

# PHARMACY (NON-DEPARTMENTAL) (PHCY)

## Additional Resources

- Catalog Course Search (<https://catalog.unc.edu/course-search/>)
- Course Numbering Guide (<https://catalog.unc.edu/courses/course-numbering/>)
- Scheduled Classes (<https://reports.unc.edu/class-search/>)
- Historical Course Record ([https://reports.unc.edu/historical\\_course\\_record/](https://reports.unc.edu/historical_course_record/))

## Courses

### PHCY 124. Contemporary Communications in Health Care. 1 Credits.

This course exposes students to approaches and strategies that optimize communication in today's dynamic health care field. It is ideal for those considering a career in the health sciences. Students will engage in multifaceted activities and discussions with experienced practitioners and apply course concepts to real world scenarios.

#### Rules & Requirements

**Requisites:** Prerequisite, ENGL 105.

**Grading Status:** Letter grade.

### PHCY 500. Pharmacy Bridging Course. 3 Credits.

This course comprises five modules in the core science and math subjects: organic chemistry, biochemistry, physiology, applied math, and biostatistics. The course supplements knowledge from students' prepharmacy coursework and frames the material in the context of pharmacy and health care applications.

#### Rules & Requirements

**Grading Status:** Pass/Fail.

### PHCY 501. On Becoming a Pharmacist. 1 Credits.

The course orients students to the vision, guiding principles, and outcomes of the PharmD program, to the core competencies integral to student success, and to pharmacy career opportunities and the real-world importance of the core competencies. Students explore how the principles of professionalism, leadership, and innovation can transform pharmacy.

### PHCY 502. Pathophysiology of Human Disease. 3.5 Credits.

The course transitions from human physiology to a clinical understanding of select high-priority human disease states. The course explores processes whereby disease states develop and progress, and associated changes in tissues and organs. Contemporary biomedical science is integrated to establish a knowledge base for clinical pharmacology and pharmacotherapeutic approaches.

### PHCY 503. Molecular Foundations of Drug Action. 3.5 Credits.

The course explores the fundamental mechanisms of drug action, emphasizing the modulation of interactions between endogenous ligands and targets. Key target types include nucleic acids, enzymes, kinases, GPCRs, nuclear receptors, transporter proteins, and ligand-gated ion channels. Key concepts include enzyme action, regulation, inhibition, and signal transduction.

### PHCY 504. Evidence-Based Practice. 3 Credits.

The course teaches students to identify, critically evaluate, and interpret scientific literature to support the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. Skills developed include experimental design, identifying gaps in knowledge, asking relevant questions, and drawing appropriate conclusions.

### PHCY 505. Medical Terminology 1. 0.5 Credits.

The course provides foundational knowledge of the medical terminology used in contemporary pharmacy practice that allows health care practitioners to communicate with one another and with patients. Students build a vocabulary that will enable them to clearly communicate medical information in their future practices.

### PHCY 506. Medical Terminology 2. 0.5 Credits.

The second course in a two-semester sequence. Foundational knowledge of the medical terminology used in contemporary pharmacy practice that allows health care practitioners to clearly communicate medical information with one another and with patients.

#### Rules & Requirements

**Requisites:** Prerequisite, PHCY 505.

### PHCY 507. Pharmaceutical Calculations 1. 1 Credits.

The course develops skills in pharmaceutical calculations and problem-solving necessary in contemporary pharmacy practice. Students work step-by-step through real-world pharmaceutical and clinical calculations and gain greater understanding of the fundamental principles and basic techniques involved in the application of calculations needed for successful pharmacy practice.

### PHCY 508. Pharmaceutical Calculations. 1 Credits.

The course develops skills in pharmaceutical calculations and problem solving necessary in contemporary pharmacy practice. Students work step-by-step through real-world pharmaceutical and clinical calculations and gain greater understanding of the fundamental principles of basic techniques involved in the application of calculations needed for successful pharmacy practice.

### PHCY 509. Immunizations and Medication Administration Training. 1 Credits.

The course is based on the APhA Pharmacy-Based Immunization Delivery certificate training program. The practice-based curriculum combines science and clinical pharmacy to educate students about professional opportunities for vaccine advocacy and administration. The health care team approach fosters implementation of interventions that promote disease prevention and public health.

#### Rules & Requirements

**Grading Status:** Pass/Fail.

### PHCY 510. Foundations of Clinical Pharmacology. 3 Credits.

Foundational knowledge of organ system pharmacology and the impact a drug's absorption, distribution, metabolism, and excretion (ADME) properties on its pharmacology. Systematic approach to solving common drug regimen problems by consideration of disease clinical features, acute and chronic effects of drug action on disease pathophysiology, and underlying clinical pharmacology issues.

