a licensed pharmacist preceptor. Through 12 weekly longitudinal site visits, the student provides direct patient care and reflects upon the professional activities. The student gains introductory competence in the values, attitudes, knowledge and skills of a pharmacist in the community setting. Offered: Fall and spring semesters. **Prerequisites:** PHAR 606, HIPAA training; blood-borne pathogens training; Basic Life Support certification; and a valid Pharmacists Intern License from the Texas State Board of Pharmacy throughout the course.

PHAR 706 IPPE: Institutional Pharmacy Practice

Credit 1. 1 Lecture Hour. This course continues the IPPE sequence and is a structured introductory pharmacy practice experience in the institutional (or hospital) pharmacy under the supervision of a licensed pharmacist preceptor. Through 12-weekly longitudinal site visits, the student provides direct patient care and reflects upon the professional activities. The student gains introductory competence in the values, attitudes, knowledge and skills of a pharmacist in the institutional setting. Offered: Fall and spring semesters. **Prerequisites:** PHAR 606, HIPAA training; blood-borne pathogens training; Basic Life Support certification; and a valid Pharmacist Intern License from the Texas State Board of Pharmacy throughout the course.

PHAR 710 IPT I: Electrolytes, Acid-Base, and Kidney Diseases

Credits 2. 2 Lecture Hours. This course presents common renal disorders with an emphasis on the management of electrolyte, fluid, acid-base, acute and chronic renal disease, and common anemic conditions. Offered: Fall semester. **Prerequisite:** P2 standing. **Corequisites:** PHAR 711, PHAR 714.

PHAR 711 IPT II: Cardiovascular Diseases

Credits 4. 4 Lecture Hours. This course presents common cardiovascular disorders with a major emphasis on hypertension, ischemic heart disease, arrhythmias, heart failure, venous thromboembolism, dyslipidemia, stroke and peripheral arterial disease. Offered: Fall semester. **Prerequisite:** P2 standing. **Corequisites:** PHAR 710, PHAR 714.

PHAR 712 IPT III: Endocrinology and Metabolic Diseases

Credits 3. 3 Lecture Hours. IPT III: Endocrinology and Metabolic Diseases. This course presents common endocrine and metabolic disorders with an emphasis on diabetes, contraception, infertility, corticosteroids, thyroid, osteoporosis and menopause. Offered: Spring semester. **Prerequisites:** PHAR 710, PHAR 711, PHAR 714. **Corequisites:** PHAR 713 and PHAR 715.

PHAR 713 IPT IV: Neurology and Pain Management

Credits 3. 3 Lecture Hours. This course presents neurological disorders and pain with emphasis on seizure disorders, pain management, Parkinson's and Alzheimer's diseases, migraine headaches, muscle relaxants, neuromuscular blocking agents and anesthetics. Offered: Spring semester. **Prerequisites:** PHAR 710 and PHAR 711. **Corequisites:** PHAR 712, PHAR 715.

PHAR 714 IPT Recitation/Rounds I

Credit 1. 1 Lab Hour. This course introduces problem-based learning to develop skill sets for use in critical analysis and assessment of therapeutics cases using the SOAP process. Individual and team activities will focus on obtaining pertinent information, locating and utilizing appropriate resources, and integrating evidence-based practice into therapeutic decisions. Offered: Fall semester. **Prerequisite:** P2 Standing. **Corequisites:** PHAR 710 and PHAR 711.

PHAR 715 IPT Recitation/Rounds II

Credit 1. 1 Lab Hour. This course builds on prior skills while introducing the patient care plan process. Individual and team activities will build on previous courses with additional focus on written and verbal communication ability-based outcomes and critical evaluation and use of clinical resources. Offered: Spring semester. **Prerequisites:** PHAR 710, PHAR 711, PHAR 714. **Corequisites:** PHAR 712 and PHAR 713.

PHAR 720 Introduction to Academic Pharmacy

Credits 2. 2 Lecture Hours. This elective course is an overview of academic pharmacy, its role in higher education, and the triumvirate faculty roles in teaching, research, and service. During this course, the focus is on teaching in academic pharmacy and the value of teacher's self-knowledge. Various career paths in academic pharmacy are presented. Elective course. Offered: Fall semester. **Prerequisite:** P2 Standing.

PHAR 721 Nutrition, Vitamins, Complementary and Alternative Medicine

Credits 2. 2 Lecture Hours. This course provides an overview of the basic nutrients required by the body for optimal health. The student is introduced to methods of determining a patient's nutritional status and oral, enteral and parenteral nutritional requirements. Topics include the major nutrients of carbohydrates, lipids, protein, vitamins and minerals. The course will also provide an evidence-based approach to complementary and alternative medicine. Offered: Fall semester. **Prerequisite:** P2 standing.

PHAR 725 Applied Pain Pharmacotherapy

Credits 2. 2 Lecture Hours. This elective course focuses on pharmacotherapy of chronic pain states. The emphasis is on practical aspects of pain management such as effective and safe analgesic dose rotation and conversion, tailoring and individualizing therapy with analgesics, management of adverse events, documentation, and patient counseling. Problem-solving is based on various pain case studies. Elective course. Offered: Spring semester. **Prerequisite:** IPT IV.

PHAR 726 Microbiology/Immunology

Credits 3. 3 Lecture Hours. This course provides an overview of medical microbiology with the immunological responses and the host-parasite interaction in infectious diseases. It integrates the basic concepts of the immune response to infectious agents and other triggers and their roles in disease. An introduction to the rational management, prevention, and control of infectious diseases is provided. Offered: Spring semester. **Prerequisite:** P2 standing.

