Department of Biomedical and Pharmaceutical Sciences

Graduate Student Handbook

University of Montana

2025-2026

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I. GENERAL INFORMATION

Mission Statement

The mission of the Department of Biomedical and Pharmaceutical Sciences is to offer a dynamic curriculum in the biomedical and pharmaceutical sciences in support of the School of Pharmacy's professional pharmacy degree and strong graduate programs. The Department places high priority on the development of nationally recognized programs of research, NIH supported programs, and Ph.D. and M.S. level graduate education. The Department provides service to the University and to local, regional, and national scientific and professional organizations. The Department is committed to development of minority training programs and recruitment of minority and female faculty and students.

Graduate Programs and Research

Degree programs include:

- Ph.D. and M.S. in Pharmaceutical Sciences and Drug Design
- M.S. in Pharm.D./Pharmaceutical Sciences and Drug Design
- Ph.D. and M.S. in Toxicology

These programs provide training in pharmacology, pharmacokinetics, and toxicology. Ph.D. degree training is generally completed within 4-5 years and consists of general course work, research rotations, and selection of a primary mentor in the first year; course work and research in the concentration area in the second year; research and doctoral qualifying exams in the third year; and research and dissertation defense in the final year(s). The M.S. degree requires two years of course work, research, and the completion of a research thesis/professional paper. Graduates are well prepared for research careers in academia, government, and the pharmaceutical industry.

The Department maintains dynamic programs that emphasize biomedical research in pharmacogenetics, pharmacology, pharmacokinetics, toxicology, and health disparities. Faculty are engaged with several biomedical sciences research centers at the University of Montana, including **Center for Biomolecular Structure and Dynamics (CBSD)**, **Center for Environmental Health Sciences (CEHS)**, **Center for Translational Medicine (CTM)**, **Montana Biotechnology Center (BIOTECH)**, and the **Skaggs Institute for Health Innovation (SIHI).** These centers/institutes and associated core facilities and equipment provide unique opportunities for graduate study and research with nationally competitive investigators. Students work closely with faculty both in the classroom and in the laboratory. The programs are interdisciplinary, and students have the opportunity to interact with faculty from other campus departments and programs.

The Graduate Programs within the Department maintain modern research laboratories in the Skaggs Building, the Interdisciplinary Sciences Building, the Clapp Building, and the Health Sciences Building. Graduate students also have access to individual core laboratories.

Administration

Department of Biomedical and Pharmaceutical Sciences (BMED)

Elizabeth Putnam, Ph.D.	Chair
Kate Pennacchio, M.S.	Financial Officer
Erica Woodahl, Ph.D.	Director, Graduate Program in Pharmaceutical Sciences and Drug Design
Andrij Holian, Ph.D.	Director, Graduate Program in Toxicology
Paulette T. Jones, MRE	Administrator, Graduate Program in Toxicology

Skaggs School of Pharmacy (SSOP)

Matthew Fete, Ph.D.	Dean

College of Health (COH)

Matthew Fete, Ph.D.	Dean

II. GRADUATE STUDENT OVERSIGHT AND ADVISORY COMMITTEES

PROGRAM DIRECTORS

- Provide oversight for the curriculum, students, student progress and laboratory placement.
- The Director or his/her replacement designee will act as the advisor for all first-year students until they select a research advisor. This involves:
    - meeting with all new students to design their first-year plan of study;
    - helping new students select rotation laboratories; and
    - following up to make sure students file reports. Students are required to file a 1-2 page report for each rotation and have their supervising faculty member sign it. The report goes into the student's permanent file.
- Work with the Chair on stipend support and recruitment.
- Monitor student's progress towards the degree, assuring procedures are in place to assess annual student progress towards the degree.
- Work with faculty advisors and advisory committees if there are any issues and /or problems that need resolving.

Contact Information for Program Directors:
Pharmaceutical Sciences and Drug Design:
Erica Woodahl x4129 erica.woodahl@umontana.edu
Toxicology:
Andrij Holian x4018 andrij.holian@umontana.edu

THE GRADUATE SCHOOL

The Graduate School is the final authority on all admission and graduation requirements for graduate degrees. They also receive graduate stipend contracts, do on-line recruiting, and allocate University Graduate Teaching Assistantships to programs as negotiated. Signatures from members of student advisory committees will be placed on file. Final steps towards completing a graduate degree can be found on the Graduate School website.

RESEARCH ADVISOR

- Serves as Chair of the advisory committee.
- For Ph.D., serves as Chair of the student's written portion of the comprehensive examination.
- Assists the student in assuring that all deadlines and procedures are followed. It is the

student's responsibility to ensure that these requirements are met.

