

UNIVERSITY OF OREGON DEPARTMENT OF MATHEMATICS
2020 - 2021 GRADUATE STUDENT HANDBOOK

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CHAPTER 1. GENERAL INFORMATION FOR ALL GRADUATE STUDENTS

Introduction

This handbook details the Department policies and procedures for graduate study. Read it carefully and keep it as reference. You can also find this handbook online at <http://math.uoregon.edu/graduate/handbook>.

Other written resources essential to your academic success include:

- The UO Catalog. The main page is <http://uocatalog.uoregon.edu> It contains complete details for all academic programs at the UO. The Department degree requirements and math course descriptions can be found at http://uocatalog.uoregon.edu/arts_sciences/mathematics. The Graduate School portion of the catalog is at <http://uocatalog.uoregon.edu/graduate>.
- The Graduate School's website has academic and GE-related information, including degree requirements and crucial completion deadlines. <http://gradschool.uoregon.edu>.
- The Department website, <http://math.uoregon.edu>, has a wealth of pertinent information, from descriptions and syllabi for advanced courses, to seminar schedules and dissertation formatting advice.

The Department and the Graduate School each have specific requirements you must meet in order to complete your graduate degree. Many of these requirements involve paperwork that you must submit, often by a deadline. It is your responsibility to remain informed of the policies and procedures that affect you, and to meet deadlines in a timely fashion.

If you have any questions, ask the Graduate Coordinator, your advisor, the Assistant Department Head (for teaching-related/graduate employment concerns), or the Director of Graduate Studies.

Graduate Affairs Committee

The Graduate Affairs Committee is a departmental committee that deals with all matters concerning graduate students. It consists of several faculty members and three graduate students. The student members may exercise the same rights as the faculty except that they are not allowed to participate in decisions concerning individual students or examinations. Student members are regular voting members of the committee and may raise questions, initiate departmental legislation, etc. Should you feel that there is a problem concerning the graduate program, you may bring it to the attention of the committee via one of these three student members. The graduate student members are selected by the Department Head from a slate nominated by the graduate students.

2019-2020 Graduate Affairs Committee Membership

- **Director of Graduate Studies (“DGS”)** – Nicholas Proudfoot

- **Ph.D. Subcommittee** – Hersh, Ostriker
- **Graduate Appointments** – Lin, Polishchuk, Proudfoot*, Sinha, Young
- **At Large** – Addington, Bownik, Botvinnik, Brundan, Kleshchev, Lipshitz, Phillips, Sinha, Vaintrob, Warren
- **Graduate Advising** – Proudfoot, Akhtari, Ralph
- **Student Representatives**** - Greg Knapp, Kyla Pohl, Samantha Platt

* Chairperson

** New student representatives are nominated and appointed by the end of each spring term

Full-Time Status

To maintain full-time status in the mathematics graduate program, you must register for a minimum of 9 credit hours per term while you are in the pre-Ph.D. program and 12 credits per term once you progress to the Ph.D. program. The courses in which you enroll must follow the program of study that you agree upon with your advisor. Department certification as to full-time status will conform to these rules. If you do not meet these guidelines, the Department will designate you as a part-time student.

On-Leave Status

If you need to take a term or more off from the program, but wish to maintain your status as a graduate student at the UO, the Graduate School requires that you apply for on-leave status. As a doctoral student you are entitled to take up to six terms on-leave. To be eligible for on-leave you must be in good standing. While on-leave you cannot use University of Oregon resources. Note that the University of Oregon requires that all degree requirements be completed within seven years. When you are on-leave, the seven-year clock continues ticking.

Please note that if you go on leave, the department will attempt to give you a graduate employee position when you return, but cannot guarantee such a position will be available.

The Advising Process

One of your first and most important responsibilities as a graduate student is to design an appropriate program of study. Until you advance to candidacy, you and your advisor will agree upon and submit a plan of study at the beginning of each term. During the first week of classes, you will fill out an advising form with your advisor, your advisor will sign it, and you will give it to the Graduate Coordinator. If your advisor is unavailable, then you may obtain the signature of the Director of Graduate Studies or of another faculty member.

