(RX) PHARMACY

Courses

RX 303. Introduction to Pharmacy. 1 Hour.
This course develops an understanding and provides the history of the profession of pharmacy while also covering the educational requirements to obtain a doctorate of pharmacy degree. Course topics include the ethics of pharmacy, career choices that are possible with the PharmD degree, and regulatory standards such as HIPAA. Professionals from the school of pharmacy and from pharmacy partners in the field describe to the class their educational pathway and their current practice.

RX 310. Drug Information and Clinical Research Design I. 2 Hours.
This course is designed to lay a strong foundation for the student to be able receive and evaluate drug information (DI) questions, efficiently research tertiary and secondary resources, select and evaluate scientific literature, synthesize evidence-based DI responses, and communicate that evidence at the right level and format.

RX 311. Medical Physiology and Pathophysiology I. 4 Hours.
This course will provide an in-depth examination of human physiological processes and pathologic disorders by organ system. General principles of pathology, immunology, genetics and neoplasia are introduced, along with the nervous system: peripheral; CNS, pain transmission and management; neurological and psychiatric disorders; and renal physiology and disease. Will include clinical symptom presentation and cellular basis of disease.

RX 312. Medical Physiology and Pathophysiology II. 4 Hours.
A continuation of the fall course in which the additional following organ systems are examined: cardiovascular, endocrinology, hematology/ oncology, pulmonary, GI/ hepatic, reproductive, musculoskeletal, dermatology, and otology.

RX 321. Pharmaceutics I: Drug Characteristics and Calculations. 3 Hours.
This course covers the general chemical and biological principles upon which the interactions between drugs and living systems are based. Pharmaceutical calculations are also covered.

RX 322. Pharmaceutics II: Drug Delivery Systems with Lab. 4 Hours.
This course integrates mathematical concepts relating to pharmaceutical dosage forms with prescription compounding techniques. Physical and chemical properties of prescription additives are considered as they affect accuracy, potency, and stability of common dosage forms. Laboratory portion involves basic compounding skills.

RX 342. Medical Microbiology. 3 Hours.
This course covers the fundamentals of the microbial world with emphasis on the medical aspects of microbiology, molecular basis of pathogenicity, and chemotherapy. Students also examine the expansion of basic immunological principles presented in RX 311 to include altered immune states, transplantation immunology, and network regulation of the immune response.

RX 350. IPPE I (Intro Pharmacy Practice Exp I - Community). 4 Hours.
The IPPE Community rotation course is designed to expose P1 students to the everyday practice of pharmacy in the different types of community settings (Chain store, Grocery store, Independent…etc.). The students is introduced to all aspects of professional interactions with patients and coworkers, medication dispensing, and pharmacy management. Students participate in a 4 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in a community pharmacy to observe and participate in effective and appropriate patient-centered pharmaceutical care in the community setting. The student develops their understanding of how members of the pharmacy are part of an interdisciplinary team in order to provide superior patient-centered care. The IPPE I Community Course is a 4 week rotation course held in the Summer Term (May to August). Students are assigned by Office of Experiential Education to one of the summer blocks.

RX 351. Practice Skills Lab I. 1 Hour.
This course covers the operational procedures relating to community pharmacy via didactic lectures and laboratory experiences. Emphasis is placed on a general knowledge of over-the-counter products, prescription processing, business/inventory management, specialty patient services and the top 300 drugs seen in a community pharmacy as preparation for the student's first Introductory Pharmacy Practice Experience (IPPE).

RX 352. Communications and Ethics. 1 Hour.
This course fosters an understanding of the foundations of clinical communication, including use of direct and indirect clinical communication techniques to increase the participation of patients in achieving positive clinical outcomes and maximizing their health-related quality of life.

RX 357. Introduction to Therapeutics: Self Care/OTC. 3 Hours.
This course is intended to allow students to further their development in ensuring the safe, appropriate, and economical use of drugs in patient care. Successful completion of the entire Pharmacotherapeutic course series is a prerequisite to advanced clinical practice experiences (APPEs). The emphasis of this course is on developing skills in medication therapy management for many of the most common disease states encountered in community practice (focusing on patient selfcare and over the counter treatment options). This course augments the ability of students to utilize evidence-based treatment guidelines, make sound clinical recommendations, and provide therapeutic medication monitoring and management.

RX 361. Medical Biochemistry. 3 Hours.
General overview of major metabolic pathways, electrolyte balances and enzymatic systems important for drug pharmacodynamics.

RX 362. Practice Skills Lab II. 1 Hour.
The course is designed to provide students with an in-depth introduction to all aspects of skillful delivery of community pharmacy services. Prerequisite(s): RX 351.

RX 371. Clinical Chemistry & Calculations. 1 Hour.
This course emphasizes the use of clinical laboratory tests in disease management and introduces the case-study format of recitation.

RX 372. Applied Med Phys & Pathophysiology II (MPP II) for Pharm. 2 Hours.
This course is designed to initiate students to critical thinking and problem solving, and to reinforcing content presented in P1.2 semester didactic courses. Prerequisite(s): RX 371.

