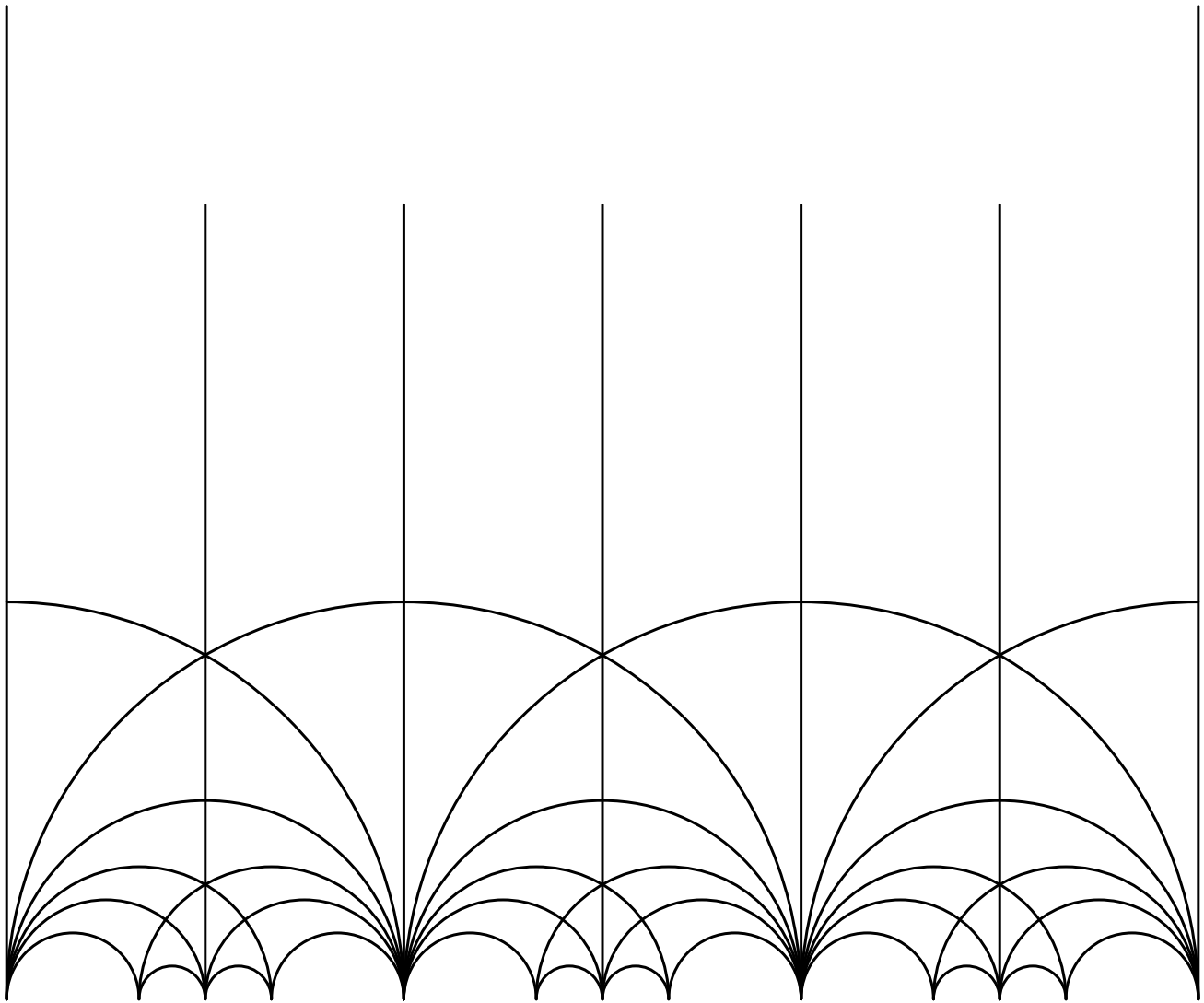


OU Department of Mathematics Graduate Student Handbook



Graduate Committee and MGSA

Department of Mathematics, University of Oklahoma

Version: October 2009

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Welcome

Welcome to the OU Mathematics Department!

You are now a member of a diverse group of 70 to 80 graduate students representing over a dozen different countries. You also belong to a larger community including 34 permanent faculty, 7 staff members, 9 lectures, and 8–10 post-doctoral associates and visiting researchers. You play an important role in the department's teaching mission, and share in our commitment to excellence in the instruction of around 12,000 OU students annually.



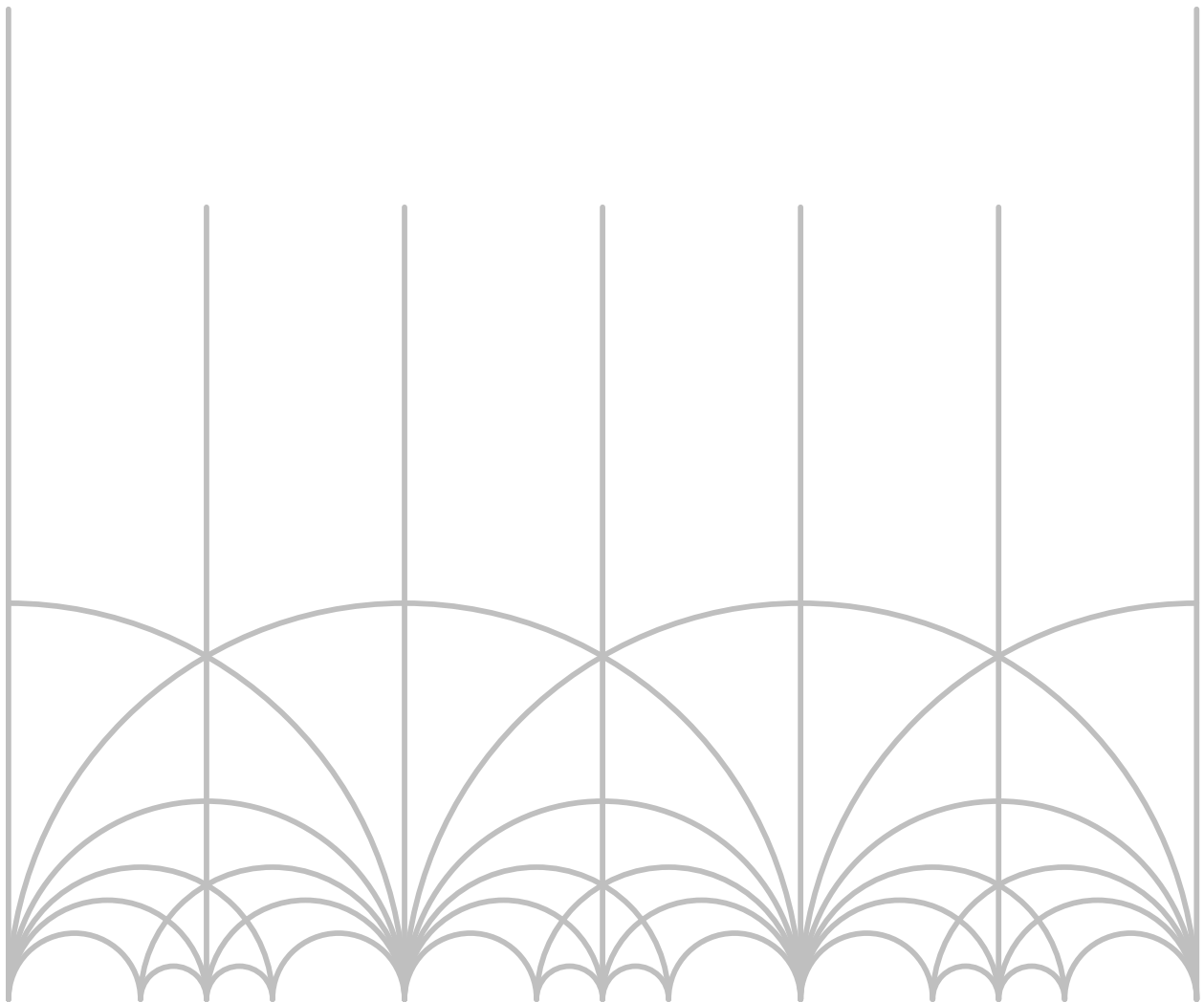
Our faculty maintain a vibrant and collegial research atmosphere, and also serve as sources of inspiration, as mentors and advisors. Our strong sense of community is enhanced by the fact that faculty, post-doctoral and student offices, common room, research library, and instructional classrooms are all housed in the same building.

You will find senior graduate students to be important sources of information and mentoring. For example, our graduate students run four seminar series, and are responsible for one third to one half of talks given in our department. These seminars are excellent venues for peer mentoring and for discussing topics of key interest to students. Senior graduate students can provide excellent advice on a broad range of topics: studying for examinations, filling out paperwork, teaching issues, preparing to give a talk in a research seminar, and general professional preparation.

You should consider becoming a member of the OU Mathematics Graduate Students Association (MGSA). The MGSA promotes social activities among students and faculty, offers advice and support to students, and serves as an advocate on behalf of students in the department.

