PHARMACEUTICAL SCIENCES: APPLIED DRUG DEVELOPMENT, M.S.

This is a named option in the Pharmaceutical Sciences M.S. (http://guide.wisc.edu/graduate/pharmacy-school-wide/pharmaceutical-sciences-ms/)

Are you a STEM major who is interested in a career in the biopharmaceutical industry? The Division of Pharmaceutical Sciences (https://pharmacy.wisc.edu/psd/)at the School of Pharmacy offers the Master of Science (MS) in Pharmaceutical Sciences degree named option "Applied Drug Development." The program provides a rigorous background in a range of disciplines that are critical to the success of the next generation of pharmaceutical scientists. The program's accelerated one-year applied training combines relevant aspects of drug development with hands-on laboratories culminating with a capstone internship.

Science: The pharmaceutical sciences are emphasized in courses that cover literature comprehension, biostatistics, pharmacokinetics and pharmacodynamics, pharmacology and instrumentation methods.

Pharmaceutical Industry: Industry-specific content is covered in courses that describe regulatory practice, the drug development process, working in a regulated environment (GxP) and pharmaceutical economics and management.

Project-Based Internship: This 4-credit course provides the opportunity for students to utilize all the components of the program as they work in a relevant internship position.

This degree was crafted with extensive input from the biopharmaceutical industry. The faculty are a mix of experts from industry and academia. This program may be completed in one calendar year (September–August) or at a slower pace.

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website.

Graduate admissions is a two-step process between academic programs and the Graduate School. *Applicants must meet* the minimum requirements (*https://grad.wisc.edu/apply/requirements/*) *of the Graduate School as well as the program(s).* Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

Requirements	Detail
Fall Deadline	June 30
Spring Deadline	October 31
Summer Deadline	The program does not admit for the summer term.

GRE (Graduate Record Examinations)	Not required but may be considered if available.
English Proficiency Test	Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	2

Accepted students commonly have strong scientific backgrounds and a desire to work in the biopharmaceutical industry. Students with undergraduate degrees in the physical or biological sciences, engineering, pharmacy, and related fields are encouraged to apply. Applicants without a bachelor's degree may still be considered for admittance with an earned Doctor of Pharmacy or other professional graduate degree.

Please see the "Apply Now" section of the program website (https://pharmacy.wisc.edu/academics/applied-drug-development/) for the application deadline and required supplemental materials.

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM INFORMATION

Students enrolled in this program are not eligible to receive tuition remission from graduate assistantship appointments at this institution.

Students may contact the Office of Student Financial Aid (https://financialaid.wisc.edu/) to discuss federal loan programs and other lending opportunities.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS
MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	Yes	Yes	Yes

Mode of Instruction Definitions
Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy (https://policy.wisc.edu/library/ UW-1244 (https://policy.wisc.edu/library/UW-1244/)).
Overall Graduate GPA Requirement	3.00 GPA required. This program follows the Graduate School's policy: https:// policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/ library/UW-1203/).
Other Grade Requirements	Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower.
Assessments and Examinations	The program expects the M.S. candidate to complete a project-based internship (summative research internship) under guidance of an approved mentor or an approved research project.
Language Requirements	No language requirements.

REQUIRED COURSES

Code	Title	Credits
PHM SCI 750	The Drug Development Process	3
PHM SCI 751	Introduction to Regulatory Practice	3
PHM SCI 759	Current Trends in Drug Discovery and Development	1
PHM SCI 752	GxP (Good Practice): Working in a Regulated Environment	3
B M I/STAT 541	Introduction to Biostatistics	3
PHM SCI 755	Laboratory and Instrumentation Methods	3
PHM SCI 753	Pharmaceutical Economics and Project Management	3
PHM SCI 760	Summative Research Internship	4
PHM SCI 768 or PHM SCI/ M&ENVTOX/ ONCOLOGY/ PHMCOL-M/ POP HLTH 625	Pharmacokinetics Toxicology I	3
Drug Action (select 4 credits from the following)		
PHMCOL-M 781	Molecular and Cellular Principles in Pharmacology	4
PHARMACY 770 & PHARMACY 771	CNS Drug Designs, Actions, and Applications I and CNS Drug Designs, Actions, and Applications II	4

 While the program offers an accelerated 1-year path, students may also choose a 2- or 3-year path. Students may choose a degree path consisting of all online courses or a degree path consisting of a mix of online, in-person, and hybrid courses.

Students in this program may not take courses outside the prescribed curriculum without faculty advisor and program director approval. Students in this program cannot enroll concurrently in other undergraduate, graduate or certificate programs.

POLICIES

GRADUATE SCHOOL POLICIES
The Graduate School's Academic Policies and Procedures (https:// grad.wisc.edu/acadpolicy/) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

NAMED OPTION-SPECIFIC POLICIES
PRIOR COURSEWORK
Graduate Work from Other Institutions
No graduate work from other institutions is accepted.

UW–Madison Undergraduate
With program approval, students are allowed to count no more than 7 credits of UW–Madison courses numbered 500 or above (earned as a UW–Madison undergraduate) toward the M.S. degree. Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

UW–Madison University Special

With program approval, the program will allow up to 12 credits taken as a special student in the Applied Drug Development Capstone Certificate to count toward the MS-Pharmaceutical Sciences-Applied Drug Development named option. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

PROBATION

This program follows the Graduate School's Probation policy. (https://policy.wisc.edu/library/UW-1217/)

ADVISOR / COMMITTEE

Students will be assigned an advisor within the program; students will have an approved mentor for their summative internship project.

