



PharmD Curriculum Guide

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Specialized Areas of Learning: Research and Scholarship, Rural Pharmacy, Ambulatory Care, Radiopharmacy

The Eshleman Advantage

In May 2019, the School graduated the inaugural class of students in our new, transformative **Doctor of Pharmacy** curriculum. With the new curriculum, students learn fundamental concepts outside of class, and are challenged to apply and extend those concepts in the classroom. Immersion in patient care in the experiential setting begins immediately after the first year and occurs continually through years two, three, and the entire fourth year.



Fast Facts

- US News and World Report No. 1 ranked school of pharmacy in the U.S.
- 2,400 average immersion hours for each PharmD graduate
- 78% PharmD graduates complete post graduate training
- No. 1 PGY1 residency match rate in 2021

Overview

We are committed to offering you the best pharmacy education in the world. We'll work tirelessly to help you cultivate and reach your full potential. We will prepare you to be a leader and innovator who recognizes the health-care needs of patients and society and who leads teams toward improvement and change for the betterment of patient care.

Our curriculum is engaging, relevant, and contemporary. You will study foundational science intensely for one year. You will learn in the context of mentored direct patient care beginning immediately after year one and continue to be immersed in pharmacy practice for up to fifteen months.

In class, your professors will challenge you to think critically and to solve problems by actively applying important concepts. This in-class active learning is possible because you'll have already gained the knowledge you need through self-directed learning outside the classroom.

You will be immersed in patient care early and continually in your education as a member of an interdisciplinary health-care team. You will pursue scientific inquiry and learn to create innovative solutions to real-world health-care problems.

Change Is Here

Health care is evolving rapidly. Pharmacists must grow and change with it. A successful practitioner will be able to do the following:

- Participate as an integral member of the health-care team
- Evaluate and create new opportunities to improve patient care and care delivery
- Act responsibly, ethically, and professionally at all times
- Shape policy and lead change in the profession and in health care

It's impossible for us to teach you everything you'll ever need to know. And we embrace that fact.

What we **will** do is ensure that you develop a deep understanding of the foundations of the pharmaceutical sciences, pharmacy practice, and patient care.

And we'll do much more.

The Much More

Our curriculum maximizes interaction between student and professor. Our faculty will inspire you and foster in you a collection of skills and habits that will set you apart as a scholarly and inquisitive practitioner.

Ultimately, it's this combination of **inspiration and education** that will transform you into an innovative leader who recognizes the health care needs of patients and leads change to improve patient care.

Curriculum at a Glance

Year One: Foundations of Pharmacy

- Introduces you to the foundational pharmaceutical sciences, which are the building blocks of pharmacy
- Gives you the solid foundation you'll need to start working with patients and health-care professionals

Years Two and Three: Immersion in Patient Care and Engagement in Clinical Decision Making

- Early experiences in the real-world practice of pharmacy followed by reflection and discussion
- Small-group and large-classroom experiences to further learning, professional development, and career-path exploration
- Immersion begins the summer after the first year.

Year Four: Advanced and Elective Pharmacy Practice Experiences

- Numerous advanced patient care and elective rotations
- Opportunities for you to mature your approach to pharmacy practice and to define your career path

Students have the option to select specialized areas of learning in Research and Scholarship (RASP), Radiopharmacy, Rural Pharmacy Health, and Ambulatory Care. The latter two areas are available to those students on the Asheville campus.

Pharm.D. Program Accreditation

The doctor of pharmacy program at the UNC Eshelman School of Pharmacy was reaccredited in 2020 by the Accreditation Council for Pharmacy Education.

The accreditation term granted for the doctor of pharmacy program extends until 2028, which represents the customary eight-year cycle between self-studies.

The professional program of the School and its accreditation status is designated on ACPE's web site, [acpe-accredit.org](https://www.acpe-accredit.org).

Professional Year 1						
Fall				Spring		
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
PHCY 500		Pharmacy Bridging (August)	3.0	PHCY 510	Foundations of Clinical Pharmacology	3.0
PHCY 501		On Becoming a Pharmacist	1.0	PHCY 511	Foundations of Pharmacokinetics	3.0
PHCY 502		Pathophysiology of Human Disease	3.5	PHCY 514	Pharmaceutics & Drug Delivery Systems II	1.5
PHCY 503		Molecular Foundations of Drug Action	3.5	PHCY 515L	Pharmaceutical Compounding II: Sterile	0.5
PHCY 504		Evidence Based Practice	3.0	PHCY 516	Foundations of Patient Care	2.0
PHCY 508		Pharmaceutical Calculations	1.0	PHCY 519	Self-Care & Non-Prescription Medications	1.5
PHCY 509		Immunizations and Medication Administration Training	1.0	PHCY 529	Pharmacotherapy: Foundations	3.0
PHCY 512		Pharmaceutics & Drug Delivery Systems I	2.0	Total Hours		14.5
PHCY 513L		Pharmaceutical Compounding I: Nonsterile	1.5	Summer		
Total Hours			19.5	PHCY 591	Immersion Experience: Community	8.0
				PHCY 691	Immersion Experience: Health System	