#### Rules & Requirements

**Requisites:** Prerequisites, PHCY 502, 503, and 504.

**PHCY 511. Foundations of Pharmacokinetics. 3 Credits.**

Primary biological processes that govern the fate of a drug after its administration, mathematical models of those processes, mechanisms by which disease, genetics, diet, and other medications influence those processes. Focus on concepts and appropriate use of quantitative tools to develop individualized drug dosage regimens and determine pharmacokinetic parameters.

**PHCY 512. Pharmaceutics and Drug Delivery Systems. 3 Credits.**

The study of pharmaceutics provides foundational knowledge to enable rational decision-making about drug therapy based on the principles of drug delivery systems. This course focuses on physicochemical properties of drugs, physiological barriers to drug transport, and manufacturing methods of sterile and nonsterile dosage forms.

**PHCY 513L. Pharmaceutical Compounding. 1.5 Credits.**

PHCY 513L is an introduction to the science and practice of nonsterile and sterile compounding in the US. It covers the role of nonsterile and sterile compounding in community and hospital pharmacy, interrelationships between physical and chemical aspects of compounding, acceptable preparation techniques, as well as state and federal regulations and standards governing this practice.

**PHCY 514. Pharmaceutics and Drug Delivery Systems II. 1.5 Credits.**

Pharmaceutics and Drug Delivery Systems will provide the knowledge base that enables pharmacists to make rational decisions about drug therapy based on the principles of drug delivery systems. This course is Part II of a two-part course sequence. This course will focus on the physicochemical properties, design, and manufacturing of sterile dosage forms, as well as sterile routes of administration.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 512.

**PHCY 515L. Pharmaceutical Compounding II: Sterile. 0.5 Credits.**

An introduction to the science and practice of sterile compounding in the United States including the role of pharmacy sterile compounding in community and hospital pharmacy, interrelationships between the physical and chemical aspects of sterile compounding, acceptable techniques of preparing individual sterile prescriptions or medication orders, as well as state and federal regulations and standards governing this practice. The course will require students to prepare multiple sterile compounded preparations utilizing aseptic techniques.

**PHCY 516. Foundations of Patient Care. 2 Credits.**

Foundational knowledge and skills in the principles and practice of pharmacy, emphasizing a consistent approach to a systematic patient care process for delivering patient-centered, team-based healthcare. Application of this process of care to seven common disease states.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 502, 503 and 504.

**PHCY 518. Introduction to U.S. Health Care. 1 Credits.**

Introduction to the U.S. health care system, including programs and policies that shape health care. Insight into the major components and stakeholders comprising the healthcare ecosystem, the main barriers impacting the provision of high quality care, and the opportunities to advance health care for patients and populations.

**PHCY 519. Self-Care and Nonprescription Medications. 1.5 Credits.**

Pharmacists are often the first health care professional patients turn to when seeking guidance to treat common ailments. This course focuses on quickly and accurately assessing patients to determine candidacy for self-care therapy, including nonprescription selections. Establishing a process to triage patients regarding self-care management is emphasized.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 502, 503 and 504.

**PHCY 520. Introduction to Pharmacy Innovation and Problem Solving. 1 Credits.**

The first in a series of courses designed to foster the habits of mind of scholarly and entrepreneurial practitioners. Introduction to real-world problems faced by pharmacists, and to a problem-solving process for addressing and potentially solving these problems. Orientation to problem domains wherein pharmacists and pharmaceutical scientists contribute.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 529. Pharmacotherapy: Foundations. 3 Credits.**

This course serves as a transition from foundational coursework to direct patient care and coordinates learning activities with concurrent term courses. Students will learn how to approach patient scenarios and formulate pharmacotherapy recommendations. In-class discussion involves the application of pharmacotherapy principles to patient cases.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 502, 503 and 504.

**PHCY 591. Immersion Experience: Community. 8 Credits.**

Immersion Experience in Community Pharmacy is designed to develop foundational knowledge and skills in pharmacy practice within the context of a community pharmacy, to engage students in the medication use process, and provide an opportunity for student pharmacists to apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process. Developing foundational knowledge and skills in community pharmacy practice is essential for students prior to entering more advanced clinical experiences.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum.

