UNC ESHELMAN SCHOOL OF PHARMACY (GRAD)

The UNC Eshelman School of Pharmacy offers graduate programs leading to the master of science in pharmaceutical sciences with a specialization in health-system pharmacy administration and to the doctor of philosophy in pharmaceutical sciences with concentrations in one of four research areas: chemical biology and medicinal chemistry; pharmacoengineering and molecular pharmaceutics; pharmacotherapy and experimental therapeutics; or pharmaceutical outcomes and policy. Students from the master of science in pharmaceutical sciences with a specialization in health-system pharmacy administration are competitive for careers in administrative positions in hospital pharmacies and other health systems. Students from the Ph.D. program are competitive for careers in academia, pharmaceutical companies, biotech companies, government agencies such as the FDA, CDC, and NIH, nonprofit research organizations, and a variety of alternative careers including patent law, venture capital, and entrepreneurialism.

Instruction emphasizes contemporary research methods, study design, and results and is delivered in the form of small group lectures/discussions, group activities and recitations, and seminars combined with intensive laboratory-based research. The excellent rapport that exists between schools, departments, institutes, and centers within the University facilitates interdisciplinary collaborative research by graduate students and faculty. The graduate degree programs also benefit from faculty affiliations with GlaxoSmithKline, Inc., the Research Triangle Institute, the Hamner Institutes for Health Sciences, Duke University, the Wake Forest University School of Medicine, and many other organizations in the Research Triangle Park area. The UNC Eshelman School of Pharmacy is housed in Beard Hall, Kerr Hall, Marsico Hall, and the Genetic Medicine Building, which are located on the health sciences campus together with the Adams Schools of Dentistry, the School of Medicine, the School of Nursing and the Gillings School of Global Public Health. The Health Sciences Library has an outstanding collection of books and journals as well as computer and support services. Library and laboratory resources residing in other University departments are also available for use by students and faculty.

Admission to the Ph.D. Program (https://pharmacy.unc.edu/education/phd/)

Applicants who have completed a standard collegiate curriculum in pharmacy, chemistry, biochemistry, biology, engineering, public health, or in an allied field in the University, or in other universities or colleges having curricula acceptable to UNC–Chapel Hill's Graduate School, are eligible for admission to the graduate program in pharmaceutical sciences. Applicants must submit letters of recommendation, official transcripts, and a statement of personal goals as they relate to graduate study at the UNC Eshelman School of Pharmacy. The GRE is not required.

The Graduate School online application (http://gradschool.unc.edu/admissions/)is the standard means of applying for admission. Inquiries concerning admission to programs in the pharmaceutical sciences may be directed to the Office of Student Affairs at osa@unc.edu (ocsa@unc.edu).

All applications to the UNC Eshelman School of Pharmacy's Ph.D. in pharmaceutical sciences program must be submitted through the UNC Graduate School.

Deadlines

Applications typically open in early August and review of applications begins December 1. The official deadlines can be found on the UNC Eshelman School of Pharmacy's website (https://pharmacy.unc.edu/education/phd/apply-now/).

Application Requirements

- Graduate School application
- Nonrefundable $95.00 application fee. Fee scholarships are available. Please contact Will Taylor at osa@unc.edu (ocsa@unc.edu) for more information.
- Three current letters of recommendation. When filling out the Graduate School application, applicants will be asked to submit the email addresses of the recommenders, who will then receive an email with information for logging into the system to submit their letters.
- Transcripts
- Statement of purpose (see below)
- A current email address (The Graduate School only uses email to communicate with applicants.)

Notes

- For Question 2 on the application, make sure you scroll down the list until you see "School of Pharmacy." In the dropdown menu for School of Pharmacy, please select Pharmaceutical Sciences.
- Applicants must indicate only one choice on their application for their division of interest or specialization. Only the first choice of sub plan (i.e., area of interest or specialization) will be considered on their application. Applicants should also describe this choice in their statement of purpose.
- Being admitted to The Graduate School does not imply that you will receive financial assistance of any kind. The awarding of financial assistance is a separate decision.

Questions

Consult the Graduate School's application instructions (http://gradschool.unc.edu/admissions/instructions.html) or contact gradinfo@unc.edu.

Statement of Purpose

To assist in the evaluation of your application, please provide a concise personal statement including the following information.

