The Graduate Program in Medicinal Chemistry
University of Minnesota

POLICIES AND PROCEDURES

Effective Fall Semester 2020

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THE PH.D. IN MEDICINAL CHEMISTRY

Program Overview

The mission of the Department of Medicinal Chemistry Graduate Program is to provide outstanding graduate education in medicinal chemistry through multidisciplinary training in synthetic organic chemistry, natural products, drug design, molecular metabolism and chemical toxicology, and mechanisms of drug action in preparation for careers in industry, government, or institutions of higher learning.

To obtain a Ph.D. in Medicinal Chemistry at the University of Minnesota students must complete 24 credits of didactic instruction including a combination of required and elective courses and conduct independent research in Medicinal Chemistry under a research advisor resulting in a Ph.D. thesis. Course work is typically completed in the first two years, with an average time to Ph.D. of 5.4 years from first enrollment. Students must pass a Preliminary Written Examination at the end of the first year, and a Preliminary Oral Examination at the end of the 2nd year. Students will give departmental seminars in the 2nd and 3rd years, make a public presentation of their thesis research, and a private defense before a faculty advisory committee to complete the Ph.D. Provided they maintain good academic standing, students will be provided an annual stipend (a research or teaching assistantship) to offset living expenses while earning the Ph.D. Students are responsible for payment of some University fees, but their tuition and most health insurance under the Graduate Assistant Health Care Plan will be paid.

Ph.D. Program Admission Process and Requirements

The Ph.D. is the degree for which students are admitted to the Medicinal Chemistry graduate program. Prospective students must apply for the Ph.D. program, rather than to any professor's lab, and no faculty can commit to mentor a student before they are admitted. Full-time students are admitted beginning with each fall term. Completed applications must be submitted by the preceding January 1. Applications received after this deadline will be deferred until the next annual admission cycle. Applications are reviewed by a committee of faculty who evaluate applications holistically, with an emphasis on past academic performance, the interests of the applicant in chemistry and biomedical research as revealed in personal statements of motivation and research experience, and letters of recommendation. There are no rigid thresholds for GPA or test scores, although the Graduate Admissions Office maintains a database of student metrics which can be used to help individual students gauge how competitive their own application may be. Offers of admission are typically made in early March.

Application to the Medicinal Chemistry Ph.D. program is done through the University of Minnesota Graduate Office of Admission online application system. Transcripts from all post-secondary institutions, and Graduate Record Examination (GRE) scores are uploaded by the applicant into this system. Medicinal Chemistry specific questions, including a personal
statement, and summaries of prior research and/or teaching experience are also required. You will be asked to provide contact information for three professional references, who will be asked to submit a letter of reference through the Graduate Office of Admissions software. Applications will not be considered until the application is complete, and the application fee has been paid.

Prerequisites. The Medicinal Chemistry program welcomes applications from students with pharmacy, chemistry, or biology degrees. Students majoring in other degree programs that encompass chemical, biochemical, or biological fields of study are also encouraged to apply. There are no specific course-work prerequisites, but students are expected to have a strong preparation in organic chemistry and biochemistry.

A grade point average indicative of excellent undergraduate academic performance and high scores on the Graduate Record Examination (GRE) are expected of all applicants.

Students from non-English speaking countries must submit either a Test of English as a Foreign Language (TOEFL) score or an International English Language Testing System (IELTS) score. See the Graduate School about the required performance levels.

Please note that the University of Minnesota's institution code 6874 should be used for both the GRE and TOEFL submissions.

Remedial Coursework. Sometimes a student is admitted to the Medicinal Chemistry graduate program with specific course deficiencies. Such deficiencies need be made up as soon as possible, preferably during the first year of residence. For example, if the deficiency is physical chemistry, the student will take Chem 4501 (3 cr) or its equivalent. In the case of other course deficiencies, the Director of Graduate Studies will determine the appropriate course to fulfill any deficiency.

Limitations on the Use of Transfer Credits. Transfer credits from other graduate programs for non-MEDC courses will be considered at the discretion of the DGS per University policy. A letter requesting transfer credits must be submitted to the Director of Graduate Studies during the first week of the student’s first term at the University of Minnesota and should briefly explain why transfer credits are being requested. An A or B grade is required for transfer credit to be considered. The letter must be accompanied by the syllabus, exams, and any other relevant materials for the course to be transferred. The DGS will solicit advice from the Course Director for which transfer credit is being requested as to whether the courses are equivalent. The final decision for transfer credit approval will be made by the DGS, and a letter communicating the decision to the student will be placed in that student’s file. If transfer credit is approved, coursework from another institution being used to fulfill degree requirements should be included on the GDP/GPAS. An official transcript should be attached to the form, unless a transcript showing that coursework is already on file at the Graduate School.
**Student Diversity.** The Department of Medicinal Chemistry embraces the University of Minnesota's position that promoting and supporting diversity among the student body is central to the academic mission of the University. A diverse student body enriches graduate

<table>
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<tr>
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<th>Year Two</th>
<th>Summer</th>
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<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Written Preliminary Examination (in late June)</strong></td>
</tr>
<tr>
<td>MedC 8001 (3 credits)</td>
<td>MedC 8002 (3 credits)</td>
<td></td>
</tr>
<tr>
<td>MedC 8050 (2 credits)</td>
<td>MedC 8435 (1 credit)</td>
<td></td>
</tr>
<tr>
<td>Chem 8321 (4 credits)</td>
<td>Chem 8066 (1 credit)</td>
<td></td>
</tr>
<tr>
<td>Elective Course or Biochemistry Requirement (5 Credits Available)</td>
<td>Elective Course and/or Biochemistry Requirement MedC 8888 Doctoral Thesis (9 credits available)</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Written Proposal Due June 1</strong></td>
</tr>
<tr>
<td>MedC 8100 (1 credit) either Fall or Spring.</td>
<td>MedC 8888 Doctoral Thesis Credits</td>
<td>Preliminary Oral Examination June - August</td>
</tr>
<tr>
<td>Elective Course or Biochemistry Requirement (5 Credits Available)</td>
<td>24 Credits Available 24 Credits Required</td>
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education by providing a multiplicity of views and perspectives that enhance research, teaching and the development of new knowledge.