New Students: New students can find information about advanced graduate courses on the Mathematics website at <http://math.uoregon.edu/graduate/advanced19> and in the UO catalog,

http://uocatalog.uoregon.edu/arts_sciences/mathematics/ - courseinventory.

The Graduate Advising Subcommittee of the Graduate Affairs Committee is charged with advising all new graduate students in mathematics. Each student is assigned an official advisor who will serve in this capacity until the student forms a Ph.D. committee or leaves the program. Students will meet with their advisors at the beginning of every academic term. Before fall orientation, the Graduate Coordinator will send out a schedules of meetings between new students and their advisors. The meetings will be scheduled for Week 0 of fall term.

During the advising session you will complete a form that will show which courses are planned for your first term. Once you submit the program, ***your advisor must approve in writing any subsequent changes to that program.*** (To document an approved change, your advisor must send an email to the Graduate Coordinator.) Changes made without written approval may result in loss of good-standing in the program.

You should also seek advice from fellow graduate students and from the professors who will be teaching the courses, especially since it is often hard to decide whether to take a course at the 500- or 600-level. A 500-level, or “Masters-level,” course will have some undergraduates in the class, but will still be demanding. A 600-level, or “Ph.D. Preparation,” sequence can be quite challenging, and is the standard preparation for one of the qualifying exams. As is elaborated below, if you take two or three 600-level sequences and receive high enough grades to satisfy the sequence requirement for qualification, then you would have to take the qualifying exams the following September. Most first-year students find it best to take at least one 500-level course to help fill in background and have a manageable overall schedule.

Returning Students: A returning student who has not yet advanced to candidacy (that is, passed oral exams) must meet with their advisor at the beginning of each academic term and submit a signed program of study form to the Graduate Coordinator by the end of the first week of classes. Once the program has been submitted, ***the student’s advisor must approve in writing any subsequent changes to that program.*** (To document an approved change, your advisor must send an email to the Graduate Coordinator.) Changes made without written approval may result in loss of good-standing in the program.

At any time you may request a change of advisors through the Director of Graduate Studies (“DGS”). This is quite a normal occurrence. Indeed, as the mathematical interests of the student become better focused, the initial advisor may not be the best faculty member for the job. Also, if an advisor is going to be away for an extended period (a term or longer), the advisor should inform the DGS of the absence so that a replacement can be nominated.

Grades

Grades for graduate students in the 500- and 600-level courses should be interpreted as follows:

A+	Truly outstanding work
A	Good Ph.D. or M.S./M.A. level work
A-	Clearly Ph.D. level work, but below average. Good at M.S./M.A. level
B+	Work which is at the lower margin of acceptable Ph.D. level work,

	but quite satisfactory at the M.S./M.A. level
B	Substandard at the Ph.D. level but satisfactory at the M.S./M.A. level
B-	Barely passing at the graduate level
C+ or below.	Unsatisfactory at the graduate level

Faculty teaching 600-level courses shall have the option to use different assessment procedures to grade students who have been admitted to the Ph.D. program (that is, passed qualifying exams) compared to students in the Master's/Pre-Ph.D. stage of the program.

Colloquia and Seminars

Colloquia are presented throughout the academic year for the entire math department; everyone is encouraged and generally expected to attend the colloquia. Seminars are given once or twice a week in each general branch of mathematics.

The Basic Notions seminar is intended to be of broad general interest to graduate students. Students typically find the Basic Notions seminar to be an excellent opportunity to get the flavor of some different areas of mathematics in a relaxed atmosphere.

The remaining seminars are by nature more specialized. However, attending a seminar in the field of your choice gives you a chance to see who is working in that area and what is happening there beyond the 600-level courses.

The Math Library

The Mathematics Library reading room is located in Fenton 218. The reading room contains some reference materials and Springer Lecture Notes, but most of the books and journals are located in the stacks behind the reading room. The library prefers to have journals remain in the library so that they are available for reference, but will allow a brief circulation period for copying articles.