PHAR 727 Obesity Epidemic

Credits 2. 2 Lecture Hours. This elective course covers the various aspects of the obesity epidemic in the United States. The main focus is on the physiological and pathophysiological aspects of obesity. The complications of, prevalence, and incidence data from national health statistics regarding, and interventions for obesity are emphasized. Offered: Spring semester. **Prerequisite:** PHAR 712 (or concurrent enrollment).

PHAR 730 Vitamins, Phytomedicinals and Other Natural Products

Credits 2. 2 Lecture Hours. This course intends to explore vitamins, phytomedicinals, and other natural products, especially those used as nutritive supplements and homeopathic remedies, from a medicinal and chemical perspective. Particular emphasis will be placed on the chemical nature of these agents with regards to structure, physiochemical properties, structure-activity relationships, mechanism of action, drug-drug interactions, metabolism, and excretion. The course will look at these commonly used agents from a "medicinal chemistry" perspective. Offered: Fall semester. **Prerequisite:** P3 standing.

PHAR 734 Applied Drug Metabolism in Pharmacotherapy

Credits 2. 2 Lecture Hours. Ongoing discoveries in pharmacogenetics field are expanding drug metabolism in directions that lead to the future prospect of truly individualized drug regimens. The principles presented in this elective course will help to keep abreast of these new developments and applications in pharmacotherapy. This course will focus on fundamentals of drug metabolism, metabolic pathways, different CYP isoforms involved and their role in drug metabolism. General drug metabolic pathways (e.g. oxidation, reduction, conjugation), the induction and inhibition of CYP450 enzymes and their role in drug toxicity, drug-drug interactions, drug-food interactions, idiosyncratic reactions, and chemical carcinogenesis will also be discussed. **Prerequisite:** PHAR 611.

PHAR 741 Pharmaceutics II

Credits 3. 3 Lecture Hours. The second of a two-course series introduces students to the principles of biopharmaceutics and provides information on the theory, technology, formulation, evaluation, and dispensing of solid dosage forms and sterile products. The course additionally covers principles of controlled, targeted and self-regulated drug delivery systems. Fundamentals of cellular absorption of macromolecules and novel approaches for protein and gene delivery are also discussed. Offered: Fall semester. **Prerequisite:** P2 standing. **Corequisite:** PHAR 742.

PHAR 742 Basic Pharmacokinetics

Credits 3. 3 Lecture Hours. This course covers the measurement and interpretation of drug concentrations in biological fluids with a focus on the relationship between drug dose and effect. Students calculate and interpret pharmacokinetic parameters, discuss pharmacokinetic principles, and assess factors that affect drug disposition. Offered: Fall semester. **Prerequisite:** P2 standing. **Corequisite:** PHAR 741.

PHAR 745 Licit and Illicit Drug Use, Abuse and Addiction

Credits 3. 3 Lecture Hours. In this elective course, students will examine the use and abuse of licit and illicit drugs in our society from historical, biological, psychological and sociological perspectives. Drugs that will be covered in the class include cocaine, amphetamines, opiates, hallucinogens, marijuana, performance-enhancing drugs, prescription drugs, over-the-counter drugs, dietary supplements, alcohol, nicotine and inhalants. Students will become familiar with the topic of drug use and abuse through listening to didactic lectures, participating in small group discussions, writing opinion papers and organizing a community project. Offered: Spring semester. **Prerequisite:** PHAR 626.

PHAR 750 Drugs in Practice I

Credit 1. 1 Lecture Hour. This two-part elective builds upon pharmacotherapy information presented in the IPT Sequence and on the counseling skills developed in Clinical Communications. It specifically focuses on the most commonly used and recently approved drug products. Students will create their own study materials by therapeutic class, and on an alternating basis present material to their classmates. There will be a heavy emphasis on active, participatory and self-learning. Student will be responsible for mastering information on the warnings, contraindications, monitoring parameters, interactions, adverse reactions and patient information for the therapeutics categories covered. Students will also counsel a patient at the proper literacy level receiving a mock prescription for the products presented. Offered: Spring semester. **Prerequisite:** P3 standing.

PHAR 753 Clinically Significant Drug Interactions

Credits 2. 2 Lecture Hours. This elective course will cover clinically significant drug interactions of commonly prescribed medications. Most drug interaction software programs tend to "flag" all interactions, which makes it difficult for the pharmacist to understand the clinically significant interactions and make a recommendation. This course will provide methods for recognizing and acting upon significant drug interactions. Appropriate consultation techniques for making recommendations to providers and patients on clinically significant drug interactions will be taught. Offered: Spring semester. **Prerequisites:** PHAR 610 and PHAR 611.

PHAR 757 Pharmacy Management and Pharmacoeconomics

Credits 3. 3 Lecture Hours. Introduction to leadership and management activities within the health care system; analyzing problems involving time, equipment, funding, and human resources in a health care environment; emphasis on the role of the leader and developing problem solving abilities within a framework of pharmacy management; four pharmacoeconomic models, decision analysis methods, and measuring humanistic, clinical, and economic outcomes; emphasis is placed on skills to evaluate pharmacoeconomic literature. **Prerequisite:** P2 standing.

PHAR 758 Forensic Pharmacy

Credits 2. 2 Lecture Hours. This elective course introduces students to the field of forensic pharmacy which studies the interaction between law and medicinal science. It applies principles of both areas to legislation, litigation, agency regulation, and many aspects of the criminal justice system. Students may focus on such topics as: prescription forgery, pharmacologic euthanasia, testing for drugs of abuse, professional malpractice, drug impaired driving, drug induced violence, product tampering, health care fraud, patient confidentiality, patient consent, chemical restraints, drug effects as a mitigating factor in criminal sentencing, expert witnessing, or another forensic pharmacy subject agreed to by the instructor. Offered: Fall and spring semesters. **Prerequisite:** PHAR 657.