- Why do you wish to pursue graduate study in pharmaceutical sciences?
- Why do you wish to engage in graduate study at this institution?
- What are your reasons for selecting your first choice of sub plan (i.e., area of interest or specialization)?
- What do you offer that will enrich our graduate program? Please include factors such as:
  - Work, teaching, or other life experiences
  - Meaningful events that have influenced your life and career choices
  - Communication abilities
  - Problem-solving skills
  - Are you a leader, follower, or team player?
  - History of overcoming challenges or disadvantages
  - Cultural diversity (this may include ethnic background, race, and other attributes that define your cultural background)

- If possible, please identify the specific research areas in which you plan to focus your graduate studies. Is there a particular faculty member with whom you would like to work?

Admission to the M.S. Program (https://pharmacy.unc.edu/education/ms/)

Applicants to the master's program must meet both of the following requirements:

- Be a licensed pharmacist in the U.S.
- Hold a doctor of pharmacy (Pharm.D.) or the equivalent

Everything detailed below must be completed prior to the deadline for your application to be considered.

Interested applicants will need to apply to the University of North Carolina Graduate School for their didactic component. The applicant will also need to complete separate applications for each residency program to which they wish to apply — UNC Hospitals, Duke University Health System, Wake Forest Baptist Hospital, Mission Health in Asheville, or Moses Cone in Greensboro. Applicants need only to apply to their residency programs of interest.

Individual interview days will be scheduled at times convenient for applicants and institutions. Each applicant and program will communicate to identify the ideal time to conduct the interview. Our hope is to have all of the interviews for an applicant in one consecutive period.

Each program will participate in the match, but each one has a different match number. If you have not done so already, please make sure to register for the National Matching Service offered through ASHP. Currently there are four positions available at UNC, one at Duke, two at Wake Forest, one at Mission Health, and one at Moses Cone, for a total of nine per cohort.

Application Procedures

- Complete a Graduate School application for admission (see link below)
- Create an online account
- Fill out the application information as follows:
  - Level of Study: Graduate
  - Type of Applicant: New degree-seeking applicant
  - Major: Pharmaceutical Sciences
  - Degree: Master of Science
  - Area of Interest or Specialization: Practice Advancement and Clinical Education
- Select the term of entry
- Fill out the applicant information
- Fill out educational background
- Upload your **unofficial** transcripts — undergraduate and graduate
- Upload a statement of purpose
- GREs are **not required**
- Upload a copy of your CV/resume
- Submit the application and pay the non-refundable $95 application fee
- Provide three letters of recommendation (may be identical to those provided for the residency program application) using the recommendations link on the online application under "Important Links"
- Have your graduate and undergraduate school submit an official academic transcript for each school attended. The graduate school will request official transcripts after acceptance into the program only.

Admission to the M.P.S. Program (https://pharmacy.unc.edu/education/ms-mps/regulatory-science/)

Minimum requirements:

- A completed bachelor's degree (based on a four-year curriculum) or its international equivalent from an accredited institution.
- A cumulative grade point average of 3.0 or better from the bachelor's degree program or an applicable master's degree program.*

** Students who do not meet this admissions requirement may still be admitted. Admissions will be determined on a case-by-case basis.*

Preferred:

- A completed bachelor's or master's degree in the life sciences or engineering.
- Relevant work or research experience.

Application Procedures

Interested applicants will need to apply through the University of North Carolina Graduate School to be enrolled in the M.P.S. in Regulatory Science program. Detailed instructions can be found here (https://gradschool.unc.edu/admissions/instructions.html).

- Complete a Graduate School application for admission here (https://catalog.unc.edu/graduate/schools-departments/eshelman-school-pharmacy/file:///C:/Users/shelbyw4/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/JI6MVABN/applynow.unc.edu/apply/).
  - Create a new account or log in
  - Choose to start a new application
  - Select an application type:
    - Graduate – Degree Seeking
    - Graduate
  - Choose to "Open Application"
  - Select a major: Regulatory Science
  - Select a degree: Master of Professional Science
  - Choose "No" when asked if you are applying for a dual degree
- Complete the Graduate School application
- Fill out educational background
- Upload your **unofficial** transcripts – undergraduate and graduate, if applicable
- Upload a statement of purpose
- GREs are **not required**
- Upload a copy of your CV/resume
- Submit the application and pay the non-refundable $95 application fee
- Provide three letters of recommendation using the recommendations link on the online application under "Important Links"
- Have your undergraduate school and graduate school, if applicable, submit an official academic transcript for each school attended. The

graduate school will request official transcripts after acceptance into the program only.