CHAPTER 2. GRADUATE DEGREES

Degree Programs

A graduate student in mathematics enters one of several post-baccalaureate programs. In summary these programs are:

- A. **Non-degree Program.** Students in this program have no immediate degree objectives.
- B. **Master's Program.** The objective of students in this program is a Master's degree. Students considering continuing for a Ph.D. should instead request enrollment in the Pre-Ph.D. Program.
- C. **Pre-Ph.D. Program.** Students in this program are taking course work in preparation

for the Qualifying Examination in order to be admitted to the Ph.D. program itself. Students spend one or two years in the Pre-Ph.D. Program, depending on prior background.

- D. **Ph.D. Program.** Students are admitted to this program upon satisfaction of the Qualification Procedures. As outlined below, after admission to the Ph.D. Program students form a Ph.D. committee, fulfill the Language Requirement and begin preparation for the Preliminary Examination (also called "orals").
- E. **Candidacy.** Students in the Ph.D. program are admitted to candidacy after satisfying the Language Requirement and passing the Preliminary Examination. The final defense of the Ph.D. thesis should take place by the end of the third year after the student is admitted to candidacy.

The degrees Master of Arts (M.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.) are all offered in mathematics. Specific departmental requirements for these degrees are discussed in the remainder of this chapter. General requirements of the University, including those pertaining to transferred credit, language, residence and time limits, are listed in the *Graduate School* section of the University of Oregon Catalog.

Regular Evaluations

Each graduate student in the Mathematics Department will be evaluated during or just after the spring quarter of each academic year to ensure that they are making satisfactory progress toward a graduate degree.

Regular Evaluations by Phases of Degree Program

- **Pre-Ph.D. Program:** The Ph.D. Subcommittee of the Graduate Affairs Committee will perform the evaluation of students who have not passed the qualifying exams, based on the coursework of the student in the current year and on faculty comments. Students will receive a brief email from the chair of the Graduate Affairs Committee at the end of the spring quarter.
- **Ph.D. Program, before advancement:** The evaluation of students who have qualified but not yet advanced to candidacy will also be performed by the Ph.D. Subcommittee, based on coursework and the submission of an "Orals Plan" as outlined below. Students who are making satisfactory progress will not typically receive any communication from the committee.
- **Ph.D. Program, past advancement.** The preliminary (oral) examination will replace the regular evaluation in the year in which a student advances to candidacy. In subsequent years, a student will be evaluated by the dissertation committee. The student will meet with the committee during the spring term and provide a brief oral and/or written

description of progress toward completing a thesis¹. By the end of the academic year, the committee will produce a written evaluation which will be shared with the student and submitted to the Graduate Coordinator for inclusion in the student's official records. This process is meant not only as a means of evaluation, but also as a forum for the committee members to provide career advice to the student.

Master of Arts and Master of Science Degrees in Mathematics

*All mathematics courses to be applied to degree requirements, including associated reading courses, must be graded*². Grades of C+ or below are considered to be failing grades and may not be counted towards Master's degree requirements. The GE teaching seminar does not count towards the Master's degree, nor do any other 1-credit seminars such as the Colloquium, the Basic Notions seminar, etc.

To earn the Master's degree, you must fulfill the following course requirements and conditions, and meet with the chair of the Master's Degree Subcommittee ***before the end of the second week of the term the degree is to be received*** in order to verify that the requirements have been met.

A. Complete 45 graduate credit hours, subject to the following provisions:

1. At least 9 must comprise 600-level mathematics courses or seminars, excluding 605.
2. At ***most***, 15 may be *outside* the field of mathematics.

B. Complete three of the sequences listed below, at least one of which is at the 600 level.

500-Level Sequences

1. Math 513, 514, 515 (Introduction to Analysis)
2. Math 531, 532, 533 (Intro to Topology & Intro to Differential Geometry)
3. Math 544, 545, 546 (Introduction to Abstract Algebra)

600-Level Sequences³

1. Math 647, 648, 649 (Abstract Algebra)
2. Math 634, 635, 636 (Algebraic Topology)
3. Math 637, 638, 639 (Differential Geometry)
4. Math 616, 617, 618 (Real Analysis)
5. Math 616, 672, 673 (Theory of Probability)
6. Math 607, 607, 607 (Applied Mathematics)

1 While this handbook uses the terms "thesis" and "dissertation" interchangeably to indicate the final document of the Ph.D., the Graduate School makes a clear distinction between the terms. When referring to the Graduate School's website and publications, make sure to follow instructions for "dissertation". It uses "thesis" only for master's degrees.