The purpose of this handbook is to explain in some detail the various departmental policies concerning graduate students, and to explain the services offered by the Mathematics Department and by the MGSA.

Graduate Programs



1 Graduate Programs

The Mathematics Department at the University of Oklahoma has a long and rich academic tradition dating back to the awarding of our first Masters degree in 1927 and our first doctorate in 1947. The Mathematics Department offers three different graduate degrees: MS, MA and PhD. There are two options for the PhD degree; the traditional mathematics option, and the research in undergraduate mathematics education (RUME) option.

MA/PhD Program. This is the standard doctoral program for most students wishing to get a Ph.D. degree in Mathematics, including the RUME option.

Students in the MA/PhD program who intend to pursue a doctoral degree need to pass the three PhD qualifying examinations in the subjects of Algebra, Analysis and Topology. Each one of these exams is associated with a two-semester graduate course sequence. These three sequences form the core of our MA degree, and are also counted towards the PhD degree. Students who pass all three qualifying examinations can go into the PhD program in one of the following two options.

PhD Program (traditional option). This program is essentially the same as the MA/PhD program above. The main difference is that students who already have a masters degree in Mathematics may apply directly to this program. Students with a baccalaureate degree apply to the MA/PhD program, and change to the PhD program on successful completion of the PhD qualifying examinations.

The student's ultimate goal in this program is to write and defend a dissertation representing an original contribution to research in mathematics.

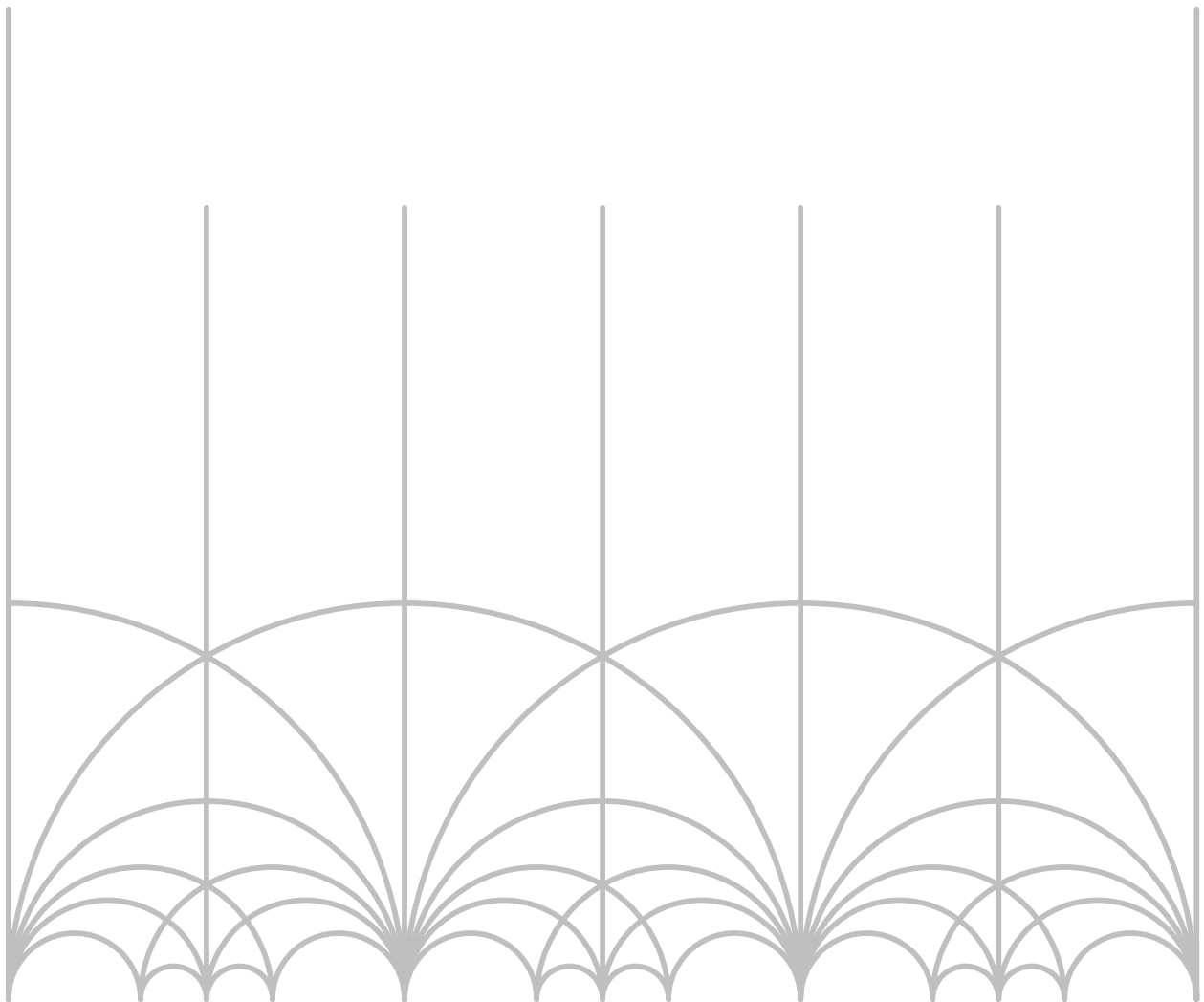
PhD Program (RUME option). As is the case with the traditional option, students who already have a Masters degree in Mathematics may apply to this program, while students with a baccalaureate degree apply to the MA/PhD program.

The student's ultimate goal in this program is to write and defend a dissertation representing an original contribution to research in undergraduate mathematics education.

Students with strong mathematical backgrounds are encouraged to take "free shot" attempts at the PhD qualifying examinations. These examinations are usually held in August, the week before classes start. These "free shot" attempts are only offered to students when they first enter the program, and results of the free shots do not go on the student's record unless the student passes.

MS Program. The Master of Science (M.S.) program is offered by the mathematics department for students who want to pursue studies in mathematics beyond the undergraduate level, but who do not plan to obtain a doctorate in mathematics. Recent graduates of the M.S. program have gone on to careers as actuaries, statistical analysts, and software engineers. Others have become mathematics teachers in settings ranging from middle school to two- year and four-year colleges. Still others have gone on to obtain doctorates and academic positions in other fields besides mathematics, such as economics, mathematics education, and computer science.

Entrance Requirements



2 Entrance Requirements

We strongly encourage applicants to take the general **GRE** examination. Students without GRE scores will not be considered for fellowship support.

Students should refer to the **OU Graduate College** web-page for University entrance requirements and procedures. In particular, students for whom English is not a native language should look at the **International Students Section** on the **Prospective Students** page.

2.1 Requirements common to all graduate degrees.

The single common requirement is that students have the equivalent of an undergraduate major in mathematics at the University of Oklahoma. There are several ways to achieve this qualification: by obtaining such a major, by taking the equivalent courses at another university or by taking supplementary courses as a special student at the University of Oklahoma. Please refer to our **Undergraduate Degree Requirements** web page for more details about the University of Oklahoma standard BA degree.

2.2 Entrance Requirements for the MA/PhD

In addition to the common requirements above, a student should have at least two 3-hour senior level courses in abstract algebra, analysis or topology.

2.3 Entrance Requirements for the Ph.D. (Traditional and RUME options)

1. Students will not be admitted to the Ph.D. program without first earning a master's degree or equivalent.
2. In order to be admitted to the Ph.D. program, a student must pass Qualifying Examinations in the areas of analysis, algebra and topology. These examinations are ordinarily given every May and August. They cover the courses 5353/5363 (Abstract Algebra I/II), 5453/5463 (Real Analysis I/II) and 5853/5863 (Topology I/II). The Department annually publishes a syllabus for these examinations. Each Qualifying Examination may be taken at most twice.
3. Students with a master's degree may be conditionally admitted to the Ph.D. program prior to passing the Qualifying Examinations provided that:
 - (a) They have completed the equivalent of at least two of the following three sequences: 5353/5363 (Abstract Algebra I/II), 5453/5463 (Real Analysis I/II) and 5853/5863 (Topology I/II);
 - (b) They present a minimum GPA of 3.25 on all Graduate work; and,
 - (c) They pass the Qualifying Examinations within one calendar year of their conditional admission

2.4 Entrance Requirements for the MS

For entry into the M.S. program the student must meet the following list of requirements. Students lacking one or more of these requirements may be admitted on a provisional basis. In this case they are generally expected to remedy any deficiencies in their first semester of study. For course work taken to remedy deficiencies, at most 3 hours of credit (6 hours in the Mathematics Education Option) can be applied toward the students degree program.