RX 401. Pharmacy Management. 3 Hours.
This course is designed to provide the student with a broad base of information and skills for pharmacy management in various professional practice settings. Management principles covered include planning, organizing, directing budgeting, and operating a pharmacy and to use the economic analyses to manage limited pharmacy resources. The course prepares the pharmacy student to understand and work at various levels of management.

RX 411. Drug Information & Clinical Research Design II. 2 Hours.
The intent of this course is to familiarize students with appropriate clinical experimental design and statistical methods of analysis. The course emphasizes drug information to enhance the ability of students to critically evaluate the literature. An overview of medial epidemiology rounds out the course.

RX 420. Pharmacology of Mind-Affecting Drugs. 2 Hours.
This elective course addresses the pharmacology (cellular through behavioral) of commonly used mind affecting drugs, both licit and illicit. Students examine different neurotransmitter systems, and explore how pharmacological manipulation leads to objective and subjective changes in mental state and functioning.

RX 421. Pharmacology and Medicinal Chemistry I. 3 Hours.
This course provides an in-depth survey of pharmacology with particular coverage of drugs affecting the peripheral and central nervous systems; treatment of inflammatory states; agents that influence water and ion conservation; and the cardiovascular system. Selected topics for discussion enhance the understanding of structure-activity relationship of agents.

RX 422. Pharmacology and Medicinal Chemistry II. 3 Hours.
This course provides in-depth coverage of the pharmacology & medicinal chemistry of drugs in the following areas: microbial infections; GI and ophthalmic treatments; agents that influence water and ion conservation; pulmonary and the cardiovascular system. Selected topics of importance for understanding the SAR of agents in each class are discussed along with the basis for biologic agents.

RX 433. Principles of Pharmacokinetics. 3 Hours.
This course will provide conceptual and quantitative description of pharmacokinetic (PK) theory and its clinical application by combining physiology, pharmaceutics, mathematics and clinical assessment. The time course of drug absorption, distribution, metabolism, and excretion and physiological factors that influence each process are described to explain the fate of the drug administered. Application to clinical situation to design and optimize dosage regimen is also discussed.

RX 434. Practice Skills Lab III. 1 Hour.
This course is designed to provide students with the foundation necessary to understand the needs and resources required in providing rural pharmacy healthcare access and to be able to practice pharmacy effectively in the rural institutional setting. A combination of didactic lectures and laboratory experiences prepare students for their second Introductory Pharmacy Practice Experience (IPPE), while emphasizing the unique aspects of rural healthcare delivery.

RX 441. Natural Products Debate. 2 Hours.
Using a debate format, this course is designed to provide students with a more in-depth understanding of the mechanism of action, efficacy, safety and scientific evidence available for the top selling natural products in use today.

RX 443. Social and Behavioral Pharmacy. 2 Hours.
This course provides an understanding of the foundations of social & behavioral pharmacy, including topics in disease management, health promotion, disease prevention and pharmacoepidemiology that allow pharmacists to help patients achieve positive outcomes and maximize their health-related quality of life.

RX 450. Introductory Pharmacy Practice Exp – Institutional. 3 Hours.
The goal of this rotation is to expose students to the everyday practice of pharmacy in the institutional setting. Students will be introduced to all aspects of professional interactions with patients and coworkers, medication distribution and/or dispensing, and pharmacy management. It is to be understood that students have achieved and can demonstrate competency in the categories mentioned in IPPE-Community and that this institutional rotation is to build on these competencies and advance student's learning to the next level.

RX 451. Bone and Joint Disorders. 2 Hours.
This course will provide a more detailed description of normal bone and joint structure, function and metabolism, pathophysiology of major disorders including various forms of osteoporosis, Paget's disease, osteomalacia, rheumatoid and osteoarthritis, osteogenesis imperfect, bone cancer, diagnosis and available treatments for these disorders. Prerequisite(s): RX 311 and RX 312.

RX 453. Professional Dev & Career Skills for Pharmacy Students. 2 Hours.
This course is intended to 1) improve students' knowledge and confidence with career skills and 2) help students identify their career goals in pharmacy. Through a variety of lectures, assignments, and reflections, students work to improve their career skills and develop their professional and career goals. Emphases are placed on SMART goals, CV and letter of intent development, and interview and presentation skills. Post-graduate employment opportunities including hospital, ambulatory care, and community pharmacy and post-graduate advanced training opportunities including residency and board certification are discussed. The overall goal of this course is to provide students with the professional and career skills they need for successful post-graduate employment.

RX 456. Individualized Pharmacokinetic Dosing. 2 Hours.
This course provides students with a survey of competent and efficient delivery of patient centered pharmacy services using applied pharmacokinetics. Emphasis is on Individualized Dosage Regimen design/revision; incorporating clinical pharmacokinetic information management, therapeutic planning, patient response monitoring, outcomes assessment; and professional communication skills.

RX 458. Pharmacoeconomics. 3 Hours.
This course is designed to introduce the pharmacy student to economic theories relevant in the health care arena and the application of pharmacoeconomic methodologies in evaluating drug therapy management. Pharmacoeconomic topics covered include cost-minimization analysis (CMA), cost-benefit analysis (CBA), cost-effect analysis (CEA), and cost-utility analysis (CUA). Additional topics in epidemiology and pharmacoepidemiology are also covered. At the end of this course, students comprehend the economic factors driving the decision making process found in the health care industry and evaluate the pharmacoeconomic literature for the purpose of decision making.