2 Summer courses are the exception to this requirement; summer courses may ***only*** be taken with the grading option of pass/no pass.

3 Any combination such as 616/617/515 or 647/648/546 or 643/635/533 involving some 600-level courses but at least one 500 level course counts as a 500-level sequence.

In the unlikely event that none of these sequences are appropriate, you may request an individually tailored sequence from the Masters Subcommittee of the Graduate Affairs Committee.

C. Take a final written or oral examination, designed by the chair of the Master's Degree Subcommittee. You may request a waiver of the final examination if the GPA for all mathematics courses carrying graduate credit is at least 3.25 (B+) and the GPA for all 600-level courses (including reading) is at least 3.00 (B). To request a waiver, write to the Director of Graduate Studies.

Doctor of Philosophy

Requirements for Candidacy

The Ph.D. is a degree of quality, not to be conferred in routine fashion after the completion of any specific number of courses, or after attendance in graduate school for any specific number of years. It is reserved for candidates of high potential who have demonstrated not only a comprehensive understanding of mathematics but also a measure of creative talent.

Although requirements of time and credit are secondary, every candidate must satisfy the basic requirements of the Graduate School, namely, three years of full-time study beyond the bachelor's degree, one of which must be a year in residence at the University. Thus, three years of full-time study is a necessary but not a sufficient condition.

Every Ph.D. student must take three sets of examinations (the qualifying exams, the language exam, and the preliminary exam), have the thesis approved by the members of the dissertation committee, and formally defend the thesis orally. Waivers of any of these requirements will be available only under the most exceptional circumstances. If you wish to be considered for a waiver must petition the Director of Graduate Studies *in writing*.

Stages of the Program

There are three principal stages for a student in the doctoral degree program.

- **Pre-Ph.D. Program.** This is the stage for students intending to enter the program who have yet not completed the qualifying procedure.
- **Ph.D. Program.** This is the stage for students who qualified for the Ph.D., and are completing the Language Requirement and preparing for the oral Preliminary Examination.
- **Candidacy.** Students are advanced to candidacy after satisfying the Language Requirement and passing the Preliminary Exam. At this stage, students are working primarily on research and their dissertations.

The Pre-Ph.D. Program

The pre-Ph.D. Program consists of one or two years of coursework, depending on the student's previous background. The primary objective is to complete the sequence requirements

for qualification as detailed below (a minimum of two 600-level sequences and one sequence at the 500- or 600-level in a different area). In addition to completing the sequence requirements, students can consider taking reading courses or topics courses when appropriate. Students should keep in mind that, though the sequence requirements allow for the possibility of taking only two sequences at the 600-level, some Ph.D. advisors will expect their students to take three.

Each student must meet with their pre-Ph.D. advisor at the beginning of each term to discuss the student's planned coursework. At this meeting, the pre-Ph.D. advisor will sign the Graduate Student Advising Form, which must be turned in to the Graduate Coordinator by the end of the first week of the term. Any changes to this plan must be approved in writing by the pre-Ph.D. advisor or the chair of the Graduate Affairs Committee.

The Sequence Requirement

The sequence requirement is intended to ensure that all prospective Ph.D. students have a broad base of knowledge of mathematics as a whole. Each student is required to complete at least one sequence from three of the following four areas: analysis/probability, topology/geometry, algebra, and applied mathematics, subject to the following requirements:

- The sequences in at least two areas must be at the 600-level;
- All courses applied to this requirement must be completed with a grade of B or above;
- The average grade in each sequence applied to this requirement must be at least B+.

The allowed sequences for each of the three areas are as follows.

AREA 1: ANALYSIS/PROBABILITY.

- 513/514/515 Introduction to Analysis
- 616/617/618 Real Analysis
- 616/672/673 Theory of Probability

AREA 2: GEOMETRY/TOPOLOGY.

- 531/532/533 Introduction to Topology / Differential Geometry
- 634/635/636 Algebraic Topology
- 637/638/639 Differential Geometry

AREA 3: ALGEBRA.

- 544/545/546 Introduction to Abstract Algebra
- 647/648/649 Abstract Algebra

AREA 3: APPLIED MATHEMATICS.

