

Department of Biomedical and Pharmaceutical Sciences

Graduate Student Handbook

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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
- Ph.D. and M.S. in Medicinal Chemistry

These programs provide training in pharmacology, pharmacokinetics, toxicology, and medicinal chemistry. 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. Graduates are well prepared for research careers in academics, 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)**, 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 over 20 modern research laboratories, both

in the Skaggs Building and in the Interdisciplinary Sciences Building. Graduate students also have access to individual core laboratories: <https://www.umt.edu/grad/mbsprograms/research-areas.php>.

Administration

Department of Biomedical and Pharmaceutical Sciences (BMED)

Elizabeth Putnam, Ph.D.	Chair
Kate Pennacchio	Financial Officer
Erica Woodahl, Ph.D.	Director, Graduate Program in Pharmaceutical Sciences and Drug Design
Andrij Holian, Ph.D.	Director, Graduate Program in Toxicology
Nick Natale, Ph.D.	Director, Graduate Program in Medicinal Chemistry
Karin Schalm	Graduate Program Coordinator

Skaggs School of Pharmacy (SSOP)

Marketa Marvanova, Ph.D.	Dean
Karin Schalm	Program Coordinator

College of Health (COH)

Marketa Marvanova, Ph.D.	Interim Dean
Karin Schalm	Assistant to the Interim Dean
Jonathan Neff	Director of IT

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 dissertation or thesis 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

Medicinal Chemistry:

Nick Natale x4132 nicholas.natale@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 with the Graduate School by the School's Graduate Program Coordinator. [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 oral comprehensive examination and dissertation

defense. For M.S., serves as Chair of the student's thesis defense.

- 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 or thesis draft prior to its submission to the advisory committee, at least 14 days prior to the final defense.
- In conjunction with the Graduate Program Coordinator and the Program Director, maintains a current file on the student in the Dean's Office.
- 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 dissertation or thesis topic and research proposal.
- Provides research advice as individuals and in regular (at least twice yearly) 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 or dissertation and makes recommendations for its revision.
- Conducts the final thesis 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

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 Graduate Standards and Curriculum (GSC) Committees and the Graduate School. For the student who wishes a change of research advisor, that student's program will be re-evaluated and the change will be subject to approval by the Program Director and Dean. If the student's research proposal has been approved by the advisory committee and a replacement or substitution of the research advisor or a committee member is requested, the Program GSCs must investigate the propriety of the request and submit a recommendation to the Graduate School. The original approved proposal must be unequivocally approved by the new research advisor or committee member. If it is not, the student must submit a new or

revised proposal and once again follow the procedures for proposal approved by all members of the advisory committee.

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.
- Students have the right to call advisory committee meetings at any time.
- 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 GSC Committee.
- Students have the right to seek confidential advice or consultation regarding any matter from the Department Chair.
- 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.

Please also refer to the [Skaggs School of Pharmacy Professional 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, 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 Program Coordinator. 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, Toxicology, and Medicinal Chemistry. M.S. degree training typically consists of one year of course work and one year of research leading to the completion and defense of an M.S. thesis. Ph.D. degree training typically consists of two years of course work and two-three years of research leading to the completion and defense of a Ph.D. dissertation.

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. No more than 10 credits total of research and thesis credits (BMED 597/599) may be applied toward the 30-credit requirement for the M.S.
- Successful completion and defense of a research thesis 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. No more than 30 credits of research and dissertation credits (BMED 697/699) may be applied toward the 60-credit requirement for the Ph.D.
- 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 – Pharmaceutical Sciences and Drug Design

To remain in Good Standing, the Graduate Requirements from the Pharmaceutical Sciences and Drug Design (PSDD) Graduate Standards and Curriculum (GSC) Committee 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 and submit an annual evaluation to the advisory committee and the GSC Committee that monitors progress in the graduate program. Evidence of unsatisfactory progress for two years in succession or failure to address concerns of the advisory committee or GSC Committee is grounds for academic probation or dismissal from the program.
- Must submit a research proposal (~6-10 pages) to the advisory committee that states specific aims and focuses on the key questions and experimental approaches. The research proposal must be approved by end of the third semester for M.S. students and end of the fifth semester for Ph.D. students.
- Make clear and substantive progress in their research as defined by the deadlines set out in the Graduate Student Progress Checklist 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 PSDD 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 12 to 15 credits per semester during the first two years of the program when they are enrolled in academic courses. In later years, students register for a maximum of 9 credits of research, thesis, or dissertation each semester. Graduate students must enroll for at least 9 credits 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 597/599/697/699 (Research/Thesis/Dissertation).
- Students who complete the requirements for the M.S. or Ph.D. during Summer session must enroll for 1 credit of Thesis or Dissertation during Summer session.
- In addition, progress towards the completion of a thesis or dissertation will be regularly assessed by the appropriate supervisory committee, the Director of the Program, and the Dean. Failure to make adequate progress towards completion of this degree requirement could lead to warnings, probation, and ultimately to dismissal from the program.