PHAR 759 Health Informatics And Patient-Centered Care

Credits 2. 2 Lecture Hours. This elective course introduces students to information technology in health care, with emphasis on the Electronic Health Record and Electronic Prescribing. The course focuses on students who will eventually become the end-user of the Electronic Health Record: practicing pharmacists in a clinical health care setting. The method of instruction includes practical applications and hands-on exercises to provide a complete learning system. The topics integrate the history, theory and benefits of information technology with the opportunity for students to enhance clinical skills in the electronic health record environment. Offered: Fall and spring semesters.

PHAR 761 Humanism in Pharmacy Practice

Credits 2. 2 Lecture Hours. Exploration of the fundamental principles of humanistic practice such as open communication, mutual respect, and absence of judgment between patients and health care providers; embracing and addressing patients' experience of health and illness and providing specialized technical functions of each profession; current literature, patience cases, speakers, personal reflection and group exercises to empower pharmacy students to provide and advocate for humanistic healthcare. **Prerequisite:** P2 or P3 standing.

PHAR 763 Geriatric Care

Credits 2. 2 Lecture Hours. Fundamentals of geriatric pharmacy with focus on anticoagulation, primary care diseases, neurologic disorders, cardiovascular disorders, neurologic disorders, infectious diseases, polypharmacy and inappropriate prescribing, drug interaction, community pharmacy, consultant pharmacy and Texas State Board of Pharmacy Rules and Regulations in geriatric care. **Prerequisite:** P2 or P3 standing.

PHAR 764 Utah School on Alcoholism

Credits 2. 2 Lecture Hours. Development of product knowledge, critical thinking skills, and patient care abilities with the principles and theories of addiction; offered by the University of Utah School on Alcoholism and other Drug Dependencies; additional information regarding the school and program of events may be found at medicine.utah.edu/uas/index.html. **Prerequisite:** P2 or P3 standing.

PHAR 765 Pediatric Pharmacotherapy

Credits 2. 2 Lecture Hours. Instruction in pediatric pharmacotherapy through a combination of lectures, brief student presentations and online cases; work groups make a 20-minute presentation on a pediatric topic; work groups to complete on-line case assignment and journal article reviews. **Prerequisite:** P2 or P3 standing.

PHAR 766 Landmark Studies

Credits 2. 2 Lecture Hours. Focus on important clinical trials that shape the use of pharmacotherapy; assist students in their ability to provide clinical evidence to support drug therapy recommendations in the treatment of common diseases encountered during their clinical rotations and future practice. May be repeated for credit. **Prerequisite:** P2 or P3 standing.

PHAR 767 Patient Monitoring

Credits 2. 2 Lecture Hours. Overview of laboratory testing and other diagnostic procedures such as imaging, body fluid analysis, centesis and fiberoptic visualization; topics include cardiology, hematology, blood chemistry, liver tests/biopsy, body fluid tests, radiography, Computed Tomography (CT) scans, Magnetic Resonance Imaging (MRI), gastrointestinal tests, arterial blood gases, pulmonary function tests, ultrasonography, cardiac catheterization, cardiac stress testing and echocardiography. **Prerequisite:** P2 or P3 standing.

PHAR 771 Spanish for Pharmacists

Credits 2. 2 Lecture Hours. The focus of this elective course will be to provide students with a basic Spanish foundation for communicating with pharmacy clients. Emphasis will be on medical/pharmacy terminology and the ability to give instructions regarding the purpose and use of medications. Offered: Fall and spring semesters. **Prerequisite:** P3 standing.

PHAR 773 Women's Health

Credits 2. 2 Lecture Hours. This elective course will highlight the special medical needs and health issues that females face. The course will include a review of female anatomy and physiology. Common diseases and disorders, along with preventive and management strategies, will be covered. Psychological, social, and economic aspects of women's health will also be addressed. The course will follow the physiological and neurological aging processes in woman. Conception and psychosocial issues are two of the topics that will be covered in depth. **Prerequisite:** P2 standing.

PHAR 774 Spanish for Pharmacists II

Credits 2. 2 Lecture Hours. Continuation of the study of a Spanish foundation for communicating with patients regarding health and medications; emphasis on specific medical problems and their therapies; use of health-medical-pharmacy knowledge that has been attained through experience and in previous coursework to educate and consult with Spanish-speaking patients regarding prevention; common diseases and medical therapies. **Prerequisites:** PHAR 771.

PHAR 777 Sterile Products/IV Admixtures (Lab)

Credit 1. 1 Lab Hour. This laboratory course introduces the standards for preparation of parenteral products and provides an opportunity for students to gain proficiency with calculating and compounding sterile formulations. It focuses on proper aseptic technique, preparation of intravenous admixtures, safe handling of cytotoxic and hazardous drugs, quality assurance, and labeling. Offered: Fall semester. **Prerequisite:** P2 standing.

PHAR 778 Drug Literature Evaluation and Patient Drug Education

Credits 3. 2 Lecture Hours. 1 Lab Hour. This course introduces students to drug information resources and the retrieval of and critical evaluation of drug literature related to providing pharmaceutical care. Principles and methods of drug education are presented and discussed with emphasis on development of informational materials and educational programs. Offered: Spring semester. **Prerequisite:** P2 standing.

PHAR 779 Advanced Diabetes Care and Management

Credits 2. 2 Lecture Hours. The purpose of this elective course is to provide the student with a multidisciplinary foundation in the principles of diabetes management. The student will develop their knowledge and ability to assess, manage, educate and monitor patients with diabetes. **Prerequisites:** PHAR 712 and PHAR 776.

