

Practice and Team Ready Pharmacy Curriculum (PHAR) Course Descriptions

Course #	Course Name	Course Description	Credits	Semester
1st Yr				
PHAR 303	Drug Delivery Systems I	First of a two course sequence examining the physicochemical properties of drugs, excipients, and dosage forms critical for the rational design, manufacture, and extemporaneous compounding of drug products. This course guides students in the application of physical chemistry and dosage form science to various characteristics of drug products (drug stability, delivery, release, disposition, pharmacokinetics, therapeutic effectiveness, application of quality standards for drug products). Commonly utilized conventional oral dosage formulations will be emphasized during the course.	2	Fall
PHAR 304	Foundations of Health and Pharmacy I	This two-course series will address foundational components of the pharmacy profession and incorporate aspects of personal and professional development of student pharmacists. This series will include topics such as the United States' health care system, a brief history of pharmacy, ethics, cultural awareness, pharmacy law and regulatory affairs, professional communication, social and behavioral aspects of practice, and patient safety. In addition, students will develop professional self-awareness, explore contemporary pharmacy practice roles, and develop techniques and skills that will enhance their wellbeing during pharmacy school. This course also will prepare students for their upcoming introductory pharmacy practice experiences (IPPEs) by introducing foundational concepts and other topics crucial to IPPE success.	3	Fall
PHAR 306	Integrated Biomedical Sciences I	Topics addressed include macromolecular structure, function and biosynthesis, enzyme catalysis, regulation and kinetics, gene expression, signal transduction, cell homeostasis and response reactions, and retroviruses. Foundation for understanding the biochemical actions of drugs.	3	Fall-A
PHAR 307	Integrated Biomedical Sciences II	Topics addressed include the metabolism of carbohydrates, lipids, proteins and nucleic acids, oxygen toxicity, endocrinology, and related diseases including dyslipidemia and cancer. Foundation for understanding relevant disease states and pharmacological treatments.	3	Fall-B
PHAR 308	Pharmacist Patient Assessment (PPA)	Introduction of the evaluation of patient function and dysfunction from a pharmacist's perspective through the performance of tests and patient assessments leading to objective (e.g., physical assessment, health screening, and lab data interpretation) and subjective (patient interview) data important to the provision of pharmacist's care.	1	Fall

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PHAR 309	Pharmaceutical Calculations	This mathematical skills based course involves reinforcement and mastery of topics such as proper prescription interpretation, accurately calculating drug doses for prescriptions (including extemporaneous compounded dosage forms), weights and measures, concentrations, conversions, and accurate dosing of drugs in different dosage forms. This course will also teach application of kinetic principles and physicochemical parameters of drugs to therapeutically relevant issues like drug delivery, disposition, and therapeutic effectiveness in general and specific patient populations. This course emphasizes the importance of accurate drug and dose calculations by Pharmacists to ensure optimum pharmaceutical, biopharmaceutical and safe patient medication outcomes. This course is closely associated with Drug Delivery Systems I and Integrated Pharmacy Labs I courses and also provides a basis for pharmacokinetics in second year of the curriculum.	2	Fall
PHAR 320	Integrated Pharmacy Lab I	The first course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	2	Fall
PHAR 313	Drug Delivery Systems II	The second of a two course sequence focusing on the dosage forms and delivery systems available for different routes of administration. The Drug Delivery Systems II course will focus on drugs and excipients and the rational design and manufacturing of dosage forms for oral as well as alternate routes of administration. It will be closely associated with foundational formulation concepts from Drug Delivery Systems I including delivery, release, and therapeutic effectiveness of dosage forms. Emphasis will be placed on clinical aspects and patient outcomes as well as counselling for the various routes of administration. A section of this course will highlight new and emerging dosage forms that students may encounter as science and research evolve to develop more personalized medicines for patients.	3	Spring
PHAR 314	Introduction to Applied Science and Pharmacotherapy	A foundational course that teaches principles of medicinal chemistry, pathophysiology, pharmacokinetics, pharmacology, patient assessment, and pharmacotherapy and applies them in an integrated approach to care of patients with respiratory disease.	3	Spring
PHAR 315	Introduction to Applied Pharmacy Research & Service	Designed to provide the student with the general knowledge of (1) research fundamentals, (2) design and develop a research project, (3) methods of data collection and evaluation, (4) evaluate of pertinent scientific literature & databases, (5) introduce to research tracks, (6) IRB purpose and application.	1	Spring

