

**Pharmacy, Ph.D.**

**Requirements**

The Doctor of Philosophy program in pharmacy offers programs in four areas: clinical pharmaceutical sciences, health services research, medicinal and natural products chemistry, and pharmaceutics.

The clinical pharmaceutical sciences area is designed for students interested in clinical research. The goal of the program is to advance the science of human pharmacology and therapeutics and to improve the safe, effective, and economical use of medications by patients. The program 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 area provides an innovative approach to studying the challenges facing the health care system and provides evidence to support policy-based solutions. The program 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 program teaches intellectual and practical skills to investigate research questions dealing with current issues.

The medicinal and natural products chemistry area educates students in the chemistry and biology of drug discovery. The program offers an interdisciplinary course of study and challenging opportunities to do fundamental drug-related research in the basic chemical and biological sciences. The program 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 area is a multidisciplinary science 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.

**Admission**

Applicants must meet the admission requirements of the Graduate College. They must:

- hold a bachelor's degree from a U.S. institution or an equivalent degree from another country as determined by the University of Iowa Office of Admissions;
- have a minimum g.p.a. of at least 3.00;
- submit a Graduate Record Examination (GRE) General Test score; and
- if an international applicant, receive a minimum Test of English as a Foreign Language (TOEFL) score of 81 or a minimum International English Language Testing System (IELTS) overall score of 7.0 with no individual score below 6.0 (if an applicant has a master's degree from a U.S. institution, this requirement is waived).

Visit Apply on the College of Pharmacy website for a list of program requirements and application deadlines. Academic requirements for maintaining graduate registration are determined by the Graduate College and by the individual divisions in the College of Pharmacy.

**Career Advancement**

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in health-related institutions and organizations.