PHAR 781 Seminar

Credits 0-1. 0-1 Lecture Hours. This course involves presentations in areas of current interest in pharmacy practice or in pharmaceutical sciences. The focus will be on promoting critical thinking skills. Emphasis will be placed on oral communications, scientific writing and possibly grant preparation. Grades, offered as a graded option only. Can be repeated twice up to maximum number of hours permitted. Offered: Fall and spring semesters. **Prerequisite:** Permission of instructor and department chair.

PHAR 785 Independent Study

Credits 1 to 3. 1 to 3 Other Hours. This course provides an opportunity for students to work with individual faculty mentors on research projects of variable scope. Activities could include library, laboratory and /or survey-type research, assistance with syllabus development for future elective courses, or other activities agreed on between the student and mentor. Grades, offered as a grade option only. Can be repeated twice up to a maximum number of hours permitted. Offered: Fall, spring and summer semesters. **Prerequisite:** Permission of instructor and department chair.

PHAR 789 Special Topics

Credits 1 to 3. 1 to 3 Other Hours. This course involves in-depth exploration of specialized topics within the college. Graded, offered as a graded option only. Can be repeated twice, up to maximum number of hours permitted. Offered: Fall, spring and summer semesters. **Prerequisites:** Permission of instructor and department chair; instructors who wish to offer this course will submit an outline of the content to be covered and how the students will be assessed to the Office of Academic Affairs before registration begins.

PHAR 800 Dean's Hour

Credits 0. 0 Lecture Hours. Dean's Hour. The theme of the Dean's Hour is to involve students in the college's leadership and strategic initiatives and engage them in academic excellence. It allows them to provide input into programmatic issues. This course also provides an opportunity for students to participate in reflective thought and writing. Offered: Fall and spring semesters. **Prerequisite:** Admission to Doctor of Pharmacy Program.

PHAR 801 Forum/Student Portfolios/ Professional Development III

Credits 0-1. 0-1 Lecture Hours. In this two-semester course students are exposed to leaders within the profession, practitioners from various settings, leading researchers and scientists, and other renowned individuals who discuss career opportunities, latest research results and the practice of pharmacy. Student portfolio assignments are due each semester. Offered: Fall and spring semesters. **Prerequisites:** P3 standing, HIPAA training, blood-borne pathogens training.

PHAR 802 Core Recitation (P3)

Credits 0. 0 Lecture Hours. Core Recitation provides additional interaction for students with their teachers/facilitators in order to further their knowledge, skills and abilities. These sessions are dedicated to reviewing, in a different format, and clarifying material previously presented in a core course. Most formative exams are scheduled during this course. Offered: Fall and spring semesters. **Prerequisite:** P3 standing.

PHAR 804 Grand Rounds I Capstone

Credit 1. 1 Lecture Hour. Grand Rounds I Capstone. This course is held during the P4 year while the PharmD Candidates are participating in the Advanced Pharmacy Practice Experiences (APPEs). It is designed to provide opportunities for didactic course content review that will assist students in their transition into the profession of Pharmacy. The course will primarily be on-line, case based review of topics. Cases are designed to provide assessment of the student's knowledge base on a variety of disease states and patient populations. Grading will be on satisfactory/unsatisfactory basis. Offered: Fall semester. **Prerequisite:** P4 standing. **Corequisite:** Currently enrolled in APPEs.

PHAR 805 Capstone

Credit 1. 1 Lecture Hour. This course is designed to provide students with the opportunity to reflect on the progress of their skills and knowledge, prepare and plan for post-graduate opportunities such as residencies and graduate school, and to provide time to review material the student feels strengthens his/her weaknesses. There will be a pharmacy law refresher offered as part of the course. Students will complete mock licensure exams, continuing education programs and other review activities. Grading will be on a satisfactory/unsatisfactory basis. Offered: P4 year. **Prerequisite:** P4 standing.

PHAR 810 IPT V: Mental and Behavioral Health Disorders

Credits 3. 3 Lecture Hours. Common mental and behavioral health disorders and their associated evidence-based treatments to include pharmacotherapeutic plans as well as complimentary non-pharmacotherapeutic evidence-based treatments; disease states include anxiety disorders, depressive disorders, insomnia and sleep disorders, conduct disorders, bipolar disorder, eating disorders, attention deficit hyperactivity disorder, schizophrenia and schizoaffective disorders and substance use disorders. **Prerequisite:** Third year classification in pharmacy; concurrent enrollment in PHAR 811 and PHAR 814.

PHAR 811 IPT VI: Critical Care, GI, Pulmonary, Rheumatic, Ophthalmology and Dermatology

Credits 5. 5 Lecture Hours. IPT VI: Critical Care, GI, Pulmonary, Rheumatic, Ophthalmology, and Dermatology. This course presents common GI conditions, rheumatologic disorders and pulmonary disease with major emphasis on peptic ulcer disease, GERD, irritable bowel disease, nausea, vomiting, diarrhea, benign prostatic hypertrophy, erectile dysfunction, incontinence, arthritis, gout, SLE, asthma, COPD and allergic rhinitis. Offered: Fall semester. **Prerequisite:** P3 standing. **Corequisites:** PHAR 810 and PHAR 814.

PHAR 812 IPT VII: Infectious Diseases

Credits 5. 5 Lecture Hours. This course presents antimicrobial agents used to treat common infectious diseases with major emphasis on organ-specific bacterial, fungal, and viral infections as well as surgical prophylaxis, sexually-transmitted diseases, HIV disease and opportunistic infections. A focal point is correlating medical microbiology with the medications used to treat specific organisms as well as current trends in emerging antimicrobial resistance. Offered: Spring semester. **Prerequisites:** PHAR 810, PHAR 811 and PHAR 814. **Corequisites:** PHAR 813, PHAR 815 and PHAR 875.