- 607/607/607 Computation & Combinatorics / Applied Stochastic Processes / Machine Learning and Statistics

Note that mixed-level sequences such as 616/617/515 may also be applied to this sequence requirement but *count as 500-level sequences*. Failure to meet the sequence requirement by the end of the second year in the graduate program will ordinarily result in dismissal from the program, effective at the end of the spring term of the second year.

A student may petition the Ph.D. Subcommittee in writing for an exemption to a given sequence requirement. Such a petition may occur before the courses are taken, or it may occur after, if the student's grades fall short of the requirement. In such cases, the Ph.D. Subcommittee will have the options of denying the petition, waiving the requirement, or granting the student extra time to complete the requirement by a certain date.

The Qualifying Examinations

Qualifying Examinations are administered during the two weeks before the start of fall term and during the winter break. Exams are offered in the following subjects: Analysis, Probability, Differential Geometry, Algebraic Topology, Algebra, and Applied Mathematics. Just like our course sequences, these subjects are grouped into four areas, and students must complete exams in two different areas.⁴ Each exam is three hours long, and is primarily based on the material that was covered in the corresponding 600-level sequence during the previous year. The qualifying exams do not need to be taken at the same time. For example, a student who takes the 600-level analysis sequence and the 500-level algebra and topology sequences during the first year is likely to take the analysis exam in September of the second year, and one of the other exams in September of the third year.

Students in their second or third years will only be allowed to take a qualifying exam if they have completed the 600-level sequence requirement in the corresponding course (or if they have successfully petitioned for an exemption to this requirement). Written approval from the student's pre-Ph.D. advisor is also required; this approval will typically be granted on the Graduate Student Advising Form that the student completes at the beginning of the preceding spring term. First-year students are allowed to take qualifying exams in any area without restriction, though it is unusual for a student to pass a qualifying exam without first completing the relevant sequence at the University of Oregon. If a first-year student passes a qualifying exam, the corresponding 600-level sequence requirement will be automatically waived.

The decision on whether or not a student passes a qualifying exam in a particular subject will be made by the Graduate Affairs Committee. While this decision is based primarily on the student's performance on the exam itself, the committee will also take into account the student's coursework, especially in the corresponding 600-level sequence. In particular, there is no cutoff score that determines whether or not a student has passed.

Progressing to the PhD Program

⁴ A student may take a hybrid of the geometry and topology exams; for example, one can choose to do 7 problems in topology and 3 in geometry. In contrast, the analysis and probability exams are separate, and a student taking an exam in this area must choose to take one exam or the other in its entirety.

When a student completes the sequence requirement and passes the second qualifying exam, they will progress from the Pre-Ph.D. Program to the Ph.D. Program. If a student completes both qualifying exams immediately upon arrival, the third sequence requirement will be waived.

A student has until winter break of the third year to pass two qualifying exams. Failure to pass both exams by this time will result in dismissal from the graduate program at the end of the spring term of the third year.

The Ph.D. Program

Choosing an Advisor

Once you have been admitted to the Ph.D. Program, you should begin the process of finding a suitable Ph.D. advisor. Please see the web page <http://math.uoregon.edu/faculty> for a list of faculty members and their research interests. It is common practice to spend one or more terms taking reading courses from potential advisors before asking someone to become your official advisor.

Orals Plan

An “Orals Plan” is required by week 7 of the spring term in the academic year in which you are formally admitted to the Ph.D. program. The Orals Plan formally designates your choice of Ph.D. advisor, who will serve as chair of your Ph.D. committee. The Orals Plan is a short document that outlines your plan of study for the next year, lists materials for the language requirement (see below), and names three additional members for your Ph.D. committee. It is common practice, though not a requirement, to have one departmental member of your Ph.D. committee from outside your specialty. Students often find that access to such a perspective helps improve the written and oral exposition of their thesis work.

For your convenience, an Orals Plan form is available on the math website.

It is important to note that after you advance to candidacy (i.e., complete the language requirement and preliminary oral exam), university policy requires you to add an “institutional representative” to your dissertation committee. This is a university faculty member from outside the mathematics department.