RX 461. Pharmaceutical Analysis. 2 Hours.
This course will cover an introduction and survey of instrumental methods and detailed study of the analytical techniques with particular reference to pharmaceutical applications. It includes chromatographic analysis of pharmaceutical agents, metabolites, and clinical samples, methods for identification of pharmaceutical agents and metabolites, and spectral techniques used in quantitative analysis of clinical samples. Prerequisite(s): RX 361 and RX 321 and RX 322.

RX 462. Substance Use Disorders. 2 Hours.
In this course, students explore the use and misuse of prescription drugs, over-the-counter meds, and illicit substances. Students also examine current trends in prevention efforts and evidence-based treatment.

RX 464. Practice Skills Lab IV. 1 Hour.
This course is designed to provide students with the foundation necessary to understand the needs and resources required in providing pharmacy healthcare access and to be able to practice pharmacy effectively in the institutional setting. A combination of didactic lectures and laboratory experiences prepare students for their second Introductory Pharmacy Practice Experience (IPPE), while emphasizing the unique aspects of institutional healthcare delivery.

RX 471. Advances in Drug Delivery Systems. 2 Hours.
This course will cover advanced delivery systems used in the clinical market and research field to improve therapeutic efficacy of agents. Prerequisite(s): RX 321 and RX 322.

RX 472. Pharmaceutical Marketing and Promotion. 2 Hours.
The course is designed to provide a comprehensive and thorough overview of marketing and advertising of FDA approved drugs in the US. Emphasis will be placed on the environment of pharmaceutical marketing, marketing research, pharmaceutical advertising, product branding, and pharmaceutical detailing. Prerequisite(s): RX 401.

RX 474. Pharmacotherapeutics I. 3 Hours.
This course provides an introduction to the concepts involved in ensuring the safe, appropriate, and economical use of drugs in patient care. Successful completion of the entire Pharmacotherapeutic course series is a prerequisite to advance clinical practice experiences (APPE). This course emphasizes a basic foundation in medication therapy management through an overview of the general principles of case-based problem-solving and a systematic approach to rational drug selection. Topics in clinical pharmacokinetics, special populations, and evidence-based medicine are also discussed. In addition, student explore the application of these principles to several common disease states.

RX 475. Pharmacotherapeutics II. 3 Hours.
This course is intended to allow students to further their development in ensuring the safe, appropriate, and economical use of drugs in patient care. Successful completion of the entire Pharmacotherapeutics course series is a prerequisite to advanced pharmacy practice experiences (APPEs). The emphasis of these courses will be on developing skills in medication therapy management for many of the most common disease states encountered in practice. This course will augment students' abilities to utilize evidence-based treatment guidelines, make sound clinical recommendations, and provide therapeutic medication monitoring and management. Topics covered are listed in the course schedule at the end of this document.

RX 481. Contemporary Issues in Women's Health. 2 Hours.
This course is intended to increase understanding of how being a woman impacts health risks and outcomes from physiological, psychological and societal perspectives.

RX 482. HIV/AIDS. 2 Hours.
HIV/AIDS is a modern day pandemic that has killed millions worldwide and has infected even more. This course will investigate various aspects of this scourge, including, how HIV infects and manipulates a cell to produce new virus, how HIV leads to AIDS, available treatments, current research, epidemiology of the disease, its impact on various societies, and its history. Prerequisite(s): RX 342.

RX 483. Environmental Basis of Disease. 2 Hours.
This course provides an in-depth examination into the relationship between environmental exposures and the development of common disease states. Diseases states covered in this class include cancer, metabolic disorders, neurodegenerative diseases, lung disease, and reproductive disorders. Toxicant classes to be discussed include heavy metals, dioxins, pesticides, endocrine disruptors, obesogens, and carcinogens. Students work independently on projects aimed at communicating environmental risks to scientific and nonscientific audiences. Prerequisite(s): RX 312.

RX 489. History of Pharmacy. 2 Hours.
This elective course presents a comprehensive history of the pharmacy profession from its origins in ancient civilizations and its evolution to current day pharmacy practice. Along with didactic presentations, students are introduced to the curation of the Husson University Pharmacy Historical Collection and its use to understand changes in American pharmacy practice over the past 200 years.

RX 490. Special Topics in Research. 2 Hours.
This is an elective offering for students to gain experience conducting research by working closely with a School of Pharmacy faculty member. Students will learn the scientific method and be involved in a specific project overseen by the faculty member. This is a lab-type course. Students need to talk with faculty members about their research interests and be approved to sign up for the appropriate section.

RX 491. Applied Pharmacology & Pharmacotherapeutics I. 2 Hours.
This is the first section of a sequence designed to enhance students' team-based critical thinking and problem solving abilities while reinforcing content presented in third semester didactic courses.

RX 492. Applied Pharmacology and Pharmacotherapeutics II. 2 Hours.
This is the second section of a sequence designed to enhance students' team-based critical thinking and problem-solving abilities while reinforcing content presented in fourth-semester didactic courses.

RX 499. Topic/. 1-6 Hour.
This course of variable content will provide students with the opportunity to explore selected topics in Pharmacy under the guidance of Pharmacy faculty.