A diverse mix of students promotes respect for, and opportunities to learn from, others with the broad range of backgrounds and experiences that constitute modern society. Higher education trains the next generation of leaders of academia and society in general, and such opportunities for leadership should be accessible to all members of society.

The Graduate School and Department of Medicinal Chemistry are therefore committed to providing equal access to educational opportunities through recruitment, admission and support programs that promote diversity, foster successful academic experiences and cultivate the leaders of the next generation.

**Ph.D. Course Requirements**

For the doctoral program in Medicinal Chemistry, students must complete a minimum of 24 credits of graduate (5000 or 8000) level coursework. The degree plan must include all required graduate medicinal chemistry core courses (Table 1), at least two approved MEDC electives (Table 2), one approved biochemistry core course (Table 3), and at least one other elective. 24 Doctoral Thesis Credits (MEDC 8888) are also required by the Graduate School to obtain a Ph.D. Except for CHEM 8066, all courses listed as part of the student’s official degree plan must be taken on the A/F basis.
Courses should be selected with the goal of completing all didactic coursework and thesis credit requirements during the first two years of study. Since all MedChem core courses (except seminar) must be completed before the Preliminary Written Exam, there is little flexibility in course scheduling, particularly in year one. Typical course selections and preliminary degree milestones are illustrated below.

Table 1. Required Medicinal Chemistry Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
<th>Credits</th>
<th>Typically Offered</th>
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<tbody>
<tr>
<td>MEDC 8001</td>
<td>General Principles of Medicinal Chemistry I</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MEDC 8002</td>
<td>General Principles of Medicinal Chemistry II</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MEDC 8050</td>
<td>Mechanistic Organic Chemistry</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>MEDC 8435</td>
<td>BioAssay and Data Analysis</td>
<td>1</td>
<td>Spring</td>
</tr>
<tr>
<td>MEDC 8100*</td>
<td>Seminar</td>
<td>1</td>
<td>Fall and Spring</td>
</tr>
<tr>
<td>CHEM 8066</td>
<td>Organic Synthesis I</td>
<td>4</td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 8066</td>
<td>Professional Conduct of Chemical Research</td>
<td>1</td>
<td>Spring</td>
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*Seminar is not a required course for M.S. students, but may count as an MEDC elective.

Table 2. Approved Medicinal Chemistry Electives Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
<th>Credits</th>
<th>Typically Offered†</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDC 8070</td>
<td>Chemistry and Biology of Infectious Diseases</td>
<td>3</td>
<td>Fall†</td>
</tr>
<tr>
<td>MEDC 8401</td>
<td>The Chemistry of Counterterrorism</td>
<td>2</td>
<td>Spring†</td>
</tr>
<tr>
<td>MEDC 8413</td>
<td>Chemistry of Nucleic Acids</td>
<td>3</td>
<td>Fall†</td>
</tr>
<tr>
<td>MEDC 8420</td>
<td>Natural Products Chemistry</td>
<td>3</td>
<td>Fall†</td>
</tr>
<tr>
<td>MEDC 8461</td>
<td>Design of Cancer Therapeutics</td>
<td>3</td>
<td>Spring†</td>
</tr>
<tr>
<td>MEDC 8753</td>
<td>Molecular Targets of Drug Discovery</td>
<td>3</td>
<td>Spring†</td>
</tr>
<tr>
<td>CHEM 8322</td>
<td>Organic Synthesis II</td>
<td>4</td>
<td>Spring</td>
</tr>
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†Scheduling subject to change.
‡May not be offered annually. Consult Class Search for scheduling.

Table 3. Approved Courses that Satisfy the Biochemistry Requirement*

<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
<th>Credits</th>
<th>Typically Offered†</th>
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</thead>
<tbody>
<tr>
<td>BIOC 8005</td>
<td>Biochemistry: Structure and Catalysis</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>BIOC 8006</td>
<td>Biochemistry: Metabolism and Control</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>BIOC 5535</td>
<td>Intro to Modern Structural Biology - Diffraction</td>
<td>2</td>
<td>Fall</td>
</tr>
<tr>
<td>BIOC 5528</td>
<td>Spectroscopy and Kinetics</td>
<td>4</td>
<td>Spring</td>
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The Graduate Degree Plan & Graduate Planning & Audit System

The Graduate School requires that each student complete a Graduate Degree Plan (GDP) in the GPAS system that lists each of the courses to be taken to fulfill all the requirements of a Ph.D. in Medicinal Chemistry. The plan is typically formalized early in the second year of study by agreement of the advisor and the student, and must be approved by the DGS. Until a research advisor is chosen, the Director of Graduate Studies will act as the students' advisor and will suggest coursework and approve the students' registration. Once approved, changes to the degree plan and planned coursework can only be made with the approval of the Thesis Advisor and the DGS.

Academic Standards

It is a requirement that all candidates for a Ph.D. maintain a minimum cumulative GPA of 3.0 for all coursework included in the Ph.D. Degree Plan. Failure to meet this threshold at any point after two completed semesters shall result in dismissal from the program.

A minimum grade of B- must be achieved for all courses listed on the Graduate Degree Plan.

Maintaining Active Student Status

The Graduate School requires that students register each fall and spring term up to and including the term during which the degree will be completed to maintain active status. Failure to maintain active status will result in the discontinuation of student status and require applying for readmission.

A minimum of six and maximum of 14 credits should be taken for students to maintain full-time status. Students that are not "full-time" are not eligible for the paid health insurance benefit. After their first semester in the program, students should register for a maximum of 14 credits of graduate level coursework and/or MedC8888 thesis credits each semester until they have completed their thesis credit requirement. Under no circumstances should a student register for more than 14 credits in a semester without approval from either the Director of Graduate Studies (DGS) or their advisor, as this entails significant additional tuition costs. Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term</th>
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<tbody>
<tr>
<td>GCD 8151</td>
<td>Cell Structure and Function</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 8411</td>
<td>Intro to Chemical Biology</td>
<td>4</td>
<td>Fall</td>
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*Additional Courses might qualify as the BIOC electives, subject to prior approval by the advisor and DGS.
†Scheduling subject to change.
‡May not be offered annually. Consult Class Search for scheduling.
needing fewer than six credits to complete all degree course work may register for additional thesis credits to maintain the full-time threshold. Tuition support will not be provided for elective coursework unrelated to Medicinal Chemistry graduate education.