**Grading Status:** Pass/Fail.

**PHCY 601L. Patient Care Lab. 1.5 Credits.**

Patient Care Lab builds on prerequisites to enable students to deliver patient-centered pharmaceutical care. Hands-on activities emphasize development of skills including evidence-based practice; drug information retrieval; patient education and counseling; and communication. Disease states and pharmacotherapy covered in concurrent courses will also be reinforced.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 510, 516 and 529.

**PHCY 608I. Interprofessional Perspectives Diabetes Mellitus Management. 2 Credits.**

This course examines the current issues involved in managing diabetes mellitus in persons over their life span. Contributions of the multidisciplinary team are an important theme throughout this course. The APhA Pharmacist and Patient-Centered Diabetes Care Certificate Training Program is a required element of this elective for student pharmacists. The cost of this program for participants is \$140 (set by APhA).

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 732.

**PHCY 609. The US Healthcare System. 2 Credits.**

This course provides historical background on our healthcare system, critically examines its current state, and compares it with others in the industrialized world. Legislative and regulatory elements driving healthcare evolution are mapped. Innovations and their implications for patients, providers, systems, and insurers are discussed.

**PHCY 610. Horizons: Changing the Landscape of Health Care. 1 Credits.**

This seminar series is designed to expose students to luminaries who are extending the boundaries of what is possible in healthcare and to thought leaders who will engage students in conversation around emerging topics of critical importance in healthcare.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 611. Applied Clinical Pharmacology. 3 Credits.**

This course applies foundational elements of clinical pharmacology and problem-solving skills to individual patient and population-based clinical scenarios. Emphasis placed on dosing and monitoring pharmacotherapy regimens that maximize desired effects and minimize adverse effects to reinforce content covered in concurrent courses.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 510, 516, and 529.

**PHCY 613I. Intermediate Spanish for Health Care I. 3 Credits.**

This intermediate course is the equivalent of the third semester of college Spanish. Students will hone their listening and speaking skills in class primarily through role-playing activities and class discussion. Activities center on an original film set in a health clinic in rural North Carolina.

**PHCY 614I. Intermediate Spanish for Health Care II. 3 Credits.**

Permission of the instructor. This primarily e-learning course provides public health students with the opportunity to improve their oral communication skills in Spanish at the intermediate level via DVD, Web, and workbook. Instructor-led. Online course.

**Rules & Requirements**

**Requisites:** Prerequisite, PUBH 613I.

**PHCY 615I. Advanced Spanish for Health Care I. 3 Credits.**

Required preparation, third semester Spanish or equivalent. This advanced course reviews the grammar of the third and fourth semester of college Spanish. Students hone their listening and speaking skills through role-playing activities and class discussion. Activities center on an original film set in a Latino-run health clinic.

**PHCY 616I. Health Care Informatics. 3 Credits.**

Course designed to provide a multimodal learning experience that prepares health sciences students to learn to become proficient at selecting/using technology for organizing, analyzing, and managing information in health care settings.

**PHCY 617. The Patient Care Experience. 1.5 Credits.**

Students will appreciatively and critically analyze significant events encountered during their pharmacy practice experiences. Guided reflection and topic discussions will enhance student metacognition and the experience of patients. The process develops deeper learning by revealing new insights and perspectives as a professional practitioner, and informs clinical decision-making.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 619. Business of Healthcare: Focus on the Pharmacy Enterprise. 2 Credits.**

Provide knowledge and skills in pharmacy distribution, finance, and analytics.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 609.

**PHCY 620I. Working in Teams: Developing Patient Advocacy Skills, Chapel Hill. 3 Credits.**

Discuss the roles of different members of a health care team in co-managing common conditions in primary care. Describe the advantages to a patient of using co-management for his/her medical condition. Identify barriers to implementation of effective health care teams in the current health care system.

**PHCY 621. Pharmacy Innovation and Problem Solving. 3 Credits.**

This course is designed to foster the habits of mind of scholarly and entrepreneurial practitioners. This course is designed for students to develop innovative problem-solving skills through case studies; and for student teams to apply innovative problem solving in proposing a solution to a real-world problem.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 520.

**PHCY 624. Research and Scholarship in Pharmacy I. 1.5 Credits.**

This course is part of a three-course sequence built around a mentored, in-depth, scholarly project. Students will frame an answerable question with a faculty mentor, generate and interpret relevant data, and communicate their findings in an oral and written forum.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 504, or instructor permission.