Notes on Special Courses

Biochemistry

A sound foundation in the principles of biochemistry is essential for graduate study in the biomedical and pharmaceutical sciences. 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.

BIOB 425 – Advanced Cell & Molecular Biology

This course prepares the student for contemporary research in the biomedical and pharmaceutical sciences. 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 6-8 week rotations.
- Ph.D. students register for 2 credits of BMED 545 in their first semester and 1 credit in their second semester, and complete three 6-8 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. This report is turned 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 of 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 (Pharmaceutical Sciences and Drug Design) or informational (Med Chem & Toxicology) seminar and register for 1 credit of 594.
- Ph.D. students present two seminars and register for 2 credits of 594:
 - A research progress (Pharmaceutical Sciences and Drug Design) or informational (Toxicology) seminar is presented during the second year in the program.
 - A research progress seminar of the student's dissertation research is normally presented during the third year in the program.
- Students do not receive seminar credit for their thesis or dissertation defense seminar. Credit for these presentations are included in the thesis or dissertation credits.

BMED 597/599 – Research/Thesis

M.S. students enroll in BMED 597 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 by the end of the semester are assigned a grade of N (course work continued into later semesters). Upon successful defense of the thesis, the N grades for all semesters are converted to CR by the registrar.

BMED 605 – Biomedical Research Ethics

All Ph.D. students (except Medicinal Chemistry) 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.

BMED 697/699 – Research/Dissertation

Ph.D. students enroll in BMED 697 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 of the dissertation, 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 training within two years. Degree requirements include:

BMED 545	Research Rotations	2 cr.
BMED 594	Research Progress Seminar	1 cr.
BMED 621	Medicinal Chemistry I	3 cr.
BMED 615	Molecular Pharmacology	3 cr.
BMED 632	Advanced Pharmacokinetics	4 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design	1 cr./sem
BMED 609	Biomedical Statistics	3 cr.
BMED 597/599	Research/Thesis	3-10 cr.*

- * 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 Pharmaceutical Sciences & Drug Design

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

BMED 545	Research Rotations	3 cr.
BMED 594	Research Progress Seminar	2 cr.
BMED 605	Biomedical Research Ethics	1 cr.
BMED 621	Medicinal Chemistry I	3 cr.
BMED 615	Molecular Pharmacology	3 cr.
BMED 632	Advanced Pharmacokinetics	4 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design	1 cr./sem
BMED 609	Biomedical Statistics	3 cr.
BMED 697/699	Research/Dissertation	20-30 cr.*

- * 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.

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

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

Transfer credits	12 credits of coursework in the P2 Pharm.D. curriculum can be transferred to the M.S. degree (PHAR 421/422; PHAR 443/444)	12 cr.
BMED 594	Research Progress Seminar	1 cr.
BMED 637	Topics in Pharmaceutical Sciences and Drug Design	1 cr./sem (4 cr.)

PUBH 520	Fundamentals of Biostatistics	3 cr.
BMED 597/599	Research/Thesis	10 cr.
PHAR 588	Research APPE (optional)	

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 593	Current Research Literature	1 cr.
BMED 594	Seminar	1 cr.
BIOB 425	Advanced Cell and Molecular Biology	3 cr.
BMED 641	Toxicology I – Principles of Toxicology	4 cr.
BMED 642	Toxicology II – Toxic Agents	4 cr.
BMED 597/599	Research/Thesis	3-10 cr.**
STAT 491	Statistics in Biomedical Sciences	4 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 593	Current Research Literature	1 cr.
BMED 594	Seminar	2 cr.
BIOB 425	Advanced Cell and Molecular Biology	3 cr.
BMED 605	Biomedical Research Ethics	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 697/699	Research/Dissertation	20-30 cr.**
STAT 491	Statistics for Biomedical Sciences	4 cr.

* 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.