Professional Year 2						
Fall			Spring			
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
				PHCY 619	Business of Health Care	2.0
PHCY 601L		Patient Care Lab	1.5	PHCY 631	Pharmacotherapy: Integrated I	5.0
PHCY 609		The US Healthcare System	2.0	PHCY 636	Leadership & Professional Development I	1.0
PHCY 611		Applied Clinical Pharmacology	3.0	PHCY 591 PHCY 691 PHCY 791	Immersion Experience: Community Immersion Experience: Health System Immersion Experience: Direct-Patient Care	8.0
PHCY 617		The Patient Care Experience I	1.5	PHCY	Elective Hours	1.5-3.0
PHCY 630		Pharmacotherapy: Applied	4.0			
		Total Hours	12.0		Total Hours	17.5-19.0

Professional Year 3						
Fall			Spring			
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
PHCY 732		Pharmacotherapy: Integrated II	5.0	PHCY 718	The Patient Care Experience II	2.0
PHCY 737		Leadership & Professional Development II	1.0	PHCY 733	Pharmacotherapy: Integrated III	5.0
PHCY 591 PHCY 691 PHCY 791		Immersion Experience: Community Immersion Experience: Health System Immersion Experience: Direct-Patient Care	8.0	PHCY 722	Pharmacy Law	3.0
PHCY		Elective Hours	1.5-3.0	PHCY	Elective Hours	3.0-6.0
		Total Hours	15.5-17.0		Total Hours	13.0-16.0

Professional Year 4						
Required				Elective		
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
PHCY 898		Leading Change in Health Care I (Fall Seminar)	1.0	PHCY 886	Advanced Immersion Experience: Patient Care Elective I	4.0
PHCY 899		Leading Change in Health Care II (Spring Seminar)	1.0	PHCY 887	Advanced Immersion Experience: Patient Care Elective II	4.0
				PHCY 888	Advanced Immersion Experience: Non-Patient Care Elective I	4.0
PHCY 891		Advanced Immersion Experience: Community	4.0	PHCY 889	Advanced Immersion Experience: Non- Patient Care Elective II	4.0
PHCY 892		Advanced Immersion Experience: Health Systems	4.0	<p>Total Hours: 17.0 to 21.0 in Fall and 17.0 to 21.0 in Spring</p> <p>Note: Professional Year 4 courses will be comprised of 9 total immersion experiences as well as the required seminar courses.</p> <p>Total Pharm.D. Credit Hours: 140.0</p>		
PHCY 893		Advanced Immersion Experience: Ambulatory Care	4.0			
PHCY 894		Advanced Immersion Experience: General Medicine	4.0			
PHCY 895		Advanced Immersion Experience: Clinical I	4.0			
PHCY 896		Advanced Immersion Experience: Clinical II	4.0			
PHCY 897		Advanced Immersion Experience: Clinical III	4.0			

Color Key to Course Streams

	Foundational Sciences
	Leadership & Professionalism
	Pharmacotherapy (residential)
	Pharmacotherapy (experiential)

Year One: Foundations of Pharmacy

- Introduces you to the foundational pharmaceutical sciences, which are the building blocks of pharmacy
- Gives you the solid foundation you'll need to start working with patients and health-care professionals
- Immersion begins the summer after the first year.

During your first year, you will focus on the foundations of pharmacy and pharmaceutical sciences through an active-learning approach that centers on you. Our goal is to expose you to the underlying fundamentals and give you the chance to apply what you are learning, to solve complex problems, to think deeply and critically, and to develop the skills necessary to be a self-directed, lifelong learner.

A Fast Start with Familiar Favorites

We won't ask you to spend months revisiting prerequisite course work you've already completed. Instead you start with our unique Pharmacy Bridging Course that involves six modules in the first month:

- Organic chemistry
- Biochemistry
- Physiology
- Biostatistics
- Pharmacy Toolkit
- Calculations

During the Pharmacy Bridging Course, you review the basic subject matter while exploring its connection and application to pharmacy-specific problems.

Foundations of Pharmacy

You'll be ready for the challenges of the active classroom thanks to online modules that deliver the information you need to you outside of class.

Next up are courses exploring the following subjects that provide the foundational knowledge for patient care:

- On Becoming a Pharmacist (fall)
- Pathophysiology of Human Disease (fall)
- Molecular Foundations of Drug Action (fall)
- Evidence-Based Practice (fall)
- Pharmacy Calculations (fall)
- Immunization and Medication Administration Certificate program (fall)
- Pharmaceutics and Drug Delivery Systems (fall & spring)
- Pharmacokinetics (spring)
- Clinical Pharmacology (spring)
- Pharmaceutical Compounding (fall & spring)
- Pharmacotherapy: Foundations (spring)

- Self-care + Non-prescription Medications (spring)
- Foundations in Patient Care (spring)

These courses have been designed and built from the ground up with you in mind. Rather than focusing on discipline-specific minutia, we'll be working to reinforce the notion that there's a patient at the end of every lesson. By engaging in deep learning, you'll work alongside our world-class faculty to prepare for patient-care experiences.

You'll be ready for the challenges of the active classroom thanks to online modules and pre-class readings that deliver the information you need to you outside of class.

The factual content of the courses is thoughtfully packaged and available to you for self-directed learning outside of class. Class time is devoted to faculty-student interactions and higher forms of thinking and problem solving.