**PHCY 630. Pharmacotherapy: Applied. 4 Credits.**

Pharmacotherapy: Applied serves as a transition from foundational coursework to the direct patient care setting and builds upon basic pharmacotherapy principles learned in Pharmacotherapy: Foundations. Case-based learning and other engagement activities will be utilized to develop clinical decision making and critical and situational thinking skills, as well as the development of team-based learning with comprehensive cases.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 510, 516, and 529.

**PHCY 631. Pharmacotherapy: Integrated I. 5 Credits.**

This course builds off of PHCY 630 in which students will engage in pharmacotherapeutic decision making that integrates advanced clinical pharmacology and pharmacokinetics.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 601L, 611, and 630.

**PHCY 636. Leadership and Professional Development I. 1 Credits.**

This course focuses on leading self before leading others. Students will be guided through the development of a keen sense of self through self-awareness and self-reflection in order to begin developing the "leader within" to lead with and through others.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 501.

**PHCY 691. Immersion Experience: Health System. 8 Credits.**

Immersion Experience in Health-Systems is designed to apply foundational knowledge from the classroom and develop pharmacy practice skills within the context of a health system, to engage students in the medication use process, and provide an opportunity for student pharmacists to apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process. Applying foundational knowledge in the practice setting and developing skills in health-system pharmacy practice is essential for students. IP.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum.

**Grading Status:** Pass/Fail.

**PHCY 700. SHAC: Community Outreach and Service Learning. 0 Credits.**

This course provides service learning opportunities to apply pharmacy practice within the context of inter-professional care for vulnerable populations through participation with local clinic programs. Enrollment is required for participation in any aspect of clinic programs. Enrollment is restricted to Pharmacy students.

**Rules & Requirements**

**Repeat Rules:** May be repeated for credit. 1 total credits. 6 total completions.

**PHCY 718. The Patient Care Experience II. 2 Credits.**

This course prepares students to fully engage in patient interactions in a wide variety of pharmacy practice settings. Emphasis is placed on pharmacy ethics and patients experiencing mental health crises. Through reflective activities, students identify strengths and opportunities for growth.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 617.

**Grading Status:** Pass/Fail.

**PHCY 722. Pharmacy Law: Regulation of Pharmacy Practice. 3 Credits.**

This course surveys the legal and regulatory frameworks that govern pharmacy practice. It begins with a review of the United States legal system. Next, it focuses on federal and state statutes and regulations. It concludes by examining common-law malpractice principles and their application to pharmacy practice.

**PHCY 725. Research and Scholarship in Pharmacy II. 1.5 Credits.**

Research and Scholarship in Pharmacy 2 is the second course in a 3-course sequence that is built around a mentored, in-depth, scholarly project. Students will frame an answerable question with a faculty mentor, generate and interpret relevant data, and communicate findings in an oral and written forum.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 624.

**PHCY 726. Research and Scholarship in Pharmacy III. 3 Credits.**

This is the third course in a 3-course sequence that is built around a mentored, in-depth, scholarly project. Students will (1) frame an answerable question with a faculty mentor, (2) generate and interpret relevant data, and (3) communicate their findings in an oral and written forum.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 725.

**PHCY 732. Integrated Pharmacotherapy II. 5 Credits.**

Integrated Pharmacotherapy II is the second in a series of three case-based courses. It builds upon the clinical decision-making process and knowledge base introduced in PHCY 631, further developing students' capacity to research, analyze and solve complex, patient medication problems in holistic, evidence-based ways.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 733. Integrated Pharmacotherapy III. 5 Credits.**

The last of a three case-based course sequence, PHCY 733 deepens the clinical decision-making process and knowledge base introduced in the preceding courses. Students will further develop their capacities to effectively and efficiently research, analyze and solve complex patient medication problems in a holistic, evidence-based, professional manner.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 732.

**PHCY 737. Leadership and Professional Development II. 1 Credits.**

Leadership and Professional Development II focuses on leaving a leadership legacy. Collaboration, teamwork, and the ability to exercise professionalism in crucial conversations are key to achieving success as a leader. Students will develop their leadership identity within teams, while learning effective strategies to maximize team members' strengths.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 636.

**PHCY 791. Immersion Experience: Direct-Patient Care. 8 Credits.**

Immersion Experience in Direct Patient Care is designed to build from foundational knowledge and skills gained during previous Immersion Experiences. This Immersion Experience will help students refine skills in applying a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process. Patient care provided during this Immersion Experience could consider management of the entire patient (all identified medical conditions and medication-related problems) or could be focused to a single medical condition. IP/OP.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum.