RX 503. Ambulatory Care & Institutional Intro Pharm Pract (IPPE P3). 1 Hour.
This third year Introductory Pharmacy Experiential Education (IPPE) course introduces students to the role of the pharmacist in ambulatory care and institutional settings that pharmacists participate in during practice. Students observe the confidence, knowledge, skill, and professionalism required for pharmacists to function competently. They also gain experience in communicating with patients, other healthcare providers, and staff involved in the practice of pharmacy. The course incorporates interprofessional education and interprofessional collaboration as appropriate. Students apply their didactic and basic pharmaceutical sciences learned in the classroom and support their readiness for APPE coursework.

RX 504. Clinical Pharmacy Capstone. 1 Hour.
In this course students present their longitudinal capstone patient that has been followed for the 3 preceding years. Additionally, the course incorporates interprofessional education and interprofessional collaboration as appropriate. Students apply their therapeutic and basic pharmaceutical sciences learned in the classroom and support their readiness for APPE coursework.

RX 505. Practice Skills Lab V. 1 Hour.
This course surveys competent and efficient delivery of patient centered pharmacy management services. Emphasis is placed on therapeutic solution findings and incorporates information management, therapeutic planning, monitoring and outcomes, and professional communication skills.

RX 523. Pharmacology and Medicinal Chemistry III. 3 Hours.
This course is the third in a four-part series that provides an in-depth investigation into the pharmacology and medicinal chemistry of various drugs. Emphasis is placed upon understanding mechanisms of action that provide therapeutic benefit, mechanisms of toxicity that result in adverse events, and drug interactions that impact efficacy.

RX 524. Pharmacology and Medicinal Chemistry IV. 3 Hours.
This course is the final part in a four-part series that provides an in-depth investigation into the pharmacology and medicinal chemistry of various drugs. Emphasis is placed upon understanding mechanisms of action that provide therapeutic benefit, mechanisms of toxicity that result in adverse events, and drug interactions that impact efficacy.

RX 531. Cognitive, Communication, and Case-based Critical Thinking V. 3 Hours.
Designed to provide students with a survey of competent and efficient delivery of patient centered pharmacy services. Emphasis will be placed on therapeutic solution finding incorporating information management; therapeutic planning, monitoring and outcomes; and professional communication skills.

RX 533. Individualized Kinetic Dosing Lab. 1 Hour.
This course provides students with a survey of competent and efficient delivery of patient centered pharmacy services using applied pharmacokinetics. Emphasis will be on Individualized Dosage Regimen design/revision; incorporating clinical pharmacokinetic information management, therapeutic planning, patient response monitoring, outcomes assessment; and professional communication skills.

RX 534. Practice Skills Lab VI. 1 Hour.
This course is designed to provide students with a survey of competent and efficient delivery of patient-centered pharmacy management services. Emphasis is placed on therapeutic solution findings incorporating information management; therapeutic planning, monitoring and outcomes; and professional communication skills.

RX 541. Vaccinations. 2 Hours.
This course is designed to prepare students for certification in administration of drugs and immunizations upon graduation and licensure as a pharmacist. Using CDC and ASHP guidelines, the course will focus on immunological, administrative, and clinical considerations for pharmacists administering vaccines. Prerequisite(s): RX 432 and RX 422.

RX 542. Clinical Calculations Capstone. 2 Hours.
This course is designed to focus on clinically relevant pharmacy calculations to assist students with competency in performing computations. This course is not intended to be a comprehensive review of all pharmaceutical calculations.

RX 551. Drug Information & Clinical Research Design III. 2 Hours.
In this course, student-pharmacists use the systematic approach to search, find, and evaluate medical literature to provide written summaries and evidence-based, clinically-focused answers to healthcare professionals' question(s) in order to optimize patient care.

RX 552. Pharmacy Law. 3 Hours.
This course is intended to provide an overview of federal and state laws that regulate the practice of pharmacy. This course will cover legal and ethical issues that can occur as pharmacists practice patient-centered care and medication management.

RX 561. Sports and Exercise Medicine for Pharmacists. 2 Hours.
Covers the role the pharmacist can have in helping with minor injuries, sports related illnesses, and the education of the adverse affects of "doping".

RX 562. Clinical Toxicology. 2 Hours.
This course covers the study of the clinical toxicology of therapeutic agents, some natural products and some venoms. Mechanisms of toxicity, causes, detection and treatment will be discussed where relevant.

RX 563. Drug Development Process from Inception to Approval and Mark. 2 Hours.
The goal of this course is to provide a detailed understanding of drug discovery and development through regulatory approval and marketing in the Pharmaceutical industry. It will cover the impact of generic drugs and of managed healthcare organizations.

RX 564. Clinical Drug Interactions. 2 Hours.
This course expands upon drugs interactions knowledge gained in various HUSoP courses, more particularly by delving into the underlying mechanisms. Additionally, clinically relevant drug interactions for different classes of medications are reviewed to prepare students to identify and prevent harmful drug-drug interactions in a variety of practice settings. Students are expected to use previously gained knowledge to research drug-drug interactions. Prerequisite(s): RX 576.