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PHAR 316	Integrated Biomedical Sciences III	This course includes the basic principles, mechanisms, functional changes and metabolic sequelae of human disease impacting cells, organs and systems with particular focus on the autonomic, central and somatic motor nervous systems regulation of smooth, cardiac and skeletal muscle contraction and cardiovascular and pulmonary organ systems.	3	Spring-A
PHAR 317	Integrated Biomedical Sciences IV	This course includes the basic principles, mechanisms, functional changes and metabolic sequelae of human disease impacting cells, organs and systems with particular focus on the components of the blood involved in clotting cascades, immune response to disease, and the gastrointestinal, bone, renal and reproductive systems.	3	Spring-B
PHAR 319	Foundations of Health and Pharmacy II	This two-course series will address foundational components of the pharmacy profession. This series (i.e., fall or spring) will involve topics such as the United States' healthcare system, history of pharmacy, ethics, cultural awareness, pharmacy law and regulatory affairs, professional communication, professional development/social and behavioral aspects of practice, and patient safety. This course will also prepare students for their upcoming introductory pharmacy practice experiences (IPPEs) by introducing foundational concepts and other topics crucial to IPPE success.	3	Spring
PHAR 321	Integrated Pharmacy Lab II	The second course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	2	Spring
PHAR 330	Community Introductory Pharmacy Practice Experience (IPPE)	Introductory pharmacy practice experiences (IPPE) exposes students to contemporary pharmacy practice with focused activities in pharmacy operations and introduction to patient care within a community pharmacy. This IPPE links previous didactic coursework to pharmacy practice and serves as a building block for advance pharmacy practice.	3	Summer (3 weeks)

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Course #	Course Name	Course Description	Credits	Semester
2nd Yr				
PHAR 401	Professional Development and Wellness III	The Professional Development and Wellness series focuses on both the personal and professional development of student pharmacists. Elements included are wellbeing and self-awareness, leadership, entrepreneurship/ innovation, and professionalism. While elements will be woven throughout the series, each year will have a primary focus: P1 – wellbeing and self-awareness, P2 – leadership and entrepreneurship/innovation. Professionalism is incorporated throughout the series. In PHXX, students will: a) explore techniques and skills that will enhance their wellbeing during pharmacy school; b) introduce students to leadership skills and opportunities; and c) review how students can position themselves to be successful in the pursuit of their career in the future.	1	Fall
PHAR 402	Applied Biostatistics and Drug Literature Evaluation	Applied Biostatistics and Drug Literature Evaluation is a 1-credit hour course offered to students in the second professional year of the Doctor of Pharmacy program. The course is designed to provide students with the fundamental skills needed to critically evaluate, interpret and apply medical literature (i.e., biostatistical and pharmacoepidemiological data) to improve patient care. It builds on the research design , drug information resources and literature retrieval skills introduced to students in the first professional year. This course provides students with the requisite skills to facilitate lifelong learning.	1	Fall-A
PHAR 404	Applied Science and Pharmacotherapy I	This course falls within a course series which integrates the instruction of medicinal chemistry, pharmacology and pharmacotherapy via an organ-system based approach. In this course, students will learn to apply their understanding of this information in order to make rational decisions in the medication management of patients with various cardiovascular disease states.	4	Fall-A
PHAR 405	Applied Science and Pharmacotherapy II	This course falls within a course series, which integrates the instruction of medicinal chemistry, pharmacology, and pharmacotherapy via an organ-system based approach. In this course students will learn to apply their understanding of this information in order to make rational decisions in the medication management of patients with various renal, gastrointestinal, and nutritional conditions.	4	Fall-B