**Grading Status:** Pass/Fail.

**PHCY 800. Geriatric Pharmacy Practice. 3 Credits.**

This course is designed to provide opportunities to enhance knowledge and skills in geriatric pharmacotherapy and other health disciplines involved in the care of seniors. This course will challenge students to identify and resolve health and medication use problems they may encounter while caring for older patients.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 801. Radiopharmacy I: Introduction to Radiopharmacy. 2 Credits.**

Radiopharmacy I introduces students to the use of radioactivity in medicine science, the practice of compounding, medical imaging, and the role of pharmacists in molecular imaging. This is the first course in the pathway for completing the didactic requirements of an Authorized Nuclear Pharmacist.

**PHCY 802. Radiopharmacy 2 - The Drugs of Nuclear Medicine. 2 Credits.**

Radiopharmacy II is the second course in the series of radiopharmacy curriculum. While fundamental concepts were established in PHCY 801, this course will delve into the instrumentation used in radiopharmacy as well as the biological effects of radiation.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 801.

**PHCY 803. Radiopharmacy 3. 3 Credits.**

This is the final course in the series of radiopharmacy curriculum. This course will focus sharply on the radiopharmaceuticals and ancillary drugs used in nuclear medicine. Time will also be devoted to ensure the student's understanding of the use of radiopharmaceuticals in drug development and clinical research.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 802.

**PHCY 804. Travel Medicine Care. 1.5 Credits.**

This course prepares students to deliver comprehensive travel medicine care to international travelers. Through readings, lectures, and case discussions, students learn key concepts of travel medications, vaccines, risk assessment and education. This knowledge is applied in a practice experience with a travel vaccine expert.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 805. Independent Study and Research in Pharmacy. 1-6 Credits.**

Required preparation, arranged with the faculty member in each individual case. Contract with a faculty member required. Provides opportunities for professional (doctor of pharmacy) students to conduct independent study or participate in research projects designed to introduce them to a specialized area of practice or research. Permission of the instructor.

**PHCY 806. Contemporary Topics in Pharmacy. 1-3 Credits.**

Experimental course, for professional (doctor of pharmacy) students, to determine the need and demand of courses in new content areas. Topics will be chosen by faculty based on current issues.

**Rules & Requirements**

**Repeat Rules:** May be repeated for credit.

**Grading Status:** Letter grade.

**PHCY 807. Veterinary Pharmacotherapy. 3 Credits.**

An introductory course providing students with the knowledge and skills required to provide effective pharmaceutical care and compounds to non-human patients.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 808. Critical Care. 3 Credits.**

The course is designed to develop knowledge in common acute diseases encountered in the ICU by utilizing patient cases. Classes will focus on choice and rationale for therapy, dosing guidelines, and monitoring parameters. Two visits to the ICUs at UNC-CH are required.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 809. Effective Teaching Strategies for Health Sciences Education. 1.5 Credits.**

This course prepares professional students in pharmacy and other health professions to adapt and apply effective, research-based strategies and skills to design, promote, and assess learning in a variety of settings, including: large- and small group teaching, precepting, continuing professional education, and/or patient and community health education.

**Rules & Requirements**

**Requisites:** Prerequisite, PY2 standing.

**PHCY 810. The Science of Pharmaceutical Compounding. 1 Credits.**

This course immerses students in the exploration of science utilized in contemporary pharmaceutical compounding. Students will investigate relationships between physiochemical principles and compounded preparatories, and develop strategies for preparing and assessing correctly and incorrectly compounded preparations.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 513L.

**PHCY 811. Infectious Diseases. 1.5 Credits.**

This course expands student knowledge of the pharmacotherapy of bacterial, fungal, and viral infections. It also builds upon topics covered in the required PharmD curriculum, and introduces several new disease states. Presentations and course activities include case and evidence-based discussions led by infectious diseases faculty and practitioners.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 812. Pediatric Pharmacotherapy. 1.5 Credits.**

A comprehensive overview of developmental pharmacology and pharmaceutical management of various disease states in pediatric patients. Emphasis will be placed on nutrition management and pharmacokinetic recommendations for pediatric patients.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 813. Clinical Toxicology. 1.5 Credits.**

This course explores the clinical toxicology of drugs and chemicals and provides an overview of the clinical manifestations, assessment and treatment of poisonings with common drug, chemical and biological agents.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 611 and PHCY 630.

**PHCY 814. Disaster Preparedness and Emergency Care. 1.5 Credits.**

Students will learn about different types of disasters and the treatment of common disaster related injuries. They will also learn about strategies for health care delivery during disasters.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 611 and PHCY 630.