PHAR 813 IPT VIII: Oncology, Transplant and Genomics

Credits 3. 3 Lecture Hours. IPT VIII: Oncology, Transplant, and Genomics. This course presents common neoplastic diseases, organ transplantation, and pharmacogenomics with an emphasis on most common carcinomas, sarcomas and lymphomas, supportive and palliative care, solid organ transplants. Offered: Spring semester. **Prerequisites:** PHAR 810, PHAR 811 and PHAR 814. **Corequisites:** PHAR 812, PHAR 815 and PHAR 875.

PHAR 814 IPT Recitation/Rounds III

Credit 1. 1 Lab Hour. This course is designed for continued application of SOAP and patient care plan processes to critically analyze and solve increasingly complex patient problems. Individual and team activities will build on previous sequence courses with additional focus on effective written and verbal communication of literature critique and presentation. Offered: Fall semester. **Prerequisite:** P3 standing. **Corequisites:** PHAR 810 and PHAR 811.

PHAR 815 IPT Recitation/Rounds IV

Credit 1. 1 Lab Hour. The fourth of a four-class sequence builds on the course description of the IPT Recitation/Pharmacy Rounds Sequence (see under P2 course listings). Specifically, it covers the principle therapies associated with infectious diseases, oncology, supportive care and organ transplantation. Patient education regarding the issues surrounding their conditions and drug therapy are also identified and addressed. Students are responsible for participation in drug use decisions and devising rational pharmacy care plans (therapeutic strategies) and optimal drug dosage regimens, as well as determining appropriate parameters for outcome monitoring and assessment techniques for safety and efficacy. **Prerequisites:** PHAR 814 IPT Recitation/Rounds III, PHAR 810 IPTV: Psychiatry & Addiction; PHAR 811 IPT VI: GI, Pulmonary, Rheumatic, Ophthalmology, Dermatology, & Vitamins. **Corequisites:** PHAR 812 IPT VII, PHAR 813 IPT VIII. Offered: Spring semester.

PHAR 820 APPE: Elective I

Credits 6. 40 Other Hours. Opportunities to build on knowledge and skills acquired through didactic education and introductory pharmacy practice experiences and apply them in direct patient care activities in various pharmacy settings; participation in various activities that enhance the pharmacy profession and development as professional pharmacists; opportunities may include a topic area pertinent to pharmacy practice as approved by the College. **Prerequisite:** Fourth year Pharmacy classification.

PHAR 821 APPE: Elective II

Credits 6. 40 Other Hours. Opportunities to build on knowledge and skills acquired through didactic education and introductory pharmacy practice experiences and apply them in direct patient care activities in various pharmacy settings; participation in various activities that enhance the pharmacy profession and development as professional pharmacists; opportunities may include a topic area pertinent to pharmacy practice as approved by the College; second course of two APPE required electives. **Prerequisite:** Fourth year Pharmacy classification.

PHAR 822 APPE: Elective III

Credits 6. 40 Other Hours. Opportunities for students to build on knowledge and skills acquired through didactic education and introductory pharmacy practice experiences and apply them in direct patient care activities in various pharmacy settings; participation in various activities that enhance the pharmacy profession and development as professional pharmacists; opportunities may include a topic area pertinent to pharmacy practice as approved by the College optional APPE elective. **Prerequisite:** Fourth year Pharmacy classification.

PHAR 826 APPE: Research

Credits 6. 6 Other Hours. Observation and participation in the research pharmacist's role; emphasis on how to conduct experiments, analyze data and discuss results; continue to build knowledge base in the discipline of the preceptor and gain practical experience in research; review journal articles and write a synopsis to further develop medical writing skills and orally present journal articles. **Prerequisite:** P4 classification.

PHAR 828 APPE: Spinal Cord Injuries

Credits 6. 6 Other Hours. Centers around an interdisciplinary team that collects patient specific information to prevent, detect and resolve medication related problems and to make appropriate evidence-based patient centered medication therapy recommendation; development of SCI pharmacotherapeutic regimens and monitoring plans.

PHAR 829 APPE: Pharmacoeconomics

Credits 6. 6 Other Hours. Factors in formulary management and decision making including drug characteristics, drug administration and monitoring costs, quality of life, total costs, cost effectiveness, supply related issues and practice demand. **Prerequisite:** Enrollment in the Doctor of Pharmacy.

PHAR 830 APPE: Medication Therapy Management

Credits 6. 6 Other Hours. Optimization of therapeutic outcomes for patients through medication reconciliation on discharge medications and the provision of discharge counseling to medicine patients.

PHAR 841 Toxicology and Poison Management

Credits 2. 2 Lecture Hours. This course provides an overview of basic concepts in clinical toxicology including diagnosis and treatment of common poisonings with emphasis on patient-oriented toxicology. Current poison information systems and their clinical uses are provided. Focal points will include critical problem-solving skills, patient interview techniques, differential diagnosis of poisoning, rational therapeutic plans for toxicological problems, and patient monitoring parameters. Offered: Fall semester. **Prerequisite:** P3 standing.

PHAR 842 Patient Assessment

Credits 3. 2 Lecture Hours. 1 Lab Hour. This course is designed to develop skills in data collection, interpretation and evaluation of a patient's physical state. Physical examination principles are presented on select organ systems and are followed by practicums whereby students practice learned techniques. Additional skills in patient interviewing, SOAP note documentation, medication profiling and advisement are also covered. Offered: Fall semester. **Prerequisite:** P3 standing.

PHAR 855 APPE: Pain Management

Credits 6. 6 Other Hours. Introduction to treating patients for pain management in the hospital setting; focus on medication management of patients on pain medications; use of problem solving skills to gain experience with therapeutic monitoring, drug-related problems, and medication side effects. **Prerequisite:** P4 classification.

