

Doctor of Philosophy in Medicinal Chemistry

Medicinal Chemistry Graduate Programs

Medicinal chemistry is an interdisciplinary field at the interface of chemistry and biology. It approaches important biological and health-related problems through application of fundamental principles of organic chemistry, biochemistry, natural product chemistry, and molecular pharmacology. Graduates are expected to be thoroughly familiar with the chemistry of organic compounds, including their synthesis and biosynthesis, their reactivity, and their interactions with and alteration by living systems. Research is at the heart of the program, and the department's research activities encompass many areas of modern medicinal chemistry.

Currently, the department has 9 full-time faculty members, 10-15 graduate students on an average, about 10-15 postdoctoral associates, numerous undergraduate researchers, and an outstanding technical staff. The department is recognized nationally and internationally, and generally, our graduates pursue successful careers in the pharmaceutical industry and in academia.

Graduate Admission

Graduate students are primarily admitted to the department to pursue the Ph.D. degree. The M.S. degree and postdoctoral training are also available. An applicant wishing to enter the graduate program must have earned a bachelor's or master's degree in pharmacy, medicinal chemistry, chemistry, biochemistry, or a closely related field, and must have completed 1 year of organic chemistry with laboratory (equivalent to CHEM 330, CHEM 331, CHEM 335, and CHEM 336). In all cases, general admission requirements must be met.

Applications are evaluated by the graduate selection committee. Applications must be supported by 1 copy of official transcripts of all previous college and university work, both undergraduate and graduate. In addition, a resume, a statement of purpose, and 3 letters of recommendation from current or former teachers, advisors, or employers must be submitted. Students from non-English-speaking countries also must furnish proof of proficiency in English. Graduate Record Examination (GRE) general test scores are required, and applicants are strongly encouraged to take the subject test in chemistry as well.

The graduate selection committee makes admission decisions based on grade-point averages for previous college work (particularly in the relevant science areas), letters of recommendation, previous research or employment experience relevant to the graduate training being sought, GRE scores, etc. The number of applicants who can be admitted at any time varies, depending on the availability of laboratory space, research facilities, and financial support for research activities, but generally averages between 5-10 a year.

Graduate applications (<http://www.graduate.ku.edu/>) and all other requested application materials (transcripts, résumé, statement of purpose, recommendation letters, etc.) must be submitted online:

The University of Kansas
Department of Medicinal Chemistry
Del Shankel Structural Biology Center (SBC)
2034 Becker Drive, Room 1089

Lawrence, KS 66047

Ph.D. Degree Requirements

If credit has not already been obtained in the courses below or their equivalents, students must complete the following courses as early as is practical in the graduate program: 1 semester of Physical Chemistry, and Biochemistry. Satisfactory completion of qualifying American Chemical Society (ACS) examinations in organic chemistry and biochemistry also is required.

A comprehensive written examination is used to assess students' knowledge of medicinal chemistry, organic chemistry, and biochemistry. This examination is administered immediately at the end of year 1 in the summer. After completing the comprehensive examination, the major part of the course work, and other requirements, the student takes an oral comprehensive examination. After completing this examination, the student prepares an original research proposal for presentation to the faculty. The final requirement for the Ph.D. is the preparation and defense of a dissertation based on original laboratory research conducted by the candidate.

Note: Contact your department or program for more information about research skills and responsible scholarship, and the current requirements for doctoral students. Current Lawrence and Edwards Campus policies on Doctoral Research Skills and Responsible Scholarship are listed in the KU Policy Library.

General requirements, such as those related to the comprehensive oral examination, the dissertation, and the dissertation defense, are listed in the Graduate Studies (<https://catalog.ku.edu/graduate-studies/>) section of the online catalog.

At the completion of this program, students will be able to:

- Acquire & Demonstrate Foundation Knowledge.
- Demonstrate Background Knowledge.
- Demonstrate Writing Skills.
- Demonstrate Oral Communication Skills.
- Execute Data Analysis Skills.
- Exhibit Critical Thinking.