1. The student must have completed course work in the following areas: Differential equations (MATH 3113 or MATH 3413 or equivalent). Linear Algebra (MATH 3333 or equivalent). Modern Algebra (MATH 4232 or MATH 4383 or equivalent). Introductory mathematical analysis

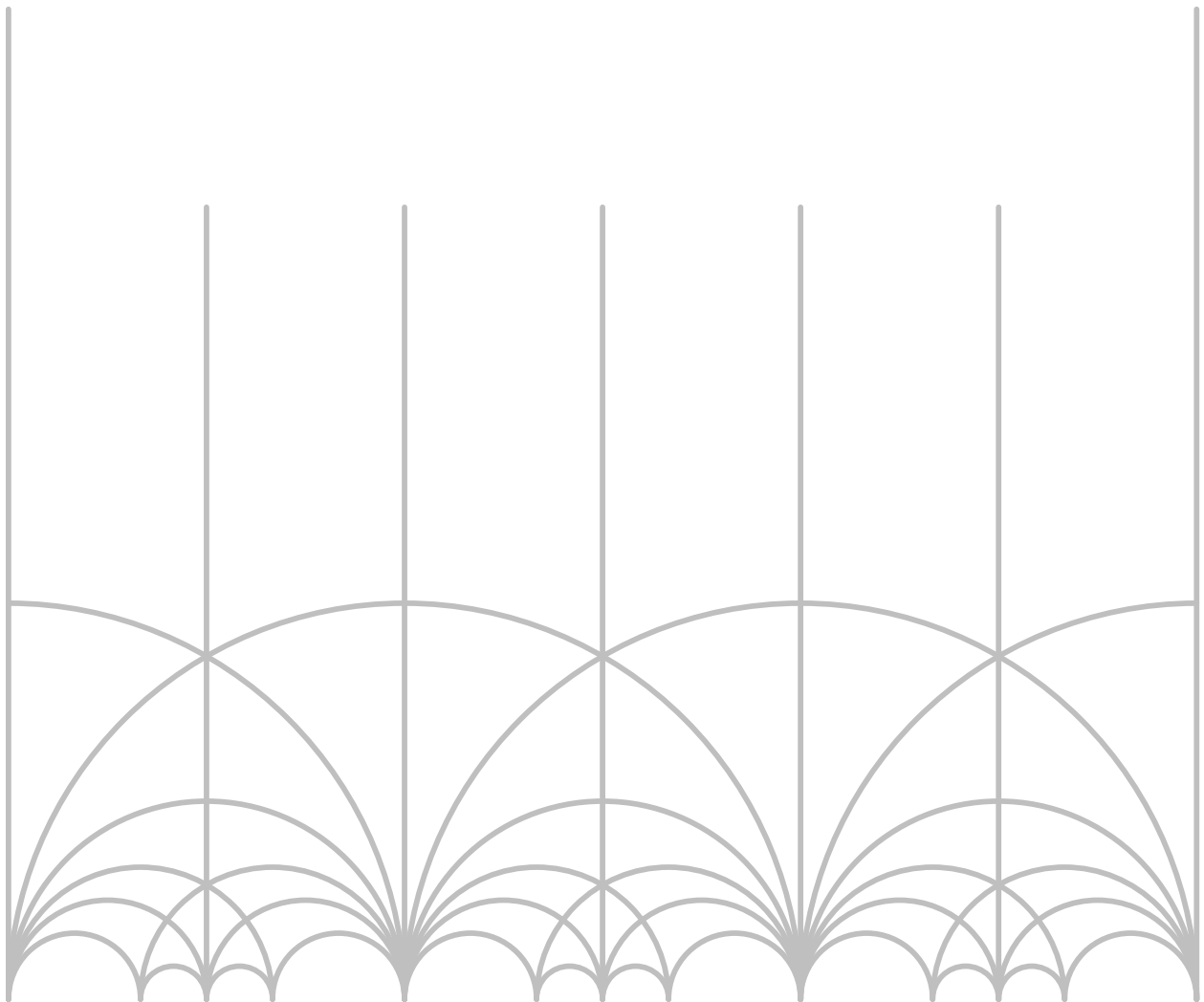
(MATH 4433 or equivalent). Introductory probability/statistics (MATH 4733 or MATH 4743 or equivalent).

In the case of a student who has taken some or all of these courses at other universities, the Mathematics Graduate Director or the Applied Math Committee will determine whether the student's courses are acceptable substitutes for the courses listed above.

In the case of students who may be deficient in some of these prerequisites, up to three hours of work taken in residence to satisfy the requirements may be included in the masters program with the approval of the Mathematics Graduate Director and the Applied Math Committee.

2. (Mathematics Education Option only). The student must be either:
 - (a) a certified teacher of secondary mathematics, or
 - (b) currently employed as a mathematics teacher in a private secondary school.

Requirements, Timelines and Paperwork



3 Requirements, Timelines and Paperwork

Graduate College Requirements and Paperwork. The [Graduate College](#) has detailed procedures and deadlines for graduation spelled out on its web-site. Take time in your first semester to become familiar with these. The best place to start is to download and peruse the [Graduate College Bulletin](#) located on the [Current Students](#) page of the Graduate College web-site. This includes detailed lists of the Graduate College requirements and time limits for completion of the masters and doctoral degrees. Another useful document is the [Graduate Assistant Handbook](#), also located on the [Current Students](#) page of the Graduate College web-site.

We also suggest that you look at the description of the process of obtaining a Masters or Doctoral degree, including *checklists*, *forms*, and in particular *deadlines* for submission of paperwork. You get to these descriptions by clicking on the relevant link on the [Current Students](#) page of the Graduate College web-site. Often you will be required to start submitting paperwork early in the semester **before** the one in which you expect to receive a degree.

The Mathematics Department helps students to remember these deadlines (through emails and through postings outside the office of the Assistant to the Mathematics Graduate Directors), but ultimately it is your responsibility to be aware of Graduate College deadlines.

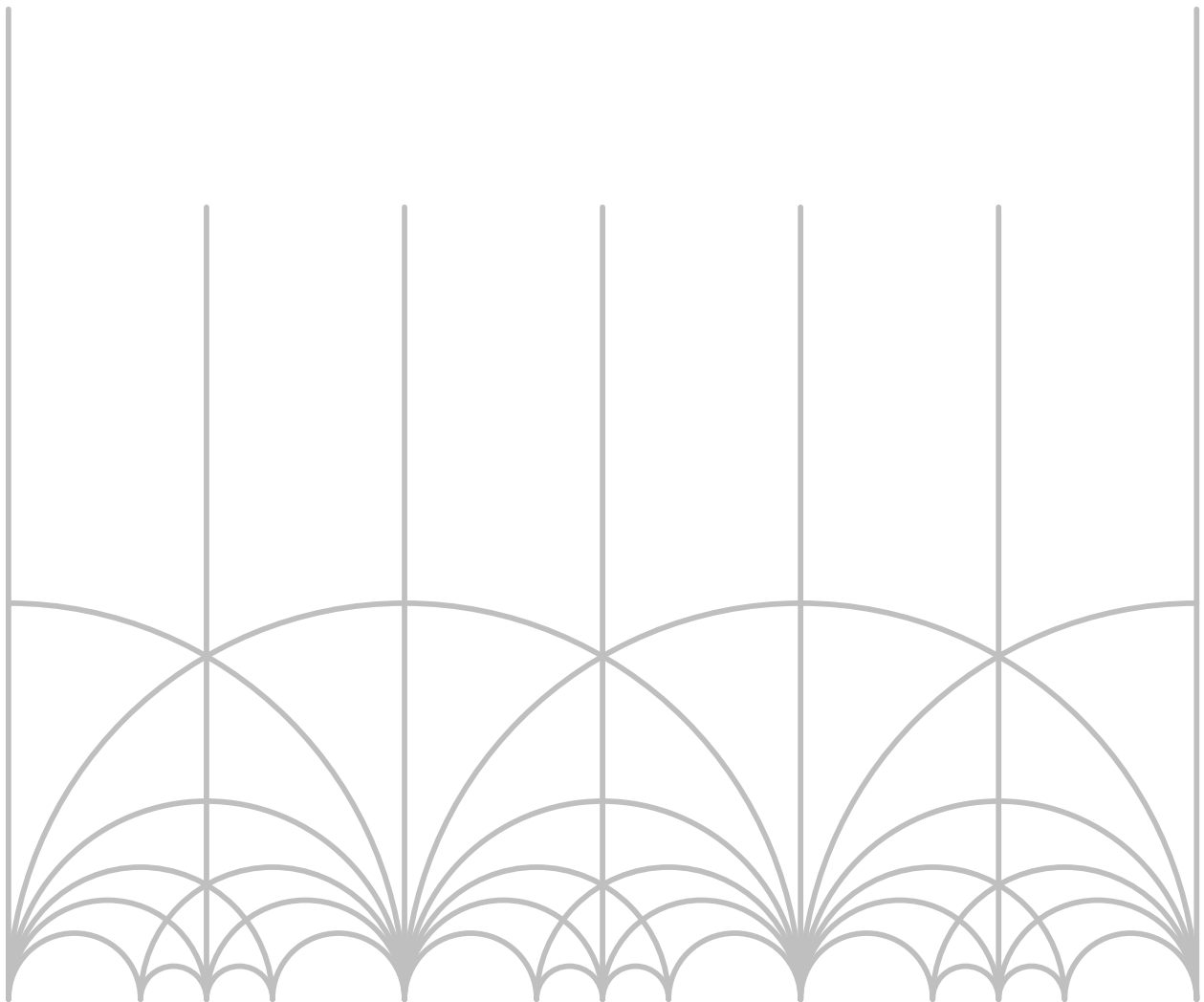
Mathematics Department Paperwork. The Department keeps record of the progress of each student. This paperwork is necessary for both the Graduate College and for the Department. You should make every effort to ensure that the Department has a complete set of records of your progress. In particular

- Please make sure that you turn paperwork (signed advising forms, surveys, copies of any forms that you submit to the Graduate College) into the Department's Assistant to the Graduate Directors in a timely fashion.
- Make sure that you keep the Assistant to the Graduate Directors informed of the schedules and results of any attempts that you make at English Language Examinations (International Students only) and the Foreign Language Proficiency Examination. There is a simple form that you fill out in the Department before taking each test.
- Also please provide the Assistant to the Graduate Directors with copies of any administrative communications you may have with the Graduate Directors, your Advisor, or the Graduate College. This can be as simple as ensuring that the Assistant to the Graduate Directors is copied on appropriate emails or letters.