Each student’s Ph.D. committee is required to meet at least once a year in years after the student has advanced to candidacy. During this meeting, the student will provide a brief oral and/or written description of progress toward completing a dissertation. The committee will then produce a written evaluation which will be shared with the student and submitted to the Graduate Coordinator for inclusion in the student’s official records by the end of the academic year. In addition, Ph.D. students are encouraged to report on their work and readings in appropriate seminars.

Language Requirement

The department expects Ph.D. candidates to be able to read mathematical material in a second language selected from French, German, or Russian. The purpose of the foreign language

requirement is that you learn to accurately decipher *mathematics* written in a foreign language.

It is expected that most students will aim to meet this language requirement during the year after passing the qualifying examination. ***At the very latest, you must satisfy the language requirement before you take the oral exam.*** If in exceptional circumstances you need to delay the language requirement until after the oral examination, you must submit a formal petition ***in writing*** to the Ph.D. Subcommittee of the Graduate Affairs Committee.

To satisfy the Language Requirement, set up a meeting with a faculty member of your choice who works in the area of mathematics that you wish to specialize in. This is typically your Ph.D. advisor if you have already formed your Ph.D. committee, or someone who you would like to ask to become your Ph.D. advisor if you have not yet found one.

During the meeting, you should get advice as to a suitable part of a paper or book written in French, German or Russian that would be mathematically valuable for you to study. You should also be interested in the material yourself -- if you are not or if your advisor does not come up with a suitable reference, try asking someone else to get a suggestion you like better.

You should then aim to read, translate, and digest the mathematics contained in the paper or book. The goal is to acquire the necessary skill to read the foreign language while at the same time learning some useful mathematics. You should meet again with the faculty member to discuss the mathematics after you are satisfied that you understand the material. When the faculty member has verified that you have successfully understood the material, they will sign the Language Exam Requirement Form. You can find the form on the math website, or pick up a copy from the Graduate Coordinator.

Preliminary Exam

A student is advanced to Candidacy upon passing the Preliminary Examination. The student is not normally eligible to take this exam before fulfilling the Language Requirement. The Preliminary Exam should be taken no later than June of the academic year after the year in which the student admitted into the Ph.D. program.

Examination Syllabus

The Preliminary Examination is a two-hour oral examination administered by your Ph.D. committee, emphasizing the basic material in your area of interest. You and your advisor will create an Examination Syllabus listing the topics to be covered in the exam. The Syllabus may specify all or part of particular courses, textbooks, notes, or published papers. The syllabus must satisfy the following general guidelines:

- ***It must not be narrowly limited to just one or two special topics.***
- ***It must include a significant amount of material that is not primarily expository, meaning published research papers or preprints rather than textbooks.***

Aspects of the Syllabus - such as its length, level of detail, and mix of types of materials - require the approval of your full Ph.D. committee, not just your advisor's approval. All members of your Ph.D. committee must indicate their approval in writing (usually by signing the

Syllabus).

After devising the Syllabus in consultation with your committee, you should submit a copy of the proposed Syllabus to the Ph.D. Subcommittee. The Subcommittee may either approve it or require changes in the Syllabus before granting approval.

You must complete the process of drafting the Syllabus and obtaining approval at least one month in advance of the examination. Since satisfactory degree progress and GE reappointments are dependent on advancing to Candidacy, you and your advisor are strongly advised to be mindful of this deadline. A student and advisor may petition to have an exam moved, but are only encouraged to do so when a student's rapid progress would be best served by such a move.

The format of the Preliminary Examination is also to be determined by your full Ph.D. committee, not just your advisor. Students are urged to discuss this with each committee member, since unclear expectations about this format can adversely affect the exam. It is your responsibility to arrange the time and place of the Preliminary Exam. Clear the time with your committee and ask the Graduate Coordinator to schedule a room for the exam. If you make a room reservation on your own, please inform the Graduate Coordinator of the date, time, and location of your exam.

A suggested practice for final preparation in the weeks leading up to the exam is for the student to write a brief expository summary of the results from the sources in their Syllabus that they are responsible for, stating theorems, outlining proofs (with reference to their sources), and working out important examples. Producing such a document promotes the ability to synthesize material which a student needs to have to begin research.