Professional Year 1						
Fall				Spring		
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
PHCY 500		Pharmacy Bridging (August)	3.0	PHCY 510	Foundations of Clinical Pharmacology	3.0
PHCY 501		On Becoming a Pharmacist	1.0	PHCY 511	Foundations of Pharmacokinetics	3.0
PHCY 502		Pathophysiology of Human Disease	3.5	PHCY 514	Pharmaceutics & Drug Delivery Systems II	1.5
PHCY 503		Molecular Foundations of Drug Action	3.5	PHCY 515L	Pharmaceutical Compounding II: Sterile	0.5
PHCY 504		Evidence Based Practice	3.0	PHCY 516	Foundations of Patient Care	2.0
PHCY 508		Pharmaceutical Calculations	1.0	PHCY 519	Self-Care & Non-Prescription Medications	1.5
PHCY 509		Immunization/Med Administration Certificate Program	1.0	PHCY 529	Pharmacotherapy: Foundations	3.0
PHCY 512		Pharmaceutics & Drug Delivery Systems I	2.0	Total Hours		14.5
PHCY 513L		Pharmaceutical Compounding I: Nonsterile	1.5	Summer		
Total Hours			19.5	PHCY 591 PHCY 691	Immersion Experience: Community Immersion Experience: Health System	8.0

Color Key to Course Streams

	Foundational Sciences
	Leadership & Professionalism
	Pharmacotherapy (residential)
	Pharmacotherapy (experiential)

Professional Year 1 Fall Course Descriptions

PHCY 500 – Pharmacy Bridging Course (3.0 credit hours)

This course comprises seven modules in the core science and math subjects: organic chemistry, biochemistry, physiology, biostatistics, calculations, Evidence Based Learning and Pharmacy Toolkit. The course supplements knowledge from students' prepharmacy coursework and frames the material in the context of pharmacy and health-care applications.

PHCY 501 – On Becoming a Pharmacist (1.0 credit hour)

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 credit hours)

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 credit hours)

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 (3.0 credit hours)

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 508 – Pharmaceutical Calculations (1.0 credit hour)

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 509 – Immunizations and Medication Administration Training (1.0 credit hour)

The course is based on the APhA Pharmacy-Based Immunization Delivery Certificate Training Program and the NCAP Long Acting Injectables 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.

PHCY 512 – Pharmaceutics & Drug Delivery Systems I (2.0 credit hours)

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 is Part I of a two-part course sequence and focuses on physicochemical properties of drugs, physiological barriers to drug transport, and manufacturing methods of nonsterile dosage forms.

PHCY 513L – Pharmaceutical Compounding I: Nonsterile (1.5 credit hours)

PHCY 513L is an introduction to the science and practice of nonsterile compounding in the US. It covers the role of nonsterile 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.

Professional Year 1 Spring Course Descriptions

PHCY 510 – Foundations of Clinical Pharmacology (3.0 credit hours)

Prerequisite, PHCY 502. 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. Prerequisites: PHCY 502, PHCY 503, PHCY 504

PHCY 511 – Foundations of Pharmacokinetics (3.0 credit hours)

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 514 – Pharmaceutics and Drug Delivery Systems II (1.5 credit hours)

Physicochemical principles and manufacturing methods of small-molecule and biological drugs. Development of delivery systems to achieve successful pharmacological or immunological outcome. Foundational knowledge to enable rational decision-making about drug therapy based on the principles of drug delivery systems. Prerequisite: PHCY 512

PHCY 515L – Pharmaceutical Compounding II: Sterile (0.5 credit hour)

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 (2.0 credit hours)

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. Prerequisites: PHCY 502, PHCY 503, PHCY 504

PHCY 519 – Self-Care and Non-Prescription Medications (1.5 credit hours)

Prerequisite, PY1 standing. 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. Prerequisites: PHCY 502, PHCY 503, PHCY 504

PHCY 529 – Pharmacotherapy: Foundations (3.0 credit hours)

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. Prerequisites: PHCY 502, PHCY 503, PHCY 504

Summer PY1 Courses

PHCY 591—Immersion Experience: Community or PHCY 691 – Immersion Experience: Health System (8.0 credit hours)

Immersion Experience 1 provides an opportunity for student pharmacists to develop foundational knowledge and skills in health system or community pharmacy practice and to apply a consistent approach to patient care and the medication use process. Prerequisite: Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum

Year Two: Immersion in Patient Care and Engagement in Clinical Decision Making

- Early experiences in the real-world practice of pharmacy followed by reflection and discussion
- Small-group and large-classroom experiences to further learning, professional development, and career-path exploration

To Learn, One Must Do.

There is a fundamental body of information you must learn, but you don't have to learn all of it in the classroom. Deeper learning occurs when you retain information for a long time and when you can apply that information to new situations. The deepest learning is most likely to result from the things that you do. To take advantage of this, we are moving some classroom instruction out into the real world, where you spend a great deal of time involved in caring for patients and learning to function in complex systems as a member of an interdisciplinary health-care team.

Students begin working with patients immediately after their first year.

Early Patient Care

You will begin working with patients immediately after your first year. When you learn something new, we want you to be as close to the application of that knowledge as possible.

Throughout the summer following the PY1 year and second and third years, you will have a total of six months of patient-care activities alternating with School-based courses and activities.

We plan to complement your experiences with self-directed online learning tools addressing contemporary therapeutics. A key advantage of this approach is that you'll be learning things in the classroom just in time to apply them in the real world.