RX 565. Geriatric Pharmacotherapy. 2 Hours.
This elective is designed for students to learn key geriatric pharmacotherapy principles and gain insight into the complex needs of older adults through didactic instruction, case-based problem solving, and self-assessment questions. The course will prepare the student to provide pharmaceutical care to elderly patients by learning general principles of aging, geriatric assessment skills, and pharmacotherapy of selected disease states and syndromes common to the senior population.

RX 566. Drug-Induced Psychiatric Diseases. 1 Hour.
This course involves the study of neuropsychiatric diseases that are caused or induced by medication use. Students will learn to think about the possibility of medication contribution to CNS disorders; how to identify and categorize these drug-induced diseases; and how to prevent them and/or manage them when they occur.

RX 567. Ambulatory Care Pharmacotherapy. 2 Hours.
This elective course is designed to expose students to advanced issues surrounding the appropriate use of medications in ambulatory patients. A systematic approach to the identification and resolution of drug therapy problems will be developed through the use of various methodologies, including work-ups of patient cases, journal club exercises, and debates of clinical controversies. Students will be expected to justify their decisions based on an evaluation of the current literature.

RX 568. Complementary & Alternative Medicine (CAMS) Inter-Prof Exp. 1-2 Hour.
In this course, students gain an understanding of CAMS therapy by direct experience and reflection. Students also use cases and work on inter-professional teams to discuss the application of these therapies. In addition, students rely upon recent research to gain more in-depth knowledge of the benefits and limitations of certain CAMS methods.

RX 569. Infectious Diseases. 2 Hours.
This advanced elective course utilizes active learning strategies to address the therapeutic use of anti-infective agents in the treatment of selected infectious diseases. Pharmacology, pharmacokinetics, pharmacodynamics, and clinical microbiology topics will be integrated and reinforced throughout the student's experience. Problem based learning strategy will provide students the opportunity to apply therapeutic principles and evaluate the management of specific infectious diseases.

RX 571. Pharmacy Practice Management. 3 Hours.
This course provides the student with a broad base of information and skills to practice in pharmacy management in various professional settings. Management principles covered include planning, organizing, directing budgeting, and operating a pharmacy and to use the economic analyses to manage limited pharmacy resources. The course prepares the pharmacy student to understand and work at various levels of management.

RX 572. Clinical Chemistry. 2 Hours.
The influence of disease states on the results of laboratory diagnostic procedures and the effects of drug therapy on diagnostic procedures.

RX 573. Drug Disposition and Interactions. 2 Hours.
Students in this course examine the ADME processes (absorption, distribution, metabolism and excretion), and interplays between transporters and enzymes in drug metabolism and drug interactions. The relationship between drug administration and drug response is discussed. The course covers various approaches of human dose prediction, and utilizes computer simulation programs (Phoenix®WinNonlin®, Simcyp®) to establish pharmacokinetics (PKs) and pharmacodynamics (PDs) relationships and evaluate drug-drug interactions. Prerequisite(s): RX 321.

RX 574. Advanced Psychiatric Pharmacotherapy. 2 Hours.
This course reviews the various types of mental illness, and the application of pharmacotherapy and non-pharmacotherapy to psychiatric disorders. Major classes of medications include antidepressants, mood stabilizers, stimulants, antipsychotics, anxiolytics and other psychotropics. Students review in detail the indications, contraindications, side effects and adverse reactions and drug interactions. The course places special emphasis on the applications of psychopharmacology to clinical case studies across the lifespan, including children, adolescents, adults, and geriatric populations.

RX 576. Pharmacotherapeutics III. 4 Hours.
This course introduces students to the basic knowledge and skills required to practice pharmacy in the real world. Successful completion of the Pharmacotherapeutics 1 – 4 series is a prerequisite to Advanced Pharmacy Practice Experience (APPE). The emphasis of these courses is placed on the medical management of the most common disease states that students may encounter during clinical rotations and in clinical practice. The course augments students' ability to utilize evidence-based treatment guidelines, make sound clinical recommendations and provide pharmacokinetic and therapeutic medication monitoring and management.

RX 577. Pharmacotherapeutics IV. 4 Hours.
This course is intended to allow student pharmacists to further their development in ensuring the safe, appropriate, and economical use of drugs in patient care. Successful completion of the entire Pharmacotherapeutics course series is a prerequisite to advanced pharmacy practice experiences (APPEs). The emphasis of these courses is on developing skills in medication therapy management for many of the most common disease states encountered in practice. This course augments student pharmacists' abilities to utilize evidence-based treatment guidelines, make sound clinical recommendations, and provide therapeutic medication monitoring and management. Prerequisite(s): RX 576.

RX 582. Critical Care. 2 Hours.
Designed to emphasize the efficacy, safety, and comparative value of drug therapy in the pharmacotherapeutic management of critically ill patients. Knowledge of physiology, pharmacology, and drug therapy management is applied to disease states and conditions specific to this population. Didactic instruction is augmented by active learning through case studies and discussion of contemporary issues in critical care.

RX 583. Essential Medical Literature for Primary Care. 2 Hours.
This advanced elective course covers the essential and practice changing studies that clinical practitioners should be familiar with in relation to primary care. The course covers basic points of medical literature evaluation as well has how to apply medical literature to practice.