M.S. in Medicinal Chemistry

Please Note: The Medicinal Chemistry program is somewhat different from the other programs in admission requirements, laboratory rotations, seminar requirements and cumulative/comprehensive qualifying exams. Please consult the Program Director for complete Medicinal Chemistry program guidelines.

The following core courses are required of all students in the M.S. program:

BMED 615	Molecular Pharmacology	3 cr.
BMED 621	Drug Design, Development and Discovery + Lab	4 cr.
BMED 622	Drug Pharmacodynamics – Drug Receptor Interactions + Lab	4 cr.
BMED 623	Drug Diversity and Target – Oriented Synthesis	3 cr.
BMED 627*	Professional Development – Medicinal Chemistry	1 cr.

*Course will be taken for three semesters (content varies) for a total of 3 credits.

Ph.D. In Medicinal Chemistry

Please note: The Medicinal Chemistry program is somewhat different from the other programs in admission requirements, laboratory rotations, seminar requirements and cumulative/comprehensive qualifying exams. Please consult the Program Director for complete Medicinal Chemistry program guidelines.

The following core courses are required of all students in the Ph.D. program:

BMED 615	Molecular Pharmacology	3 cr.
BMED 621	Drug Design, Development & Discovery	3 cr.
BMED 622	Drug Pharmacodynamics- Drug Receptor Interactions + Lab	4 cr.
BMED 623	Drug Diversity and Target – Oriented Synthesis	3 cr.
MCHM 627*	Professional Development – Medicinal Chemistry	3 cr.

*Course will be taken for three semesters (content varies) for a total of 3 credits.

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 for PSDD). These deadlines are listed on the [Graduate Student Progress Checklist](#) form that will be maintained in the student’s file. It is up to the student and the advisor to assume that this checklist is regularly updated. Regular annual progress reports towards the degree is assessed by the advisor, Director (or GSC Committee), and Graduate Program Coordinator and recorded on the [Annual Graduate Student Progress Report](#) form. (These forms, and others, can be found on the Department of Biomedical and Pharmaceutical Sciences website under “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, Toxicology, or Medicinal Chemistry).

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. The [M.S. advisory committee](#) is composed of a minimum of three voting members: two who are full-time faculty, adjuncts, or affiliates in the Graduate Program of study. One member must be from outside the Program (either within or outside of UM). The [Ph.D. advisory committee](#) is composed of a minimum of five voting members, at least four of who are full-time faculty, adjuncts, or affiliates in the Graduate Program of study. One member must be from outside the Program (either within or outside of UM). **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. After approved, the student sends the form to the Graduate Program Coordinator to file. The Graduate Program Coordinator uses the form to submit the student’s committee names to the Graduate School with the [Committee Appointment Form](#) 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 Coordinator. Any changes in the plan of study, once approved, require approval of the advisor, advisory committee, and the Program GSCs.

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 Coordinator.

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

- Day 1 – answer essay questions in the field of biomedical and pharmaceutical sciences to be provided by the examining committee
- Day 2 – answer essay questions in the field of biomedical and pharmaceutical sciences or a topic related to the student's field of study to be provided by the examining committee

A score of 70% 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.

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:

- 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% 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.

Medicinal Chemistry

This program uses cumulative exams administered over the first two years the student is in the program, which essentially serves as the written comprehensive qualifying exam. Following the cumulative exams, the student will write and defend an original research proposal which essentially serves as the written comprehensive qualifying exam. Please consult the Program Director and research advisor for details on the original research proposal. An oral exam and defense of the research proposal is conducted much like it is with each of the other programs. Please consult with the Program Director and review the Medicinal Chemistry handbook for details.

Research Proposal

The thesis or dissertation research proposal will be completed and endorsed by the student's

advisory committee.

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

Ph.D. – no later than the middle 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 Coordinator.

Graduation Application & Checklist

The Graduate School provides a [graduation checklist](#):

- [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).
- Department submitted Committee Form to the Graduate School.
- A preliminary copy of the dissertation or thesis to the Graduate School for a format review.
- After a successful defense, upload the final copy to Scholarworks (for thesis) or ProQuest (for dissertation).
- Dissertation only students: complete the SED

If the student fails to meet the original graduation date as requested on the form, 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](#).

M.S. Thesis

Thesis Draft

The student will submit a thesis draft to their research advisor for revision and approval. At least 2 weeks (14 days) prior to the defense, the student will submit the advisor-approved draft to the advisory committee members for approval. One week prior to the defense, the student [electronically submits the draft](#) (Word or PDF format) to the Graduate School. This submission indicates that the document is defensible and all members of the committee have agreed it is ready for defense. The document should be correctly formatted using the [Graduate School Formatting Guidelines](#). The Graduate School will review the document for formatting issues and will email the student with any revision notes.