- Reports, in writing, to the Program Director, the date and outcomes of advisory committee meetings and the progress of the student toward the degree.
- Reviews and approves the dissertation, thesis, or professional paper draft prior to its submission to the advisory committee, at least 14 days prior to the final defense.
- In conjunction with the Program Director, maintains a current file on the student.
- Current faculty and research areas are listed on the Molecular and Biomedical Sciences (MBS) umbrella website.

ADVISORY COMMITTEE

- Ensures that the student understands all University, Graduate School, and Department regulations. It is the student's responsibility to ensure these requirements are met.
- Offers advice and approves the student's Plan of Study.
- Offers advice and approves the research topic and research proposal.
- Provides research advice as individuals and in regular meetings of the full committee with the student. Students have the right to request a committee meeting at any time.
- For the Ph.D., submits questions for the written comprehensive qualifying exam and administers the oral qualifying exam.
- Reviews the completed thesis, professional paper, or dissertation and makes recommendations for its revision.
- Conducts the final thesis, professional paper, or dissertation defense and certifies to the Graduate School whether the student has passed/not passed this examination.

Change of Personnel on the Advisory Committee

Students have the right to change advisors or supervisory committee members. This process would start with consultation with the Program Director and filing a formal request with the Program's Graduate Standards and Curriculum (GSC) Committees. Until the time an M.S. or Ph.D. research proposal has been approved by a student's advisory committee, replacement or resignation of committee members may be made without prejudice at any time at the request of the student and the research advisor, and with approval of the Program's GSC Committee and the Graduate School. For the student who wishes a change of research advisor, that student's program will be re-evaluated, including consequences to changing a student's research proposal, and the change will be subject to approval by the Program Director and the Graduate School.

Student Rights and Responsibilities

- Students take the ultimate responsibility in assuring that the standards and deadlines contained herein are met. Failure to meet deadlines and program standards may be

interpreted as the student not making reasonable progress toward the degree, may lead to grounds for academic probation, and may result in dismissal from the program.
- Students have the right to call advisory committee meetings at any time.
- Students have the right to seek confidential advice or consultation regarding any matter from the Department Chair or the Dean.
- Students have the right to be represented on committees involving student affairs as appropriate.

Student Conduct Code

The Student Conduct Code at the University of Montana embodies and promotes honesty, integrity, accountability, rights, and responsibilities associated with constructive citizenship in our academic community. This Code describes expected standards of behavior for all students, including academic conduct and general conduct, and it outlines students' rights, responsibilities, and the campus processes for adjudicating alleged violations.

Plagiarism in any form (coursework and/or research) will be considered a serious offense. Using any form of artificial intelligence for any assignment or research product will also be considered as plagiarism unless specifically indicated as part of the assignment or research product. Consequences of plagiarism can range from failing an assignment or a course, to expulsion from the graduate program depending on the nature of the offense.

Please also refer to the Skaggs School of Pharmacy Professionalism Policy.

III. TEACHING AND RESEARCH ASSISTANTSHIPS (TA's and RA's)

Teaching and Research Assistantships (TA's and RA's) are stipends along with tuition waivers that are provided to full time students who are accepted into a program in funded positions. To qualify as full time, domestic students must register for at least 6 credits each semester and international students must register for at least 9 credits each semester. Students are generally provided a 12-month assistantship and expected to work on their research throughout the summer. Some vacation time will be granted upon approval by the advisor and Program Director (or appropriate committee). Specific dates away must be submitted to the advisor. If accumulated time away exceeds 3 weeks, it must be approved by the Dean and may result in a partial stipend reduction.

TEACHING ASSISTANTSHIP RESPONSIBILITIES

All graduate students with TA's and RA's serve as teaching assistants during each semester in which they are enrolled. Teaching responsibilities are assigned by the BMED Chair.

ALL TEACHING ASSISTANTS ARE EXPECTED TO:

Contact the course instructor at least one full week prior to each of their teaching assignments to determine the duties needed and their time frame.
Note: Should a time conflict arise for a particular assignment, teaching assistants are expected to:

- Arrange for another student to substitute.
- Inform the course instructor.

During the pharmaceutical sciences laboratory, teaching assistants are expected to provide instruction to the students to the best of their abilities. This is a valuable learning experience for the teaching assistants and should be utilized to the fullest. Teaching assistants collaborate with the laboratory instructor to assist students in the laboratory session.

IV. DEGREE PROGRAM STANDARDS for M.S. and Ph.D.

General Description

The M.S. and Ph.D. degree graduate programs provide training in Pharmaceutical Sciences and Drug Design and Toxicology. Students and advisors should monitor academic progress and plan ahead for degree completion in Degree Works.

