Doctor of Philosophy in Pharmaceutical Chemistry

Pharmaceutical Chemistry Graduate Programs

The Department of Pharmaceutical Chemistry offers a number of core courses designed to hone the student’s skills in aspects of physical/organic chemistry, chemical kinetics, and equilibrium phenomena, which we consider essential in understanding problems of any origin, including biological processes, on a molecular level. Every student entering the program is expected to complete these core courses successfully during the first year. In addition, students can choose from a variety of elective courses that allow them to gain knowledge and skills in areas specific to individual research project interests.

The department places emphasis on excellence in research, making every effort to ensure that students can maximize efforts on their research projects toward earning the Ph.D. degree in a timely fashion. The core courses are taught every year and can be completed in just 2 semesters. Students are fully supported by the department their entire time in the program and are not burdened with time-consuming teaching responsibilities.

Graduate Admission

Students with bachelor’s or master’s degrees in chemistry, pharmacy, the biological sciences, material sciences, chemical engineering or related disciplines are encouraged to seek admission. Except under unusual circumstances, we review and accept candidates for admission to fall semester only. All required materials must be received before the department can begin to consider an application.

Required materials to be sent to the Department of Pharmaceutical Chemistry include the following:

1. Graduate Record Examination results (not more than 5 years old) forwarded directly to Graduate Studies/Department of Pharmaceutical Chemistry from the Educational Testing Service. Photocopies of results are not permissible. The institution code for the University of Kansas is R6871. The Department of Pharmaceutical Chemistry’s code is R0305.

2. Test of English as a Foreign Language results if applicable (http://policy.ku.edu/graduate-studies/english-proficiency-international-students). This may not be required if you earned a baccalaureate degree (or higher) in residence from an accredited English-medium U.S. college or university or a college or university in the United Kingdom, Australia, New Zealand, Ireland, English-speaking province of Canada, or an English-speaking Caribbean country, with instruction conducted in English. Degrees earned online may not be used to verify English proficiency.

3. Official transcripts from all universities/institutions in which the applicant has studied.

4. KU’s graduate application (http://www.graduate.ku.edu).

5. The application processing fee (amount varies).

6. A brief personal statement (about one page) that helps us understand why you are interested in graduate studies and specifically why KU’s department.

7. An updated copy of your resume indicating relevant experience, including educational and research experience, if applicable.

8. 3 letters of recommendation from people you believe are best qualified to comment on your potential to succeed in graduate studies. There is no template for letters of recommendation, but please make sure they are on official letterhead.

All of these items should be sent to the department:

The University of Kansas
Department of Pharmaceutical Chemistry
Attn: Nancy Helm
McCollum Laboratories
2095 Constant Ave.
Lawrence, KS 66047-3729

Telephone: 785-864-4822, fax: 785-864-5736, nhelm@ku.edu.

Although the department does not have a formal application deadline, the faculty begins evaluations of applications around January 15 each year. To ensure full consideration, it is highly recommended that complete applications be in the department far in advance of January 15.

Admitted students receive a competitive stipend, tuition, and basic health insurance. Students also can be selected to participate in the Takeru Higuchi and Nigel Manning Ph.D. Intersearch Program, allowing them to conduct a portion of their research at the Victorian College of Pharmacy (www.vcp.monash.edu.au) at Monash University in Melbourne, Australia. In addition, students are encouraged to participate in other industrial and/or academic internship programs the department offers.

A number of fellowship awards are offered to recognize academic superiority and to assist meritorious students in the timely completion of their degree programs. The number of fellowships awarded each year depends upon available funds. For a description of funding opportunities for KU graduate students, visit the Graduate Studies website (https://graduate.ku.edu/funding). Students with particularly outstanding undergraduate records may be eligible for special awards. The Department of Pharmaceutical Chemistry is a Madison and Lila Self Graduate Fellowship Program (http://selfgraduate.ku.edu) partner at KU. The program provides a generous stipend and tuition to outstanding students for 4 years of graduate study.

At the department level, the Higuchi, Lindenbaum, Ryetting, Stella, and Waugh Fellowships are awarded each year to incoming graduate students with high promise.

Ph.D. Degree Requirements

Entering Background

Students entering the program are expected to be competent in basic principles of physical/organic chemistry and mathematics. These requirements are typically satisfied by most degrees in the basic or pharmaceutical sciences. One year of organic chemistry for majors, a physical chemistry course that includes classical thermodynamics, and two semesters of calculus equivalent to MATH 121/122.
Core Courses
All students participating in the Pharmaceutical Chemistry Ph.D. program are required to take a series of core courses, which are designed to ensure that graduates maintain the department’s long-standing reputation for strength in the physical-chemical sciences as they relate to modern research in Pharmaceutical Chemistry (Pharmaceutics). The department requires that each student take seven core courses in which they must receive a grade of B or better in order to be eligible to take the Core Competency Exam, which is offered the week following completion of the spring semester of their first year in the program. These courses are offered every year and must be completed in the first two semesters in the program.

Year 1

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 740</td>
<td>3</td>
<td>CHEM 840</td>
<td>3</td>
</tr>
<tr>
<td>PHCH 801</td>
<td>1</td>
<td>PHCH 920</td>
<td>2</td>
</tr>
<tr>
<td>PHCH 862</td>
<td>3</td>
<td>PHCH 972</td>
<td>3</td>
</tr>
<tr>
<td>PHCH 730</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

Total Hours: 18

Research Skills (RS2) Requirement
Graduate students must take one elective course in addition to the previously listed courses. This may be from the courses offered by the Department of Pharmaceutical Chemistry or from other science and engineering departments on campus with prior approval from the graduate director. This requirement must be completed prior to undertaking the comprehensive examination at the end of year 2.

Post-core Examination Requirements
PHCH 870 Advanced Pharmaceutical Biotechnology, PHCH 864 Pharmaceutical Analysis and an additional elective course chosen from a wide variety of the scientific disciplines are post-core required courses that must be completed prior to the end of year 3.

Seminar Requirements
All graduate students must attend the weekly departmental seminar. Seminars consist of presentations by guest speakers, faculty members, and students. Typically, graduate students are required to present at least two departmental seminars during their time in the program. The seminar may be based on progress in their research or on a literature review of work related to their research.

Dissertation
Each Ph.D. candidate must submit and defend a dissertation resulting from research of sufficient originality and quality for publication in peer-reviewed scientific journals. The research is conducted under the supervision and guidance of the student’s advisor, with input from the dissertation committee as needed. The department strives for students to complete the Ph.D. degree within 4-5 years time.

Distance Ph.D. Degree Program
The department also offers a distance Ph.D. program. Admittance is offered to a limited number of highly qualified students who excelled while completing the Distance M.S. degree program. Interested students should inquire with their M.S. advisor, onsite advisor and the graduate director for details. This program features the same didactic coursework and research requirements as in the onsite Ph.D. program but allows students to complete the degree while working at a remote location. For questions, contact the graduate director, John Stobaugh, 785-864-3996, stobaugh@ku.edu.