Take the Oral Exams Results form to your Preliminary Examination. At the end, your advisor will mark the result, sign the form, and give it to the Graduate Coordinator, who will start the advancement process in the Graduate School's database.

Extra Time

Under ordinary circumstances, failure to pass the Preliminary Examination by the end of the second year in the Ph.D. Program will result in dismissal from the graduate program, effective at the end of the spring term. Exceptions may be made at the discretion of the Ph.D. Subcommittee. Such exceptions will usually occur only under one of the following two circumstances:

- If you fail the Preliminary Examination on your first attempt, you may petition in writing to take the exam a second time. If such a petition is granted, the Ph.D. Subcommittee will specify the details of when the second exam will take place. If you fail a second time, then you will be dismissed from the graduate program, effective at the end of the term in which you take the exam. Third attempts will not be granted.
- If you change advisors during your second year in the Ph.D. program, you may petition in writing for an extended timeline. If such a petition is granted, the Ph.D. Subcommittee will specify the details of when the exam will take place.

Candidacy

Once you have passed the Language Requirement and the Preliminary Examination, you have advanced to candidacy for the Ph.D. Degree. At this stage your major efforts should be devoted to completion of a thesis.

Ph.D. Committee Institutional Representative

The **Graduate School requires** you to have an institutional representative (a.k.a. “outside member”) on your doctoral committee. Your committee must be fully appointed and approved by the Graduate School no fewer than 6 months prior to your defense date. You must have an institutional representative on your dissertation committee before the Graduate School can approve it, so it behooves you to take care of this as soon after advancement as you can. Otherwise your timeline to degree completion could be delayed.

If, after the Graduate School approves your committee, the Institutional Representative is changed, your defense date timeline will be set back by three months. Any changes to committee membership must be submitted for approval to the Director of Graduate Studies and the Graduate School. However, changes in core membership do not affect the timeline.

*Thesis*⁵

A Ph.D. candidate must submit a thesis containing substantial original work in mathematics. A pdf copy of the thesis ***must be emailed to the Graduate Coordinator for distribution to the members of the examining committee no less than four weeks before the proposed time for the final oral presentation.***

The thesis must conform to the Graduate School's Style Manual for Theses and Dissertations. A template Latex file and formatting advice can be found on the departmental web page⁶. If you plan to include co-authored or previously published material in your dissertation, you must complete and submit the Content and Style Request Form by the end of the term prior to the term in which you plan to defend (see the Graduate School’s website).

Students working toward a Ph.D. or professional doctorate must register for a minimum total of 18 hours in Dissertation (603); with department approval, up to 6 of 18 hours may be in Research (601). Credit for Dissertation and Research is recorded on a P/NP basis. Note that you must be registered for a minimum of three credits in the term prior to your defense and the term of your defense.

At the time of the doctoral defense, your committee will indicate whether it approves your dissertation. After a successful defense, you will upload your dissertation to the Graduate School via ProQuest/UMI. You also need to submit the signed Thesis/Dissertation Submission Form and Document Approval to the Graduate School by their published deadline.

⁵ Please remember that while the Department uses the word thesis to refer to the final document of the Ph.D., the Graduate School uses only the term dissertation.

⁶ <http://math.uoregon.edu/dissertation-instructions>

Final Defense of Thesis

You are expected to complete the formal defense of your Ph.D. thesis by the end of your sixth year as a mathematics graduate student at the University of Oregon. The thesis defense will normally take place during the term in which the degree is to be awarded. In this defense, which shall be open to the public, the candidate will expound the major ideas and findings of the thesis and be questioned by the committee and interested parties.

Extra Time

Should you desire extra time to complete your dissertation, you must petition the Ph.D. Subcommittee of the Graduate Affairs Committee in writing. Your petition should include a summary of progress on your thesis, a discussion of what you expect to accomplish before you graduate, and a letter of support from your advisor. Petitions will be considered by the Ph.D. Subcommittee at two times during the year, once in October and once in April (after the graduate admissions process is complete). The granting of such additional time is the exception rather than the rule. If the petition is not granted and you do not defend your dissertation on time, you will be dismissed from the graduate program, effective at the end of the summer term. More time does not necessarily mean more funding; that is, it is possible that the committee will decide to grant you additional time in the graduate program but not recommend that you be reappointed as a GE.