After all didactic course work has been completed (typically after Year Two), active status should be maintained by registering for a specific one-credit course (MEDC 8444) that certifies the student as full-time.

**Departmental Seminars**

The Department of Medicinal Chemistry has a vibrant weekly seminar series that includes several named Honorary Lectures, invited external experts in Medicinal Chemistry from academia and industry, and student presentations. Students are expected to attend seminars throughout their time in the program.

Each graduate student is required to present two seminars in this series as part of their degree program. The first seminar is given in the second year and shall cover a topic from the literature unrelated to the student's thesis research that will be chosen by the student and approved by the student’s advisor and the professor in charge of the seminar program. For this seminar, students shall register for 1 credit of MEDC 8100 (A–F grade option) during the semester she/he gives the seminar. This seminar credit will be used as part of the student’s official degree plan. The second seminar will be given during the summer of the third year and it will cover the student’s research. Students will not register for any credit for this seminar. For both seminars, the seminar program director will arrange the seminar schedule and will assign dates for student presentations.

**Preliminary Written Examination**

At the end of the first year, all Ph.D. students are required to take and pass a comprehensive written examination. The examination is rewritten annually by a committee of faculty who teach in the Medicinal Chemistry core courses and serves to evaluate student comprehension of material from required courses and seminar related material. If a student fails to pass the examination, the student will be allowed to re-take the exam by arrangement with the Chair of the Comprehensive Written Examination Committee by August 15th. It is an expectation that the minimum requirement for passing the re-take exam will exceed those for the first exam. Failure to pass the exam constitutes grounds for dismissal from the PhD graduate program.

**Thesis Advisor Selection**

By the beginning of the spring semester of the first year in the Ph.D. program, each student should have selected a thesis advisor. This advisor automatically becomes the chair of the Faculty Advisory Committee and assumes primary responsibility for advising the student on both coursework and research. The choice of advisor is probably the most important decision students must make. The choice is not only up to the student, as the advisor and student agree to enter into mentor/mentee relationship. Student and advisor should both consider whether
the student’s research interests are well-aligned with the advisor and whether the kind of laboratory work appeals to the student. Also, how many students does the advisor already have? How (and how often) does he or she interact with students? What are the expectations for student research?

From the time students arrive to begin their first term in the fall, opportunities are provided for them to learn about the research of faculty members who are currently taking students. Students are expected to participate fully in these opportunities:

1. **Research Vistas.** Presentations by individual faculty of their research. The format for these presentations may vary, but they are intended to provide an overview of the kind of research each faculty member conducts.

2. **Laboratory Rotations.** Lab rotations present excellent opportunities to consider and discuss potential research projects with faculty members. Each first-year graduate student must rotate through at least two different laboratories. Students are expected to work in lab a minimum of 10 hours per week. The Director of Graduate Studies determines the lab rotation assignments based on student interests and the availability of space. Each rotation will be about 6 weeks in length. When students are not attending classes or carrying out TA responsibilities they will be participating in research activities in these labs. **Faculty submit written evaluations to the Director of Graduate Studies.** All lab rotations are "hands-on" experiences, and should provide an opportunity for each student to experience the group dynamics and interact with other lab members. Plan to get involved. More extensive rotations (up to 10 weeks) may also be offered to incoming students who are eligible to work in the U.S. during the summer **before** starting graduate school.

3. **Group meeting monitoring.** Most faculty are also open to prospective students attending their regular group meetings. Speak with faculty regarding scheduling.

4. **One-on-one meetings with faculty.** Once students have narrowed their choices of potential advisors, they should meet individually with these faculty to discuss potential research projects and begin to explore joining a specific research group.

It is hoped that students will be able to select an advisor following the second rotation at the end the first week of December. If necessary, a third rotation is possible. Until a research advisor is chosen, the Director of Graduate Studies will act as the students’ advisor and will suggest coursework and approve the students' registration.

Rarely, there may be a need to change Research Advisor if, for example, a faculty member leaves the University or can no longer advise the student effectively. Such changes are possible, but may result in an extension of the time to degree. It is also possible for a student to have co-advisors, although this is rarely done formally.

**Faculty Advisory Committee**

Before the end of the 2nd year of graduate studies and the Preliminary Oral Examination students, in discussion with their Thesis Advisor, should assemble a Faculty Advisory Committee. This committee shall consist of a minimum of four faculty members, including the
primary thesis advisor, two other Medicinal Chemistry faculty members, and one faculty member from another department. It is the student’s responsibility to contact members regarding their willingness to serve. This committee will work with the primary advisor to help guide the student through thesis research, including the Preliminary Oral Examination and the final Ph.D. Thesis Examination. After faculty have agreed to serve on this committee, it is the student’s responsibility to formally form the committee with the Graduate School. Details of eligibility and the electronic process can be found here. The Advisory Committee membership can be altered during the time toward degree with the approval of the Thesis Advisor, the DGS and the College of Pharmacy graduate leadership (the College Coordinator).

**Original Research Proposal**

Students are required to prepare an original written research proposal in the format of an R01 funding application to the NIH as a prelude to their Preliminary Oral Examination at the end of the second year of graduate studies. The written proposal is to be prepared by June 1.

Recommended steps, and guidelines for the fulfillment of this requirement follow:

1. Select a topic for your research proposal. The proposal must be original, and sufficiently different from your thesis research or prior work that it can demonstrate your ability to design a viable research plan independently.
2. The draft of the proposal should be submitted on the NIH grant application form PHS398. In the preparation of your proposal, follow the most recently revised instructions. Forms are available from the NIH website. You do not need to include the budget pages. NIH proposal requirements evolve, and the student is responsible for ensuring that current instructions are followed. Please see the following document for additional information: [https://grants.nih.gov/grants/funding/phs398/phs398.html](https://grants.nih.gov/grants/funding/phs398/phs398.html)
3. The general format requirements should be followed: Arial, Helvetica, Palatino Linotype or Georgia font typeface of 11- or 12-point size. A symbol font may be used for Greek or special characters. Margins should be at least 0.5 inches on all sides, and text should be single-spaced. References cited should be cited using numerical or author/date format. If numerical citations are used, each reference should be cited with a separate number.
4. The proposal should consist of four sections within the following page limits: (1) Face Page (1 page), (2) Specific Aims (1 page), (3) Research Strategy (12 pages), and (4) Bibliography and References Cited (no page limit).
5. The Face Page 1 form should be downloaded from the NIH website. Fields 1, 2, 3a–g should be completed.
6. The Specific Aims section should include the following as described in NIH Instructions for PHS 398:

> “State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.”
Two or three aims are usually suitable for a proposed project.