Thesis Defense

A public presentation of the results of thesis work will occur as the final experience for the Master's degree. One week prior to defense, the student must post an announcement of their defense. This announcement should contain the thesis title, place, and time of the defense. The Program Coordinator can assist with this posting.

Following the public presentation, the advisory committee will meet with the student to discuss the thesis. A committee member other than the Chair of the advisory committee will be nominated to direct the examination/defense. For a student to pass, all committee members must judge performance to be satisfactory. In case of failure, one repeat examination is permitted. The examination/defense relates to both the thesis and to the content of the discipline. Upon approval, the student will fill out the [Thesis Defense Approval Form](#), collect signatures from their advisory committee and submit the form to the Program Coordinator.

Once the student has successfully defended their thesis, 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 the degree requirements. The degree will be awarded after receipt of the final electronic submission of the thesis and all other Graduate School requirements have been met.

Final Submission

The Committee Chair will submit the final Thesis (Word or PDF format) electronically to the Graduate School office after a successful defense, necessary revisions have been made, and the committee has signed off on the defense.

Ph.D. Dissertation

Dissertation Draft

The student will submit a dissertation draft to their research advisor for revision and approval. At least 2 weeks (14 days) prior to the defense, the student will submit the advisor-approved draft to the advisory committee members for approval. One week prior to the defense, the student [electronically submits the dissertation draft](#) (Word or PDF format) to the Graduate School. This submission indicates that the document is defensible and all members of the committee have agreed it is ready for defense. The document should be correctly formatted using the [Graduate School Formatting Guidelines](#). The Graduate School will review the document for formatting issues and email the student with any revision notes.

Dissertation Defense

A public presentation of the results of dissertation work will occur as the final experience for the doctoral degree. One week prior to the defense, post an announcement of the seminar. This announcement should contain the dissertation title, place, and time of the defense. The Program Coordinator can assist with this posting.

Following the public presentation, the advisory committee will meet with the student to discuss the dissertation. A committee member other than the Chair of the advisory committee will be nominated to direct the examination/defense. A 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 dissertation and to the content of the discipline. The [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 Coordinator.

Once the student has successfully defended their dissertation, they will 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 the degree requirements. The degree will be awarded after receipt of the final electronic submission of the dissertation and all other Graduate School requirements have been met.

Final Submission

The Committee Chair will submit the final Dissertation (Word or PDF format) electronically to the Graduate School office after a successful defense, necessary revisions have been made, and the committee has signed off of 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 (print) Signature

Program Member: _____
Name (print) Signature

Program Member: _____
Name (print) Signature

Program Member: _____
Name (print) Signature

External Member: _____
Name (print) Signature

Ph.D. Advisory Committees are comprised of four faculty from the Programs (full-time faculty, adjuncts, or affiliates) and one External member (either within or outside of UM). M.S. Degree Advisory Committees are comprised of two faculty from the Programs and one External member.

APPROVED

_____ Date: _____

Graduate Program Director

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
Plan Of Study (use multiple sheets if necessary)

NAME: _____ **Anticipated Completion Date:** _____

COURSE # <u>(by term)</u>	COURSE TITLE	GRADE	CREDITS		
			<u>300/400</u>	<u>500/600</u>	<u>Res/Ths</u>
TOTAL CREDITS					

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

Student Signature Date: _____

Graduate Program Director Date: _____

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/Dissertation Defense Approval

DATE: _____

The following is to certify that _____ has successfully defended the thesis 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

Med Chem & Toxicology Annual Graduate Student Progress Report

(Filled out by Graduate Student)

Name: _____ Program: _____ Date: _____

Coursework completed (percentage) _____ Overall GPA: _____

Plan of Study Approved: _____ Date Approved: _____

Research Proposal Approved: _____ Date Approved: _____

Comprehensive Exam Passed: _____ Score: _____ Date: _____

Dates of Advisory Committee Meetings this year: #1 _____

#2 _____

#3 _____

Summary of Progress on Thesis or Dissertation:

(Filled out by Faculty Advisor)

Is student meeting progress checklist timelines: Yes No

Explanation:

Overall Evaluation (circle): Satisfactory Unsatisfactory

Explanation/Comments:

Name (print)

Signature

(Filled out by Program Director)

Is student meeting progress checklist timelines: Yes No

Explanation:

Overall Evaluation (circle): Satisfactory Unsatisfactory

Explanation/Comments:

Name (print)

Signature

Pharmaceutical Sciences and Drug Design (PSDD) Annual Graduate Student Progress Form

To be prepared annually by the graduate student and approved by their research advisor. Required for all students that have not scheduled their thesis/dissertation defense date for the spring semester. The completed form and PSDD GSC Committee evaluation will be placed in the student's permanent file.