**PHCY 815. Data Science in Pharmacy. 1 Credits.**

Provide knowledge of data science competencies and its applications in health sciences.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 816. Integrative Medicine. 1.5 Credits.**

This is a survey course intended to introduce students to various complementary and alternative medicine practices, and their integration into traditional medicine. It will utilize active learning strategies to enhance student involvement.

**Rules & Requirements**

**Requisites:** Prerequisite, PY3 standing.

**PHCY 817. Making Medicine: The Process of Drug Development. 1.5 Credits.**

This course examines the drug development process and its connections to clinical research and healthcare outcomes through independent student exploration of on-line content followed by group activities and facilitated classroom discussion on important issues related to each state of the drug development process.

**PHCY 821. Contemporary and Applied Communications in Healthcare. 1.5 Credits.**

This course is designed to prepare students who are interested in developing and enhancing their health communication skills across a broader range of constituents in the field of healthcare.

**PHCY 822. Hematology/Oncology Pharmacotherapy. 3 Credits.**

This course explores non-pharmacologic treatment modalities, complications of cancer and treatment, supportive care issues and subspecialties and reviews current cancer screening and prevention guidelines and cancer research.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 823. International Clinical Classroom Case Discussion. 2 Credits.**

An elective offering interactions with pharmacy students from other countries, facilitated through the discussion and critical evaluation of relevant clinical cases highlighting pharmacotherapy issues. Permission of the instructor.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 630.

**PHCY 824. Solid Organ Transplantation Pharmacy Practice. 1.5 Credits.**

This course will introduce students to the principles of immunology and solid organ transplant along with the role of the pharmacist in the continuum of care for transplant recipients. Students will learn indications, common disease processes, complications, and co-morbidities associated with kidney, pancreas, liver, lung, and heart transplantation in addition to the management of population-specific immunosuppression pharmacotherapy regimens. This course is designed to help the student integrate both pharmacotherapy knowledge and clinical application through case-based.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 825. Business of Health Care Seminar. 1.5 Credits.**

The first domain is Management and Operation Principles, which encompasses the concepts of leadership and business knowledge applicable to pharmacy practice. The second domain is Innovation and Entrepreneurship, which will expose students to today's advancements in medical treatment and strategies to implement and build a foundation for those seeking entrepreneurship. This course will primarily focus on understanding the process one uses to identify, assess, and develop a plan to implement new innovative opportunities.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 609; Corequisite, PHCY 619.

**PHCY 826. Business of Health Care Seminar II. 1.5 Credits.**

This seminar course is part of a Certificate Program designed to provide students with the knowledge and skills necessary to comprehend the entire value chain of healthcare, enabling them to contribute effectively to decision-making processes, strategic planning, and resource allocation within healthcare enterprises. The specific topics for this seminar were selected based on interview/focus group assessments of high priority business of healthcare topics with current healthcare employers.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 825.

**PHCY 827. Business of Health Care Seminar III. 2 Credits.**

This seminar course is part of a Certificate Program designed to provide students with the knowledge and skills necessary to comprehend the entire value chain of healthcare, enabling them to contribute effectively to decision-making processes, strategic planning, and resource allocation within healthcare enterprises. The specific topics for this seminar were selected based on interview/focus group assessments of high priority business of healthcare topics with current healthcare employers.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 826.

**PHCY 830. Introduction to Drug Development. 2 Credits.**

Includes preclinical drug safety evaluation, preclinical pharmacology, design of protocols for Phases I-IV, FDA guidelines for clinical study, preparation of study plan, statistics in clinical trials, data analyzing, and FDA interactions with industry.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 630.

**Grading Status:** Pass/Fail.

**PHCY 831. Applied Self-Care Therapeutics. 1.5 Credits.**

This course utilizes a systematic process to quickly and accurately assess patients for self-care treatment. Team-based learning will engage students in discussion on the appropriate use of nonprescription medications, dietary supplements, and herbal products. Students will apply skills in literature evaluation and practice communicating recommendations to patients and healthcare providers.

**Rules & Requirements**

**Requisites:** Prerequisites, PHCY 504, PHCY 516, PHCY 601, PHCY 630, PHCY 631.

**PHCY 832. Innovations in Community-Based Pharmacy Practice. 1.5 Credits.**

This course will expose students to novel ways in which community-based pharmacists are leading change and providing patient care, including but not limited to health and wellness services, immunization services, medication management, chronic care management services, care transitions with medication reconciliation, and specialty pharmacy. Students will also complete the National Association of Chain Drug Stores (NACDS) Point-of-Care Testing Certificate Program.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 501.