PHAR 856 Introduction to Pharmacoeconomics

Credits 2. 2 Lecture Hours. This course introduces the concepts of health outcomes research and pharmacoeconomic analysis and provides a basic framework to optimize health care resource allocation. Principles of measuring and analyzing costs and outcomes plus techniques used to evaluate them across drug treatments are discussed. The course reviews practice guidelines for pharmacoeconomic evaluation and describes conducting pharmacoeconomic research. Offered: Spring semester. **Prerequisite:** PHAR 756 and PHAR 778.

PHAR 857 APPE: Nutrition

Credits 6. 6 Other Hours. Gain professional skills in the area of nutrition/nutrition support; participation in a variety of clinical activities, functioning as an integral member of the health care team; emphasis on building knowledge and experience with enteral and parenteral nutrition and the ability to demonstrate understanding of common disease states and treatment modalities as well as ability to provide pharmaceutical care; most commonly encountered medical conditions may include malnutrition syndromes, malabsorptive syndromes (short gut, inflammatory bowel disease, etc.), high metabolic need states (burns, critical care, etc.), and conditions requiring specialized feeding devices. **Prerequisite:** P4 classification.

PHAR 858 APPE: Poison Control

Credits 6. 6 Other Hours. Work closely with the pharmacist and professional staff of a poison control center and possibly other pharmacy students, emergency medicine residents, and toxicology fellows; spend time with the professional staff on the phones handling patient and professional inquiries; emphasizes on becoming familiar with the role of a pharmacist in a poison control center, identifying various information resources used by poison center staff and ability to relay poison information to the lay public, emergency room staff and other health care professionals. **Prerequisite:** P4 classification.

PHAR 859 APPE: Surgery

Credits 6. 6 Other Hours. Introduction to clinical pharmacy practice in the outpatient surgery setting; designed to develop further the knowledge and understanding of the processes, procedures and skills necessary to provide pharmaceutical care to surgery patients. **Prerequisite:** P4 classification.

PHAR 860 APPE: Veterinary Medicine

Credits 6. 6 Other Hours. Introduction to veterinary pharmacology and therapeutics and the role of the pharmacist in the care of animals; evaluation of the most commonly used drugs in veterinary care and relation to the use of these drugs in humans; fundamental concepts to provide pharmaceutical care to animals and assist the veterinarian and owner in the care of pets and domestic animals; emphasis on the selection of the proper therapeutic agents for use in various species of animals. **Prerequisite:** P4 classification.

PHAR 862 APPE: Compounding

Credits 6. 6 Other Hours. Introduction to extemporaneous pharmaceutical compounding within the community setting; further development of knowledge and understanding of the techniques, processes, procedures and skills necessary to provide pharmaceutical care for patients needing compounded products; compound prescriptions not commercially available or economically feasible to manufacture in order to meet individual patient needs; most commonly compounded preparations may include oral liquids (solutions, suspension, etc.) capsules, suppositories, lozenges, nasal sprays and topical preparations (gels, creams and ointments). **Prerequisite:** P4 classification.

PHAR 863 APPE: Home Infusion

Credits 6. 6 Other Hours. Introduction to clinical pharmacy practice in the home infusion setting; further development of knowledge and understanding of the processes, procedures and skills necessary to provide pharmaceutical care for home infusion patients; general and clinical operations, identification and training of appropriate candidates to receive infusion therapy and the initial assessment and ongoing care planning for patients receiving infusions; development of skills necessary to prepare products for home infusion therapy. **Prerequisite:** P4 classification.

PHAR 864 APPE: Investigational Drugs

Credits 6. 6 Other Hours. Introduction to key concepts of Investigational Review Boards (IRB) and the role of the pharmacist in the use of investigational drugs; unique procedures of dispensing of investigational medications, drug accountability, study monitoring and reviewing drug orders; opportunity to attend an IRB meeting and work with clinical investigators who have ongoing research; preparation for work in an investigational drug service and an inside view of pharmaceutical research requirements. **Prerequisite:** P4 classification.

PHAR 865 APPE: Nuclear Pharmacy

Credits 6. 6 Other Hours. Advanced practice in a supervised, clinical experience in nuclear pharmacy and participation in patient management as a member of the nuclear medicine team; emphasis on regulatory matters, technology, distribution procedures and the specialized skills utilized in a nuclear pharmacy; active involvement in the distributive functions of compounding and dispensing radiopharmaceuticals, as well as the associated patient-oriented functions and consultative interactions with nuclear medicine personnel. **Prerequisite:** P4 classification.

PHAR 866 APPE: Managed Care

Credits 6. 6 Other Hours. Introduction to clinical pharmacy practice in the managed care setting; designed to develop further the knowledge and understanding of the pharmacist's role in formulary development and management, as a means of cost control and literature evaluation as it pertains to clinical decision making in specific patient cases; may be responsible for therapeutic class reviews, communication with patients, providers, and employer groups, evaluation, counseling and participation in the prior authorization process; development of skills necessary to be involved in Medication Therapy Management, using primary literature and cost-benefit analysis. **Prerequisite:** P4 classification.

PHAR 867 APPE: Professional Association Management

Credits 6. 6 Other Hours. Introduction to pharmacy association management at the national, regional or state level; designed to develop further the knowledge and understanding of the purpose, roles and responsibilities of pharmacy associations in the profession; responsible for recruitment and retention initiatives of members and developing and designing programs which appeal to both the newly graduated and the highly experienced; development of necessary to interact effectively in a business setting and evaluate legislation to determine possible implications to the profession. **Prerequisite:** P4 classification.

