

UNC ESHELMAN SCHOOL OF PHARMACY

Contact Information

UNC Eshelman School of Pharmacy

Visit Program Website (<http://www.pharmacy.unc.edu>)

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Introduction

Pharmacists are the drug-information experts and are among the most trusted and most accessible of health care professionals. Generalists practice in a variety of environments, including community pharmacies, health-system pharmacies, and the pharmaceutical and health care industries. Specialty pharmacy practitioners pursue training beyond the doctor of pharmacy (Pharm.D.) through residencies and fellowships and may ultimately practice in areas such as pediatrics, geriatrics, cardiology, oncology, ambulatory/community care, and others.

Pharmacists evaluate complex approaches to drug therapy and advise patients and other health care professionals on strategies to achieve the best results from pharmaceutical care. Other pharmacists are engaged in practices that monitor, manage, and implement policies affecting drug prescribing and use across large groups of patients, such as those enrolled in a health plan.

The Pharm.D. curriculum emphasizes active engagement of students in the classroom, fosters scientific inquiry and innovation, and immerses students in patient care early and continually in their education. During the professional program, up to 15 months are spent in professional practice experiences under the direct supervision of practicing pharmacists. More information on the curriculum can be found on the school's Web site (<http://www.pharmacy.unc.edu>).

Advising

Advising in the UNC Eshelman School of Pharmacy is a form of teaching. Advising fosters within student pharmacists skills, abilities, and dispositions that encourage directed career exploration as well as ongoing professional development, lifelong learning, and growth. Faculty advisors serve as content experts and mentors and are assigned to new students prior to the first semester of study. To fully maximize both curricular and cocurricular experiences, students are encouraged to schedule consistent and ongoing advising appointments throughout the course of their study. Professional advisors are also available to assist with student success strategies, decision making, and goal setting. Advising-related inquiries can be addressed to the Office of Curricular and Student Affairs (<http://pharmacy.unc.edu/osa>) in 109 Beard Hall.

Facilities

The UNC Eshelman School of Pharmacy houses state-of-the-art teaching and research laboratory facilities. The School utilizes cutting-edge video teleconferencing and recording equipment used primarily for delivery of instruction to the satellite campus but also available to graduate and continuing education.

Graduate School and Career Opportunities

Graduate degrees offered through the UNC Eshelman School of Pharmacy are administered by The Graduate School of the University of North Carolina at Chapel Hill. Students may pursue graduate study in pharmaceutical sciences with concentrations in molecular pharmaceutics, pharmacotherapy and experimental therapeutics, chemical biology and medicinal chemistry, or pharmaceutical outcomes and policy. A master of science in pharmaceutical sciences with a specialization in health-system pharmacy administration is also offered through the school.

Pharmacy offers a variety of opportunities for career advancement and job security. Because pharmacy education draws from the chemical, physical, biological, and behavioral sciences to develop its knowledge base, pharmacists can contribute to the rational use of medications in many settings. Pharmacists work in all areas of the health care system, including

- Community pharmacy, as a practitioner or a manager in a retail pharmacy, clinic, or office practice
- Health system pharmacy, as practitioner, supervisor, or manager in large or small hospitals, nursing homes, extended care facilities, and health-maintenance organizations
- Pharmaceutical industry, in positions involving research, production, product development, product marketing, and drug information
- Government, in the United States Public Health Service, Veterans Administration, Drug Enforcement Administration, Food and Drug Administration, and military services

Admission Requirements

Students are admitted to the Pharm.D. program (the four-year program of professional studies) in the UNC Eshelman School of Pharmacy upon completion of at least two years (the prepharmacy years) of collegiate work in the General College of UNC–Chapel Hill or at any accredited institution of higher learning in the United States. Criteria for admission include satisfactory completion (with a grade of C- or better) of all prepharmacy courses prior to beginning the pharmacy program. Other considerations for admission include overall quality of academic performance in prepharmacy courses, Pharmacy College Admissions Test (PCAT) scores, interview scores, involvement in extracurricular activities, and two letters of recommendation.