RX 584. Infectious Diseases. 2 Hours.
This advanced elective course utilizes active learning strategies to address the therapeutic use of anti-infective agents in the treatment of selected infectious diseases. Pharmacology, pharmacokinetics, pharmacodynamics, and clinical microbiology topics will be integrated and reinforced throughout the student's experience. Problem based learning strategy will provide students the opportunity to apply therapeutic principles and evaluate the management of specific infectious diseases.

RX 591. Applied Pharmacology & Pharmacotherapeutics III. 2 Hours.
This recitation-style course focuses on the application and assimilation of knowledge obtained from pharmacology, therapeutics, and other courses. Patient cases are used as the major vehicle to reinforce course content and in learning how to make clinical decisions. The course focuses on preparing students for Advanced Pharmacy Practice Experiences (APPEs) by teaching how to identify and appropriately treat drug therapy problems.

RX 592. Applied Pharmacology and Pharmacotherapeutics IV. 2 Hours.
This recitation-style course focuses on the application and assimilation of knowledge learned pharmacology, therapeutics, as well as other courses. Patient cases are utilized as the major vehicle to reinforce course content and in learning how to make clinical decisions. The course focuses on preparing students for Advanced Pharmacy Practice Experiences (APPEs) by teaching how to identify and appropriately treat drug therapy problems.

RX 599. Topic/. 1-6 Hour.
This course of variable content will provide students with the opportunity to explore selected topics in Pharmacy under the guidance of Pharmacy faculty.

RX 601. Inpatient - Acute Care. 6 Hours.
In this course students will participate in a 6 week, 40 hours per week, full-time experience, under the direction of a preceptor, in pharmacy practice to provide effective and appropriate patient-centered pharmaceutical care to patients in an inpatient/acute care setting.

RX 602. Hospital - Health Systems. 6 Hours.
In this course, students will gain the knowledge to deliver effective and appropriate patient care to hospital patients. The student will become a member of an interdisciplinary team in order to provide superior patient-centered care.

RX 603. Ambulatory Care. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in an ambulatory pharmacy practice to provide effective and appropriate patient-centered pharmaceutical care in the ambulatory setting.

RX 604. Community Pharmacy. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in a community pharmacy to provide effective and appropriate patient-centered pharmaceutical care in the community setting.

RX 605. Rehabilitation Care Medicine. 6 Hours.
In this course, students will gain the knowledge to deliver effective and appropriate patient care to acute rehabilitation care patients. The student will become a member of an interdisciplinary team in order to provide superior patient-centered care.

RX 606. Emergency Care. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in emergency medicine pharmacy practice to provide effective and appropriate patient centered pharmaceutical care in the emergent care setting.

RX 607. Geriatric Care. 6 Hours.
In this course students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in pharmacy practice to provide effective and appropriate geriatric patient centered pharmaceutical care.

RX 608. Pain Management. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in pain management pharmacy practice to provide effective and appropriate patient centered pharmaceutical care in the pain management care setting.

RX 609. Oncology. 6 Hours.
In this course, students will gain the knowledge to deliver effective and appropriate patient care to patients with oncology disorders. Specifically, students will obtain practical experience to evaluate, implement, and monitor chemotherapeutic and non-chemotherapeutic drug therapy, to optimize the delivery of pharmaceutical care and improve the therapeutic outcomes in patients. The student will become a member of an interdisciplinary team in order to provide patient-centered care.

RX 610. Pediatric Care. 6 Hours.
In this course students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in pharmacy practice to provide effective and appropriate pediatric patient centered pharmaceutical care in the pediatric setting.

RX 611. Infectious Disease. 6 Hours.
In this course, students will gain the knowledge to deliver effective and appropriate patient care to infectious disease (ID) patients. The student will become a member of an ID team in order to provide patient-centered care.

RX 612. Psychiatric Care. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in psychiatric pharmacy practice to provide effective and appropriate psychiatric patient centered pharmaceutical care in the psychiatric setting.

RX 613. Indian Health Service. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in an ambulatory pharmacy practice to provide effective and appropriate patient centered pharmaceutical care in the US Public Health Care Indian Health setting.

RX 614. Pharmacy Academia. 6 Hours.
In this course, students will be incorporated into the pharmacy faculty within a college of pharmacy. Students will be exposed to didactic lecturing, laboratory facilitation, research (as available), and general management within academia.

RX 615. Association Administration. 6 Hours.
In this course, students will become an integral member within a professional pharmacy organization environment. The student will work with preceptors to address membership as well as organizational and business structure and services.

RX 616. Food and Drug Administration. 6 Hours.
In this course, students will become an integral member within a professional pharmacy organization environment. The student will work with preceptors to address membership as well as organizational and business structure and services.

RX 617. Pharmacy Research. 6 Hours.
In this course, students will participate in original research (discovery, translational, clinical) as directed by their preceptor. The research activities performed by each student will vary by area of scholarship but may include research design & planning, data collection & analysis, and presentation.

RX 618. Drug Therapy Management. 6 Hours.
This course offers student pharmacists full time opportunities to apply the knowledge and synthesize the didactic information and skills required for direct patient care in pharmacy practice both in the community and health system environments. This direct patient care course offers students to function as an integral member of a healthcare team and to actively be involved in the care of patients. Students are expected to demonstrate professional communication, maturity and judgment skills with exceptional work habits. The overall goal of this course is for students to understand and obtain practical experience to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care and improve the therapeutic outcomes in patients with a variety of disease states. Successful completion of this experience will provide students the opportunity to develop confidence to provide effective and appropriate patient centered pharmaceutical care in the pharmacy practice environment.