CREDITS PER TERM ALLOWED

15 credits

TIME LIMITS

This program follows the Graduate School's Time Limits policy. (https://policy.wisc.edu/library/UW-1221/)

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaff.provost.wisc.edu/)
- Dean of Students Office (https://doso.students.wisc.edu/) (for all students to seek grievance assistance and support)
- Employee Assistance (http://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://compliance.wisc.edu/titleix/) (for concerns about discrimination)

Grievance Policy for Graduate Programs in the School of Pharmacy

Any student in a School of Pharmacy graduate program who feels that they have been treated unfairly by a faculty member, staff member,

postdoc, or student has the right to have a complaint heard about the treatment and to receive a prompt hearing of the grievance, following these grievance procedures. Any student who discusses, inquiries about, or participates in the grievance procedure may do so openly and shall not be subject to intimidation, discipline, or retaliation because of such activity. The person whom the complaint is directed against must be an employee of the School of Pharmacy. Any student or potential student may use these procedures unless the complaint is covered by other campus rules or contracts.

Exclusions

This policy does not apply to employment-related issues for Graduate Assistants in TA, PA and/or RA appointments. Graduate Assistants will utilize the Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/) (GAPP) grievance process to resolve employment-related issues.

Requirements for Programs

The School of Pharmacy requires that each director of graduate studies (DGS) serve as a grievance advisor for the school. The program must notify students of the grievance advisors, including posting the grievance advisor's names in the program handbook. The student will be able to select the grievance advisor of the student's choice and does not need to use the grievance advisor from the student's program.

A grievance advisor may be approached for possible grievances of all types. They will spearhead the grievance response process described below for issues specific to the graduate program, including but not limited to academic standing, progress to degree, professional activities, appropriate advising, and a program's community standards. They will ensure students are advised on reporting procedures for other types of possible grievances and are supported throughout the reporting process. Resources (https://grad.wisc.edu/current-students/#reporting-incidents) on identifying and reporting other issues have been compiled by the Graduate School.

Procedures

1. The student is advised to initiate a written record containing dates, times, persons, and description of activities, and to update this record while completing the procedures described below.
2. If the student is comfortable doing so, efforts should be made to resolve complaints informally between individuals before pursuing a formal grievance. If students would like to seek guidance at this informal step, the student can contact the Assistant Dean of Diversity, Equity, and Inclusion, the DGS for the student's program, or the UW Ombuds Office.
3. Should a satisfactory resolution not be achieved AND the complaint does not involve an academic program, the procedure outlined in Step 6 below should be followed. Should a satisfactory resolution not be achieved in step 2, the student should contact an SOP grievance advisor of one's choice to discuss the complaint. The grievance advisor should keep a record of contacts with regards to possible grievances. The first attempt is to help the student informally address the complaint prior to pursuing a formal grievance and should occur within 10 days of notifying the grievance advisor. The student is also encouraged to talk with their faculty advisor regarding concerns or difficulties.
4. If the issue is not resolved to the student's satisfaction, the student may submit a formal grievance to the grievance advisor in writing, within 60 calendar days from the date the grievant first became aware

of, or should have become aware of with the exercise of reasonable diligence, the cause of the grievance. To the fullest extent possible, a grievance shall contain a clear and concise statement of the grievance and indicate the issue(s) involved including individuals, the relief sought, the date(s) the incident or violation took place, and any specific policy involved.

5. On receipt of a written grievance, the following steps will occur. The final step must be completed within 30 working days from the date the formal written grievance was received. The program must store documentation of the grievance for seven years. Significant grievances that set a precedent may be stored indefinitely.
   a. The grievance advisor will convene a SOP faculty committee with at least 3 members to facilitate the grievance following step b, c, and d. The grievance advisor assumes the role of coordinator. Any faculty member involved in the grievance or who feels that they cannot be impartial may not participate in the committee. Committee composition will include at least one member from outside the student's home program.
   b. The faculty committee, through the grievance advisor, will obtain a written response from the person or persons toward whom the grievance is directed. The grievance advisor will inform this person that their response will be shared with the student filing the grievance.
   c. The grievance advisor will share the response with the student filing the grievance.
   d. The faculty committee will make a decision regarding the grievance. The committee's review shall be fair, impartial, and timely. The grievance advisor will report on the action taken by the committee in writing to both the student and the person toward whom the grievance was directed.

6. If either party (the student or the person or persons toward whom the grievance is directed) is unsatisfied with the decision of the program's faculty committee, the party may file a written appeal to the SOP Associate Dean for Research and Graduate Education within 10 working days from the date of notification of the program's faculty committee. The following steps will occur:
   a. The grievant will be notified in writing, within 5 business days of the written appeal, acknowledging receipt of the formal appeal and establishing a timeline for the review to be completed.
   b. The associate dean or their designee may request additional materials and/or arrange meetings with the grievant and/or others. If meetings occur, the associate dean or their designee will meet with both the grievant and the person or persons toward whom the grievance is directed.
   c. The associate dean or their designee will make a final decision within 20 working days of receipt of the committee's recommendation.
   d. The SOP Associate Dean for Research and Graduate Education must store documentation of the grievance for seven years. Significant grievances that set a precedent may be stored indefinitely.

7. The student may file an appeal of the School of Pharmacy decision with the Graduate School. See the Grievances and Appeals section of the Graduate School's Academic Policies and Procedures (https://grad.wisc.edu/documents/grievances-and-appeals/).

OTHER
n/a

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES
Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

PEOPLE

The Pharmaceutical Sciences Graduate Program has educated generations of scientists for challenging positions in industry, academia, and government. The faculty for the MS Applied Drug Development consists of experts in industry and academia affiliated with the School of Pharmacy. The Applied Drug Development faculty list is available on the School of Pharmacy website (https://pharmacy.wisc.edu/academics/applied-drug-development/faculty-staff/).