School-Based Activities

Alternating with your patient-care immersion experiences, you will spend blocks of time back on campus. During these School-based blocks, you will engage in self-directed learning around clinical decision making in pharmacotherapy courses that integrate advanced clinical pharmacology and pharmacokinetics. We also set aside time for you to study emerging topics and take elective courses.

Think About It

Learning by doing is an incomplete proposition. What really enables you to learn is reflection. In other words, you have to do and then think about what you did.

Setting aside time to talk about what you've seen, done, and learned with professors, preceptors and peers is a crucial step in the learning process.

Our immersive, experiential learning opportunities are complemented by mentored reflection on patient care and health-system experiences. In addition to reflection, your time back on campus provides opportunities for other faculty-mentored activities, including the following:

- Integration and connection of foundational and pharmacotherapy knowledge to patient care
- Exposure to advanced concepts, emerging topics, and leadership and professional development
- Elective course work
- Individualized career-path exploration

Professional Year 2						
Fall				Spring		
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
				PHCY 619	Business of Health Care	2.0
PHCY 601L		Patient Care Lab	1.5	PHCY 631	Pharmacotherapy: Integrated I	5.0
PHCY 609		The US Healthcare System	2.0	PHCY 636	Leadership & Professional Development I	1.0
PHCY 611		Applied Clinical Pharmacology	3.0	PHCY 591	Immersion Experience: Community	8.0
				PHCY 691	Immersion Experience: Health System	
				PHCY 791	Immersion Experience: Direct-Patient Care	
PHCY 617		The Patient Care Experience I	1.5	PHCY	Elective Hours	1.5-3.0
PHCY 630		Pharmacotherapy: Applied	4.0			
		Total Hours	12.0		Total Hours	17.5-19.0

Color Key to Course Streams

	Foundational Sciences
	Leadership & Professionalism
	Pharmacotherapy (residential)
	Pharmacotherapy (experiential)

Professional Year 2 Fall Course Descriptions

PHCY 601L – Patient Care Lab (1.5 credit hours)

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. Prerequisites: PHCY 510, PHCY 516, PHCY 529

PHCY 609 – The US Healthcare System (2.0 credit hours)

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 611 – Applied Clinical Pharmacology (3.0 credit hours)

Applied Clinical Pharmacology 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. Prerequisites: PHCY 510, PHCY 516, PHCY 529

PHCY 617 – The Patient Care Experience (1.5 credit hours)

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.

PHCY 630 – Pharmacotherapy: Applied (4.0 credit hours)

Foundations of Pharmacotherapy transitions students from foundational coursework to the patient-care setting. By integrating knowledge gained from prerequisite courses with principles of pharmacotherapy, students will be able to formulate pharmacotherapy recommendations for patient scenarios. Organ systems covered: immune, cardiovascular, respiratory, gastrointestinal, neurologic, endocrine and infectious disease. Prerequisites: PHCY 510, PHCY 516, PHCY 529

Professional Year 2 Spring Course Descriptions

PHCY 619 – Business of Healthcare: Focus on the Pharmacy Enterprise (2.0 credit hours)

This course will focus on two domains of the Business of Healthcare competencies. This first domain is knowledge of US Pharmacy Distribution System, which encompasses the baseline knowledge and skills required for students to understand the US pharmacy distribution system. Overarching topics include finances, medication use process, supply chain, and inventory management. The second domain focuses on finance and analytics, which is categorized as acquiring data and analyzing it to make informed business decisions. Major topics include financial accounting, financial management, managerial accounting, and reimbursement.

Prerequisite: PHCY 609

PHCY 631 – Pharmacotherapy: Integrated I (5.0 credit hours)

Integrated Pharmacotherapy I builds off of Foundations of Pharmacotherapy in which students will engage in pharmacotherapeutic decision making that integrates advanced clinical pharmacology and pharmacokinetics. Prerequisite: PHCY 630.

PHCY 636 – Leadership and Professional Development I (1.0 credit hour)

Leadership and Professional Development focuses on leading self before leading others. This course will guide students 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. Prerequisite: PHCY 501

Immersion Experience 2

PHCY 591—Immersion Experience: Community or PHCY 691 – Immersion Experience: Health System (8.0 credit hours) or PHCY 791 Immersion Experience: Direct Patient Care (8 credit hours)

Immersion Experience 2 provides an opportunity for student pharmacists to develop foundational knowledge and skills in health system or community pharmacy practice and to apply a consistent approach to patient care and the medication use process.

Prerequisite: Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum

Year Three: Continue Immersion in Patient Care and Engagement in Clinical Decision Making

- Early experiences in the real-world practice of pharmacy followed by reflection and discussion
- Small-group and large-classroom experiences to further learning, professional development, and career-path exploration

Professional Year 3							
Fall				Spring			
Course/Stream		Title	Hrs	Course/Stream		Title	Hrs
PHCY 732		Pharmacotherapy: Integrated II	5.0	PHCY 718		The Patient Care Experience II	2.0
PHCY 737		Leadership & Professional Development II	1.0	PHCY 733		Pharmacotherapy: Integrated III	5.0
PHCY 591		Immersion Experience: Community	8.0	PHCY 722		Pharmacy Law	3.0
PHCY 691		Immersion Experience: Health System					
PHCY 791		Immersion Experience: Direct-Patient Care					
PHCY		Elective Hours	1.5-3.0	PHCY		Elective Hours	3.0-6.0
		Total Hours	15.5-17.0			Total Hours	13.0-16.0

Color Key to Course Streams

	Foundational Sciences
	Leadership & Professionalism
	Pharmacotherapy (residential)
	Pharmacotherapy (experiential)

Professional Year 3 Fall Course Descriptions

PHCY 732 – Pharmacotherapy: Integrated II (5.0 credit hours)

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. Prerequisite: PHCY 631

PHCY 737 – Leadership and Professional Development II (1.0 credit hour)

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 skills. Prerequisite: PHCY 636

PHCY 791 – Immersion Experience 3: Direct Patient Care (8.0 credit hours)

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.