English Language Qualification. (For International Students)

1. The majority of graduate student support is in the form of teaching assistantships. The University requires that teaching assistants be fully language qualified before they can teach classes.
2. International students should work hard to become fully language qualified by the end of their first year.
3. Please refer to Section [11](#) for details on the Department's expectations, and for a description of the steps involved in English language qualification.

MA/PhD Overview and Graduation Requirements



4 MA/PhD Overview and Graduation Requirements

4.1 Overview: a typical PhD schedule

Here is a typical PhD schedule for a student entering the program with a Bachelor's degree. The time is allotted as follows: approximately two years for the **Qualifying Examinations** (steps 1 and 2); two more years for the **General Examination** (steps 3, 4 and 5); and approximately two years for the **Thesis** (steps 6 and 7). The total is 6 years. Some students who have a strong mathematical background pass the Qualifying Examinations in one year, and may progress through the program in 5 years.

Qualifying Examinations. [Approximately 2 years]

1. Become English Language Qualified. (concerns International Students only)
2. Take and pass the **Qualifying Examinations**.

General Examinations. [2 years]

3. Get a **PhD Advisor** and form a **PhD Committee**. Have **Advisory Conference** with Committee.
4. Pass the **Foreign Language Proficiency Examination**.
(traditional PhD students)
or
IRB training. (RUME students)
5. Take and pass the **General Examination**.

Dissertation. [Approximately 2 years]

6. Thesis Research.
7. Write up, defend and submit thesis.

Why do we give an approximate time interval for the Qualifying Examinations? In practice, depending on the student's background, this step can take anywhere from one to three years.

Students who have taken graduate classes prior to attending OU may pass the Qualifying Examinations within their first year, and are on track for a 5 year PhD. Indeed, such students are encouraged to take the "free shot" attempts at the Qualifying Examinations immediately upon entering the program. These examinations are held one week before class starts in the Fall semester.

Other students may need an extra (third) year to fully prepare for the Qualifying Examinations. Note that the Graduate College requires that a student with a bachelor's degree pass the General Examinations within 5 years of entering the doctoral program. Therefore students who take 3 years to complete the Qualifying Examinations should try to take a 2-semester course during these 3 years which can be used in their General Examinations.

4.2 Graduation Requirements for the PhD (Traditional)

Here is the quick list of requirements for the PhD degree in Mathematics.

1. 90 hours post-baccalaureate course work.
2. Take and pass all three Qualifying Examinations.
3. Obtain PhD Advisor and Advisory Committee. Hold PhD Advisory Conference.
4. Demonstrate reading proficiency in one foreign language.
5. Pass the PhD General Examination.
6. Write, defend and submit dissertation.

Now we give a more detailed description of these requirements.

1. **Hours.** The Graduate College requires that the student perform 90 hours post-baccalaureate course work. It is normal for some of these hours to have been used for the Master's Degree. Students with a master's degree from another institution may be able to transfer credits for some coursework taken. Coursework beyond the Master's level is usually determined at the time of the student's Advisory Conference, but it must include 5000-6000 level courses as follows:
 - (a) 12 hours (including seminars) in one of the major areas of mathematics,
 - (b) sequences of two 3-hour courses in each of two other areas.
2. **Qualifying Examinations.** Students must pass each of the Qualifying Examinations in Algebra, Analysis and Topology. These examinations are based on the three 2-semester *core courses*:
 - Abstract Algebra I and II, MATH 5353 and MATH 5363
 - Real Analysis I and II, MATH 5453 and MATH 5463
 - Topology I and II, MATH 5853 and MATH 5863.

The Qualifying Examinations are given twice per year; first in May, and again in August. There are copies of previous examinations and some syllabi on the Department's Graduate Student web page, and in the office of the Assistant to the Graduate Directors.

We now describe two common scenarios for students taking the core courses. Full time students must register for at least six hours. Students who have passed one or more of the "free shot" attempts at the Qualifying Examinations on entering the program, should be able to pass the remaining examinations by the end of their first year. Students who receive fellowships which enable them to take 9 credits per semester should strive to accelerate through the core courses.

- (a) Two Year Scenario.
 - **First Year.** *Fall:* Two of the three core courses, possible electives.
Spring: Continuation of the two core courses, possible elective.
 - **Second Year.** *Fall:* The third core course, electives (chosen with a view toward topics for the General Examination).
Spring: Continuation of core course, electives.
- (b) Three Year Scenario.

- **First Year.** *Fall:* Higher Algebra I (MATH 4323). Introduction to Analysis (MATH 4433).
Spring: Higher Algebra II (MATH 4433). Introduction to Analysis II (MATH 4443), or Introduction to Topology (MATH 4853).
- **Second and Third Years.** Same as First and Second years in 2(a) above.

If you follow the 3 year scenario, you should be aware that the Graduate College requires that students complete the General Examination within 5 years of entering the graduate program.

3. **PhD Advisor, PhD Committee and the PhD Advisory Conference.** Soon after passing the Qualifying Examinations the student should obtain a PhD Advisor and form a PhD Advisory Committee. Please refer to [Appendix 2](#) for suggestions from previous students.

- (a) How does one find a **PhD Advisor**? More appropriately, how do the Advisor and Advisee find each other?

Your first objective is to determine an area of mathematics that interests you. This may be a tough thing to do, especially if you are focused on taking Qualifying courses and on passing the Qualifying Examinations.

What are good things to do?

Find out which portions of the Qualifying courses interest you the most. Are there any portions for which you seem to have a natural aptitude? Are there portions that really don't interest you?

Talk to more senior students, attend the student run seminars and see what kinds of research more senior students are doing, audit more advanced courses in the last year of the Qualifying sequence, take some reading courses with several professors while you are still taking the Qualifying sequence (a 1 credit hour reading course can be taken in addition to the usual 6 credit hour load).

Of all these suggestions, taking directed reading courses and attending seminars are the two that are closest to some of the day-to-day activities involved in independent research. Furthermore, a reading course is a great way for the faculty member and student to get to know each other. When you finally do ask a professor if he/she is interested in serving as your Advisor, the professor will have some information on which to base his/her decision.

- (b) The **PhD Advisory Committee.** You should form a PhD Advisory Committee, comprised of your PhD Advisor (who will chair the committee), three other members of the Mathematics Department, and one outside member.

Typically, three of your committee members are the people who will set the three written examinations in your General Examination. The fourth department member and the outside member are usually there to offer some balance and perspective.

- (c) The Committee and the student should hold an **Advisory Conference.**

The purpose of this conference is to discuss the student's plans and to approve a complete program of courses, readings, seminars, etc.; thus it should be held relatively early so that it does not become an ex post facto approval of completed coursework.

There is formal paperwork, the [PhD Advisory Conference Report](#), that accompanies this process, and which must be submitted to the Graduate College (with copies sent to the Mathematics Department). The student's program of study (past and planned) should be outlined in detail (including specifying a number of dissertation hours) on this report. Talk to post-Advisory Conference students to see how they filled out their reports. The following points may be helpful for listing proposed coursework in your Advisory Conference Report.

- You can enroll in the department research seminars (Analysis, Algebra, Geometry and Topology, RUME) for one credit hour per semester (two credit hours if you are presenting in the seminar that semester). By convention a seminar will run as a 5000 number in the Fall, and as a 6000 number in the Spring.
 - Topics courses will be numbered similarly. A topics course will typically run as a 5000 level course in the Fall semester and a 6000 level course in the Spring semester.
4. **Reading Proficiency in a Foreign Language.** Each student should demonstrate reading proficiency in a foreign language as decided by the Advisory Committee. This should be done before the General Examination. Talk to your PhD Advisor about this.
 5. **General Examination.** The examination is both written and oral. It tests the candidate over four major areas of mathematics. The areas and content for the examinations must be determined, and the examinations completed, at least seven months prior to Commencement. The General Examination is usually taken during the second year of full-time post-master's study or its equivalent.