Graduation Requirements

M.S.

- Successful completion of all Graduate School requirements for the M.S. degree.
- Successful completion of at least 30 graduate semester credits. Specific program requirements are detailed later in this document.
- Successful completion and defense of a research thesis or professional paper as defined by the Graduate School.
- All degree requirements for the M.S., including the use of transfer and nondegree credits, must be completed within five years.

Ph.D.

- Successful completion of all Graduate School requirements for the Ph.D. degree.
- Successful completion of at least 60 graduate semester credits. Specific program requirements are detailed later in this document.
- Successful completion and defense of a research dissertation as defined by the Graduate School.
- All degree requirements for the Ph.D. must be completed within seven years of commencing graduate course work at University of Montana.

Course Waivers

Students may petition the appropriate Program Director and GSC Committee for waiver of course requirements (e.g., biochemistry; cellular and molecular biology) for which they have equivalent preparation. Waiver of a course does not reduce total credit requirements for a degree.

Graduate School Policies

For current information on credit requirements, time limits, transfer credits, committees and the defense process for either the M.S. or the Ph.D., consult the Graduate School website.

Degree Standards

University regulations, curricula, and fee schedules are subject to change without notice, and students in degree programs are responsible for meeting degree requirements and procedural deadlines. Information on Graduate School requirements regarding grades, continuous registration and requesting a leave of absence can be found on the Graduate School website.

Program Governance

To remain in Good Standing, the Graduate Requirements from the Pharmaceutical Sciences and Drug Design (PSDD) and Toxicology (Tox) Graduate Standards and Curriculum (GSC) Committees state that a graduate student must:

- Identify a Research Advisor in their first academic year: by the end of the fall semester for M.S. students and by end of the spring semester for Ph.D. students. Identifying a Research Advisor and a suitable laboratory home is required for satisfactory progress, financial support (stipend and tuition waiver), and continuation in the program. Failure to identify an advisor will lead to dismissal from the program.
- Maintain a GPA of 3.0 or higher or the student will be placed on academic probation. No grade below C will be accepted toward any degree requirement. The student has one semester to raise the GPA to 3.0 or higher; failure to raise the GPA to a satisfactory level will result in removal from the graduate program. A grade of F may lead to immediate dismissal from the program.
- Meet with his or her advisory committee at a minimum of once every year.
- Each January, the student must complete the Annual Progress Form (note: PSDD and Tox use different forms) and submit the form to the Program Director and the GSC Committee that monitors progress in the graduate program. Evidence of unsatisfactory progress for two semesters in succession or failure to address concerns of the Advisory Committee or GSC Committee is grounds for academic probation or dismissal from the program.
- Ph.D. students must complete their Research Proposal before the end of the 5th semester and M.S. students must complete their Research Proposal before the end of the 3rd semester.
- Ph.D. students must complete their Comprehensive Qualifying Exam before the end of the 6th semester.
- Make clear and substantive progress in their research as defined by the deadlines set out in

the PSDD and Tox Annual Progress Form and as judged by their Research Advisor and Advisory Committee. If research progress is insufficient, the Research Advisor will outline in the memo the corrective measures the student must take to show substantive progress in their research. This memo will be placed in the student's permanent file and a copy will be forwarded to the appropriate PSDD or Tox GSC Committee. Students not making substantive research progress will meet with their committee within six months. If there is not adequate improvement in research progress, as judged by their research advisor and advisory committee, the GSC Committee will recommend dismissal from the program.

COURSE REQUIREMENTS

General Information

- Graduate students typically register for a higher number of credits during the first two years of the program when they are enrolled in academic courses. Graduate students must enroll for at least 6 credits (domestic) or 9 credits (international) in Fall and Spring semesters in order to receive stipend support. Students do not need to enroll during Summer session.
- Graduate students should not enroll for more than 9 credits in any semester in which they are enrolled in only BMED 590/599/690/699 (Research/Thesis/Professional Paper/Dissertation).
- Students who complete the requirements for the M.S. or Ph.D. during Summer session must enroll for 1 credit of Thesis/Professional Paper or Dissertation during Summer session.
- In addition, progress towards the completion of a thesis, professional paper, or dissertation will be regularly assessed by the appropriate advisory committee, Graduate Director, and Dean. Failure to make adequate progress towards completion of degree requirement could lead to warnings, probation, and ultimately to dismissal.

Notes on Special Courses

Biochemistry

A sound foundation in the principles of biochemistry is essential for graduate study. The graduate programs require preparation in fundamental biochemistry; requirement is waived for students with equivalent preparation.

