

Pharmaceutical Sciences/Medicinal Chemistry PhD

SCHOOL OF PHARMACY

Learn more about the Doctor of Philosophy in Pharmaceutical Sciences.

About the Program

The School of Pharmacy offers a graduate program leading to the MS and to the PhD in Pharmaceutical Sciences with a concentration in Medicinal Chemistry. The program is designed to prepare students for positions in the pharmaceutical industry, government agencies, and as faculty in schools of pharmacy.

Time Limit for Degree Completion: 7 years

Campus Location: Health Sciences Center, Main

Some courses may be offered at the Fort Washington campus. Research must be carried out at the Health Sciences Center campus under the supervision of an advisor who is a member of the Graduate Faculty.

Full-Time/Part-Time Status: Full-time status is recommended due to the nature of ongoing research.

Interdisciplinary Study: The program encourages interdisciplinary coursework, research and collaborations among faculty and students with interests in biochemistry, molecular modeling, organic chemistry and pharmacology.

Areas of Specialization: The focus is Medicinal and Pharmaceutical Chemistry, including design and synthesis of ligands for cholinergic receptors and ligands for retinoic acid receptors, novel anticonvulsants, and the development of analytical methodologies.

Job Prospects: The program primarily concentrates on providing research scientists for the pharmaceutical industry and government agencies, as well as faculty for schools of pharmacy.

Non-Matriculated Student Policy: Non-matriculated students are able to take up to 9 credits before formal application must be made to the program.

Financing Opportunities: Support options include University fellowships, teaching assistantships and research assistantships. Recipients are determined on a competitive basis during the admission process and receive a stipend and full tuition remission (up to 9 credits per term).

The principal duties of a Teaching Assistant (TA) include assisting faculty members in laboratory instruction, preparing apparatus or materials for PharmD students, conducting recitations, grading quizzes and reports, and proctoring exams. TAs are expected to work 20 hours per week.

A Research Assistant (RA) is expected to spend 20 hours per week engaged in research and is assigned to a specific faculty member. The research subjects are determined by consultation between the student and their research advisor.

Applications should include a statement of previous teaching and/or research experience, areas of interest, and future goals; official transcripts; and a curriculum vitae. The department attempts to make offers of assistantships on or before May 1. June 1 is the final date for acceptance or declination of department offers. Applications should be directed to:

Temple University School of Pharmacy
3307 North Broad Street, Suite 528
Philadelphia, PA 19140

Admission Requirements and Deadlines

Application Deadline:

Fall: December 15

All applications are evaluated together after the deadline.

APPLY ONLINE to this graduate program.

Letters of Reference:

Number Required: 3

From Whom: Letters of recommendation should be obtained from college/university faculty members familiar with the applicant's academic competence and professionals in a supervisory position.

Coursework Required for Admission Consideration: It is recommended that applicants complete the courses (or their equivalent, as determined by the School of Pharmacy) to obtain a BS in Biochemistry, Chemistry (preferably Organic Chemistry), or Pharmacy before entering the program.

Master's Degree in Discipline/Related Discipline: A master's degree is not required.

Bachelor's Degree in Discipline/Related Discipline: A baccalaureate degree in Biochemistry, Chemistry (preferably Organic Chemistry), or Pharmacy is required.

Transcripts from all post-secondary institutions attended may be sent electronically to tuspsgrad@temple.edu. Alternately, unopened official transcripts bearing the school's seal must be sent directly from the Registrar at each institution to the School of Pharmacy's Office of Graduate Studies.

Applicants who earned a degree at a non-U.S. institution must submit an equivalency evaluation of their transcript(s) through a third-party provider, either World Education Services (WES) or Educational Credential Evaluators (ECE).

Statement of Goals: In approximately 500 to 1,000 words, state your specific interest in Temple's program, research goals, future career goals, and academic and research achievements.

Standardized Test Scores:

GRE: Scores are expected to be in the 65th percentile or above.

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master's degree at a U.S. institution, must report scores for a standardized test of English that meet these minimums:

- TOEFL iBT: 85
- IELTS Academic: 6.5
- PTE Academic: 58

Resume: Current resume or CV required.

Program Requirements

General Program Requirements:

Number of Credits Required Beyond the Baccalaureate: 46

Required Courses:

Code	Title	Credit Hours
Core Courses		
PS 8002	Pharmaceutical Analysis	3
PS 8051	Seminar in Pharm Science	1
PS 8121	Department of Pharmaceutical Sciences Seminar Series	1
PS 8127	Pharmacokinetics	3
PS 8128	Principles in Drug Discovery	3
PS 8129	Bioethics in Research	2
PS 8131	Principles of Biochemistry	4
PS 8403	Advanced Pharmacogenomics	2
STAT 5002	Introduction to Biostatistics	3
Electives ¹		18
Research Courses ²		6
PS 9994	Preliminary Examination Preparation	
PS 9998	Pre-Dissertation Research	
PS 9999	Dissertation Research	
Total Credit Hours		46

1

Suggested electives include CHEM 4201 Organic Structure and Mechanisms, CHEM 5201 Physical Methods in Organic Chemistry, CHEM 5205 Organic Syntheses, and PS 8009 Advanced Medicinal Chemistry I. Electives should be taken primarily in Chemistry. Coursework in Biomedical Sciences, Computer and Information Science, and other disciplines is also permissible with guidance from the advisor.