7. The Research Strategy section (12-page limit) should consist of three sub-sections with separate headers within the following page limits: (1) SIGNIFICANCE (1/2 page), (2), INNOVATION (1/2 page), and (3) APPROACH (11 pages). This section should include the following as described in NIH Instructions for PHS 398:

“Significance – Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

Innovation – Explain how the application challenges and seeks to shift current research or clinical practice paradigms. Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s). Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

Approach – Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Identify both positive and negative controls, and specify the number of independent experiments (including male and female subjects as appropriate), and statistical data analyses needed to demonstrate appropriate scientific rigor and reproducibility. Discuss potential technical problems, alternative data interpretation possibilities, alternative strategies, and benchmarks for success anticipated to achieve the aims. Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised.”

The Approach sub-section should be organized and presented in the order of the aims described in the Specific Aims section.

8. References listed in the Bibliography and References Cited section should be in the J. Med. Chem. format and journal references must include the names of all authors, article title, journal title, year of publication, volume number, and inclusive page numbers. Although there is no page limit, references should be limited to literature that is current and relevant to the proposed research.

The completed proposal must be submitted to the Director of Graduate Studies and the student’s Faculty Advisory Committee as a single combined PDF document including all proposal elements by June 1. The deadline will be strictly enforced with exceptions made by the DGS for university related activities, family or medical emergencies only.
Preliminary Oral Examination

The Preliminary Oral Examination taken following the end of didactic course work is the final step required for advancement to Candidacy for the Ph.D. degree. It is expected that the Preliminary Oral Exam will be passed by Aug 31 following the second year of graduate studies. Failure to do so shall result in dismissal from the Ph.D. Degree program.

The student will schedule an oral presentation of this proposal to the Preliminary Examination Committee as soon after June 1 as the faculty may be convened. All committee members must be present at the oral examination, either in person, on the phone, or on-line; the absence of any member results in an invalid examination.

The preliminary oral examination will consist of two parts: (1) a brief 15-minute summary of thesis research progress and (2) a 30-minute formal presentation of the written research proposal followed by discussion and questions. The student should expect, however, that questioning may drift away from the specific proposal. Questioning on unrelated material is not precluded when a member of the committee deems such questioning to be desirable. The oral exam typically lasts about 2 hours.

In evaluating the student’s performance, the members of the preliminary oral examination committee will assess five principal areas:

- **Significance**: (1) Is the subject matter timely and important? (2) Will the successful completion of the proposed research constitute a non-trivial extension of current understanding?
- **Scientific Background**: (1) Has an adequate search and evaluation of background literature been undertaken?
- **Experimental Approach**: (1) Have appropriate methods, techniques, and reactions been selected? (2) Have weak points been identified and alternative approaches proposed? (3) Is the approach creative?
- **Presentation**: (1) Have the goals of the proposed research been clearly stated? (2) Was the presentation organized, logical, coherent, and convincing?
- **Defense**: (1) Have questions arising during the exam been satisfactorily addressed? (2) Has the candidate overall shown him- or herself to be sufficiently well-versed in medicinal chemistry to carry out the proposed research?

The Preliminary Oral Exam Committee must deliberate and conclude whether the student has passed, passed with reservations, or failed the exam. If the preliminary oral exam is failed, the committee may allow the student to retake the exam, but the retake must be successfully concluded before Aug 31. If passed with reservations, the Committee will define active measures to be taken be the student to address any deficiency, including a timeline for doing so. The Graduate School requires that all reservations must be removed within one year of the examination.

**Annual review of Student Progress**
In compliance with Graduate School policy, graduate student evaluations will be conducted annually. Each summer, students will be prompted to begin an electronic Workflow-Gen system process which will include their own assessment of their progress as well as their advisor’s and the DGS’s assessment of the student’s progress. Annual progress reviews should be completed by August 15. The DGS should approve any requests for extension.

- In Year 1, this will follow the preliminary written examination.
- In Year 2, the student begins the review before their preliminary oral examination so that their advisor can incorporate feedback from their preliminary oral exam in the assessment.
- In Year 3, the annual review will be held in conjunction with the research seminar the student presents during the summer. It is the responsibility of the student to coordinate to the extent possible with the members of the student’s Faculty Advisory Committee while scheduling this presentation. The student should also begin the electronic review before their seminar. The committee members will meet with the student after the presentation to discuss the student’s progress. A summary of committee/student discussions will be prepared and circulated through the Workflow-Gen system as a lasting record of the student's research progress and future expectations.
- Each subsequent year following Year 3, the student will convene a meeting of their thesis advisory committee to present a summary of research and review progress toward degree completion. A summary of committee/student discussions will be prepared and circulated by through the Workflow-Gen system as a lasting record of the student's research progress and future expectations.

**Medicinal Chemistry Travel Policy**

Participation in scientific meetings and conferences is an important way for students to join and be recognized in the greater research enterprise. To help offset the cost of student travel and supplement funds available to research advisors, the Department provides up to $1500 to each student to defer costs of meeting or workshop attendance. Requests for funding must be made to the Director of Graduate Studies prior to travel and include the name of the student and advisor, the reason for travel, a budget outlining expected expenses, the title and abstract of any presentation to be made, and a list of other possible sources of funding. An example approval application can be obtained from the departmental office. Priority will be given to students presenting research. Requests for funds exceeding the $1500 career allocation will not be honored. In the event that requests exceed available funds the DGS will convene a faculty committee to prioritize the funding of requests.

Students will be required to attest that they will not be receiving monies from other sources for the same expenses, and to provide documentation for reimbursement consistent with University guidelines.

**Thesis Preparation**
Any thesis (M.S. or Ph.D) should be prepared to conform to the guidelines found on the Graduate School website: www.grad.umn.edu. The Graduate School has very specific requirements for the preparation of this copy, and their regulations should be consulted (consult the page “Thesis Formatting and Submission” on the Graduate School’s website: http://www.grad.umn.edu/current-students-forms/formsdoctoral).