A typical General Examination might consist of the following:

- The student presents one or two seminar talks to faculty and peers in the Department's research seminars. These talks should be based on course work in an area that is distinct from those of the three 2-semester sequences below.
 - The student takes three written examinations, each based on 2-semester course sequences.
 - The student takes an oral examination. The broad scope of the examination is usually agreed upon by the student and the Advisory Committee. The written examinations above are often used as a source for talking points in the oral examination.
6. **Dissertation.** A written thesis representing an original contribution to mathematical knowledge must be completed and defended orally.

Some students find that they want to submit their written dissertation to the University library over the summer semester in their last year. Note that you can defend your thesis in the Spring semester, partake in the hooding ceremony in commencement at the end of Spring semester, and submit your written thesis to the library during the summer. If you do this, you should remember to submit your written dissertation within 60 days of defending. You must enroll in the minimum of 2 dissertation credit hours over the summer semester. You will be responsible for fees and for resident tuition. The Graduate College should be able to provide a non-resident tuition waiver to eligible candidates for summer enrollment hours.

4.3 Graduation Requirements for the PhD (RUME Option)

Here is the quick list of requirements for the PhD degree in Mathematics, Research in Undergraduate Mathematics Education option.

1. 90 hours post-baccalaureate course work.
2. Take and pass all three Qualifying Examinations.
3. Obtain PhD Advisor and Advisory Committee. Hold PhD Advisory Conference.
4. Complete IRB training.
5. Pass the PhD General Examination.
6. Write, defend and submit dissertation.

Now we give a more detailed description of these requirements.

1. **Hours.** The Graduate College requires that the student perform 90 hours post-baccalaureate course work. It is normal for some of these hours to have been used for the Master's Degree. Students with a master's degree from another institution may be able to transfer credits for some coursework taken. Coursework beyond the Master's level is usually determined at the time of the student's Advisory Conference, but it must include 5000-6000 level courses as follows:
 - (a) 18 hours of mathematics (not mathematics education) courses (excluding courses used for the qualifying examinations), at least two of which must be a sequence and at least two of which must be at the 6000 level,
 - (b) 27 hours of mathematics education courses, including research methods (e.g., statistics, qualitative methods), courses in curriculum and pedagogy, and seminars.
2. **Qualifying Examinations.** This requirement is the same as for the traditional Ph.D. option (see Section 4.2).
3. **PhD Advisor, PhD Committee and the PhD Advisory Conference.** This requirement is the same as for the traditional Ph.D. option (see Section 4.2).
4. **IRB Training.** The federal government requires that certain regulations be followed in the conduct of research with human subjects. The University of Oklahoma Office of Compliance thus requires that all researchers involved in human subjects research complete a training activity, which can be completed at any time, but which must be completed before the researcher is involved in any research activity. Instructions for the training can be found at the OU Institutional Review Board website. The training must be updated annually.
5. **General Examination.** The examination is both written and oral. It tests the candidate over two areas of mathematics (four courses total) and three areas of mathematics education (research methods and curriculum and pedagogy). The areas and content of the examinations must be determined, and the examinations taken at least seven months prior to Commencement. The General Examination is usually taken during the second year of full-time- post-master's study or its equivalent.

A typical General Examination might consist of the following:

- Written examinations in two areas of mathematics (four courses total).

- A written examination in statistics or qualitative research methods.
 - A written examination in an area of curriculum and/or pedagogy.
 - A prospectus for the dissertation or a paper published in a journal or research conference proceedings or a review of a paper submitted for publication to a research journal.
 - The student takes an oral examination. The broad scope of the examination is usually agreed upon by the student and the Advisory Committee. The written examinations above are often used as a source for talking points in the oral examination.
6. **Dissertation.** A dissertation representing an original contribution to research in undergraduate mathematics education must be completed and defended orally. The doctoral program will include at most fifteen hours of Math 6980, Dissertation Research. See also the remarks under this topic in Section 4.2.

4.4 Graduation Requirements for the MA

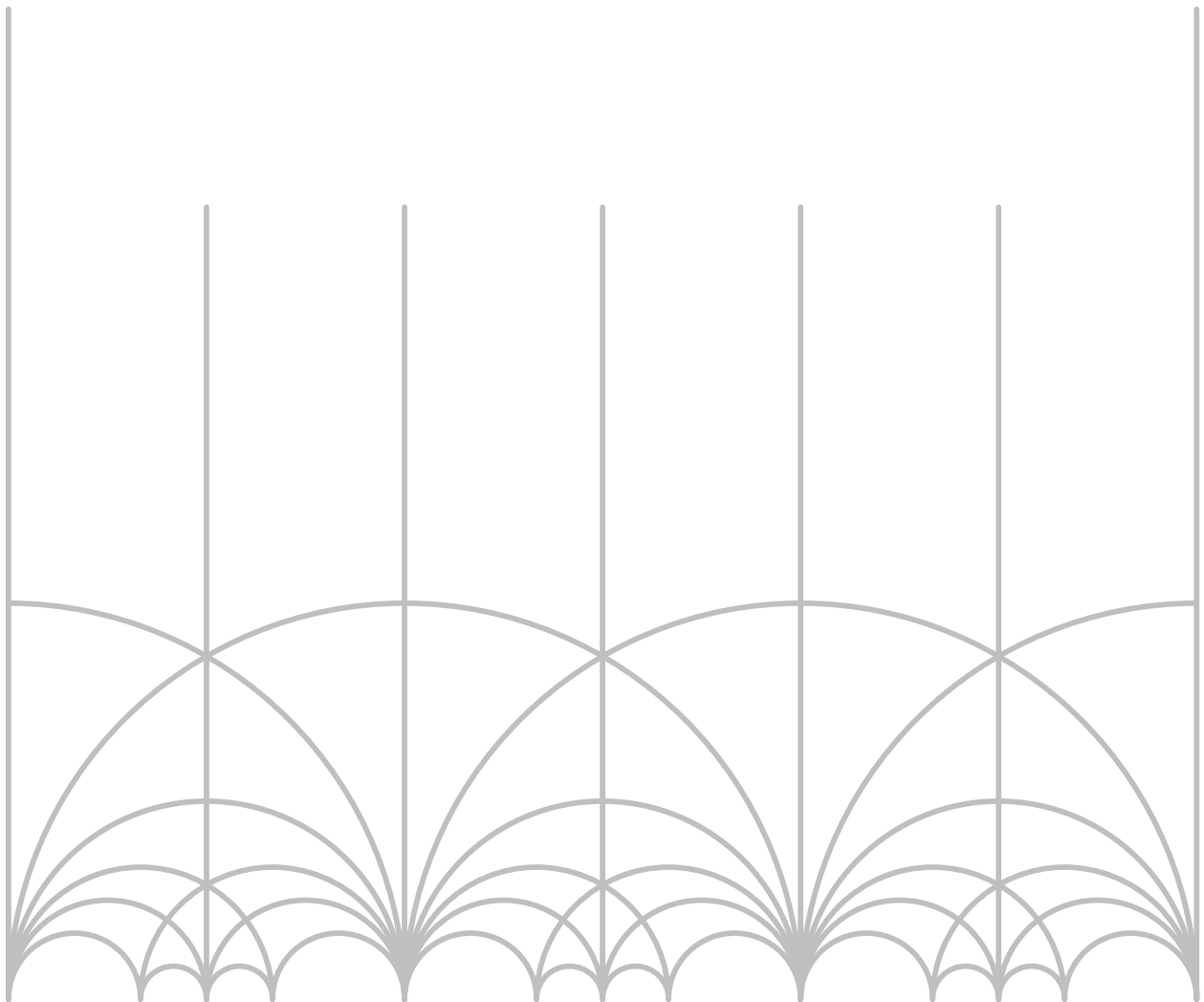
Most students enroll in the PhD program, and obtain the MA degree upon successful completion of the **PhD General Examination**. Some doctoral students find it useful to obtain a masters degree before their general examination. Here is the list of requirements for an MA degree in Mathematics.

1. 32 hours of approved graduate level coursework.
2. At least five of the six *core courses*. The *core courses* are
 - Abstract Algebra I and II, MATH 5353 and MATH 5363
 - Real Analysis I and II, MATH 5453 and MATH 5463
 - Topology I and II, MATH 5853 and MATH 5863.

If not all of the three year long sequences above are taken, then the student may substitute another sequence approved by the Graduate Director.

3. Pass written exams (grade B or higher) in five of the six courses in the three year-long sequences in 2 above.
4. Take and pass a **Comprehensive Examination** based on the material from the three core courses; Algebra, Analysis and Topology. The Comprehensive Examination is an oral examination administered by three faculty members, typically one faculty member per core course topic.