- This requirement can be met by completion of BCH 380 (or equivalent prior to entering graduate program) or BCH 480 (preferred) and 482 during graduate study. Selection of the appropriate preparatory biochemistry course depends upon the degree program and upon student preparation and interest. Students are encouraged

to consult with Program Directors concerning the biochemistry requirement. This biochemistry course requirement is waived for students having equivalent preparation.

BIOB 425 – Advanced Cell & Molecular Biology

This course prepares the student for contemporary graduate research. This advanced cell and molecular biology course requirement is waived for students having equivalent preparation.

BMED 545 – Research Laboratory Rotations

The Research Laboratory Rotation experience is designed to introduce graduate students to research being done in the programs, to provide experience in laboratory methods, and to help students select a research adviser. Students benefit the most when they obtain a variety of experiences in their rotations.

- MS students register for 2 credits of BMED 545 in their first semester and complete two 6-10 week rotations.
- Ph.D. students register for 2 credits of BMED 545 in their first semester and an optional 1 credit in their second semester, and complete two-three 6-10 week rotations.
- Following completion of each rotation, the student prepares a 1-2 page report summarizing the rotation experience. The student then has the faculty with whom the research was conducted sign it and turn in to the Program Director for placement in their file. The report is submitted within a month after the completion of the rotation.
- BMED 545 is taken on a Credit/No Credit basis.
- Grades are submitted after all the research experience write-ups have been received and placed in the student's file. Students who do not complete their rotations by the end of the semester are assigned a grade of **N** (course work continued into later semesters) until the requirements are met.

BMED 594 – Seminar

- All graduate students are required to attend the seminars sponsored by all areas of the Molecular and Biomedical Sciences Umbrella. Student attendance at scheduled seminars is monitored. While everyone will miss an occasional seminar due to certain conflicts, a consistent record of attendance is expected. Students are especially encouraged to attend seminars outside their area of specialization.
- Students register for BMED 594 Seminar (Credit/No Credit) only in the semesters in which they present a seminar.
- M.S. students present one research progress seminar in the 1st semester of the second year of the program and register for 1 credit of 594.
- Ph.D. students present three research progress seminars—yearly starting in the second year of the program—and register for 1 credit in each semester they present.
- Students do not receive seminar credit for their defense seminar. Credit for these

presentations is included in the thesis/professional paper or dissertation credits.

BMED 590/599 – Research/Thesis/Professional Paper

M.S. students enroll in BMED 590 in the appropriate research section for their faculty advisor. M.S. students enroll in BMED 599 during the last semester in the programs. Students who do not complete their thesis or professional paper by the end of the semester are assigned a grade of N (course work continued into later semesters). Upon successful defense, the N grades for all semesters are converted to CR by the registrar.

BMED 605 – Biomedical Research Ethics

All Ph.D. students are required to take this 1 credit course, offered in the spring, which deals with scientific ethics, human and animal experimentation, plagiarism and intellectual property. Students in the M.S. Toxicology program are also required to take this course.

BMED 690/699 – Research/Dissertation

Ph.D. students enroll in BMED 690 in the appropriate research section for their faculty advisor. Ph.D. students enroll in BMED 699 during the last semester in the program. Students who do not complete their dissertation by the end of the semester are assigned a grade of N (course work continued into later semesters). Upon successful defense, the N grades for all semesters are converted to CR by the registrar.

Elective Courses

Specialized electives chosen based on research interests may include classes offered in the Department of Biomedical and Pharmaceutical Sciences, Division of Biological Sciences, Department of Chemistry and Biochemistry, and Department of Computer Science.

M.S. in Pharmaceutical Sciences and Drug Design

M.S. students are expected to complete degree requirements within two years:

BMED 545	Research Rotations	2 cr.
BMED 594	Research Progress Seminar	1 cr.
BMED 621	Drug Design: Medicinal Chemistry & Pharmacology	3 cr.
BMED 632	Drug Development: Pharmacokinetics	4 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design (1 credit per semester)	4 cr.
BMED 609	Biomedical Statistics	3 cr.
	Electives	3 cr.
BMED 590	Research	9 cr.*
BMED 599	Thesis or Professional Paper	1 cr.*

Total Hours	**30 cr.**

* A maximum of 10 BMED 590/BMED 599 credits may be applied toward the 30-credit requirement for the M.S.