Application Procedures

Students applying to the UNC Eshelman School of Pharmacy must submit complete applications to the Pharm.D. program through the Pharmacy College Application Service (PharmCAS) and the school. For application deadlines, processes, and procedures, visit the Web site (<http://www.pharmacy.unc.edu>).

Since pharmacy students are health care professionals, the UNC Eshelman School of Pharmacy requires that accepted applicants receive immunizations and testing in addition to those required for the general University student population. To enroll in this program, a student must have been fully immunized against hepatitis B. Note that the hepatitis B vaccination series takes a minimum of six months to complete, so students should start the series no later than December 15 of the year in which they plan to enroll. Students will also need to be tested for tuberculosis (TB) exposure, as well as varicella (chicken pox) and hepatitis B immunity.

Prerequisites

All prerequisite courses must be completed with a letter grade of C minus or better (not Pass/Fail).

Math and Science Prerequisites

Code	Title	Hours
BIOL 101 & 101L	Principles of Biology and Introductory Biology Laboratory ^H	4
BIOL 252 & 252L	Fundamentals of Human Anatomy and Physiology and Fundamentals of Human Anatomy and Physiology Laboratory	4
CHEM 101 & 101L	General Descriptive Chemistry I and Quantitative Chemistry Laboratory I	4
CHEM 102 & 102L	General Descriptive Chemistry II and Quantitative Chemistry Laboratory II ^H	4
CHEM 261	Introduction to Organic Chemistry I ^H	3
CHEM 262 & 262L	Introduction to Organic Chemistry II and Laboratory in Organic Chemistry ^H	4
CHEM 241 & 241L	Modern Analytical Methods for Separation and Characterization and Laboratory in Separations and Analytical Characterization of Organic and Biological Compounds ^{1, H}	3
CHEM 430	Introduction to Biological Chemistry ^{2, H}	3
MATH 231 or MATH 241	Calculus of Functions of One Variable I ^H BioCalculus I	3-4
MCRO 251	Introductory Medical Microbiology	4
PHYS 114	General Physics I: For Students of the Life Sciences	4
PHYS 115	General Physics II: For Students of the Life Sciences ³	4
STOR 151 or STOR 155	Introduction to Data Analysis Introduction to Data Models and Inference	3

^H Honors version available. An honors course fulfills the same requirements as the nonhonors version of that course. Enrollment and GPA restrictions may apply.

¹ Only required for students completing prerequisite courses at UNC–Chapel Hill

² Two semesters of organic chemistry should be a prerequisite for the course

³ Not required for students completing CHEM 241/241L at UNC–Chapel Hill

General Education Prerequisites

Students must complete all Foundations and Approaches requirements, the U.S. diversity Connections requirement, and the global issues Connections requirement.

Program of Study

The UNC Eshelman School of Pharmacy offers graduate education and training programs in addition to the clinical doctor of pharmacy practice degree (Pharm.D.). The school offers an M.S. in pharmaceutical sciences with a concentration in health-system pharmacy administration and a Ph.D. in pharmaceutical sciences with concentrations in pharmacoengineering and molecular pharmaceuticals, pharmacotherapy

and experimental therapeutics, chemical biology and medicinal chemistry, and pharmaceutical outcomes and policy.

The Pharm.D. grants entry into the profession and practice of pharmacy. It is neither an undergraduate nor a graduate degree program, but rather a professional degree such as an M.D. or D.D.S. The Pharm.D. curriculum requires a minimum of two years to satisfy prerequisite requirements, normally completed in the General College, followed by four years of professional coursework. Students are subject to the requirements in place when they are admitted to the program.

The doctor of pharmacy program is accredited by the Accreditation Council for Pharmacy Education. Graduates of the school's Pharm.D. program may sit for the state licensure examination for pharmacists.