Prerequisite: Student pharmacists must complete all preceding required didactic and experiential coursework as outlined in the Pharm D curriculum

Professional Year 3 Spring Course Descriptions

PHCY 718 – The Patient Care Experience II (2.0 credit hours)

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. Prerequisite: PHCY 617

PHCY 722 – Pharmacy Law: Regulation of Pharmacy Practice (3.0 credit hours)

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 733 – Integrated Pharmacotherapy III (5.0 credit hours)

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. Prerequisite: PHCY 732

Year Four: Advanced and Elective Pharmacy Practice Experiences

- Numerous advanced patient-care and elective rotations
- Opportunities for you to mature your approach to pharmacy practice and to define your career path

Pharmacy Practice and Patient Care

Patient care comprises the entirety of the fourth year and allows you to refine your approach to pharmacy practice and to define your career path.

During the fourth year of the curriculum, you leave the classroom behind and immerse yourself in advanced patient care. This is your opportunity to mature in your approach to pharmacy practice and gain a variety of experiences to help you bring your intended career path into focus.

Under the guidance of a preceptor, you will find yourself serving as an integral member of many interdisciplinary teams, recommending strategies to optimize drug therapy to improve clinical outcomes and educating patients and their families about the optimal use of medications. In addition, you will gain a greater appreciation for the health-care ecosystem and the importance of building a well-coordinated and highly collaborative approach to improving health and health-care delivery. You will learn to master the use of a wide array of health information resources, to assume responsibility for medication optimization, to think critically and innovatively as you approach real-world problem solving and to uphold the highest standards of ethical decision-making and professionalism. You will likely have opportunities to work with and learn from pharmacy residents, as well as engage in the teaching and development of second- and third-year pharmacy students.

During this year, you are primarily engaged in pharmacy practice experiences beginning in the summer for a minimum duration of nine months. You will be assigned to a region of the state to complete the majority of your experiences. Pharmacy faculty based at these locations will personally guide and mentor you in your final year. You will practice in community pharmacies, health systems, outpatient primary care settings and within inpatient clinical and specialty teams applying your knowledge and skills to improve patient care and health-care delivery. In addition, opportunities exist for rotations in other areas, such as global engagement, the pharmaceutical industry, academia, and government, with nearly one-third of your fourth-year experiences structured as elective opportunities to develop your interests and prepare you for your pharmacy career.

Professional Year 4						
Required				Elective		
Course/Stream		Title	Hrs	Course/Stream	Title	Hrs
PHCY 898		Leading Change in Health Care I (Fall Seminar)	1.0	PHCY 886	Advanced Immersion Experience: Patient Care Elective I	4.0
PHCY 899		Leading Change in Health Care II (Spring Seminar)	1.0	PHCY 887	Advanced Immersion Experience: Patient Care Elective II	4.0
				PHCY 888	Advanced Immersion Experience: Non-Patient Care Elective I	4.0
PHCY 891		Advanced Immersion Experience: Community	4.0	PHCY 889	Advanced Immersion Experience: Non- Patient Care Elective II	4.0
PHCY 892		Advanced Immersion Experience: Health Systems	4.0	<p>Total Hours: 17.0 to 21.0 in Fall and 17.0 to 21.0 in Spring</p> <p>Note: Professional Year 4 courses will be comprised of 9 total immersion experiences as well as the required seminar courses.</p> <p>Total Pharm.D. Credit Hours: 139.5</p>		
PHCY 893		Advanced Immersion Experience: Ambulatory Care	4.0			
PHCY 894		Advanced Immersion Experience: General Medicine	4.0			
PHCY 895		Advanced Immersion Experience: Clinical I	4.0			
PHCY 896		Advanced Immersion Experience: Clinical II	4.0			
PHCY 897		Advanced Immersion Experience: Clinical III	4.0			

Color Key to Course Streams

	Foundational Sciences
	Leadership & Professionalism
	Pharmacotherapy (residential)
	Pharmacotherapy (experiential)

PHCY 898 -- Leading Change in Health Care I (1 credit hour)

This course is designed to build from foundational knowledge/skills gained during previous Immersion Experiences and coursework. Student Pharmacists will demonstrate advanced skills in critical literature appraisal and presentation, apply quality improvement methodologies to problems in pharmacy, and demonstrate understanding of pharmacy administration and healthcare policy fundamentals.

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

PHCY 899 -- Leading Change in Health Care II (1 credit hour)

This course is designed to build from foundational knowledge/skills gained during previous Immersion Experiences and coursework. Student Pharmacists will demonstrate advanced skills in critical literature appraisal and presentation, apply quality improvement methodologies to problems in pharmacy, and demonstrate understanding of pharmacy administration and healthcare policy fundamentals.