**PHCY 833. Advanced Cardiovascular Pharmacy. 1.5 Credits.**

Provides an in-depth discussion of the pharmacotherapy of major cardiovascular diseases such as hypolipidemia, hypertension, ischemic heart disease, heart failure, and arrhythmias.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 834. 21st Century Independent Pharmacy Ownership. 3 Credits.**

Independent community pharmacy is a rapidly changing health care industry. In this course, we will explore topics relevant to a career in independent pharmacy including: healthcare policy; supply chain; business and reimbursement models and evolving practice models.

**PHCY 835. LGBTQIA+ Affirming Care. 1.5 Credits.**

Elective to build knowledge about LGBTQIA+ community, considerations in healthcare, discrimination, gender-affirming care, pharmacological and non-pharmacological interventions, and access to care pertinent to the LGBTQIA+ community. Students beginning with any level of knowledge, upon completion of this course will: understand LGBTQIA+ terminology and inclusive language, critically analyze US healthcare systems to identify challenges and barriers to healthcare for LGBTQIA+ community and discuss common pharmacologic and nonpharmacologic therapies and interventions used by the LGBTQIA+ community.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 836. Prevention, Treatment, and Recovery of Substance Use Disorders. 1.5 Credits.**

There is a crippling opioid epidemic in the US stemming from decades of misguided approaches to addiction. This course addresses prevention, treatment, and recovery of substance use/misuse disorders, exploring addiction as a chronic brain disease with societal and economic factors contributing to development and progression.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 837. Pharmacogenetics. 1.5 Credits.**

Pharmacogenetics covers the generation of pharmacogenetics data, the analysis of that data, and the development of the reporting structure of gene/drug interactions. Students will investigate data analysis tools for pharmacogenetics, and review clinical outcomes data and clinical case studies.

**PHCY 839. Global and Rural Health: Maximizing Interprofessional Teams to Impact Patient Outcomes. 1 Credits.**

Global and rural health share public health approaches when identifying and implementing healthcare solutions. This course explores approaches, while engaging students in interprofessional, project-based learning. Students across multi-healthcare disciplines will explore cross-cultural communication, the social determinants of health, and service delivery in low resource settings.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 840. Health Policy and Managed Care. 3 Credits.**

This course is designed to expand students' understanding of health policy and managed care, with an emphasis on the intersection of these broad topics and the profession of pharmacy. As a result of this course, students will be well-prepared to enter careers in pharmacy for which knowledge of health policy and managed care is essential. These include professional advocacy, regulatory affairs, market access, and managed care.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 609.

**PHCY 841. Rural Pharmacy Health 1: Introduction to Rural Pharmacy Practice. 1.5 Credits.**

This seminar course is the first in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Certificate Scholars only.

**Rules & Requirements**

**Grading Status:** Pass/Fail.

**PHCY 842. Rural Pharmacy Health 2: Cultural Responsiveness in Rural Health. 1.5 Credits.**

This seminar course is the second in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 841.

**Grading Status:** Pass/Fail.

**PHCY 843. Rural Pharmacy Health 3: Interprofessional Practice. 1.5 Credits.**

This seminar course is the third in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 842.

**Grading Status:** Pass/Fail.

**PHCY 844. Rural Pharmacy Health 4: Population Health Management. 1.5 Credits.**

This seminar course is the fourth in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 843.

**Grading Status:** Pass/Fail.

**PHCY 846. Perspectives in Mental Health. 2 Credits.**

This course is designed to meet the needs of pharmacy students interested in further developing their knowledge base in psychiatry and select neurology topics. Class sessions focus on choice and rationale for therapy, dosing guidelines, monitoring parameters for assessment of efficacy and toxicity, literature review, and application in clinical practice.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 631.

**PHCY 850. Pharmacy Internship and Career Development. 1.5 Credits.**

This course is offered to Doctor of Pharmacy students who participate in an internship or practicum experience to fulfill one of their elective requirements. The learning objectives focus on professional career development leveraging the experiences gained during one's internship or practicum experience. Students will go through a series of career development topics that culminates into the final deliverable of an actionable career development plan to be utilized beyond the course.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 617.

**Grading Status:** Pass/Fail.

**PHCY 851. Foundations in Ambulatory Care. 2 Credits.**

This course will introduce Ambulatory Care Scholars to the history of ambulatory care practice and provide participants with an overview of the types of services provided by ambulatory care pharmacists, the variety of practice settings available, and advocacy and legislative issues facing the profession. Students will network with regional and national thought leaders in ambulatory care and be paired with a PGY1 ambulatory care pharmacy resident through a mentoring program. Ambulatory Care Scholars only.