The completed form is to be submitted electronically by the end of January each year

1. **General Information** Student

Research Advisor:

Advisory Committee Members

PSDD Member

PSDD Member

PSDD Member

PSDD or Outside Member

PSDD or Outside Member

Outside Member

Date of Last Advisory Committee Meeting (a meeting is REQUIRED every year)

Initial enrollment date
(semester and year)

What year are you in the program?
1st 2nd 3rd 4th 5th 6th

Cumulative GPA **Year 1** **Year 2** **Year 3** **Year 4** **Year 5**

2. **Program procedural checklist*** (to be completed by student; enter date of committee approval):

<u>Procedure</u>	<u>Date Completed</u>	<u>Deadline</u>
Lab Rotations (BMED 545)		End of 2 nd semester
Select Advisor		End of 2 nd semester
Selection of Committee		Prior to 3 rd semester
Plan of Study, Approval by Committee		Prior to 3 rd semester
Research Progress Seminar (BMED 594)		In the 2 nd Year
Research Proposal, Approval by Committee		End of 5 th Semester
Research Progress Seminar (BMED 594)		In the 3 rd Year
Comprehensive exam		End of the 5 th semester
Research Progress Seminar (BMED 594)		In the 4 th Year
Application for graduation		1 semester before graduation

* Leave items blank if they have not yet been completed

The items below relate only to the past year. Do not include items that have been included on previous GEC forms.

. **Teaching activities.** (List course(s))

Honors and awards.

. **Research project.** (1 paragraph) Briefly describe your research project and hypothesis.

. **Research progress.** (1 - 2 paragraphs) Review any significant progress made towards your dissertation research in the last year. Include the rationale for any modifications to your original proposal.

. **Publications.** List only papers published or accepted for publication in peer-reviewed journals. Do **NOT** list manuscripts that have been submitted or that are in preparation.

*UDQWPLWWB,QFOGSHGLQDDBFDPRQWUFMBGMDWLRQDQWBFH
XPDIRISURSRDOREMFWLQGGWBSURSRDOWDWSEGLQDGBQRWIGB,QFOGH
RFRQWULEXWLRQWRWBSOLFDFWLRQ3,FR3,*UDGQWHDUFDRFLDWWF

W/LQDWWQGB,QGLFDWFKRUQRWRSSUQWSDQGWWSRISUQWDWLRQD
SRWBRURUDOSUQWDWLRQDWWFRW/LQJ

6FLQDUWQWLRQOSXOLFMLQDUWGRWVGRIRFRXUN

3ODQIRUWQWBUUSDRAUOLWWDQFRWQWZOOEWDQFLQDUWQWZOO
EHDQGSODQWRPLWUDQWRUSXOLFDFWLRQDWWQWGPW/LQRUWBFMLHORWOLQH
RQWUUFQDORUWFRPLQBU

12. Explanation of extended enrollment. If you are currently in your 7th year or beyond in the program, please explain why you have not yet graduated.

Provide a plan of action approved by your committee outlining how you will complete your degree in a timely manner (i.e. during the current academic year).

Signatures:

Please review document and sign below.

Name

Signature

Date

Student

Research Advisor

PSDD Graduate Program Director

DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

Graduate Student Progress Checklist

NAME: _____ ID No: _____ Degree Sought: _____

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

Procedure	Masters Degree		Ph.D. Degree	
	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		Middle of 3rd semester		Middle of 5th semester
Research Progress Seminar	NA	NA		In the 3rd year
Comprehensive Exam	NA	NA		End of 5th semester
Application for Graduation		1 semester prior to graduation		1 semester prior to graduation
Thesis/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 (www.umt.edu/grad) [*Calendar of Graduation Deadlines*] for specific deadlines.

*Committee Meetings	Second Year	Third Year	Fourth Year	Fifth Year	Sixth Year	
Date						
Date						
Date						

*Minimum of two per year; three recommended.