Graduate Assistantships and Fellowships in the UNC Eshelman School of Pharmacy

Research assistantships in the UNC Eshelman School of Pharmacy provide a competitive stipend, health insurance, tuition, and fees for 12 months' service. All awards are made on a competitive basis with consideration given to the applicant's academic record and research experience. Information concerning these assistantships, fellowships, and traineeships may be obtained by writing directly to the Office of Research and Graduate Education at the UNC Eshelman School of Pharmacy.

Chemical Biology and Medicinal Chemistry

Chemical biology and medicinal chemistry are multidisciplinary fields that integrate organic chemistry, biochemistry, molecular biology, structural biology, pharmacology, and physiology. The research in the division applies and extends the basic concepts of chemistry, biochemistry, and pharmacology to the investigation of biomedical problems. General areas of study include structure-activity relationships, drug-receptor interactions, synthetic drug design, and target discovery and validation. Specific focus areas include cancer chemotherapy, computer-aided drug design, enzymology, glycobiology, molecular modeling, natural products, neurochemistry, parasitology, and structural biology.

Pharmacoengineering and Molecular Pharmaceutics

Pharmacoengineering and molecular pharmaceutics represents interdisciplinary specialties encompassing a range of scientific endeavors, including the design, fabrication, evaluation, use of, and delivery strategies for dosage forms; elucidation of the behavior of pharmacologic agents in biologic systems; determination of the ability of pharmacologic agents to reach the relevant site of biologic effect; and determination of the time course of biologic activity.

These areas of specialization represent critical steps in the development of new therapeutic agents, the evaluation of new and existing drugs, and the optimal clinical use of pharmacologic agents.

Students in the Division of Pharmacoengineering and Molecular Pharmaceutics are required to participate in a common core of entry-level graduate courses. This core provides a broad perspective of the pharmaceutical sciences as well as an appreciation for how different subdisciplines interact. Many dissertation projects are collaborative in nature and rely upon interactions with faculty in other divisions of the UNC Eshelman School of Pharmacy, as well as with colleagues in the UNC School of Medicine, the Department of Chemistry, or at pharmaceutical companies or institutions located in the Research Triangle Park area.

Pharmaceutical Outcomes and Policy

The Division of Pharmaceutical Outcomes and Policy offers a Ph.D. program in pharmaceutical sciences emphasizing an interdisciplinary approach to addressing issues relevant to medication use at the patient, provider, community, and societal levels. Faculty research interests and course offerings reflect this interdisciplinary orientation. Students develop knowledge and skills that enable them to conduct high quality research directed at improving the use and cost effectiveness of medications, technology, and services. Education and research in the division draws heavily upon expertise in numerous fields such as health services research, health policy, health economics, health communication, health behavior and behavior change, epidemiology, and psychometrics. Areas of faculty and student research include communication and decision making, de-prescribing and pharmacy practice models, medication adherence and self-management, health disparities, health literacy, patient reported outcomes assessment, pharmaceutical policy analysis, and policy and ethical issues related to pharmacogenomics.

Pharmacotherapy and Experimental Therapeutics

The Division of Pharmacotherapy and Experimental Therapeutics offers a Ph.D. program in the pharmaceutical sciences with a focus on translational research that integrates biomedical and pharmaceutical sciences in both laboratory-based models and in humans. The goal of the program is to develop scientists who are prepared to generate and disseminate new knowledge in pharmacotherapy and accelerate its application to improve patient care. Graduate students engage in clinical experiences throughout the program that are designed to complement each student's research interests while also facilitating their development as translational scientists. Areas of graduate coursework and research include drug metabolism and transport, pharmacokinetics/pharmaco-dynamics/pharmacometrics, pharmacogenomics, clinical research, drug development, experimental therapeutics, and mechanisms of drug toxicity. Therapeutic and research areas of particular strength include cardiovascular disease, infectious disease/HIV, oncology/hematology, hepatology/gastroenterology/transplant, and pulmonary disease.