Ph.D. in Pharmaceutical Sciences & Drug Design

Ph.D. students are expected to complete degree requirements within five years:

BMED 545	Research Rotations	2 cr.
BMED 594	Research Progress Seminar (1 cr. per year starting in the second year)	3 cr.
BMED 605	Biomedical Research Ethics	1 cr.
BMED 621	Drug Design: Medicinal Chemistry & Pharmacology	3 cr.
BMED 632	Drug Design: Pharmacokinetics	4 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design (1 credit per semester)	10 cr.
BMED 609	Biomedical Statistics	3 cr.
BMED 690	Research	33 cr.*
BMED 699	Dissertation	1 cr.*
Total Hours		**60 cr.**

* A maximum of 34 BMED 690/BMED 699 credits may be applied toward the 60-credit requirement for the Ph.D.

Pharm.D./M.S. in Pharmaceutical Sciences & Drug Design

Pharm.D./M.S. students are expected to complete degree requirements within the time period of the Pharm.D. degree:

PHAR 421/422/ 443/444	Credits of coursework in the Pharm.D. curriculum that transfer to the M.S. degree	14 cr.
BMED 594	Research Progress Seminar	1 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design (1 credit per semester)	4 cr.
PUBH 520	Fundamentals of Biostatistics	3 cr.
BMED 590	Research	9 cr.*
BMED 599	Thesis or Professional Paper	1 cr.*
PHAR 588	Research APPE (optional)	
Total Hours		**32 cr.**

* A maximum of 10 BMED 590/BMED 599 credits may be applied toward the 32-credit requirement for the M.S.

M.S. in Toxicology

M.S. students are expected to complete degree training within two years. Degree requirements include:

BCH 480*	Advanced Biochemistry I	4 cr.
BMED 545	Research Laboratory Rotations	2 cr.
BMED 583	Research Seminar in Toxicology	1 cr
BMED 594	Seminar	1 cr.
BMED 605	Biomedical Research Ethics	1 cr
BMED 609	Biomedical Statistics	3 cr
BMED 626	Research Methods in Biochemical Pharmacology	2 cr
BMED 628	Grantsmanship	1 cr
BMED 641	Toxicology I – Principles of Toxicology	4 cr.
BMED 642	Toxicology II – Toxic Agents	4 cr.
BMED 590/599	Research/Thesis or Professional Paper	3-10 cr.**

* or BCH 480/482. Waived for students with equivalent preparation in biochemistry.

** A minimum of 3 credits is required by the Department for the M.S. degree.
A maximum of 10 credits may be applied toward the 30-credit requirement for the M.S.

Ph.D. in Toxicology

The following core courses are required of all students in the Ph.D. program: Ph.D. students are expected to complete degree training within five years. Degree requirements include:

BCH 480*	Advanced Biochemistry I	4 cr.
BMED 545	Research Laboratory Rotations	3 cr.
BMED 583	Research Seminar in Toxicology	1 cr
BMED 593	Current Research Literature	1 cr.
BMED 594	Seminar	3 cr.
BMED 605	Biomedical Research Ethics	1 cr.
BMED 609	Biomedical Statistics	3 cr
BMED 626	Research Methods in Biochemical Pharmacology	2 cr
BMED 628	Grantsmanship	1 cr
BMED 641	Toxicology I – Principles of Toxicology	3 cr.
BMED 642	Toxicology II – Toxic Agents	3 cr.
BMED 643	Cellular and Molecular Toxicology	3 cr.
BMED 690/699	Research/Dissertation	20-30 cr.**
Electives		
BCH 581	Physical Biochemistry	

BCH 582	Proteins and Enzymes
BMED 591	Special Topics
BMED 644	Immunopharmacology and Immunotoxicology
BMED 645	Respiratory Toxicology
BMED 647	Topics in Toxicology

* BCH 480/482. Waived for students with equivalent preparation in biochemistry.

** A minimum of 20 credits is required by the Department for the Ph.D. degree. A maximum of 30 credits may be applied toward the 60-credit requirement for the Ph.D.

V. Milestones for M.S. and Ph.D.

Checklists and Progress Reports

Students are expected to maintain "reasonable progress towards the degree" which includes not only the completion of coursework in a timely fashion with a 3.0 GPA or above, but also a series of procedures by certain deadlines eventually leading up to graduation (e.g., Program Governance). These deadlines are listed on the **Graduate Student Progress Checklist** form. It is up to the student and the advisor to regularly update this checklist. Regular annual progress reports towards the degree are assessed by the advisor and Director (or GSC Committee) and recorded on the **Annual Graduate Student Progress Report form**.

****All forms are on the Department of Biomedical and Pharmaceutical Sciences website under Graduate Programs > Forms for Students.)**

Selection of Advisor and Advisory Committee

Prior to selection of a research advisor and appointment of the advisory committee, students will be advised by the Director of the Graduate Program in the area they are admitted (Pharmaceutical Sciences and Drug Design or Toxicology).