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PHAR 403	Pharmacy Informatics	This course will prepare contemporary pharmacists to communicate with other health providers and operate in a digital healthcare space to decrease medication misadventures and improve patient health outcomes. Additionally, learners will be able to demonstrate knowledge and awareness of pertinent laws and regulations pertaining to electronic databases that store, analyze and communicate patient health information.	1	Fall-B
PHAR 406	Pharmacokinetics and Pharmacogenomics	This course will provide the foundational aspects of biopharmaceutics, pharmacokinetics and pharmacogenomics. Students will gain an understanding of the mathematical modeling of drug absorption, distribution, metabolism and excretion (ADME) and basic principles in pharmacogenomics and its role in precision medicine. Additionally, the impact of the dosage regimen, drug formulation and human genetic variation on ensuing therapeutic drug plasma concentrations will be addressed.	3	Fall
PHAR 420	Integrated Pharmacy Lab	The third course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	2	Fall
PHAR 411	Professional Development and Wellness IV	The Professional Development and Wellness (PDW) series focuses on both the personal and professional development of a pharmacy student. Elements included are self-awareness, leadership, entrepreneurship/ innovation, and professionalism and professional communication. While elements will be woven throughout the series, each year will have a primary focus: P1 – well-being and self-awareness, P2 – leadership, entrepreneurship/innovation; professionalism is incorporated throughout the series. In PHAR 411, students will apply their knowledge from prior PDW courses to their plans for professional development during the PharmD program.	1	Spring
PHAR 414	Applied Science and Pharmacotherapy III	This is the third course of a seven-course series in which integrates the instruction of medicinal chemistry, pharmacology and pharmacotherapy via an organ system-based approach. In this course students will learn the organ-systems and disorders in the endocrine, gynecological/obstetric, and urologic areas.	4	Spring-A

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PHAR 419	Sterile Products	Course which addresses the broad principles of sterile compounding including the concepts of aseptic technique and personal protective measures, facility considerations for creating an adequate sterile compounding environment, and relevant state and federal pharmacy regulations. In theory, students will apply these principles to the compounding of both non-hazardous and hazardous compounded sterile products (CSPs). Skills imparted through the course include the ability to utilize relevant compounding references from the literature, perform applicable pharmaceutical calculations, and the ability to identify and utilize appropriate compounding tools and equipment necessary for preparing CSPs.	1	Spring-A
PHAR 415	Applied Science and Pharmacotherapy IV	This is the fifth course of a seven-course series in which integrates the instruction of medicinal chemistry, pathophysiology, pharmacology and pharmacotherapy via an organ system-based approach. In this course students will learn the organ-systems and disorders related to infectious diseases.	4	Spring-B
PHAR 417	Pharmacy Financial Mgt & Pharmacoeconomics	This course covers various aspects of financial management involved in pharmacy practice. Topics introduced in the course include, but are not limited to, accounting and financial reporting; budgeting; management functions; supply chain; operations management; risk management; inventory pricing and control; marketing and promotion; general microeconomics and macroeconomics principles. The course also covers basic concepts of pharmacoeconomic methods and their application and interpretation in pharmacy practice.	2	Spring-B
PHAR 418	Ethics in Healthcare and Christianity	This course is based around six character traits of ethical persons. Students discuss various biblical and healthcare perspectives on each of these traits with an emphasis on the practical application to the pharmacy profession. Current ethical issues in healthcare in general and pharmacy in particular are addressed by a variety of teaching and learning modalities. Content will include topics such as ethics, cultural awareness, pharmacy practice management, professional communication, and professional development/social and behavioral aspects of pharmacy practice.	2	Spring
PHAR 421	Integrated Labs IV	The fourth course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	2	Spring