Master of Science in Pharmaceutical Sciences

The Eshelman School of Pharmacy offers a master of science in pharmaceutical sciences concentrating in health system pharmacy administration.

The M.S. program prepares future health care leaders to manage highly complex and multifaceted pharmacy enterprise operations. To accomplish this goal, the program provides students with the knowledge, skills, and experience necessary to assume a variety of roles and responsibilities. Graduates serve as vibrant, committed professionals with a focus on improving patients' health, health care delivery, and the profession of pharmacy. This occurs through both didactic education and experiential opportunities in class and in the workplace.

The residential M.S. program is designed for full-time students with a Pharm.D. degree who are seeking residency training experience.

The fully online M.S. program is designed for professionals with a pharmacy degree who want to secure their degree while working.

Master of Professional Science in Regulatory Science

The Eshelman School of Pharmacy offers a master of professional science in regulatory science.

There is an increasing need for well-trained regulatory professionals who understand how regulatory science can advance pharmaceutical product development from concept to market and beyond. The M.P.S.

program prepares future regulatory professionals to play a critical role in the public and private sector to ensure that pharmaceutical products are safe and effective for human use. Our program is distinctive in the balance of advanced regulatory science and critical business skills, including an internship experience that allows students to put all their skills to practice. We ensure our students are well-equipped to succeed in a regulatory science role and as a future leader in the field. No other regulatory science program offers a master of professional science, and we are proud to be recognized by the National Professional Science Master's Association (NPSMA).

This fully online M.P.S. program is a hybrid of asynchronous and synchronous learning. It is designed with maximum flexibility built in to accommodate professionals who want to secure their degree while working.

Find our world renowned faculty listed here (https://pharmacy.unc.edu/education/pharmd/faculty-staff/).

Subjects in this school include: Chemical Biology and Medicinal Chemistry (CBMC) (https://pharmacy.unc.edu/education/phd/drug-discovery/), Pharmacoengineering and Molecular Pharmaceutics (DPMP) (https://pharmacy.unc.edu/education/phd/drug-delivery/), Pharmacotherapy and Experimental Therapeutics (DPET) (https://pharmacy.unc.edu/education/phd/drug-optimization/), Pharmaceutical Outcomes and Policy (DPOP) (https://pharmacy.unc.edu/education/phd/patient-outcomes/), P (p.)harmacy Administration and Leadership (https://pharmacy.unc.edu/education/ms/), and P (p.)rofessional Science (https://pharmacy.unc.edu/education/ms-mps/regulatory-science/) – (https://pharmacy.unc.edu/education/ms-mps/regulatory-science/) Regulatory Science (https://pharmacy.unc.edu/education/ms-mps/regulatory-science/).

Note that the courses listed below are not listed in the order and number of times that they must be completed. See the program's website for more detailed information about the sequence of courses and credit hour totals. The program's website also provides information about concentrations.

Chemical Biology and Medicinal Chemistry

Code	Title	Hours
CBMC 804A	Biochemical Foundations of Chemical Biology	3
CBMC 804B	Biochemical Foundations of Chemical Biology Journal Club	1
CBMC 805	Molecular Modeling	3
CBMC 807	Foundations of Chemical Biology I: Organic and Medicinal Chemistry	3
Graduate level Biology course		
CHEM 701	Introduction to Laboratory Safety	1
PHRS 801	Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences	1-3
PHRS 802	Drug Development and Professional Skills Development	1
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 991	Research in Pharmaceutical Sciences	1-9
PHRS 994	Doctoral Research and Dissertation	3

Pharmacoengineering and Molecular Pharmaceutics

Code	Title	Hours
DPET 853	PK Module 1: Pharmacokinetic Concepts and Applications	1.75
DPMP 738	Nanomedicine	3
DPMP 862	Advanced Physical Pharmacy	1.5
DPMP 863	Advanced Pharmaceutics II	1.5
DPMP 864	Advances in Drug Delivery	3
PHRS 801	Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences	1-3
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 991	Research in Pharmaceutical Sciences	1-9
PHRS 994	Doctoral Research and Dissertation	3