Thesis Presentation and Defense

As part of a student’s final oral examination, she/he will present a seminar on their thesis research to which the scholarly community is invited. This seminar may take place only after the Thesis Reviewers Report has been completed by the final oral examination committee members who serve as reviewers and certify that the thesis is suitable for defense. Per Graduate School policy, Thesis Advisors may not chair the Final Examination Committee meeting. The seminar on the student’s thesis research will immediately precede the closed meeting between the student and the appointed examining committee.

Time to Degree

Students are expected to complete the requirements for the Ph.D. degree within approximately five years. Financial support and laboratory space may be provided at the discretion of the advisor from the beginning of year 6. Graduate School policy requires that the doctoral degree must be completed and the degree awarded within 8 calendar years after initial enrollment in the graduate program.

Financial Support

The Department of Medicinal Chemistry strives to provide financial support to graduate students in good standing that is competitive with peer institutions. Support may be provided in the form of Graduate Teaching Assistantships, Research Assistantships, or Fellowships. Support includes tuition and health insurance under the Graduate Assistant Healthcare Plan.

Teaching Assistantships. In the first year, most students will be appointed as Teaching Assistants in the College of Pharmacy Professional Program. The graduate student may be assigned to proctoring and grading exams, assisting with developing team-based learning activities, developing written solutions to problem sets, course web-site administration, instruction in laboratory or recitations sections, or any combination of these at the discretion of the Course Director. TAs should meet with Course Directors before classes begin (or as soon as possible) so that an understanding can be reached regarding expectations and responsibilities. Students should note that Teaching Assistant appointments cover a 19-week period, not just the 15 weeks of instruction, as TAs may be asked to complete grading or perform course remediation activities following the conclusion of scheduled lectures and exams. A full-time TA (0.5 FTE appointment) is expected to spend ~15-20 hrs per week on instructional activity. TAs may be asked to split their time and serve more than one course during the same term. TA training will be conducted by the College of Pharmacy Office of Teaching and Learning during
the first week of appointment - generally the last week of August. Students appointed as TA’s should not make travel plans at the end of the semester, breaks, or holidays, until all of their teaching, grading, and other assigned obligations have been met.

Graduate Teaching Assistants play a vital role in the College of Pharmacy's teaching mission, and the performance of MedChem TAs reflects on the reputation of the Medicinal Chemistry graduate program. To ensure that students are making every effort to fulfill their TA responsibilities, instructors will be asked to rate the performance of teaching assistants.

All Teaching Assistants for whom English is a second language are required to take the Spoken English Test for Teaching Assistants (SETTA) unless their ELP score is a 1 upon arrival to the University. From the SETTA website: “The Spoken English Test for Teaching Assistants (SETTA) is one of three assessments used by University of Minnesota, Twin Cities, to determine eligibility for a teaching assistantship for students who are not native speakers of English. The SETTA measures spoken English pronunciation, fluency, grammar, and vocabulary, as well as listening comprehension. The highest score of ‘ELP 1' indicates highly accurate and comprehensible spoken English. Because a wide variety of Englishes are spoken around the world, you are not expected to speak with a North American accent or to produce completely error-free English in order to pass the SETTA.” The SETTA tests will be scheduled for incoming students, generally during the week of Orientation in conjunction with the Graduate Coordinator and the Center for Educational Innovation.

Research Assistantships. Following the first year, most students will be appointed as Graduate Research Assistants under the direction of the thesis advisor. Appointments as Research Assistants are made from funds granted by government agencies, non-profit foundations, or other sources for specific research projects proposed by members of the faculty. Specific responsibilities and research objectives consistent with funded projects should be arranged between the graduate advisor and the student. The research performed under these appointments may be used to satisfy dissertation requirements. Research Assistantships are made at the 50% time level (i.e., full tuition benefit is provided). A minimum stipend level is set by the Department of Medicinal Chemistry.

Continued funding of a Research Assistantship is subject to the availability of funds. The Department of Medicinal Chemistry does, however, attempt to find alternative support in case of an unexpected termination/interruption of a research grant or program. To ensure reappointment in subsequent periods as an RA, it is expected that Research Assistants will continue research during periods between terms, and that they will devote all their time, except that pre-empted by studies, to the research program supporting their appointment.

Predoctoral Fellowships. Students are encouraged to apply for predoctoral fellowships that provide support for their thesis research. Many such fellowships are available (e.g, NIH Ruth L. Kirschstein NSRA Predoctoral Fellowships (F31); the NSF Graduate Research Fellowship Program (GRFP); American Heart Association Predoctoral Fellowships). The University of Minnesota also awards Doctoral Dissertation Fellowships to students late in their thesis research. There are also a number of NIH-sponsored training grants that provide support for interdisciplinary
training that overlaps with Medicinal Chemistry interests. Since all these fellowships are
awarded competitively, earning a fellowship is an accomplishment that marks the student as
outstanding among peers. Historically, Medicinal Chemistry Ph.D. candidates have been quite
competitive for these fellowships.

While the level of support (stipend amount) and benefits (tuition, health insurance, etc.) varies
depending on the funding agency, supplements will be provided to any awardees to bring the
level of support up to the current standard for a department RA. These awards typically
replace advisor-funded RA as the means of support. Other fellowships (AFPE fellowships and
College of Pharmacy fellowships) are available which supplement the existing support to
provide a higher stipend.

Vacation Policy

While receiving a stipend, students are also employees of the University of Minnesota. RA
support is not awarded on an academic calendar. Students are expected to be at work 12
months a year. Employees classified as Research Assistants are not entitled to vacation time.
Unofficially, the department allows 10 days of vacation per calendar year. However, if this is
abused, this unofficial practice may end. Students should coordinate any absence with their
advisor.

Students receiving a Teaching Assistantships should obtain approval for any vacation time from
the Director of Graduate Studies, who will also seek input from appropriate Course Directors.
Leave will be approved only after all TA obligations have been met. It should never be assumed
that breaks in the academic calendar (such as Spring Break or time between semesters) are
vacation time, since students will be paid during these times.

THE M.S. IN MEDICINAL CHEMISTRY

While the Medicinal Chemistry graduate program does not admit students directly into a
Master of Science degree program, students who have entered the Ph.D. program may decide
that they would rather obtain an M.S. Students that fail to pass the Preliminary Written
Exam (at end of year 1) or fail to Advance to Candidacy at their Oral Exam (end of year 2) may
consider transferring into one of the M.S. degree programs to complete a degree.