The school has a satellite campus for the Pharm.D. program at Asheville, NC. The first students were enrolled in this satellite program in August 2011. Students based at the satellite campus receive the same instruction and are subject to the same admission and progression standards as students on the Chapel Hill campus.

Students graduating from the UNC Eshelman School of Pharmacy are expected to develop the following core competencies through coursework, immersion experiences (practica), and cocurricular experiences:

1. In-depth knowledge and proficient skills in the pharmaceutical sciences and the practice of pharmacy: Demonstrate an in-depth understanding of medicines, human health, and health care, and apply the principles and practice of pharmacy to advance human health and health systems
2. Accessing and analyzing information: Identify, locate, critically evaluate, and process information to arrive at an informed opinion
3. Critical thinking and problem solving: Engage in the comprehensive exploration of issues, ideas, and events to identify, prevent, or solve problems
4. Communication: Effectively develop, express, and listen to ideas that inform, inspire, or create focus
5. Collaboration and influence: Work effectively with others to create networks and groups that respect differences and make progress toward a common goal
6. Adaptability: Demonstrate a willingness and ability to change in order to fit new surroundings, ideas, trends, and technologies
7. Initiative: Be self-directed; seek out new opportunities, ideas, and strategies; take responsibility for implementing plans and ideas
8. Curiosity and inquisitiveness: Demonstrate a desire to learn and understand more than is currently understood
9. Professionalism and ethical behavior: Uphold the highest standards of professional and ethical behavior and act appropriately, thoughtfully, and with integrity at all times

In addition, pharmacy graduates must pass national and state licensing examinations in order to practice as pharmacists.

Program Requirements

The program requirements for the UNC Eshelman School of Pharmacy can be found on the school's Web site (<http://www.pharmacy.unc.edu>).

Special Opportunities in the UNC Eshelman School of Pharmacy

Student Organizations

Pharmacy students are active in campus and community activities through their involvement with approximately 15 pharmacy student organizations. They belong to groups that link them to such national professional organizations as the American Pharmacists Association and the American Society of Health System Pharmacists. Pharmacy students provide medication reviews for elderly citizens, staff clinics for indigent patients, and participate in health fairs on campus and in local malls or corporations. Several times each year trips are planned to attend meetings across the nation. Student leadership is fostered through intentional involvement in student organizations and enrolled students are highly encouraged to invest in the opportunities offered through student organizations.

Experiential Education

The school provides doctor of pharmacy students with a structured, supervised program of participation in the practice of pharmacy. Students gain experience in problem solving and providing patient care while applying the foundational and pharmaceutical sciences learned in the classroom and laboratories. Under the supervision of faculty and selected preceptors, students learn to make decisions based on professional knowledge and judgment. The school requires up to 15 months of full-time precepted practice with early practice experiences in the second and third professional year, followed by nine months of advanced practice experiences in the fourth professional year. The experiential education requirements of the program meet the North Carolina Board of Pharmacy experience requirement (1,500 hours) to sit for the licensure examination.

Residencies and Fellowships

To increase the depth of their education, many Pharm.D. graduates seek residency training in pharmacy practice. Pharmacy residencies, like medical residencies, provide stipends for further clinical training. There are over 4,000 pharmacy residency positions in the United States with sites in hospitals, community pharmacies, and some specialized facilities. Residency programs may be taken in general pharmacy practice and in specialty areas such as pediatrics, drug information, infectious diseases, oncology, psychiatry, and many others. Some Pharm.D. graduates seek additional training in research methods in drug development, pharmacokinetics, pharmacoconomics, or pharmacotherapy. Postgraduate fellowship programs involve advanced training in these areas and may occur at academic centers or in the pharmaceutical industry. Like residencies, they are paid positions.

