Pharmacy, Ph.D.

The College of Pharmacy offers a Doctor of Philosophy degree in pharmacy with subprograms in four areas: clinical pharmaceutical sciences, health services research, medicinal and natural products chemistry, and pharmaceutics.

The clinical pharmaceutical sciences subprogram is designed for students interested in clinical research. The goal is to advance the science of human pharmacology and therapeutics and to improve the safe, effective, and economical use of medications by patients. The subprogram emphasizes the integration of clinical and basic research. It involves advanced studies of clinical pharmacology, pharmacokinetics, pharmacodynamics, pharmacogenetics, and the requirements for regulatory approval of new drugs.

The health services research subprogram provides an innovative approach to studying the challenges facing the health care system and provides evidence to support policy-based solutions. It combines ideas across several distinct scientific paradigms (sociology, economics, psychology, business, and anthropology) to better understand the factors leading to decisions in health care and the consequences of these decisions. Students gain broad knowledge of health and pharmaceutical care, informed by theories from economics and social psychology. The subprogram teaches intellectual and practical skills to investigate research questions dealing with current issues.

The medicinal and natural products chemistry subprogram educates students in the chemistry and biology of drug discovery. It offers an interdisciplinary course of study and challenging opportunities to do fundamental drug-related research in the basic chemical and biological sciences. The subprogram spans many aspects of the subdisciplines of chemistry, biochemistry, and pharmacology with a common theme of drug discovery. This includes extensive laboratory research aimed at testing a novel hypothesis, which is written and defended as a student’s thesis. Contemporary research geared toward drug discovery and design is the cornerstone of graduate study in this area. Students design a course of study, including core courses in synthesis, spectroscopy, enzymology, pharmacology, analytical chemistry, toxicology, and drug design as well as elective courses to maintain breadth and achieve depth in a research area.

The pharmaceutics subprogram provides a multidisciplinary science focus that examines the development, production, and characterization of dosage forms, as well as the disposition and action of drugs in the body. As pharmaceutical scientists have been engaged in the development of novel biomaterials for sophisticated drug delivery systems, they also have expanded into research with applications in the development of medical devices and tissue engineering.

For more information about graduate study, visit the College of Pharmacy website.

Learning Outcomes

Graduates will demonstrate the ability to:

- identify important research problems through development of subject matter expertise and critical evaluation of the current state of knowledge in that area of expertise;
- develop testable hypotheses and/or research questions, and then utilize sound methodology to design research approaches to address them;
- conduct, analyze, and interpret independent original research that contributes new knowledge to the field of study;
- effectively communicate research results to a range of audiences in both written and oral formats;
- conduct all aspects of research and communication of results with the highest ethical standards; and
- be prepared for a diversity of career options in academia, industry, government, or other relevant fields.