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

PHCY 891 -- Advanced Immersion Experience: Community (4 credit hours)

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.

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

PHCY 889 -- Advanced Immersion Experience: Non-Patient Care Elective II (4 credit hours)

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.

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

Elective Courses: PY2 and PY3

Offered Fall Semester

***For previous semester course schedules including electives please refer to the FAO pharmacy site under Curriculum > Course Schedules**

PHCY 725 – Research and Scholarship in Pharmacy II (1.5 credit hours)

This is the second course in a three-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. Prerequisite: PHCY 624

PHCY 802 – Radiopharmacy II – The Drugs of Nuclear Medicine (2.0 credit hours)

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

PHCY 811 – Infectious Diseases (1.5 credit hours)

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. Prerequisite: PHCY 631

PHCY 812 – Pediatric Pharmacotherapy (1.5 credit hours)

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. Prerequisite: PHCY 631

PHCY 824 – Solid Organ Transplant Pharmacy Practice (1.5 credit hours)

This course will introduce students to the principles of transplant immunology and solid organ transplantation, along with exploring the role of pharmacists in the continuum of care for transplant recipients. Students will learn indications for transplantation, common disease processes, complications transplantation and immunosuppression, and co-morbidities associated with kidney, pancreas, liver, lung, and heart transplantation. Moreover, students will apply their knowledge of transplant immunosuppression to

the management, design, and monitoring of population-specific immunosuppression pharmacotherapy regimens. This course is designed for students to integrate pharmacotherapy knowledge and clinical application through case-based learning and verbal presentations focused on clinical considerations and controversies in the field of solid organ transplantation.

PHCY 832 – Innovations in Community-Based Pharmacy Practice (1.5 credit hours)

Community-based pharmacist practitioners routinely provide enhanced patient care services to meet health care needs in the communities they serve. 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 complete the National Alliance of State Pharmacy Associations (NASPA) Pharmacy-based Point-of-Care Test & Treat National Certificate Program (fee associated) and the North Carolina Association of Pharmacists (NCAP) Student Pharmacists' Virtual Training Program for Long Acting Injectables (fee associated).

Prerequisite: PHCY 501

PHCY 833 – Advanced Cardiovascular Pharmacotherapy (1.5 credit hours)

This course provides an in-depth discussion of the pharmacotherapy of major cardiovascular diseases such as hypolipidemia, hypertension, ischemic heart disease, heart failure, and arrhythmias. Prerequisite: PHCY 631

PHCY 836 – Prevention, Treatment, and Recovery of Substance Use Disorders (1.5 credit hours)

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. Prerequisite: PHCY 631

PHCY 837 – Pharmacogenetics (1.5 credit hours)

Pharmacogenetics covers the generation of pharmacogenetics data, the analysis of that data, and the development 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 841 – Rural Pharmacy Health 1: Introduction to Rural Pharmacy Practice (1.5 credit hours)

This course is the first in a four semester course sequence intended to facilitate skill development in rural pharmacy practice. This course is part of the Rural Pharmacy Health Certificate Program. It is designed to provide the foundational concepts in rural pharmacy health that enable Rural Health Scholars to better assume his/her future role(s) in rural pharmacy practice, community

engagement and leadership. The course includes didactics, small group work, experiential education and service learning. Requisite: Rural Health Scholars only

****PHCY 843 – Rural Pharmacy Health 3: Introduction to Rural Pharmacy Practice (1.5 credit hours)**

This one credit 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. This course has been designed to facilitate interprofessional, collaborative practice experiences for the UNC Eshelman Rural Pharmacy Health Scholars and The Kenan Primary Care Medical Scholars who are both located on the Asheville campuses. This course includes small group work, experiential education and community engagement. Prerequisite: PHCY 842

PHCY 847 – Business of Health Care Seminar Series (1.0 credit hour)

This course will focus on two domains of the Business of Healthcare competencies. 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.

****PHCY 851 -- Foundations in Ambulatory Care (2.0 credit hours)**

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. This course is a survey course for ambulatory care practice management and will serve as a strong foundation for future courses in the Ambulatory Care Program. Students should expect to participate in activities outside of class including an interprofessional case discussion and mentoring meetings. Prerequisite: PHCY 501

****PHCY 853— Foundations in Ambulatory Care II (1.5 credit hours)**

This course will build upon PHCY 851 Foundations in Ambulatory Care and PHCY 852 Ambulatory Care Services I and provide students with advanced skills with providing ambulatory care pharmacy services and ambulatory care practice management. The course will include 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, oncology, pain management, transgender clinics, and ADA-Accredited diabetes centers. Students will also learn how to perform Annual Wellness Visits and complete the NCAP Long-Acting Injection Training. Prerequisite: PHCY 852 Ambulatory Care Services I **** Offered only to Asheville campus-based students**

Offered Summer Session

PHCY 850—Pharmacy Internship and Career Development (1.5 credit hours)

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.