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PHAR 430	Health Sysytem Introductory Pharmacy Practice Experience (IPPE)	Introductory pharmacy practice experiences (IPPE) exposes students to contemporary pharmacy practice with focused activities in pharmacy operations, interprofessional practice, and introduction to patient care within a health-system pharmacy. This IPPE links previous didactic coursework to pharmacy practice and serves as a building block for advance pharmacy practice.	3	Summer (3 weeks)
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Course #	Course Name	Course Description	Credits	Semester
3rd Yr				
PHAR 504	Applied Science and Pharmacotherapy V	This course integrates knowledge of basic pharmaceutical science principles with principles of pharmacotherapeutic management of neurologic and psychiatric conditions. Students will learn about the pathophysiology, pharmacology, medicinal chemistry and pharmacotherapy for the management of conditions and complications affecting the central nervous system and apply current evidence in a patient-centered and evidence-based manner to resolve clinical problems. This application will promote better retention of fundamental information and continued development of clinical skills.	4	Fall-A
PHAR 505	Applied Science and Pharmacotherapy VI	This course integrates knowledge of basic pharmaceutical science principles with principles of pharmacotherapeutic management of pain, cancer, organ transplantation and autoimmune diseases. Students will learn about the pathophysiology, pharmacology, medicinal chemistry, immunology (where appropriate), and pharmacotherapy for the management of conditions and complications related to these diseases/disorders and apply current evidence in a patient-centered and evidence-based manner to resolve clinical problems. This application will promote better retention of fundamental information and continued development of clinical skills.	4	Fall-B
PHAR 507	Nonprescription Medicines	This course prepares the student to practice self-care pharmacotherapy by teaching the student to select and perform patient assessments pertinent to the outpatient setting, triage care, and select appropriate nonprescription therapy if warranted. Students will utilize skills of patient assessment, point-of-care and home-testing devices, recommending and counseling patients on non-pharmacologic and pharmacologic therapies (including natural products and alternative and complementary therapies), and referring patients to appropriate healthcare providers when self-care is not appropriate.	4	Fall
PHAR 516	Pharmacy Law	Presents examination of federal and state statutes, regulations, and court decisions that regulate the practice of pharmacy, including the mitigation of prescription drug abuse and diversion.	2	Fall
PHAR 520	Integrated Lab V	The fifth course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	2	Fall

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PHAR 530	Focused Patient Care Introductory Pharmacy Practice Experience (IPPE)	Introductory pharmacy practice experiences (IPPE) exposes students to contemporary pharmacy practice with focused activities in direct patient care, collaborative practice and public health wellness. This IPPE links previous didactic coursework to pharmacy practice and serves as a building block for advance pharmacy practice.	1	Fall (1 week) No didactic courses
PHAR 512	Human Resource Management for Pharmacy	This course will address the basics of human resource management for pharmacists. It is designed to equip students with essential personnel management and leadership skills for various pharmacy settings. Topics will include practice management, cultural awareness, ethics, law and regulatory affairs, professional communication, and professional development/ social and behavioral aspects of practice.	1	Spring-A
PHAR 514	Applied Science and Pharmacotherapy VII	This is the final course in the Applied Science and Pharmacotherapy sequence. The course will cover basic clinical toxicology and will transition into solving complex patient care scenarios using previous course content including pharmacotherapy, pharmacology, patient assessment, pharmacokinetics, pharmacogenomics/genetics, cultural awareness, ethics, natural products and alternative and complementary therapies. The course will allow students to use professional communication skills, health informatics, and health information retrieval and analysis.	4	Spring-A
PHAR 521	Integrated Lab VI	The sixth course in a series of authentic, hands-on experiences that enable students to develop skills that are essential for exemplary patient care. Students will practice integration of these patient care skills in simulated practice settings.	1	Spring-A
One or two 5-week APPE blocks also are scheduled in the P3-spring semester			5 each	Spring-B