Following completion of rotations, each student will arrange to work with a faculty member (research advisor) as soon as possible within their chosen program area. The research advisor should be selected by the beginning of the student's 2nd semester in the program for M.S. students and end of 2nd semester for Ph.D. students.

Through discussion and mutual agreement, the student and research advisor select an area of research interest and persons to serve on an advisory committee. The advisory committee should be appointed prior to the 3rd semester in the program.

- M.S. advisory committee is composed of a minimum of three voting members: the research advisor and 2 additional members (one of whom needs to different academic/tenure home than the research advisor).
- Ph.D. advisory committee is composed of a minimum of five voting members: the research advisor and 4 additional members (one of whom needs to different academic/tenure home than the research advisor).
- For students who would like an additional committee member from outside of the University of Montana, there are two options:
    - A non-UM committee member can be added as an additional member to what is described above. Submit the committee member's CV to the Graduate School.
    - A non-UM committee member can be added instead of one of the members described above. Submit the committee member's CV to the Graduate School. Additionally, a petition must be submitted to the Graduate School describing the relevance and expertise that the committee member provides.

The student is responsible for approaching these persons and requesting that they serve on the Committee. After completing the Advisory Committee Form, the student submits the form to the Program Director for approval and to file. **The Research Advisor completes the Committee Appointment Form (including 790 numbers and departmental affiliation of each committee member) to the Graduate School for final approval.**

Plan of Study

Prior to the 3rd semester in the program, the student and research advisor will prepare a Plan of Study that includes all courses to be taken. This plan must, subsequently, be endorsed by the advisory committee with the Plan of Study Approval Form. The student turns both forms in to the Program Director. Any changes in the plan of study, once approved, require approval of the advisor, advisory committee, and the Program GSCs.

Research Proposal

The thesis, professional paper, or dissertation research proposal will be completed and endorsed by the student's advisory committee.

M.S. – no later than the end of 3rd semester in attendance

Ph.D. – no later than the end of the 5th semester in attendance

The student has their Advisor and Advisory Committee sign the Research Proposal Approval Form and turns it in to the Program Director.

Students must submit a Research Proposal based on the student's thesis, professional paper, or dissertation research to the Advisory Committee that states specific aims and focuses on the key questions and experimental approaches:

- M.S. students: submit a one-page Research Proposal (1-page Specific Aims formatted for a NIH grant) and give a research presentation to the Advisory Committee before the start of the 3rd semester.
- Ph.D. students: submit a seven-page Research Proposal (1-page Specific Aims and 6-page Research Strategy formatted for a NIH R21 grant) and give a research presentation to the Advisory Committee before the start of the 5th semester.

Comprehensive Qualifying Exam

All Ph.D. students must successfully pass a Comprehensive Qualifying Exam in order to achieve Ph.D. candidacy status and advance in the respective program. In general, there are two parts to the exam - written and oral. The written exam is completed first and the oral within a month following the written. Certain parts of the oral exam are based on the topics covered in the written exam but can be on any topic within the discipline.

The purpose of the Ph.D. Comprehensive Qualifying Exam:

- To evaluate the candidate's general knowledge of the scientific discipline.
- To evaluate the candidate's ability to apply that knowledge:
  -in the research setting
  -in written and oral communication of research and scientific ideas

If a majority of the committee feels that the student did not pass the exam, a second attempt can be made within a specified period of time. Occasionally the student may be asked to retake part, but not all, of the exam. Failure to pass the exam the second time results in dismissal from the program. Once both the written and oral portions of the doctoral comprehensive exam have been completed successfully, the student asks committee members to sign the Comprehensive Qualifying Exam Approval form and turns it in to the Program Director.

The exact structure of the exam varies somewhat by program, so please consult with your advisor, program director and/or appropriate GSC Committee to ascertain the exact format used by your program. In general, the programs structure their written exams as follows:

Pharmaceutical Sciences and Drug Design

The purpose of the qualifying exam is to 1) evaluate the candidate's general knowledge of the scientific discipline, 2) evaluate the candidate's ability to apply that knowledge in a research setting and in written and oral communication of research and scientific ideas. The student's committee must approve the written Research Proposal before the end of the 5th semester. The Comprehensive Qualifying Exam must be completed before the end of the 6th semester. If not, the student will be placed on probation. A maximum of two semesters of

probation is allowed before the student is dismissed from the program.

Written portion:
The written portion of the exam will be administered by the Advisor (e.g., soliciting questions from the Advisory Committee, proctoring the exam, and collating scores from members of the committee). This is a closed book exam.