Offered Spring Semester

***For previous semester course schedules including electives please refer to the FAO pharmacy site under Curriculum > Course Schedules**

PHCY 608i – Multidisciplinary Perspectives on Managing Diabetes Mellitus (2.0 credit hours)

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. Prerequisite: PHCY 732

PHCY 624 – Research and Scholarship in Pharmacy I (1.5 credit hours)

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. Prerequisite: PHCY 504 and Instructor Permission

PHCY 726 – Research and Scholarship in Pharmacy III (3.0 credit hours)

This is the third course in a three-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. Prerequisite: PHCY 725

PHCY 800 – Geriatric Pharmacy Practice (3.0 credit hours)

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. Prerequisite: PHCY 631

PHCY 801 – Radiopharmacy I: Introduction to Radiopharmacy (2.0 credit hours)

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 803 – Radiopharmacy III (3.0 credit hours)

Radiopharmacy III 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 students' understanding of the use of radiopharmaceuticals in drug development and clinical research. Prerequisite: PHCY 802

PHCY 804 – Travel Medicine Care (1.5 credit hours)

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. Prerequisite: PHCY 630

PHCY 807 – Veterinary Pharmacotherapy (3.0 credit hours)

This is an introductory level course providing students with knowledge and skills required to provide effective pharmaceutical care and compounds to non – human patients. Prerequisite: PHCY 631

PHCY 808 – Critical Care (3.0 credit hours)

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. Prerequisite: PHCY 631

PHCY 810 – The Science of Pharmaceutical Compounding (1.0 credit hour)

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. Prerequisite: PHCY 513L, PHCY 515L

PHCY 813 – Clinical Toxicology (1.5 credit hours)

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. Prerequisite: PHCY 611, PHCY 630

PHCY 814 – Disaster Preparedness and Emergency Care (1.5 credit hours)

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. Prerequisite: PHCY 611, PHCY 630

PHCY 815-Data Science in Pharmacy (1.0 credit hour)

This data science elective course is intended to provide students with baseline knowledge of core competencies in data science and its applications across the health sciences landscape and prepares students to become successful in their profession. The course objective is to give students an understanding and appreciation of the data science cycle, with the following representative stages: 1. Data Discovery, 2. Data Preparation, 3. Data Modeling, 4. Data Analysis, 5. Data Communications, 6. Data-Driven Guidance. In the course students are exposed to representative informatics projects, acquiring basic skills across the cycle, including awareness of and familiarity with common data sources, analytic packages, and means of communicating findings. The course format includes a mix of self-study, a flipped classroom platform, and practical exercise-based education.

PHCY 817 – Making Medicine: The Process of Drug Development (1.5 credit hours)

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 822 – Hematology/Oncology Pharmacotherapy (3.0 credit hours)

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. Prerequisite: PHCY 631

PHCY 823 – International Clinical Classroom Case Discussion (2.0 credit hours)

An elective offering interactions with pharmacy students from other countries, facilitated through the discussion and critical evaluation of relevant clinical cases highlighting pharmacotherapy issues. Prerequisite: PHCY 630

PHCY 839 – Global & Rural Health: Maximizing Interprofessional Teams to Impact Patient Outcomes (1.0 credit hour)

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.

PHCY 840 – Health Policy and Managed Care (3.0 credit hours)

This course is designed to expand students' understanding of health policy and managed care from system-level and payer perspectives, with an emphasis on the intersection of these broad topics and the profession of pharmacy. The precursor, US Healthcare Systems, lays a foundation for basic understanding of the healthcare environment and the evolving role of the pharmacist. This course builds upon this content through in-depth exploration of relationships between health policy actors, the role of managed care in controlling costs, and the drive towards value. 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 includes professional advocacy, regulatory affairs, market access, and managed care. Prerequisite: PHCY 609

PHCY 846 – Perspectives in Mental Health (2.0 credit hours)

The course is designed to meet the needs of pharmacy students with an interest in further developing their knowledge base in psychiatry and select neurology topics. Most class sessions consist of instructor-led presentation of the disease state background, followed by Literature Review and Roundtable Discussion, then time for patient case work up or movie reflections. The subject material is designed to be an extension, rather than duplication of information provided in previously required pharmacotherapy courses. Prerequisite: PHCY 631

**PHCY 842 – Rural Pharmacy Health 2: Introduction to Rural Pharmacy Practice (1.5 credit hours)

This one credit 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. This course has been designed to further explore health issues surrounding the different populations of patients in rural Western North Carolina. Discussions of the impact of "Implicit Bias", cultural awareness and strategies for minimizing the negative outcomes often associated with health disparities. The course includes didactics, small group work, experiential education, and community engagement. Prerequisite: PHCY 841

****PHCY 844 – Rural Pharmacy Health 4: Introduction to Rural Pharmacy Practice (1.0 credit hour)**

This one credit course is the fourth in the Rural Pharmacy Health Certificate Program. The course introduces emerging models of population health management and examples of care under the Affordable Care Act and Accountable Care Organizations. This course also begins the research and project preparation work. Rural Scholars are required to complete a research/quality improvement project during their 4th year of the PharmD program. This course includes small group work, experiential education, engaged discussion. Prerequisite: PHCY 843

****PHCY 852 – Ambulatory Care Services I (1.5 credit hours)**

This course will build upon PHCY 851 Foundations in Ambulatory Care and provide students with foundational skills with ambulatory care practice management. The course will include an overview of the processes that are involved with developing new services or expanding existing services in a primary care environment, followed by sessions that integrate topics taught in PHCY 631 with new service development, physical assessment skills, reimbursement, and population health.