MS Overview and Graduation Requirements



5 MS Overview and Graduation Requirements

5.1 Introduction

The Master of Science (M.S.) program is offered by the mathematics department for students who want to pursue studies in mathematics beyond the undergraduate level, but who do not plan to obtain a doctorate in mathematics. Recent graduates of the M.S. program have gone on to careers as actuaries, statistical analysts, and software engineers. Others have become mathematics teachers in settings ranging from middle school to two- year and four-year colleges. Still others have gone on to obtain doctorates and academic positions in other fields besides mathematics, such as economics, mathematics education, and computer science. The M.S. students program of study is governed by two sets of guidelines: those set up by the mathematics department for this particular degree, and those set up by the Graduate College for its masters degrees in general. This document is mainly concerned with the mathematics department guidelines, but a few of the more important Graduate College guidelines are included at the end as reminders to the student.

5.2 Course Requirements and Restrictions

1. A total of 32 hours of course work is required for the M.S. degree.
2. No course below the 4000 level may be applied to the degree.
3. A maximum of 12 hours of 4000-level course work may be applied to the degree, and this total may not include more than 9 hours of 4000-level mathematics courses.
4. No more than 9 hours of course work outside the Mathematics department may be applied to the degree.

5.3 Core Requirements

The following courses are required for the degree. Note that the lists of courses which can satisfy each requirement do overlap. Thus, for example, MATH 4073 could be used to fulfill either the Numerical Methods requirement or one of the Applied Mathematics requirements. However, a single course cannot be used to fulfill two different requirements.

1. **Statistics.** One 3-hour statistics course beyond the introductory level. Typical choices might be MATH 5743 (Introduction to Mathematical Statistics) or MATH 4753 (Applied Statistical Methods).
2. **Numerical Analysis or Computer Science.** One 3-hour course in either numerical analysis or computer science. A typical course for this requirement would be MATH 4073 (Numerical Analysis I). Alternatively, a student could take MATH 5173 (Advanced Numerical Analysis I) if the student has had some prior course work in numerical analysis. If the student has a strong undergraduate background in computer science then he or she could take any 4000- or 5000-level course from the Computer Science Department.
3. **Mathematical Models.** The course for this requirement is MATH 5103.
4. **Abstract Mathematics.** Two three-hour courses. The following is a sample list of acceptable courses. Any two courses would be acceptable (they need not form a sequence).

MATH 4103 (Introduction to Functions of a Complex Variable)

MATH 4163 (Introduction to Partial Differential Equations)

MATH 4333 (Introduction to Abstract Algebra II)
 MATH 4853 (Introduction to Topology)
 MATH 5163 (Partial Differential Equations)
 MATH 5303 (Topics in Group Theory)
 MATH 5333 (Topics in Number Theory)
 MATH 5353 (Abstract Algebra I)
 MATH 5363 (Abstract Algebra II)
 MATH 5373 (Abstract Linear Algebra)
 MATH 5383 (Applied Modern Algebra)
 MATH 5403 (Calculus of Variations)
 MATH 5423 (Complex Analysis I)
 MATH 5433 (Complex Analysis II)
 MATH 5443 (Introduction to Analysis II)
 MATH 5483 (Wavelets)
 MATH 5623 (Convexity Theory I)
 MATH 5633 (Convexity Theory II)
 MATH 5653 (Introduction to Differential Geometry I)
 MATH 5663 (Introduction to Differential Geometry II)
 MATH 5673 (Graph Theory I)
 MATH 5683 (Graph Theory II)
 MATH 5693 (Topics in Geometry and Combinatorics I)
 MATH 5853 (Topology I)
 MATH 5863 (Topology II)
 Any mathematics course at the 6000 level.

5. **Applied Mathematics.** Two three-hour courses. The following is a sample list of acceptable courses (again the courses need not form a sequence).

MATH 4073 (Numerical Analysis I)
 MATH 4083 (Numerical Analysis II)
 MATH 4103 (Introduction to Functions of a Complex Variable)
 MATH 4163 (Introduction to Partial Differential Equations)
 MATH 4733 (Mathematical Theory of Probability)
 MATH 4753 (Applied Statistical Methods)
 MATH 5113 (Topics in Applied Mathematics)
 MATH 5163 (Partial Differential Equations)
 MATH 5173 (Advanced Numerical Analysis I)
 MATH 5183 (Advanced Numerical Analysis II)
 MATH 5333 (Topics in Number Theory)
 MATH 5373 (Abstract Linear Algebra)
 MATH 5383 (Applied Modern Algebra)
 MATH 5403 (Calculus of Variations)
 MATH 5423 (Complex Analysis I)
 MATH 5433 (Complex Analysis II)
 MATH 5483 (Wavelets)
 MATH 5623 (Convexity Theory I)
 MATH 5633 (Convexity Theory II)
 MATH 5673 (Graph Theory I)
 MATH 5683 (Graph Theory II)
 MATH 5743 (Introduction to Mathematical Statistics)

MATH 5763 (Introduction to Stochastic Processes)
MATH 5773 (Applied Regression Analysis)
MATH 5783 (Topics in Mathematical Statistics)
MATH 5793 (Advanced Applied Statistics)
MATH 6443 (Topics in Differential Equations)
MATH 6473 (Functional Analysis I)
MATH 6483 (Functional Analysis II)

6. **Outside Courses.** (This requirement does not apply to students taking the Mathematics Education option.) Two 3-hour courses taken from outside the Mathematics Department that use some mathematics at the level of Calculus or higher. Whether a course is suitable may depend on the individual student's background. Here are some courses students have taken in recent years:

CS 4413 (Algorithm Analysis)
CS 5053 (Computer Graphics)
ECON 4223 (Econometric Analysis)
ECON 5023 (Statistics for Decision Making)
ECON 5153 (Mathematical Economics I)
IE 5523 (Applied Probabilistic Models in Industrial Engineering)
IE 5623 (Linear Programming)
E 5653 (Engineering Network Flow Analysis).
PHY 5813 (Atomic and Molecular Physics)
PSY 5003 (Psychological Statistics I)
ZOO 5413 (Community Ecology)

7. (Mathematics Education option only) **Directed Reading/Independent Study.** One 3-hour directed reading or independent study course in mathematics education. A thesis is not required for the M.S. degree. However, the student may choose to do a thesis under the supervision of a consenting faculty member for a maximum of 2 hours credit.

5.4 Comprehensive Examination

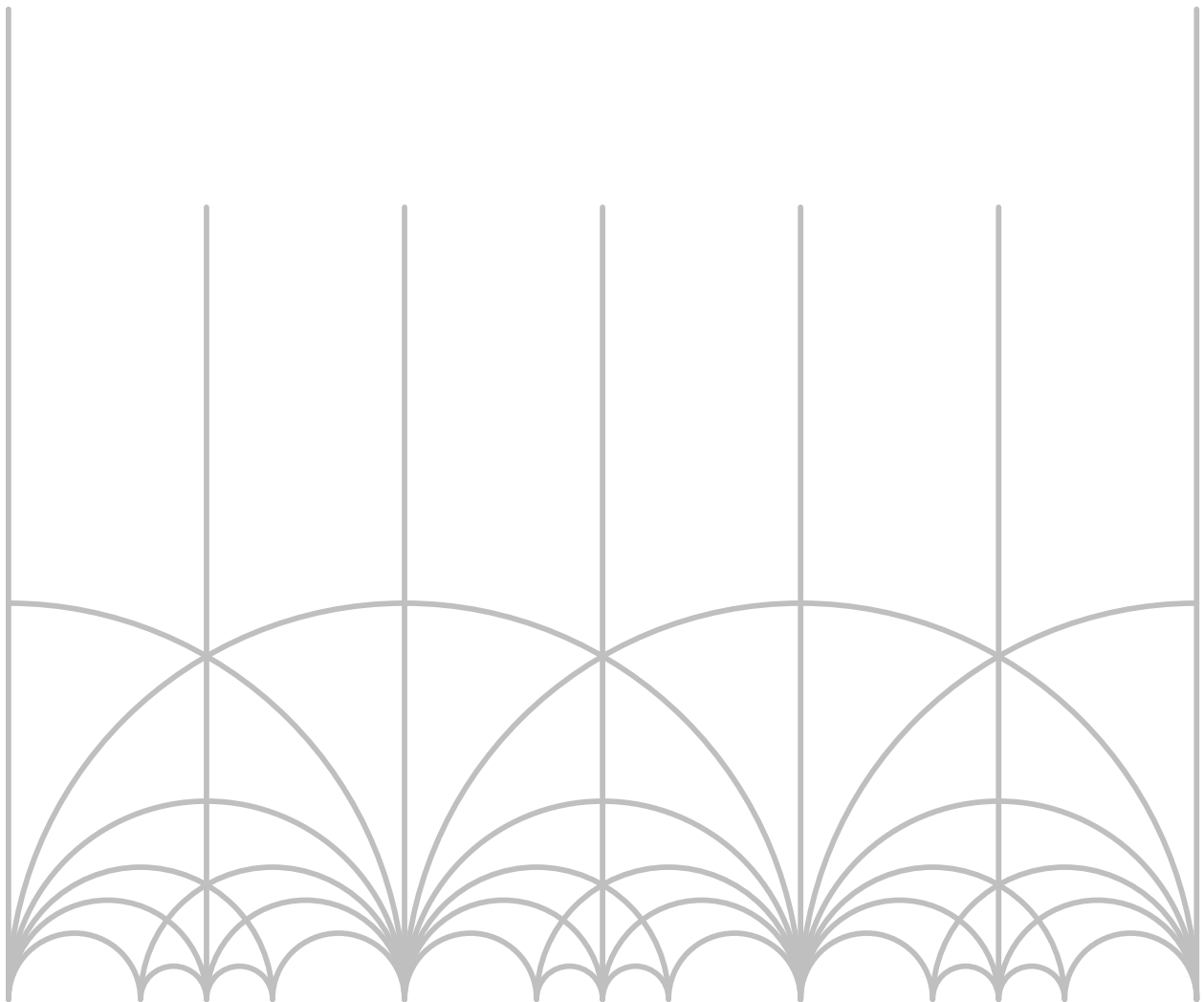
Each student must pass a comprehensive examination, normally taken during his or her last semester of study. (a) The comprehensive exam will be offered at most once in any given semester. The dates of the exam will be determined by the Applied Math Committee in consultation with the students involved. (b) The comprehensive exam will consist of five exams based on five mathematics courses from the student's degree program (no courses from outside the Mathematics Department can be used). Each exam will be two hours long. (c) The exam on each course will, if possible, be prepared by the faculty member who taught the student the course. Since many faculty members are away during the summer, students who plan to take the comprehensive exam in the summer should make initial arrangements for the exam in the preceding spring semester. In any case, to allow ample time for planning it is recommended that students inform the Applied Math Committee of their intention to take the comprehensive exam in the semester prior to the one in which they take the exam. (d) The choice of the five courses that the exams cover is made by the student, but is subject to the approval of the Applied Math Committee. The selection of courses must conform to the following guidelines: (i) At least three of the courses must be at the 5000 level or higher. (ii) At least one course must be an abstract course (see above list). (iii) At least one course must be in either probability/statistics or numerical analysis.