The student will take a two-day written examination of the following format:

- Day 1 – answer essay questions in the field of pharmaceutical sciences and drug design based on coursework and general knowledge in the field. Each UM member of the examining committee will submit a question.
- Day 2 – answer essay questions in the field of pharmaceutical sciences and drug design or a topic related to the student's field of study as described in their Research Proposal. Every member of the examining committee (UM and non-UM) will submit a question.

A score of 70% for each day will be required to pass the written examination. If the score is less than 70%, a second attempt will be allowed within two weeks of the first attempt. Failure to pass on the second attempt will result in dismissal from the Ph.D. program with an option to be considered for an M.S. degree.

Oral portion:
If the written portion is passed, the oral portion of the exam will take place within four weeks. A member of the Advisory Committee other than the Advisor will chair the oral portion of the exam.

The oral exam will cover topics from the written exam, the approved Research Proposal, or any other topic related to the discipline of biomedical and pharmaceutical sciences. Each member of the committee must decide if the student passes or fails, with only one failing vote allowed for the student to pass the exam. If the student fails the first attempt at the oral portion of the exam, then written feedback will be provided to the student within one week and the exam will be repeated within four weeks. If the student fails again, they will be dismissed from the Ph.D. program with an option to be considered for an M.S. degree.

Toxicology

The purpose of the qualifying exam is to 1) evaluate the candidate's general knowledge of the scientific discipline, 2) evaluate the candidate's ability to apply that knowledge in a research setting and in written and oral communication of research and scientific ideas. The student's committee must approve the written research proposal before the end of the 5th semester. The comprehensive qualifying exam must be completed before the end of the 6th semester. If not, the student will be placed on probation. A maximum of two semesters of

probation is allowed before the student is dismissed from the program.

Written portion:
The student will take a two-day written examination of the following format. This is a closed book exam.

- Day 1 – answer four essay questions in the field of toxicology to be provided by the examining committee
- Day 2 – answer four of eight essay questions in the field of toxicology or a topic related to the student's field of study to be provided by the examining committee

A score of 70% for each day will be required to pass the written examination. If the score is less than 70%, a second attempt will be allowed within two weeks of the first attempt. Failure to pass on the second attempt will result in dismissal from the Ph.D. program with an option to be considered for an M.S. degree.

Oral portion:
If the written portion is passed, the oral portion of the exam will take place within four weeks. The oral exam will cover topics from the written exam, the approved research proposal, or any other topic related to the discipline of biomedical and pharmaceutical sciences. A member of the committee other than the mentor will chair the exam. Each member must decide if the student passes or fails, with only one failing vote allowed for the student to pass the exam. If the student fails the first attempt at the oral portion of the exam, then written feedback will be provided to the student within one week and the exam will be repeated within four weeks. If the student fails again, they will be dismissed from the Ph.D. program with an option to be considered for an M.S. degree.

Graduation Application & Checklist

The Graduate School provides information for Current Students:

- Graduation application turned in before the deadline in the term requested, and application fee payment made to Grad School Office.
- All Incomplete, N or MG grades on transcript updated (except 599 and 699 courses).
- A preliminary copy of the dissertation, thesis, or professional paper to the Graduate School for a format review.
- After a successful defense, upload the final copy to the Graduate School.
- Dissertation only students: complete the SED

If the student fails to meet the original graduation date as requested, the student may request the application be reactivated for the following semester by notifying the Graduate School one semester prior to the revised completion date by using the Request of Extension of Graduate Program Form.

Thesis or Professional Paper (M.S.) and Dissertation (Ph.D.)

Thesis/Professional Paper/Dissertation Draft

The student will submit a thesis/professional paper/dissertation draft to their research advisor for revision and approval. At least 2 weeks prior to the defense, the student will submit the advisor-approved draft to the advisory committee for approval. One week prior to the defense, the student electronically submits the draft to the Graduate School, following Graduate School Formatting Guidelines, who will review the document for formatting issues and will email the student with any revision notes.

Thesis/Professional Paper/Dissertation Defense

A public presentation of the results of thesis/professional paper/dissertation will occur as the final experience for the M.S. or Ph.D. degree. One week prior to defense, the student must post an announcement of their defense. This announcement should contain the title, place, and time of the defense. The Department can assist with this posting.

Following the public presentation, the advisory committee will meet with the student to discuss the thesis/professional paper/dissertation. A committee member other than the Chair of the advisory committee will be nominated to direct the examination/defense.