2

Of the 6 required research credits, a minimum of 2 credits of PS 9999 must be taken. The other 4 credits may be taken in any combination of PS 9994, PS 9998, and PS 9999.

Culminating Events:*Preliminary Examination:*

The purpose of the preliminary examination is to demonstrate critical and interpretive knowledge in specialized areas of the discipline. The examination evaluates the student's ability to apply specific research foci to anticipated practical problems in the field. Students who accumulate 40 didactic credits are eligible to take the exam.

The preliminary exam consists of two sections. The first is a written section consisting of questions from the student's Doctoral Advisory Committee (DAC). Each member of the DAC submits a question and then judges the quality of the student's answer based on criteria such as accuracy, thoroughness and originality. They then share that score and their rationale for it with the other members of the DAC. The evaluators look for a breadth and depth of understanding of concepts in the areas being tested, application of that knowledge, and the ability to write technical prose in a manner consistent with scientists in the field. The second section of the preliminary exam includes the preparation of a research proposal approved by the DAC and a 30-minute oral summary of the proposal followed by an oral defense of the proposal.

Students who are preparing to take their preliminary examination should confirm a time and date with the Director of Graduate Studies and register with the Administrative Assistant in the Office of Graduate Studies. The student and Director receive confirmation of the time, date, room and proctor for the examination.

Dissertation Proposal:

The dissertation proposal demonstrates the student's knowledge of and ability to conduct the proposed research. The proposal should consist of:

- the context and background surrounding a particular research problem;
- an exhaustive survey and review of literature related to the problem; and
- a detailed methodological plan for investigating the problem.

The proposal should be completed and approved no more than one year after completing the preliminary exam. Upon approval, a doctoral student is promoted to PhD candidacy, and a timeline for completing the investigation and writing process are established.

Dissertation:

The doctoral dissertation is an original, theoretical and/or empirical study that makes a significant contribution to the field. It should expand existing knowledge and demonstrate the student's knowledge of research methods and a mastery of their primary area of interest. The dissertation should be rigorously investigated; uphold the ethics and standards of the field; demonstrate an understanding of the relationship between the primary area of interest and the broader field; and be prepared for publication in a professional journal.

The Dissertation Examining Committee (DEC) is formed to oversee the student's doctoral research. It is charged with evaluating the student's dissertation and oral defense, including the student's ability to express verbally their research question, methodological approach, primary findings and implications. The DEC, which includes the members of the DAC, is comprised of at least three Graduate Faculty members. Two members, including the Chair, must be from the School of Pharmacy. The Chair is responsible for overseeing and guiding the student's progress, coordinating the responses of the Committee members, and informing the student of their academic progress. At least one additional Graduate Faculty member from outside the School of Pharmacy must be included on the DEC. This outside examiner should be identified no later than the beginning of the academic term in which the student will defend the dissertation. The DEC members vote to pass or fail the dissertation and the defense at the conclusion of the public presentation.

Committee compositions must be approved by the departmental graduate committee. If a student needs to change a member of a committee, the new member must be approved by the departmental graduate committee and by the Graduate School. The changes must be documented with the Administrative Assistant and the Graduate School using the "Request for Change in Dissertation Committee" form, found in TUportal under the Tools tab within "University Forms."

Students who are preparing to defend their dissertation should confirm a time and date with their DEC and register with the Office of Graduate Studies at least 15 days before the defense is to be scheduled. The Office of Graduate Studies arranges the time, date and room and forwards to the student the appropriate forms. After the Administrative Assistant has made the arrangements, the student must send the Graduate School a completed "Announcement of Dissertation Defense" form, found in TUportal under the Tools tab within "University Forms," at least 10 days before the defense date. The department posts announcements for the defense.

Contacts**Program Web Address:**

<https://pharmacy.temple.edu/academics/phdms-pharmaceutical-sciences>

Department Information:

Dept. of Pharmaceutical Sciences Office of Graduate Studies
School of Pharmacy
3307 N. Broad Street, Suite 528
Philadelphia, PA 19140
tuspgrad@temple.edu
215-707-4972

Submission Address for Application Materials:

https://apply.temple.edu/PHARM_GRAD/

Department Contacts:

Admissions:

Sophon Din
tuspgrad@temple.edu

Program Coordinator:

Daniel J. Canney, PhD
tuspgrad@temple.edu

Graduate Chairperson:

Swati Nagar, PhD
phscgrad@temple.edu

Department Chairperson:

Ellen Walker, PhD
ellen.walker@temple.edu