There are two types of Masters Degrees offered:

**M.S. Plan A**: Requires a formal, published thesis, 10 M.S. thesis credits (MEDC 8777) and a
minimum of 20 total credits of course work (as detailed below).

**M.S. Plan B**: Requires a minimum of 30 total credits of course work including the completion of
one or more courses of Directed Study in Medicinal Chemistry (MEDC 8900, 3 credits) requiring
approximately 120 hours of independent work and resulting in a significant written document.
MEDC 8900 may be taken more than once, and even concurrently if desired, but if taken
concurrently, each section requires a separate Course Director.
It is recommended that students being reclassified consider their plan of study with the goal of attaining a terminal M.S. degree within either four terms of beginning in the Medicinal Chemistry graduate program or within a maximum of two terms (preferably one) after the change to an M.S. Degree Plan.

Financial support to M.S. students may be provided at the discretion of the thesis advisor and subject to the availability of their funds. The Department of Medicinal Chemistry does not provide financial support to M.S. students. Students should also consider whether their choice of degree plan affords an opportunity for continued financial support by the advisor. If, for example, a student has already accomplished significant research objectives prior to the degree plan change, spending an additional term writing a thesis or manuscript for publication based on those results may serve the group research mission well enough that the advisor may consent to continuing support of the student. A student transferring to an M.S. after Year One will not be so well positioned to complete thesis work quickly, but could complete M.S. Plan B degree requirements by the end of the first term of their second year in the graduate program, but study would likely continue without financial support.

**M.S. Degree Academic Performance**

It is a requirement that all candidates for an M.S. maintain a minimum cumulative GPA of 2.8 for all course work included in the M.S. Degree Plan. Failure to meet this threshold at any point after two completed semesters shall result in dismissal from the program.

**M.S. - Advising Committee**

At the time that the M.S. Degree Plan is submitted, the student should follow the Graduate School's process to name an Oral Examination Committee comprised of two Medicinal Chemistry faculty and one non-departmental faculty. It is the student's responsibility to contact members regarding their willingness to serve. Most students will have an advisor prior to transfer into the M.S. degree plan. It is typical that this advisor will serve on and chair this committee, but this is not a requirement.

**M.S. Plan A Course Requirements**

To complete a Plan A M.S., the student must submit an M.S. thesis and complete a minimum of 20 credits of instruction, including the required graduate medicinal chemistry core courses (Table 1), one approved MEDC elective (Table 2), and one approved biochemistry elective (Table 3). Seminar (MEDC 8100) is not required for an M.S, but it may be selected as an elective. 10 Master's Thesis Credits (MEDC 8777) must also be completed. Students transferring into the M.S. Degree Plan may already have earned Ph.D. Thesis Credits (MEDC 8888). It is possible to have these credits transferred to MEDC 8777 retroactively, but this
transfer is not automatic. Such a transfer must be approved by the thesis advisor, the Director of Graduate Studies, and the Graduate School.

**M.S. Plan A Final Oral Examination**

A final oral examination is required for a Plan A M.S. degree. A private examination will be attended only by the student and the Oral Examination Committee. All committee members must be present at the oral examination, either in person, on the phone, or on-line; the absence of any member results in an invalid examination. Per Graduate School policy, Thesis Advisors may not chair the Final Examination Committee meeting. The oral exam typically lasts between 1 and 2 hours. After a presentation of the thesis research, the student will be asked to answer fairly specialized questions on details of the research, the summary conclusions or requirements for future effort. The Oral Examination Committee must certify the completion all degree requirements.

**M.S. Plan B Course Requirements**

To complete a Plan B M.S., the student must complete a minimum of 30 didactic credits, including required graduate core courses (Table 1), one approved MEDC elective (Table 2), one approved biochemistry elective (Table 3), and at least 3 credits of Directed Study in Medicinal Chemistry (MEDC 8900). The balance of credits to be completed to meet the minimum credit requirement shall be chosen by agreement between the advisor and the student. Seminar (MEDC 8100) is not required for an M.S, but it may be selected as an elective. Only graduate courses (5000 or 8000 level) are included in the Degree Plan. Thesis Credits cannot be included in the Plan B M.S. Degree plan.

**M.S. Plan B Projects**

Students must demonstrate competency with the tools of research or scholarship in an area of interest, the ability to work independently, and the ability to present their results of independent study by completing a Plan B project (MEDC 8900).

A Plan B project should involve a total of approximately 120 hours (the equivalent of three full-time weeks) of laboratory or library research and/or writing. The work shall result in the preparation of a significant written document. The MEDC 8900 course syllabus should include an adequate rubric for the Exam Committee to apply in grading the Plan B project.

**M.S. Plan B Final Examination**

The Graduate School requires a final examination for Plan B candidates. For the Plan B M.S., the written document summarizing the required Directed Study (MEDC 8900) shall be evaluated by the Final Examination Committee, who will determine whether the work product meets expectations for an M.S. degree and assign a passing letter grade for MEDC 8900 if acceptable.
Advisors should ensure that "incomplete" is recorded for the course if the exam cannot be concluded before the end of the term for which the student is enrolled, and that the final grade is properly recorded. Any Incomplete must be resolved before the end of the next semester or credit will be forfeited. As with the Plan A M.S., the Oral Examination Committee must certify the completion all degree requirements.

**Thesis Preparation**

Any thesis (M.S. or Ph.D) should be prepared to conform to the guidelines found on the Graduate School website: [www.grad.umn.edu](http://www.grad.umn.edu)

**Time Limitations For Completing M.S. Degree Requirements**

Students are expected to complete all requirements for an M.S. within approximately 2.5 years. From the beginning of year three, laboratory space and financial support of the student may be provided at the discretion of the thesis advisor.

The Graduate School also imposes limits on the total duration of various courses of study leading to graduate degrees. An M.S. degree (Plan A, or Plan B) must be completed within five calendar years after initial enrollment in the Medicinal Chemistry graduate program. Students who are unable to complete the degree within this time limit may, with the approval of their advisor(s) and DGS, petition the program and the Graduate School for one extension of up to 12 months. Students must submit the petition for an extension prior to the end of the term in which the time limit will expire. No financial support is to be provided to students who exceed Graduate School Time limits for completing degree requirements.