PHAR 868 APPE: Regulatory Affairs

Credits 6. 6 Other Hours. Introduction to the legal and regulatory processes that impact the profession; opportunities will vary according to the preceptor and site availability; delve into the enactment and enforcement of federal and state laws related to drug manufacture, drug distribution, drug use and pharmacy practice; includes working with federal or state agencies, regulatory or accrediting bodies, legal scholars, or others. **Prerequisite:** P4 classification.

PHAR 869 APPE: Health Informatics

Credits 6. 6 Other Hours. Focus on the areas of health informatics and its impact on practice; basic understanding of the history, language and concepts of information technology thereby exposing to the interdisciplinary environment of informatics project teams; database management, automation and robotics, electronic prescribing, and health records; location of the rotation will vary according to preceptor and site availability; emphasis on information searches, analysis and the development and dissemination of reports; become more familiar with HIPPA requirements and information security measures. **Prerequisite:** P4 classification.

PHAR 870 APPE: Administration

Credits 6. 6 Other Hours. Introduction to the administrative role pharmacists perform in different practice settings; opportunities will vary according to preceptor and site availability; rotation assignments may be made in community pharmacy or health-system pharmacy management, academic leadership, or other sites that feature a prominent administrative presence; continue to build knowledge base in the administrative, behavioral, economic and legal sciences; exploration of the role a manager plays in directing the organizational, financial and human relations aspect of the site; activities include reviewing pertinent literature, participation in management discussions, writing reports and working on assigned projects. **Prerequisite:** P4 classification.

PHAR 871 Pharmaceutical Care Lab and Medication Therapy Management

Credits 2. 2 Lab Hours. This course is preparation for the practice of pharmacy in ambulatory and/or institutional settings. Emphasis is placed on skills in using patient assistance devices as well as patient counseling, education and assessment. Didactic instruction is incorporated with experiential rotation inter-professional settings with credit earned toward medication therapy management certification. The application of appropriate communication and documentation is stressed. Offered: Spring semester. **Prerequisite:** P3 Standing.

PHAR 872 Social-Behavioral Aspects of Patient Care

Credits 2. 2 Lecture Hours. This course focuses on behavioral change relative to public health, health education, preventive health, health promotion and pharmacological practice. The course utilizes historical and cross-cultural examples to examine medication-taking experiences and their influence on drug-taking behaviors. Integration of information from both pharmaceutical and social sciences allows for the exploration of how and why drugs are discovered and used. Offered: Spring semester. **Prerequisite:** P3 standing.

PHAR 873 Pharmacy Professionalism

Credit 1. 3 Lecture Hours. Review and assess the knowledge, skills, attitudes and behaviors required of a professional pharmacist; offered in a practicum format using active learning techniques to understand the integration of content from the didactic curriculum in the development as professionals. **Prerequisite:** Third year Pharmacy classification.

PHAR 875 Clinical Pharmacokinetics

Credits 3. 2 Lecture Hours. 1 Lab Hour. This course is designed to reinforce the application of pharmacokinetic and pharmacodynamic principles along with enhanced of critical thinking and confident clinical decision-making regarding therapeutic drug monitoring. Patient-centered therapeutic plans that address pharmacokinetic problems are applied in the management of clinical cases. Offered: Spring semester. **Prerequisites:** PHAR 810 and PHAR 811. **Corequisites:** PHAR 812, PHAR 813 and PHAR 815.

PHAR 876 APPE: Acute Care General Medicine

Credits 6. 6 Other Hours. Substantial exposure and experience in the comprehensive treatment and inpatient management of the disease states of adult patients that are admitted to the hospital or other institutionalized setting with common acute or chronic conditions (e.g., hypertension, asthma, congestive heart failure, diabetes, or infectious diseases); utilization of problem-solving skills, development of therapeutic plans, monitoring lab values, and assessment for drug interactions and adverse drug reactions while tracking patients through completion of their therapy. **Prerequisite:** P4 classification.

PHAR 877 APPE: Ambulatory Care

Credits 6. 6 Other Hours. Preparation in treating patients in a general or specialized outpatient setting that are typically not seriously ill; focus on the medication management of specific diseases (such as hypertension, diabetes, asthma, etc.) or the general care of patients with chronic conditions; utilization of problem-solving skills, patient medication counseling, therapeutic monitoring, as well as addressing interaction, side effects and compliance issues in the care of these patients. **Prerequisite:** P4 classification.

PHAR 878 APPE: Community Practice

Credits 6. 6 Other Hours. Exposure to the daily clinical activities of the community pharmacy setting with the focus on a patient care approach; learn the goals of clinical intervention and the steps necessary to execute effectively those interventions; engagement in evaluating and solving drug-related problems, in interacting with the patient and acting as a primary health care source. **Prerequisite:** P4 classification.

PHAR 879 APPE: Hospital/Health System Pharmacy

Credits 6. 6 Other Hours. Understanding the various aspects of health-system pharmacy services; includes provision of products, clinical pharmacy services and pharmacy management issues; approach with an understanding that the ultimate goal in all health-system pharmacies is improving patient care. **Prerequisite:** P4 classification.

PHAR 880 APPE: Critical Care

Credits 6. 6 Other Hours. Preparation in treating patients in a critical care setting; focus on the medication management of patients in critical condition; utilization of problem-solving skills, patient medication counseling, therapeutic monitoring, as well as addressing interaction, side effects and compliance issues in the care of these patients. **Prerequisite:** P4 classification.

PHAR 882 APPE: Academic Internship

Credits 6. 6 Other Hours. Introduction to the academic practice of pharmacy; development and enhancement of knowledge and understanding of an academic career, development of personal teaching skills, and exposure to the various responsibilities associated with a full-time faculty position in pharmacy education; responsible for didactic and small group teaching, including active learning techniques, assessment, instructional technology and learning theories; exposure to class coordination techniques and the administrative components of academia. **Prerequisite:** P4 classification.