Pharmacotherapy and Experimental Therapeutics

Clinician Track

Code	Title	Hours
BIOS 600	Principles of Statistical Inference	3
DPET 816	Drug Metabolism	1.5
DPET 822	Advanced Clinical Pharmacy	1
DPET 831	Quantitative Methods in Clinical Research	3
DPET 833	Experimental Design Considerations in Clinical Research	2
DPET 853	PK Module 1: Pharmacokinetic Concepts and Applications	1.75
DPET 854	PK: Module 2: Pharmacodynamic Concepts and Applications	1.25
DPET 857	PK Module 3: Population PK/PD Analysis	2
DPET 858	PK Module 4: Advanced PK/PD Modeling	2
DPET 873	Precision Therapeutics Through Genomics	1.5
PHRS 801	Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences	1-3
PHRS 802	Drug Development and Professional Skills Development	1
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 991	Research in Pharmaceutical Sciences	1-9
PHRS 994	Doctoral Research and Dissertation	3
Approved elective courses		

Non-Clinician Track

Code	Title	Hours
BIOS 600	Principles of Statistical Inference	3
DPET 816	Drug Metabolism	1.5
DPET 831	Quantitative Methods in Clinical Research	3
DPET 833	Experimental Design Considerations in Clinical Research	2
DPET 853	PK Module 1: Pharmacokinetic Concepts and Applications	1.75
DPET 854	PK: Module 2: Pharmacodynamic Concepts and Applications	1.25
DPET 857	PK Module 3: Population PK/PD Analysis	2

DPET 858	PK Module 4: Advanced PK/PD Modeling	2
DPET 873	Precision Therapeutics Through Genomics	1.5
PHCY 510	Foundations of Clinical Pharmacology	3
PHRS 801	Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences	1-3
PHRS 802	Drug Development and Professional Skills Development	1
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 991	Research in Pharmaceutical Sciences	1-9
PHRS 994	Doctoral Research and Dissertation	3
Approved elective courses		

Pharmaceutical Outcomes and Policy

Code	Title	Hours
DPOP 803	Social and Behavioral Aspects of Pharmaceutical Use	3
DPOP 806	Pharmaceutical Policy	3
DPOP 872	Proposal Writing in DPOP	3
EPID 710	Fundamentals of Epidemiology	3
EPID 765	Methods and Issues in Pharmacoepidemiology	3
PHRS 801	Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences	1-3
PHRS 815	Foundations in Implementation Science: Examples in Precision Health and Society	1.5
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 994	Doctoral Research and Dissertation	3
Statistics electives (9 credit hours)		

Approved elective courses (9 credit hours)

Pharmacy Administration and Leadership (M.S.)

Code	Title	Hours
PACE 815	Evaluation Research and Project Design	3
PACE 820	Health-System Pharmacy Leadership	3
PACE 825	Foundational Practices of a Successful Health-System Department of Pharmacy	4
PACE 832	Financial Management of Health-system Pharmacy	3
PACE 833	Overview of Health Systems	3
PACE 860	Advanced Hospital Pharmacy Operations	3
PHRS 899	Seminar in Pharmaceutical Sciences	1
PHRS 991	Research in Pharmaceutical Sciences	1-9
PHRS 992	Master's (Non-Thesis)	3

Professional Science – Regulatory Science (M.P.S.)

Code	Title	Hours
GRAD 712	Leadership in the Workplace	1.5
GRAD 713	Applied Project Management: Frameworks, Principles and Techniques	1.5
GRAD 715	Business Communication	1.5
GRAD 725	Build Your Professional Brand: Develop Job Search Skills and Materials to Make Employers Notice You	1.5
GRAD 727	Team Collaboration	1.5
PHRS 700	Making Medicines	0.5
PHRS 701	Fundamentals of Regulatory Affairs	2
PHRS 702	Preclinical Development	2
PHRS 703	Chemistry, Manufacturing, and Controls	2
PHRS 704	Clinical Development	2
PHRS 710	Biostatistics	1
PHRS 711	Emerging Topics in Regulatory Science	2
PHRS 890	Special Topics in Pharmaceutical Sciences	1-3
PHRS 991	Research in Pharmaceutical Sciences	1-9

Students must take either PHRS 992 or PHRS 993

Contact Information

UNC Eshelman School of Pharmacy
Visit Program Website (http://pharmacy.unc.edu)

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