**STANDARDS OF ETHICAL CONDUCT**

Integrity is the foundation upon which the structure of the scientific enterprise is maintained. Science can fulfill its mission of advancement of knowledge and service to society only if scientists conduct themselves ethically and with mutual respect. Thus, the singular dependence of science on the trustworthiness of its practitioners necessitates that no act of dishonesty be considered minor. In an academic institution, it is the responsibility of the faculty to serve as role models by exhibiting and enforcing the highest standards of ethical conduct.

Although instances of dishonesty and unethical behavior are rare, it is important that students be aware that such acts will be considered grounds for dismissal from the program. Because the act of plagiarism is a particularly egregious affront to scientific integrity, it warrants special attention. Plagiarism is defined as the stealing and passing off as one's own the ideas or words of another. Plagiarism may occur in seminar abstracts, research proposals, term papers, theses and similar documents. It includes not only the copying of another's writing, word for word, without the use of quotation marks and without giving an appropriate citation, but also the theft of another's ideas by paraphrasing their words without citing a reference. Self-plagiarism
is the most common type of plagiarism and can arise from using the same text in publications, reviews, book chapters, and thesis documents prepared by the student. Students should also be aware that incorporating words from colleagues and/or an advisor's grant(s), publications, or other materials is also considered plagiarism. Plagiarism is as serious an act of dishonesty as falsifying experimental data or cheating on an exam. The faculty of the Department of Medicinal Chemistry will recommend the dismissal from the graduate program of any student found guilty of plagiarism or other ethical misconduct.

The misuse of computers and electronic devices also represents a potential issue in this age of the Internet and information technology. The computers, devices, computer systems, and software of the Department, College and University are provided to support the research and scholarship of the faculty, staff, and students. Unauthorized usage of computers, devices, computer systems, software, etc. will not be tolerated. In particular, the posting or accessing of illicit or offensive material on Department, College or University computers will be considered grounds for dismissal. As part of the overall graduate student education and training process, students will be provided responsible conduct of research education and training. In addition, all students are required to participate in the periodic supplemental training offered by the Department.

LABORATORY SECURITY AND SAFETY

It is the responsibility of each graduate student to be familiar with safe laboratory practices and proper chemical waste management procedures. All students are required to take the online training in laboratory safety and chemical waste management that is offered by the University's Department of Environmental Health & Safety during their first semester of residency ([http://www.dehs.umn.edu/training_new_empl.htm](http://www.dehs.umn.edu/training_new_empl.htm)). The three tutorials to be taken include: Introduction to Research Safety, Chemical Safety, and Chemical Waste Management. Other training may be appropriate depending on requirements for research to be conducted. In addition, all students are required to attend and participate in any Departmental refresher training courses.

It is the responsibility of the graduate student not only to take proper care of the laboratory equipment and instrumentation but also to assist in their protection from accidental damage and theft. In particular, graduate students working during evenings or weekends should be careful to see that:

1. All gas, water, and electrical equipment (except that continuously operating) is shut off. If overnight equipment is to be in operation, suitable precautions should be taken to insure proper operation and safety of the equipment and the surrounding environment. Custodial personnel should also be notified of such operation.

2. Office and laboratory doors are closed and locked. Failure to observe these precautions may result in cancellation of the privilege of use of the facilities outside of regular hours.
MEDICAL SCIENTIST TRAINING PROGRAM-MD/PHD PROGRAM

Medicinal Chemistry participates in the Medical Scientist Training (MSTP) program in the design and completion of the MD/PhD degree. The faculty accept students for summer rotations as part of the PhD advisor selection process within the MSTP program. Students that are interested in selecting a preceptor in medicinal chemistry should discuss potential projects and the availability of long-term funding to complete the PhD degree in specific laboratories. The process is described in the MSTP Program Handbook* for the selection of preceptors and the completion of lab rotations. Students that select medicinal chemistry as their PhD program must be accepted through the standard admissions process prior to entering the graduate program. Once admitted, all programmatic requirements must be met to qualify for PhD candidacy as described in the graduate student policies and procedures. Students that have completed the MSTP-sponsored rotations with medicinal chemistry faculty may apply this to fulfill the laboratory rotation course requirement of the medicinal chemistry graduate program. Students in the MSTP program are also expected to be supported by their advisor in the first year of graduate studies in the program and should discuss funding options and space availability prior to selecting a particular laboratory. Student that have not identified a specific medicinal chemistry faculty member for their advisor will complete the normal advisor selection process during their first year in the program.

https://med.umn.edu/education-training/medical-scientist-training-program-mdphd/mstp-students

UMN Title IX Statement

As required by Title IX, the University does not discriminate on the basis of sex in any of its education programs or activities, including in admissions and employment. Inquiries about the application of Title IX can be directed to the University’s Title IX Coordinators or to the U.S. Department of Education, Office of Civil Rights. Please see the University of Minnesota’s Title IX Statement (eoaa.umn.edu/resources) and the University’s policy (policy.umn.edu/hr/sexharassassault) for information about: (1) how to contact the Title IX Coordinators on the University’s campuses; (2) how to report or file a formal complaint of sexual harassment, gender-based harassment, sexual assault, stalking or relationship violence; and (3) the University’s procedures for responding to reports and formal complaints.

The Title IX Coordinator for the University’s Twin Cities campus may be contacted at:

Tina Marisam
Title IX Coordinator, Twin Cities
Equal Opportunity and Affirmative Action (EOAA)
274 McNamara Alumni Center
200 Oak St. SE
Minneapolis, MN 55455
marisam@umn.edu or eoaa@umn.edu
(612) 626-9357 or (612) 624-9547
# Degree Completion Steps Entry Pre Fall 2018

Below is a brief overview. Each step is discussed in greater detail later in this document.