RX 619. Administration. 6 Hours.
In this course, students will become an integral member within a professional pharmacy organization corporate environment. The student will work with the preceptor to address administrative management as well as organizational and business structure and services.

RX 620. Nuclear Pharmacy. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in a centralized nuclear pharmacy to providing effective and appropriate radiopharmaceutical compounding and dispensing. In addition to learning the concepts and sciences of nuclear pharmacy and associated regulations and guidelines for the practice, students will participate in preparation, storing and dispensing of radiopharmaceuticals for use in nuclear medicine departments, as well as receive and ship radioactive packages.

RX 621. Cardiology Care. 6 Hours.
In this course students will participate in a 6 week, 40 hours per week, full-time experience, under the direction of a preceptor, in pharmacy practice to provide effective and appropriate patient centered pharmaceutical care to cardiology patients in acute care settings.

RX 622. ICU Critical Care. 6 Hours.
In this course students will participate in a 6 week, 40 hours per week, full-time experience, under the direction of a preceptor in pharmacy practice to provide effective and appropriate patient centered pharmaceutical care to critically ill patients in intensive care unit settings.

RX 623. OTC Self-Care Community Pharmacy. 6 Hours.
In this course, students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in a community pharmacy to provide effective and appropriate patient-centered pharmaceutical care in the community setting.

RX 624. AACP Professional Pharmacy Organization. 6 Hours.
In this course, students will become an integral member within a professional pharmacy organization environment. The student will work with preceptors to address membership as well as organizational and business structure and services.

RX 625. Collaborative Transitional Ambulatory Care. 6 Hours.
This direct patient care course allows students to function as an integral member of the community outreach healthcare team and to be actively involved in the care of patients. Students are expected to demonstrate advanced critical thinking, professional communication, maturity, and judgment skills with exceptional work habits. The overall goal of this course is for students understand and obtain practical experience to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care and improve the therapeutic outcomes in patients with a variety of disease states.

RX 626. Drug Information and Medical Writing. 6 Hours.
In this course, students will participate in a 6-week, full-time (40 hours/week) experience, under the direction of a Pharmacy Practice preceptor, to learn essential drug information (DI) and medical writing skills that will enhance the students' impact in a variety of pharmacy practice settings. The DI component will focus on core DI skills including gathering appropriate background information, conducting systematic literature searches, integrating scientific/medical evidence and preparing and communicating DI responses. The medical writing component will focus on project management, document organization, table development, proper citation, and preparation of written documents of various types.

RX 627. Pharmacy Informatics. 6 Hours.
This APPE course offers student pharmacists full time opportunities to apply the knowledge and synthesize the didactic information and skills required for non-direct patient care within the clinical pharmacy care environment. This non-direct patient care APPE offers students the ability to function as an integral member of pharmacy care team involved with publishing, writing, evaluating medical information. The course focuses on fundamentals of pharmacy informatics such as pharmacy automation technology and information systems in a hospital setting. This APPE is beneficial to students who are interested in hospital pharmacy practice or those interested in specializing in pharmacy informatics. Pharmacy informatics is a rapidly evolving area of pharmacy practice that can have a dramatic impact on any healthcare system. Since patient safety is a critical pharmacist responsibility, advanced pharmacy informatics training and education will be helpful to any student considering a career in hospital practice.

RX 628. Advanced Ambulatory Care. 6 Hours.
Using an educator-practitioner model, the student will directly involve him/herself in the development of drug treatment regimens for selected patients. The experience will include literature evaluation, development of drug monographs, patient interviews, data interpretation, assessing drug therapy, making recommendations for monitoring drug therapy, and utilizing evidence-based principles of pharmacotherapy to develop an optimal therapeutic plan for patients with disease states that are commonly treated in an outpatient setting.

RX 629. Specialty Care Pharmacy. 6 Hours.
The Specialty Care Pharmacy APPE course offers student pharmacists the opportunity to apply the knowledge and synthesize the didactic information and skills required for direct patient care in the specialty care and the pharmacy practice environment. This direct patient care APPE offers students the experience to function as an integral member of the healthcare team and to be actively be involved in the care of patients. Students will participate in a practice that provides an integrated model caring for patients with complex disease states and chronic conditions that require advanced drug therapies, injectable medications and more complicated treatment regiments. This may include, but is not limited to individualized dosing care, pharmaceutics and compounding medication preparations. Students are expected to demonstrate professional communication, maturity and judgment skills with exceptional work habits. The overall goal of this APPE course is for students to understand and obtain practical experience, to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care, and to improve the therapeutic outcomes in patients with a variety of disease states. Successful completion of this experience will give students the opportunity to develop confidence to provide effective and appropriate patient-centered pharmaceutical care in the pharmacy practice environment.