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Course #	Course Name	Course Description	Credits	Semester
4th Yr				
The P4 year officially begins in early-May. All P4s are required to complete eight (8) APPEs; five (5) required and three (3) elective within nine (9) available blocks				
PHAR 601	Ambulatory Care I	Required APPE designed to grant experience in providing clinical pharmacy services to ambulatory patients in a community pharmacy setting and/or selected outpatients of a general medicine/family practice ambulatory care service.	5	Required
PHAR 620	General Medicine I	Required APPE focusing on development of knowledge and skills in general medicine and application of such systems in various practice environments	5	Required
PHAR 640	Population Health Outcomes	Required Advanced Pharmacy Practice Experience (APPE) designed to grant experience in clinical pharmacy practice involving the development and application of evidence-based medication use strategies that improve patient-specific and population-level health outcomes while optimizing health care resources.	5	Required
PHAR 650	Community Pharmacy I	Required APPE focusing on development of knowledge and skills in general medicine and application of such systems in various practice environments	5	Required
PHAR 660	Institutional/Healthcare Pharmacy I	Required APPE focusing on development of knowledge and skills in general medicine and application of such systems in various practice environments	5	Required
Students are to complete the PHAR 601 APPE or PHAR 620 APPE during the first five (5) APPE blocks prior to the PHAR 614 PACE course				
P4s are enrolled into two (2) or three (3) 5-week APPE blocks during the P4-summer semester			5 each	Summer
PHAR 614	Professional Activities & Competencies Evaluation (PACE)	The Professional Activities and Competencies Evaluation (PACE) lab course is an opportunity for both students and faculty to evaluate students' knowledge and skills in the competencies that students should have mastered thus far in the program. Due to the broad scope of the course, topics and assessments will be drawn from the biomedical, pharmaceutical, social/administrative/behavioral, <i>and</i> clinical sciences. Scenarios will be based on competencies in common at ambulatory care and general medicine settings.	1	Summer
P4s are enrolled into two (2) or three (3) 5-week APPE blocks during the P4-fall semester			5 each	Fall
All P4s are required to be enrolled into an APPE during the P4-spring semester (APPE block #9)			5	Spring

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PHAR 615	Applied Pharmacy Research and Service	This course is a sequel to PHAR 315 "Introduction to Applied Pharmacy Research and Service". This independent study course will promote critical thinking as the student is expected to demonstrate acceptable professional written and verbal communication skills. The student will develop, conduct, and present a research project. This course promotes critical thinking and develops skills in research design and professional communications. Depending on the specific project, the students will also acquire experience in biostatistics, health information retrieval and evaluation, and public health. Projects may include 1) literature review, 2) bench research, 3) chart review, 4) survey, and 5) services.	1	Spring
PHAR 690	Management, Leadership, Entrepreneurship (MLE)	This course explores principles of the management, innovation, leadership, and entrepreneurship aspects of pharmacy. This knowledge will enable participation in pharmacy and healthcare business enterprises and in development of innovative models for delivery of healthcare and medical therapeutics. This background will allow the student to potentially become active in management of the clinical practice of pharmacy. This course will build on knowledge acquired from the pharmacy curriculum, including financial management and pharmacoeconomics, human resource management, communications, and introductory and advanced pharmacy practice experiences.	1	Spring-B Capstone Module
PHAR 695	Transition to Professional Practice	The Transition to Professional Practice course focuses career readiness of student pharmacists. In PHAR 695, students will assist in preparing graduates for licensure, review state specific pharmacy laws, and discuss such topics as financial management, professional organization involvement, pharmacy advocacy, and career advancement. Additionally, practice of verbal and written communication strategies via a competency-based simulation will be provided. Practice guideline updates in the clinical sciences that are relevant to patient care will also be reviewed	3	Spring-B Capstone Module
Examples of the Advanced Electives				
PHAR 641	Advanced Special Topics:Emergency and Critical Care	This advanced elective course enables students to learn more about contemporary topics facing the critical care and emergency pharmacists. The focus in on topical areas not covered in the didactic curriculum and may not have been adequately addressed during advanced pharmacy practice experiences.	2	Spring-B Capstone Module

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PHAR 642	Advanced Special Topics: Pediatric Pharmacy	An advanced elective course that focuses on applying integrated knowledge of principles of pharmaceutical (extemporaneous compounding, calculations), social/administrative/behavioral (professional communication), and clinical (pharmacokinetics, patient assessment, pharmacotherapy, public health) sciences to the care of pediatric patients.	2	Spring-B Capstone Module
PHAR 643	Advanced Special Topics: Community Services	This advanced elective further enables the student to enter practice ready to provide patient-centered care by developing and implementing health and wellness services. At the end of the course, the student will be able to use written and verbal communication skills to present their work. The student must exhibit innovation and entrepreneurship along with an understanding of practice management.	2	Spring-B Capstone Module