****PHCY 854 – Ambulatory Care Capstone (2.0 credit hours)**

This is the fourth and final course in the Ambulatory Care Scholars Program and will 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. Prerequisite: PHCY 853

PHRS 815 – Foundations in Implementation Science: Examples in Precision Health and Society (1.5 credit hours)

It has been estimated that it takes 17 years for 14% of research to benefit patient care; further, patients only receive approximately 55% of guideline recommended care. The goals of implementation science and precision health are to figure out ways to get the right care to the right patients at the right time. Implementation science is defined as the study of methods to promote the translation of evidence-based practices, interventions, and policies related to precision health into practice settings to improve patient and population health. This course will cover the fundamentals of implementation science using examples in precision health (e.g., targeted therapies, pharmacogenomics, and tailored treatment plans). More specifically, we will discuss frameworks, strategies, study designs, and outcomes related to implementation science using examples related to the implementation of precision health in research and practice. We will apply these learnings to implementation challenges, so that future pharmacists and researchers alike can consider the application of implementation science to their own work to improve patient and population health. This course is offered every other spring, odd numbered years.

** Offered only to Asheville campus-based students

Specialized Areas of Learning: Research and Scholarship (RASP) *See above for specific course offerings*

Research and Scholarship in Pharmacy (RASP) is a longitudinal, selective pathway within the Doctor of Pharmacy elective curriculum that is built around a **mentored, in-depth, scholarly project** where each student 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 form.

This experience could include hypothesis-driven research (e.g., preclinical, translational, clinical, epidemiologic, health services, educational) or non-hypothesis driven research (e.g., method development and validation, quality improvement).

Students entering this selective pathway will enroll in Research and Scholarship in Pharmacy 1 (PHCY 624, 1.5 credit hours) in the PY2 spring semester, Research and Scholarship in Pharmacy 2 (PHCY 725, 1.5 credit hours) in the PY3 fall semester, and Research and Scholarship in Pharmacy 3 (PHCY 726, 3.0 credit hours) in the PY3 spring semester.

Over the course of this longitudinal experience, students will gain skills and achieve learning outcomes through self-directed learning, attending and actively participating in a weekly common hour, development and execution of their project, completion of 4 RASP deliverables, and guidance and instruction by their faculty mentor. Although project progression will vary by student and project, a general framework and timeline of key events is outlined below.

- **Deliverable #1:** written project proposal (completed during RASP 1)
- **Deliverable #2:** oral project proposal presentation and revised written proposal (completed during RASP 2)
- **Deliverable #3:** oral poster presentation (completed during RASP 3)
- **Deliverable #4:** written final manuscript/report (completed during RASP 3)

Students that successfully complete the RASP pathway and its requirements will be eligible to graduate with Honors (provided they meet the University GPA requirement of ≥ 3.3 and submit an approved Honors Carolina thesis document).

Questions? Contact Kathryn Morbitzer at morbitze@email.unc.edu

Specialized Areas of Learning: Rural Pharmacy Health Certificate *See above for specific course offerings*

The Rural Pharmacy Health Certificate is a focused program of study that prepares student pharmacists for collaborative, interprofessional practices that serve the health care needs of North Carolinians living in rural and small communities. This

concentration within the Doctor of Pharmacy (Pharm.D.) degree is ideal for individuals who want to live and practice in rural areas and small towns.

The UNC Eshelman School of Pharmacy offers this uniquely on the [Asheville campus](#) as part of the School's commitment to increasing the number of pharmacists practicing in rural, Western North Carolina.

Students may apply to become a Rural Pharmacy Health Scholar during the spring semester of their PY1 (1st) year of the Pharm.D. program.

The demand for pharmacists is often higher in rural communities where access to medical services may be limited by geography, distance, and economic challenges. The Rural Pharmacy Health Certificate prepares individuals who enjoy small-town life for a satisfying, service-oriented rural pharmacy career. The Rural Pharmacy Health faculty offer mentoring and practice experiences that focus on the needs of residents in smaller communities. The courses offered in the Certificate include focused study on:

- Population Health Management
- Cultural Competency in Healthcare
- Introduction to Rural Populations
- Health Disparities
- Impact of Social Determinants of Health in overall patient outcomes

While providing community service and outreach, scholars build relationships with local government, non-profits, safety-net organizations, and public health providers.

Making an impact on the health of a community does not just happen in a medical practice or pharmacy. Impact happens when committed people come together and make a difference in the life of a community overall. Rural pharmacists are vital, well respected members of not only the healthcare team, but also the town, school and business communities they serve. Scholars who successfully complete the Rural Pharmacy Health Certificate emerge as leaders in their local communities.

To learn more contact Stephanie Kiser at stephanie_kiser@unc.edu or 828.250.3956.

Specialized Areas of Learning: Ambulatory Care Scholars Program *See above for specific course offerings*

Ambulatory Care Program Overview: PY1 students can choose to apply for the Ambulatory Care Program in the spring of the PY1 year, and application includes submission of a letter of intent, CV, and an interview with the Regional Associate Dean of the Asheville Campus. Students admitted into the program must complete all aspects of the Ambulatory Care Program in order to receive a

Certificate of Completion and list program graduation on their CV. This course is the second in a series of four courses for students enrolled in the Ambulatory Care Program on the Asheville Campus.

To learn more contact Mollie Scott at mollies@email.unc.edu

Specialized Areas of Learning: Radiopharmacy *See above for specific course offerings*

To learn more contact Eric Smith at eric_smith@med.unc.edu