5.5 Some Graduate College Policies and Procedures

A selected few of the Graduate Colleges policies and procedures regarding masters programs are summarized below. The student is strongly recommended to consult the Graduate College Bulletin for a complete list.

- Graduate credit for work successfully completed at the University of Oklahoma is allowed only for courses listed in the course catalog with a G before the course number.
- Whether a particular course is acceptable as credit toward the degree on which the student is working is determined by the academic unit and/or advisory committee and the Graduate Dean.
- Graduate courses taken at other universities may be used as transfer credit towards the M.S. program if they have not been used as credit towards any other degree. Credit can not be more than five years old at the time the student is admitted to the degree program. Transfer credit has to be evaluated by the Office of Admissions and Records and approved by the Graduate College.
- Whether a student's coursework meets the Mathematics Department and Graduate College requirements will be checked by the Graduate College when the student submits his or her Admission to Candidacy form. This is a form containing a list of of all the courses the student will have taken by the time he or she completes the degree. This form must be filed well in advance of the semester in which students plan to take their comprehensive exam. The exact deadlines are: first Monday in October for students taking their exam in the spring, first Monday in March for students taking their exam in the summer, and first Monday in April for students planning to take their exam in the fall.
- The Graduate College also requires an Authority Report Form for each student planning to take a comprehensive exam. This form will be obtained for the student by the Applied Math Committee. In order to be authorized to take the comprehensive exam, the student must have completed all of his or her core courses, and 75% of his or her total coursework, by the end of the semester in which the exam is to be taken.
- A student must be enrolled in at least two hours of graduate credit during the semester in which the comprehensive examination is taken.
- Students intending to graduate in a semester should file an Application for Graduation in that semester by the deadline listed in the University's academic calendar.

Academic Progress



6 Academic Progress

In this section we describe the standards of academic performance expected of graduate students. We list the departmental procedures which help ensure that students maintain acceptable academic performance, and maintain steady progress toward the degree sought.

1. Standards of Academic Performance.

After initial enrollment, a graduate student is expected to maintain academic standards set by the department and to make reasonable progress towards the degree sought. These standards include enrollment requirements, grade requirements, taking appropriate courses and number of hours, and meeting degree requirements in a timely manner.

The Graduate Director is responsible for monitoring the students' academic performance and progress toward the desired degree. In the case of a student who has formed a PhD advisory committee, the student's PhD advisor is responsible for monitoring the student's academic performance and progress, and reporting to the Graduate Director.

Usually, concerns about matters of academic performance and progress will be discussed at the request of the Graduate Director. In addition, discussions concerning progress and performance may be initiated by graduate students by making an appointment with the Graduate Director.

Each year the Graduate Director prepares a letter for each graduate student evaluating the progress and performance of that student. This letter is placed in the student's departmental file. In case of a lack of progress, a copy of this letter is also sent to the Graduate College. In case of continued lack of progress, a graduate student may be placed on probation and eventually dropped from graduate studies at the University.

2. Enrollment Requirements.

A graduate assistant who is teaching six hours or any other graduate student employed by the University on a half-time basis, should enroll in not more than twelve semester hours of coursework per semester. A graduate assistant is expected to take a minimum of six hours per semester. Summer appointments require a minimum enrollment of three hours.

3. Satisfactory Achievement and Progress in Courses.

All graduate assistant appointments are contingent upon the recipients making satisfactory progress toward a degree. In general, this is interpreted to mean completing at least six hours of work per semester with an average of B or better in all work taken. It is better to make three hours of As and three hours of Bs than nine hours of Bs.

4. Satisfactory Progress Toward Degree Completion.

In addition to maintaining at least minimum course enrollments and satisfactory grades, satisfactory progress towards degree completion requires that a graduate student

- (a) take the specific courses required for the degree in a timely manner;
- (b) prepare for and take required examinations (qualifying examinations, comprehensive examinations, general examinations, etc.) at a pace acceptable to the Graduate Committee and the Graduate Director.

In addition, doctoral students are required:

- (c) to form an advisory committee and have its first meeting at the earliest feasible time;

- (d) to make reasonable progress in dissertation research. These elements of satisfactory progress will be determined by the dissertation advisor. They will be monitored under the supervision of the Graduate Director. Each year the Graduate Director will prepare an annual statement of progress for submission to the Graduate College.

5. Program and Course Advisement.

Prior to enrolling each semester, graduate students will need to contact the appropriate Graduate Liaison to be advised on course enrollments for that semester. The Graduate Director serves as advisor for doctoral students who do not yet have a dissertation advisor and for all M.A. students. The Graduate Liaison for M.S. students serves as advisor for all students seeking the M.S. degree.

Once a dissertation advisor is found and a PhD Advisory Committee is formed, doctoral students should consult regularly with their dissertation advisor and their Advisory Committee as requested by their dissertation advisor.

6. Auditing.

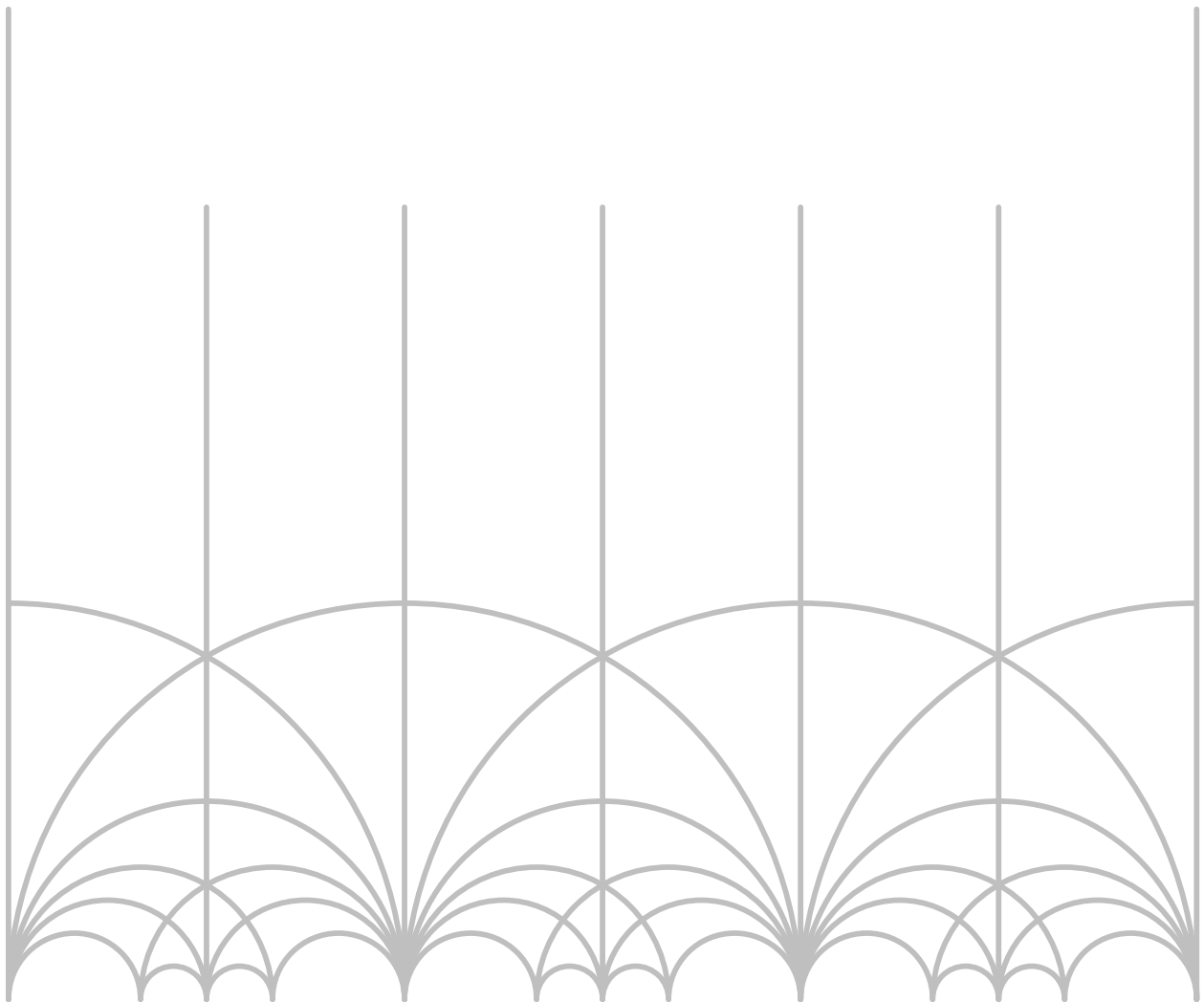
In some cases a graduate student may further his or her preparation for certain courses and examinations informally by auditing a course rather than formally enrolling in a course. Auditing courses does not help to satisfy minimum enrollment requirements. Further, such auditing may not be useful in pursuing a student's degree program. Thus the choice to audit a course should be decided upon in consultation with the appropriate course advisor or the Graduate Director.