**PHCY 852. Ambulatory Care Services I. 1.5 Credits.**

Overview of processes in developing new services or expanding services in primary care.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 851.

**PHCY 853. Ambulatory Care Pharmacy Services II. 1.5 Credits.**

This course will build upon PHCY 851 Foundations in Ambulatory Care and PHCY 852 Ambulatory Care Pharmacy Services I and will provide students with advanced skills in ambulatory care pharmacy services and ambulatory care practice management. The course includes an overview of the processes that are involved with developing new services or expanding existing services in specialized practice environments including specialty clinics such as geriatrics, cardiology, oncology, pain management, transgender clinics, and ADA-Accredited diabetes center.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 852.

**PHCY 854. Ambulatory Care Capstone Course. 2 Credits.**

This course will build upon previous courses in the Ambulatory Care Scholars Program and provide students with advanced skills in developing new ambulatory care services. PHCY 854 is project based and students will create a detailed plan for developing new clinical pharmacy services in a real-life ambulatory care setting.

**Rules & Requirements**

**Requisites:** Prerequisite, PHCY 853.

**PHCY 886. Advanced Immersion Experience: Patient Care Elective I. 4 Credits.**

The patient-focused elective provides students experience in a unique patient care practice environment. Students will utilize abilities learned previously in the curriculum in order to collect patient-specific information, evaluate and monitor drug therapy, educate patients and caregivers, respond to drug information inquiries and to meet site-specific objectives.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 887. Advanced Immersion Experience: Patient Care Elective II. 4 Credits.**

The patient-focused elective provides students experience in a unique patient care practice environment. Students will utilize abilities learned previously in the curriculum in order to collect patient-specific information, evaluate and monitor drug therapy, educate patients and caregivers, respond to drug information inquiries and to meet site-specific objectives.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 888. Advanced Immersion Experience: Non-Patient Care Elective I. 4 Credits.**

The non-patient focused elective provides students experience in unique pharmacy practice environments such as health care related professional societies, pharmaceutical industry corporate headquarters or manufacturing facilities, the FDA, etc. Students will utilize abilities learned previously in the curriculum to meet general course and site specific objectives.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 889. Advanced Immersion Experience: Non-Patient Care Elective II. 4 Credits.**

The non-patient focused elective provides students experience in unique pharmacy practice environments such as health care related professional societies, pharmaceutical industry corporate headquarters or manufacturing facilities, the FDA, etc. Students will utilize abilities learned previously in the curriculum to meet general course and site specific objectives.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 891. Advanced Immersion Experience: Community. 4 Credits.**

This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will engage in a systems-based approach to quality improvement processes, develop practice management skills related to the medication use process, and refine skills in applying a consistent approach to patient care.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 892. Advanced Immersion Experience: Health Systems. 4 Credits.**

This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will engage in a systems-based approach to quality improvement processes, develop practice management skills related to the medication use process, and develop skills in pharmacy practice in a value-based health care system.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 893. Advanced Immersion Experience: Ambulatory Care. 4 Credits.**

This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will refine skills in applying a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 894. Advanced Immersion Experience: General Medicine. 4 Credits.**

This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will refine skills in applying a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient in an inpatient setting.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 895. Advanced Immersion Experience: Clinical I. 4 Credits.**

This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 896. Advanced Immersion Experience: Clinical II. 4 Credits.**

This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 897. Advanced Immersion Experience: Clinical III. 4 Credits.**

This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 898. Professional Development and Career-Readiness: Fourth Year Seminar I. 1 Credits.**

Professional Development and Career-Readiness: Fourth Year Seminar is designed to build students' skills in critical literature appraisal, application of data into the real-world practice environment, and intentional approach to team-based work. In addition, the course will build students' skills and readiness for entry into the post-graduate work or training environment.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.

**PHCY 899. Professional Development and Career-Readiness: Fourth Year Seminar II. 1 Credits.**

Professional Development and Career-Readiness: Fourth Year Seminar is designed to build students' skills in critical literature appraisal, application of data into the real-world practice environment, and intentional approach to team-based work. In addition, the course will build students' skills and readiness for entry into the post-graduate work or training environment.

**Rules & Requirements**

**Requisites:** Prerequisites, Student pharmacists must successfully complete all required coursework, including Immersion Experiences and elective requirements in the first, second, and third professional years.

**Grading Status:** Pass/Fail.