For the M.S., student will pass with all committee members judging the performance to be satisfactory. For the Ph.D. ,student will pass with only one negative vote with the remaining committee members judging the performance to be satisfactory. In case of failure, one repeat examination is permitted. The examination/defense relates to both the thesis/professional paper/dissertation and to the content of the discipline. Upon approval, the Thesis/Professional Paper/Dissertation Defense Approval Form needs to be signed by all members of the committee once a successful defense has occurred and turned in to the Program Director.

Once the student has successfully defended their thesis/professional paper/dissertation, they process the Application for Graduation Form and return it to the Graduate School. Receipt of the signed copy of this form by the Graduate School indicates successful completion of degree requirements. The degree will be awarded after receipt of the final electronic submission of the thesis/professional paper/dissertation and all Graduate School requirements have been met.

Final Submission

The Student and/or Advisor will submit the final Thesis/Professional Paper/Dissertation electronically to the Graduate School office after a successful defense, necessary revisions have been made, and the committee has signed off on the defense.

VI. Appendices

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Advisory Committee

NAME: _____ ID #: _____

Program and Degree Sought: _____ Anticipated Completion Date: _____

Advisory Committee

Advisor Chair: _____ _____
Name and Department (print) Signature
790 number

Program Member: _____ _____
Name and Department (print) Signature
790 number

Program Member: _____ _____
Name and Department (print) Signature
790 number

Program Member: _____ _____
Name and Department (print) Signature
790 number

External Member: _____ _____
Name and Department (print) Signature
790 number

See "Selection of Advisor and Advisory Committee" for further details on committee composition.

***Note:** Research Advisor completes the **Committee Appointment Form** (including 790 numbers and departmental affiliation of each committee member) with the Graduate School for approval.

APPROVED

_____ Date: _____
Graduate Program Director

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Plan Of Study *(use multiple sheets if necessary)*

NAME: _____ Anticipated Completion Date: _____

COURSE #	COURSE TITLE	GRADE	CREDITS		
(by year)			**Undergrad (300/400U)**	**Grad (500/600/400G*)**	**Res/Ths**
TOTAL CREDITS					

***400 level courses can count for graduate credit if taken at the graduate level with a graduate increment (400G)**

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Plan Of Study Approval

NAME: _____ ID #: _____

Program and Degree Sought: _____ Anticipated Completion Date: _____

The signatures below signify approval of the attached Plan of Study. Changes in the Plan of Study require re-approval by the Advisory Committee and the Program Director.

APPROVED:
Advisory Committee

Chair _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

_____ Date: _____
Student Signature

_____ Date: _____
Graduate Program Director

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Research Proposal Approval

DATE: _____

The following is to certify that the research proposal submitted by _____ is approved by the Advisory Committee.

Advisory Committee

Chair _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Comprehensive Qualifying Exam Approval

DATE: _____

The following is to certify that _____ has successfully completed the written and oral portions of the doctoral comprehensive exam.

Advisory Committee

Chair _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Thesis/Professional Paper/Dissertation Defense Approval

DATE: _____

The following is to certify that _____ has successfully defended the thesis, professional paper, or dissertation and has completed the requirements for the degree.

Advisory Committee

Chair _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

Member _____ _____
Name (print) Signature

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Graduate Student Progress Checklist

Note: Graduate Programs have specific Annual Graduate Student Progress Forms

NAME: _____ **ID No:** _____ **Degree Sought:** _____

To be completed by Graduate Program Director upon receipt of written documentation of each event.

	Masters Degree		**Ph.D. Degree**	
Procedure	**Date**	**Deadline**	**Date**	**Deadline**
Rotations		2 rotations		3 rotations
Selection of Advisor		End of 2nd semester		End of 2nd semester
Selection of Committee, Approval by Grad School		Prior to 3rd semester		Prior to 3rd semester
Plan of Study, Approval by Committee		Prior to 3rd semester		Prior to 3rd semester
Research Progress Seminar (PSDD) or Informational Seminar (Tox)		In the 2nd year		In the 2nd year
Research Proposal, Approval by Committee		End of 3rd semester		End of 5th semester
Research Progress Seminar	NA	NA		In the 3rd year
Comprehensive Exam	NA	NA		End of 6th semester
Research Progress Seminar (PSDD)	NA	NA		In the 4th year
Application for Graduation		1 semester prior to graduation		1 semester prior to graduation
Thesis/Professional Paper/ Dissertation draft to committee		2 weeks prior to defense		2 weeks prior to defense
Approved draft to Graduate School		1 week prior to defense		1 week prior to defense
Public notice of defense		1 week prior to defense		1 week prior to defense
Defense		To meet graduate school deadline*		To meet graduate school deadline*
Signed final copy and abstract to Graduate School		To meet graduate school deadline*		To meet graduate school deadline*

* Refer to Graduate School calendar for specific deadlines.