RX 630. Compounding Pharmacy. 6 Hours.
The Compounding Pharmacy APPE course offers student pharmacists the opportunity to apply the knowledge and synthesize the didactic information and skills required for direct patient care in the compounding pharmacy practice environment. This direct patient care APPE offers students the experience to function as an integral member of the healthcare team and to be actively be involved in the care of patients. As the pharmacy care provider students will demonstrate competency and understanding of pharmaceutics, pharmaceutical calculations, and medication evaluations to ensure appropriate preparation, administration, stability and compliance with compounding standards and regulations. Students are expected to demonstrate professional communication, maturity and judgment skills with exceptional work habits. The overall goal of this APPE course is for students to understand and obtain practical experience, to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care, and to improve the therapeutic outcomes in patients with a variety of disease states. Successful completion of this experience will give students the opportunity to develop confidence to provide effective and appropriate patient-centered pharmaceutical care in the pharmacy practice environment.

RX 631. Long Term Geriatric Care. 6 Hours.
this APPE course students will participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor, in pharmacy practice to provide effective and appropriate closed pharmacy system services for non-patient centered pharmaceutical care in the long term care and/or assisted living setting.

RX 632. Substance Abuse Prevention. 6 Hours.
In this APPE course, students will participate in a 6 week 40 hours a week, full-time off-campus experience, under the direction of a preceptor in substance abuse prevention, to provide educational material in the community setting.

RX 633. Poison Control Prevention. 6 Hours.
In this APPE course, students participate in a 6-week, full-time (40 hours/week) experience, to develop an understanding of history, role and functions of poison control centers. Students learn the mechanisms-of-action, toxicokinetics and treatment of common poisonings and toxic exposures related to household products, insecticides and pesticides, industrial toxicants, hazardous material spills, drugs of abuse, drugs used in suicide and homicide, and drugs involved in clinically-significant adverse events, interactions and therapeutic errors. Students consider age- and disease-associated patient factors in evaluating the potential for drug and chemical toxicity. Students also conduct literature research on complex questions; prepare topic reviews; compile ready-reference materials for contact center staff; and participate in case reviews, teaching rounds, journal clubs and interprofessional small group discussions.

RX 634. Advanced Community Pharmacy Selective APPE. 6 Hours.
In this APPE course, students participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor. The course builds on rotation RX 604, Community Pharmacy, to provide advanced patient-centered pharmaceutical care in the community setting and to develop community pharmacy management skills. Students participate in interdisciplinary team in order to provide superior patient-centered care. They apply the knowledge and synthesize the didactic information and skills required for direct patient care in the community pharmacy practice environment. This direct patient care APPE offers students the experience to function as an integral member of the healthcare team and to be actively be involved in the care of patients. Students are required to demonstrate professional communication, maturity and judgment skills with exceptional work habits. In doing so, they obtain practical experience, to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care, and to improve the therapeutic outcomes in patients with a variety of disease states. Successful completion of this experience gives students the opportunity to develop confidence to provide effective and appropriate patient-centered pharmaceutical care in the pharmacy practice environment. Students are expected to be prepared and participate in 'Topic and Disease State Discussions' as assigned by the preceptor and reflect upon inter-professional collaboration, medication reconciliation, and patient safety.

RX 635. Medication Therapy Management Selective. 6 Hours.
In this APPE course, students participate in a 6 week, 40 hours a week, full-time off-campus experience, under the direction of a preceptor. Students participate in the Medication Therapy Management rotation, gain competency in identifying, preventing and resolving medication-related problems, and learn to effectively communicate with patients and health care providers to optimize therapeutic outcomes. In this advanced pharmacy practice experience (APPE), students develop an array of skills, including comprehensive medication review, patient education, written and verbal communication skills, assessment and documentation of services and therapy. Students also prepare and participate in 'Topic and Disease State Discussions' as assigned by the preceptor. Students reflect upon inter-professional collaboration, medication reconciliation, and any appropriate areas of patient safety.

RX 648. Transitions into the Profession I. 1 Hour.
This course is designed to assist students with exam taking strategy and planning for review of material to be covered on the North American Pharmacist Licensure Examination (NAPLEX) and transitioning to the workforce or residency training.

RX 649. Transitions into the Profession II. 1 Hour.
This course is designed to assist students with exam taking strategy and planning for review of material to be covered on the North American Pharmacist Licensure Examination (NAPLEX) and transitioning to the workforce or residency training.

RX 650. Transition into the Profession III. 2 Hours.
This course is designed to assist students with exam taking strategy and planning for review of material to be covered on the North American Pharmacist Licensure Examination (NAPLEX) with a focus on safe and effective pharmacotherapy outcomes, calculations and federal law. Students also prepare to transition to the workforce or residency training.

RX 660. Block 1 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 665. Block 2 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 670. Block 3 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 675. Block 4 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 680. Block 5 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 685. Block 6 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 690. Block 7 Advanced Pharmacy Practice Experience. 5.5 Hours.
Students will participate in a total of 6 advanced pharmacy practice experiences (APPE) consisting of 6 weeks each with a minimum of 40 hours weekly. APPEs are designed as full-time off-campus experiences under the direction of a preceptor to provide effective and appropriate opportunities for students to practice the profession of pharmacy.

RX 699. Topic/. 1-6 Hour.
This course of variable content will provide students with the opportunity to explore selected topics in Pharmacy under the guidance of Pharmacy faculty.