<table>
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<th>Step</th>
<th>Description</th>
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| 1    | Complete Preliminary Written Exam  
Program staff report results to GSSP. Must be on file with GSSP to be authorized to take preliminary oral exam. |
| 2    | Complete Graduate Degree Plan  
Submit at least one semester prior to your preliminary oral exam. |
| 3    | Assign members to preliminary oral exam committee  
Complete at least one semester prior to exam via www.grad.umn.edu/students/forms/doctoral/index.html. |
| 4    | Schedule Preliminary Oral Exam  
Notify GSSP of scheduled exam at least one week in advance. |
| 5    | Submit Preliminary Oral Report  
Submit for your record to reflect doctoral candidacy. |
| 6    | Assign members to doctoral final exam committee  
Complete at least one semester prior to exam via www.grad.umn.edu/students/forms/doctoral/index.html. |
| 7    | Download Graduation Packet  
Packet will include the Graduate Application for Degree form and Reviewers’ Report form. |
| 8    | Schedule Doctoral Final Exam  
Notify GSSP of scheduled exam at least one week in advance. |
| 9    | Submit Application for Degree  
Apply by the first day of anticipated month of graduation. Instructions here: https://www.grad.umn.edu/current-students-graduate-student-services-progress/application-degree. |
| 10   | Submit Reviewers’ Report  
Submit prior to your defense. |
| 11   | Submit Doctoral Final Exam Report  
Submit no later than the last business day of anticipated month of graduation. |
| 12   | Submit dissertation/project  
Submit by the last business day of anticipated month of graduation. Consult Graduation Packet for formatting guidelines. |

**Questions?**

Contact the Graduate Student Services and Progress office  
(333 Robert H. Brininks Hall)  
http://www.grad.umn.edu/students/doctoral/index.html  
612-625-3493
Degree Completion Steps Entry Fall 2018 or Later

Below is a brief overview for students entering in or after Fall 2018. Each step is discussed in greater detail later in this document.

DEGREE COMPLETION STEPS

Doctor of Philosophy
Doctor of Education

Students eligible to use the Graduate Planning & Audit System will follow the degree completion steps below. Contact Graduate Student Services and Progress if you are unsure whether you are completing your degree using the Graduate Planning & Audit System or paper Graduate Degree Plan.

In order to receive your degree, the following steps must be completed. You must maintain active student status by registering every fall and spring semester until your degree is awarded. Contact your program advisor for program-specific requirements and deadlines.

1. Submit Graduate Planning & Audit System (GPAS) planner
   Submit at least one semester prior to your preliminary oral exam.

2. Complete Preliminary Written Exam
   Program staff report results to GSSP. Must be on file with GSSP to be authorized to take preliminary oral exam.

3. Assign members to preliminary oral exam committee
   Complete at least one semester prior to exam at: https://onestop.umn.edu/examination-committees

4. Schedule preliminary oral exam
   Notify GSSP of scheduled exam at least one week in advance.

5. Submit Preliminary Oral Report
   Submit for your record to reflect doctoral candidacy.

6. Assign members to doctoral final exam committee
   Complete at least one semester prior to exam at: https://onestop.umn.edu/examination-committees

7. Download Graduation Packet
   Packet will include the Graduate Application for Degree form and Reviewers’ Report form.

8. Schedule doctoral final exam
   Notify GSSP of scheduled exam as soon as the date is set but no later than one week in advance.

9. Submit Application for Degree
   Apply to graduate no later than the first day of the anticipated month of graduation. Application instructions are available: https://onestop.umn.edu/academics/apply-graduate

10. Submit Reviewers’ Report
    Submit prior to your defense.

11. Submit Doctoral Final Exam Report
    Submit no later than the last business day of anticipated month of graduation.

12. Submit dissertation/project
    The dissertation must be submitted and approved by GSSP by the last working day of the anticipated month of graduation. Please plan accordingly. Consult Graduation Packet for formatting guidelines. https://onestop.umn.edu/thesisdissertation-submission-and-formatting

Questions? Contact Graduate Student Services and Progress office (333 Bruininks Hall)
gssp@umn.edu
(612) 625-3490
https://onestop.umn.edu/contact-gssp

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Commonly Used Forms. Electronic copies of forms, directions on how to obtain forms, and filing deadlines for forms can be found on the Graduate School website either at [http://www.grad.umn.edu/students/forms/doctual/index.html](http://www.grad.umn.edu/students/forms/doctual/index.html) or for Master’s degree forms [http://www.grad.umn.edu/students/forms/masters/index.html](http://www.grad.umn.edu/students/forms/masters/index.html). Here are some of the most common forms:

1. **Graduate Degree Plan Form** used by masters and doctoral students entering before Fall 2018. It is considered to be a contract between the student, graduate program, and the Graduate School. On this form the student will indicate the coursework being used to meet course requirements, as well as the Graduate School’s minimum credit requirements, including transfer coursework. Master’s students will list the names of faculty that will be serving on their final examining committee. Doctoral students will list the names of faculty that will be serving on the preliminary oral examining committee. The completed form must be signed by the advisor, DGS, College and a copy filed in the Med Chem office prior to submission to the Graduate School. [http://policy.umn.edu/forms/otr/otr198.pdf](http://policy.umn.edu/forms/otr/otr198.pdf)

2. **Preliminary Oral Exam Scheduling form** used to schedule a preliminary oral examination date as soon as a date has been set with your committee. [http://www.grad.umn.edu/students/prelimschedule/index.html](http://www.grad.umn.edu/students/prelimschedule/index.html)

3. **Graduate Planning & Audit System (GPAS) planner** the system adopted by the Graduate School for use by masters and doctoral students entering in or after Fall 2018. This system allows graduate students to plan future coursework and view student degree progress and is mandated for use in order to progress to preliminary written and oral exams and doctoral or masters candidacy. More information can be found at [https://onestop.umn.edu/academics/gpas](https://onestop.umn.edu/academics/gpas)

4. **Preliminary Oral Exam form** completed and signed by the committee upon completion of the preliminary oral examination. This form is mailed to the chair of the committee as designated on the Graduate Degree Program form or will be available for pick-up by the student at the Graduate School if there is less than 2 weeks time between when the exam is scheduled and the date of the exam.

5. **Final Oral Exam Scheduling form** used to schedule a final oral examination date as soon as a date has been set with your committee. [http://www.grad.umn.edu/sites/grad.umn.edu/files/final%20quickstart%20guide.pdf](http://www.grad.umn.edu/sites/grad.umn.edu/files/final%20quickstart%20guide.pdf)

6. **Thesis Reviewers Report form** to be signed by final oral examination committee members designated as reviewers to certify that the thesis is suitable for defense. This can be found in the student’s graduation packet.

7. **Final Oral Exam form** completed and signed by the committee upon completion of the final oral examination. This form is mailed to the chair of the committee as designated on the Thesis Proposal form or may require the student to pick it up from the GSSP Office based on timing.