PHAR 883 APPE: Extended Care

Credits 6. 6 Other Hours. Opportunity to learn how to provide patient care for those who are housed in an extended-care facility or who are undergoing rehabilitation; emphasis on the ability to demonstrate empathy and to work in inter-professional teams; learn the different treatment options and therapeutic modalities utilized in these patient populations and take into consideration the different pharmacokinetic properties, dosing principles and therapeutic drug monitoring required of this population. **Prerequisites:** P4 classification and approval of preceptor.

PHAR 884 APPE: Geriatrics

Credits 6. 6 Other Hours. Opportunity to learn how to treat illnesses that commonly afflict older patients; learn the different treatment options and regimens utilized in this patient population and take into consideration the different pharmacokinetic properties, dosing principles and therapeutic drug monitoring required of this population. **Prerequisite:** P4 classification.

PHAR 886 APPE: Infectious Diseases

Credits 6. 6 Other Hours. Gain professional skills in an infectious disease practice environment; opportunity to participate effectively in the patient care decision-making process; engaged in a variety of clinical activities, functioning as an integral member of the health care team; emphasis on the ability to demonstrate their understanding of common infectious processes, to evaluate critically, patients for appropriate antimicrobial pharmacotherapy, and to communicate recommendation to other health care professionals. **Prerequisite:** P4 classification.

PHAR 887 APPE: End-of-Life Care

Credits 6. 6 Other Hours. Gain professional skills with end of life care; opportunity to participate effectively in the process of providing patient care and comfort in the hospice or other setting; participate in a variety of activities, functioning as an integral member of the health care team; emphasis on the ability to demonstrate empathy and understanding of common indications for and treatment modalities in end-of-life. **Prerequisite:** P4 classification.

PHAR 888 APPE: Public Health

Credits 6. 6 Other Hours. Exposure to the daily clinical activities of the pharmacist practicing in a rural health setting; types of patients and disease states encountered by will vary based on the individual site; disaster preparedness and bioterrorism preparation and countermeasures may be part of this experience; partner with communities and/or health departments to assess health priorities and develop plans to address identified needs; evaluation and solving drug-related problems, patient interaction and acting as a primary health care source to the medically underserved; development of an understanding of inter-professional working relationships. **Prerequisite:** P4 classification.

PHAR 892 APPE: Drug Information

Credits 6. 6 Other Hours. Serve as a primary provider of drug information in a structured environment that possesses both the resources and the faculty expertise in clinical information requests, design and execute a systematic search strategy, assimilate the information retrieved and formulate and communicate an appropriate response; continue to build knowledge base of available drug information resources and gain practical experience in critically evaluating those resources; prepare drug monographs and journal articles to further develop medical writing skills and orally present journal articles and drug reviews. **Prerequisite:** P4 classification.

PHAR 893 APPE: Pediatrics

Credits 6. 6 Other Hours. Opportunity to learn how to treat acute and chronic illnesses that commonly afflict infant and child patients; learn the different treatment options and regimens utilized in this patient population and take into consideration the different pharmacokinetic properties, dosing principles and therapeutic drug monitoring of children.

Prerequisite: P4 classification.

PHAR 894 APPE: Oncology

Credits 6. 6 Other Hours. Introduction to clinical oncology pharmacy practice; designed to develop further the knowledge and understanding of the pharmaceutical support to the inpatient oncology service patient including staging, treatment, dosing, monitoring and supportive care issues, including comfort, empathy and pain management; responsible for designing a treatment plan for cancer patients, identifying and following monitoring parameters and supplying specific supportive regimens based on current literature and guidelines. **Prerequisite:** P4 classification.

PHAR 896 APPE: Cardiology

Credits 6. 6 Other Hours. Introduction to clinical pharmacy practice in the cardiology setting; further develop the knowledge and understanding of the pharmacotherapy of patients with a variety of cardiac conditions; responsible for monitoring patients, utilizing appropriate resources to provide patient-centered care and providing drug information to other health care professionals; develop the skills necessary to evaluate critically, patients for appropriate pharmacotherapy and to communicate recommendations to other health care providers. **Prerequisite:** P4 classification.

PHAR 897 APPE: Mental Health

Credits 6. 6 Other Hours. Gain professional skills in the area of behavioral modification; designed to further develop the knowledge and understanding of the methods, monitoring and skills necessary to provide patient care for adult patients with psychological or behavioral disorders; responsible for assessing, designing and monitoring patients with various psychological or behavioral disorders and presenting therapeutic recommendations as a member of an interdisciplinary team; develop the skills necessary to provide care to these patients. **Prerequisite:** P4 classification.

PHAR 898 APPE: Emergency Medicine

Credits 6. 6 Other Hours. Rotation through different areas of an emergency department (ED); may necessitate a flexible schedule; direct interaction with the ED pharmacist assisting with conscious sedation, critical responses, reviewing lab values, patient charts, medication histories, indications and safety of medications administered in the emergency department; spent interacting with other disciplines, attending meetings, answering drug information questions or completing projects. **Prerequisite:** P4 classification.

PHAR 899 APPE: Specialty Pharmacy Practice

Credits 6. 6 Other Hours. Exploration of a specific area of interest that may or may not be a traditional career path in pharmacy under the supervision of a preceptor; specialty areas vary according to preceptor and site availability; potential opportunities include compounding, specialty independent pharmacy, nuclear pharmacy, veterinary practice, medical missions, pharmaceutical industry, nutritional practice or others.

Prerequisite: P4 classification.