Scheduling the Defense

You must schedule the defense and obtain Graduate School approval via the GradWeb online database. Start by arranging a time and date with your committee that is before the Graduate School's deadline. Then ask the Graduate Coordinator to reserve a room for your defense.

Once you have the date, time, and location set, you will file the "Application for Final Oral Defense" in GradWeb. Do this at least one month prior to the day you plan to defend. The Graduate School must approve your application at least three weeks prior to the proposed defense date.

Please refer to the Graduate School's website, <http://gradschool.uoregon.edu/deadlines-doctoral>, for the deadlines for the term in which you plan to graduate.

KEY REMINDERS:

- The Graduate School must approve your full doctoral committee, including the institutional representative, at least six months prior to the date you plan to defend.
- If the chair of your Ph.D. committee has to be changed, it **MUST** be done 6 months before the oral defense.
- If the Institutional Representative has to be changed, it **MUST** be done at least 3 months prior to the oral defense.
- You must be registered for at least 3 credit hours of MATH 603 Dissertation during the term you plan to graduate AND the term immediately prior.

Satisfactory Progress Towards Degree

Criteria for Satisfactory Progress in the Master's Program

- Complete a minimum of 9 credit hours per term of courses, reading courses, and/or thesis work appropriate for the degree
- Maintain a GPA of at least 3.0 each term
- Meet with your advisor prior to the start of every term to devise a program of study. This program of study must be established in writing. Any deviations from the program must be approved in writing by the advisor.

Criteria for Satisfactory Progress in the Pre-Ph.D. Program

- Complete a minimum of 9 credit hours per term of courses appropriate for the degree.
- Maintain a GPA of at least 3.0 each term.
- Meet with your advisor prior to the start of every term to devise a program of study. This program of study must be established in writing. Any deviations from the program must be approved in writing by the advisor or the chair of the Graduate Affairs Committee.
- Complete the Sequence Requirement detailed on page 8 by the end of the second year of the pre-Ph.D. program.
- Take and pass the written Qualifying Examinations by winter of the year following the completion of the Sequence Requirement.

Criteria for Satisfactory Progress in the Ph.D. Program

- Complete 12 credit hours per term of courses, reading courses, and/or thesis work appropriate for the degree.
- Maintain a GPA of at least 3.0 each term.
- If you have not yet advanced to candidacy, meet with your advisor prior to the start of every term to devise a program of study. This program of study must be established in writing. Any deviations from the program must be approved in writing by the advisor.
- Satisfy the Language Requirement and pass the Oral Comprehensive Exam ("Preliminary Exam") by June of the year after the academic year in which you were admitted to the Ph.D. program.
- Meet with your Ph.D. committee at least once a year after passing the preliminary exam. During the meeting, you must provide a brief oral and/or written description of progress toward completing the dissertation. The committee will produce a written evaluation and provide to you and to the Graduate Coordinator for your student file.
- Substantially complete all requirements for the Ph.D. within six years of beginning as a graduate student in the University of Oregon Department of Mathematics.

Sample Timelines

In general, the Ph.D. program (including the pre-Ph.D. portion) is designed to be completed in five or six years. We have a strong commitment to this timeframe, believing it to be (in most

cases) in the best interest of the students. Of course exceptions occur, and occasionally students will stay in the program for seven years. But this is the exception rather than the rule.

There are also two separate issues to be aware of: there is the issue of being a student in good standing in the graduate program, and there is the issue of receiving a GE appointment. These issues do not go hand in hand. Students who are unable to complete their degree in six years might be in good standing and continue in the program for a seventh year, and they might also receive a GE appointment for that year---but the former does not guarantee the latter.

Here are two sample timelines:

Student #1:

September 2030: Begin program as a Pre-Ph.D. student.

September 2032: Take and pass Qualifying Exams.

June 2034 (at the latest): Pass Preliminary Examination; advance to candidacy.

June 2036: Give oral defense and graduate.

Student #2:

September 2030: Begin program as a Pre-Ph.D. student.

September 2031: Take and pass Qualifying Exam.

June 2033 (at the latest): Pass Preliminary Examination; advance to candidacy.

June 2035: Give oral defense and graduate.