Administration

Dhiren Thakker, *Interim Dean*

Kim Brouwer, *Associate Dean*

Wendy Cox, *Associate Dean*

Rowell Daniels, *Executive Associate Dean*

Stephen Eckel, *Associate Dean*

Annie Hager-Blunk, *Associate Dean*

Roy Hawke, *Assistant Dean*

Pamela Joyner, *Executive Associate Dean*

Macary Marciniak, *Assistant Dean*

Wayne Pittman, *Associate Dean*

Nicki Reitter, *Assistant Dean*

Denise Rhoney, *Associate Dean*

Scott Savage, *Executive Associate Dean*

Mollie Scott, *Regional Associate Dean*

Alexander Tropsha, *Associate Dean*

Rick Wernoski, *Executive Vice Dean*

Carla White, *Assistant Dean*

Professors

Jeffrey Aube, Sue Blalock, Robert Blouin, Kim Brouwer, Jon Easter, Stephen Frye, Jerry Heneghan, Leaf Huang, Timothy Ives, Michael Jay, Alexander Kabanov, Angela Kashuba, Jennifer Lafata, David Lawrence, Andrew Lee, Kuo-Hsiung Lee, Jian Liu, J. Herbert Patterson, Denise Rhoney, Betsy Sleath, Dhiren Thakker, Alexander Tropsha, Paul Watkins, Xiao Xiao.

Associate Professors

Kristy Ainslie, Federico Innocenti, Michael Jarstfer, Samuel Lai, Craig Lee, Rihe Liu, Mary Roth McClurg, Sachiko Ozawa, Wayne Pittman, Robert Shrewsbury, Scott Singleton, Philip Smith, Dennis Williams, Tim Wiltshire, William Zamboni, Qisheng Zhang.

Assistant Professors

Stacy Bailey, Albert Bowers, Antonio Bush, Yanguang Cao, Delesha Carpenter, Daniel Crona, Julie Dumond, Stacie Dusetzina, Gang Fang, Daniel Gonzalez, Nathaniel Hathaway, Shawn Hingtgen, Robert McGinty, Jacqui McLaughlin, Guari Rao.

Research Professors

Dmitri Kireev, Susan Morris-Natschke, Kenneth Pearce, Michael Wagner, Timothy Willson.

Research Associate Professors

Elena Batrakova, David Drewry, Alexander Golbraikh, Robert Hubal, Lindsey James, Juan Li, James Luft, Chunping Qiao, Elias Rosen, Xiaodong Wang, William Zuercher.

Research Assistant Professors

Alison Axtman, Eric Bachelder, Soumya Benhabbour, Rachel Church, Mackenzie Cottrell, Kevin Frankowski, Dong Fu, Masuo Goto, Weigang Huang, Melanie Livet, Andrew Lucas, Merrie Mosedale, Eugene Muratov, Samantha Pattenden, Melanie Priestman, Paul Sapienza, Sarah Scarry, Marina Sokolsky-Papkov, Benjamin Urick, Qunzhao Wang, Yongmei Xu.

Clinical Professors

Thomas Angelo, Robert Dupuis, Stefanie Ferreri, Alan Forrest, Pamela Joyner, Greene Shepherd.

Clinical Associate Professors

Amanda Corbett, Wendy Cox, Stephen Dedrick, Stephen Eckel, Macary Marciniak, Adam Persky, Jo Ellen Rodgers, Philip Rodgers, Mollie Scott.

Clinical Assistant Professors

Heidi Anksorus, Amber Frick, Jessica Greene, Suzanne Harris, Roy Hawke, Stephanie Kiser, Kim Leadon, Amber Proctor, Nicole Pinelli Reitter, Kimberly Sanders, David Steeb, Carla White, Charlene Williams.

Professors Emeriti

Fred Eckel, Harold Kohn, Rudy Juliano.

PHCY–Pharmacy

Undergraduate-level

PHCY 124. Contemporary Communications in Health Care. 1 Credit.

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.

Requisites: Prerequisite, ENGL 105.

Grading status: Letter grade.