Enrollment as an auditor is permitted in all courses subject to the approval of the instructor in the course and the dean of the college in which the course is offered. Enrollment as an auditor in a course may be completed only between the first day of classes and the last day permitted for late enrollment for credit. Fees for enrollment as an auditor are the same as fees for enrollment for credit.

7. Enrollment in Research Courses.

After the initial enrollment in Math 5980 (Research for Masters Thesis) the student must be enrolled each regular semester in at least two hours of Math 5980. The same rule applies to Math 6980 (Research for Doctoral Thesis). Students who complete and submit their dissertation over the summer semester are required to enroll in the appropriate 2-hour minimum research course.

Life as a Graduate Student



7 Life as a Graduate Student

What will your day-to-day life be like as a graduate student at OU? The Mathematics Graduate Students Association (MGSA) will help you get settled into life at OU and in Norman. The mission statement of the MGSA and a list of its activities is provided below. We also list some “good practices” at various stages of the graduate program.

7.1 The Mathematics Graduate Students Association, MGSA

The MGSA is an association for the graduate students of the Department of Mathematics. The membership to this association is open to all graduate students of the Department of Mathematics.

1. Mission statement.

The purpose of MGSA is

- (a) To further the academic and professional development of OU mathematics graduate students.
- (b) To have a working relationship with the mathematics department and other administrative bodies of OU.
- (c) To coordinate social activities such as picnics and game nights.
- (d) To help the new graduate students progress towards their MA, MS and PhD degrees.
- (e) To interact with the OU undergraduate Math club.

2. Activities.

- (a) MGSA coordinates the student-run seminars, and maintains an archive of past seminars. These include
 - i. the [Graduate Student Monday Seminar](#)
 - ii. the [Student Algebra Seminar](#)
 - iii. the [Student Analysis Seminar](#)
 - iv. the [Student Topology and Geometry Seminar](#)
- (b) MGSA organizes the weekly “Tuesday Tea” at 3:30pm in PHSC 424.

3. The MGSA web-page.

This [MGSA web-page](#) contains information of use to mathematics graduate students: LaTeX resources, archive of student-run seminars, housing and other information for new students, list of events etc.

7.2 Good Practices for the Qualifying Examinations

1. If you have taken some equivalent version of a Qualifier course in your previous institution, you should definitely take the “free shot” attempt at the corresponding Qualifying Examination. It does not cost you anything (a low score on the free shot attempt is not recorded on your transcript), and if you are successful, you are well set up for passing all three qualifying examinations by the end of your first year.
2. Unless you are advised otherwise, you should attempt to take two qualifier courses in the first year, and one in the second. Many students find that the Algebra and Analysis courses are good preparation for the Topology course, so taking the Topology course in the second year is a typical strategy.

3. If you can, take more advanced courses in last year of the qualifier courses. Take courses with a view towards focusing your research interests.
4. It is generally good practice to take qualifying exams in May at the end of the appropriate qualifying courses. You can then repeat an examination in August if necessary.

Note that if you postpone your first attempt at a qualifying examination until the August after you take the course, and are not successful in this attempt, then your second attempt will be taken with a different professor (and possibly with a somewhat different syllabus).

7.3 Good Practices for the General Examination

In Spring 2007 we distributed a survey to graduate students who had been through the General Examinations, asking them about their knowledge of the various stages (and approximate times taken) leading the General Examinations. We also asked them to recommend “good practices” — things they did (or wished they had done!) which helped them through the General Examinations. We summarize these comments here for your benefit. Please refer to [Appendix 2](#) for a detailed description of the survey and the results.

1. **Finding a research area and PhD Advisor.** Most students felt that it was important to take advanced (post-Qualifier) courses with professors, and also to take reading courses. Many felt that it was important to start doing this before completing the Qualifying Examinations.
2. **Seminar Talks.** These were regarded as being one of the harder components of the General Examination, but also the most rewarding. The general consensus was to practice as much as possible, and to start preparing earlier than you think is necessary! Students found that giving versions of their talks in the graduate student seminars to be very valuable.
3. **Written Examinations.** Prepare! Early, often, with peers if possible. Focus mainly on homework and examinations in the relevant 2-semester courses. Schedule hardest examination first. Schedule examinations for the Fall, and use the summer to prepare. Practice **writing** answers/arguments, not just figuring things out in your head. Don’t strive for perfection in written examinations, you’ll get a chance to correct errors etc in oral examination.
4. **Oral Examination.** By a significant margin, students felt that listening carefully to faculty feedback on the written examinations was the best way to prepare for the oral examination. Some felt that giving talks in student seminars helped. Others got peers to ask them questions (mock oral exams). Try to get rest/relax.

7.4 Good Practices before Graduation

The single most important piece of advice here is to start preparing early for the job search. If you are hoping to start an academic job in the Fall semester after graduation, then you must start the application process very early in the previous Fall semester. This means that you should have all your application materials ready in polished, professional format: curriculum vitae, teaching statement, research statement, and a range of suitable cover letters. The first three of these documents take considerable time and effort, and ideally should be prepared in advance of the Fall semester in which you send out applications.

Here are some practices that you may want to think carefully about.

1. **Identify a career path as soon as you can.** Are you interested in working in industry or in academia? There are many opportunities for graduates in both areas. You should turn to your peers (MGSA),

faculty, and the graduate student seminar forum to learn about various career paths available to graduates with advanced degrees in mathematics. A good place to start is the Department's [Career Information for Mathematics Graduates](#) page.

2. **Maintain a professional web-page.** This should contain your vita, research and teaching statements. It can include links that reflect your professional interests.
3. **Attend the joint AMS-MAA meetings (in early January of your final year).** Attending does not simply mean booking travel and accommodation, and then simply showing up. You should prepare in advance to get the maximum out of this meeting. Are you interested in using the [Employment Center](#) facilities at the meeting? Read the Overview and Advice articles on the Employment Center web-page.
4. **Attend professional meetings/conferences.** Are there professional meetings in your field of study? Do these meetings offer important networking opportunities for new or soon-to-be graduates who are seeking employment?

For example, if you are looking for a post-doctoral position in a mathematics department after you graduate, then it is very important that you have research results, and that you give talks about them at professional meetings/conferences before the Fall semester in which you are sending out applications.

The Mathematics Department will provide some matching funds for travel to professional meetings for eligible students — see section [8.8](#) for details.

5. **Research Statement.** This should contain a summary of your research results, a description of your future research plans. You should try to put your research in context. How does it relate to existing major themes/results in mathematics?
6. **Teaching Statement.** This should contain a description of your teaching philosophy. It should highlight your teaching experience, and perhaps indicate how your experience shaped/shapes your philosophy.
7. **Teaching Portfolio.** A list of teaching awards/certificates, courses taught, special activities, research with undergraduates etc.
8. **Cover Letter.** Your cover letter may be extremely important. You should try to find examples of typical cover letters for the particular type of position that you are seeking.
9. **Thesis.** Write up thesis as ideas are generated. Don't leave all the writing until the end. A large percentage of your energy in your final year may be expended preparing job application materials, and then waiting to hear from prospective employers.
10. **Research paper.** Try to get a paper/preprint of your research ready, and to have it submitted before graduation.

7.5 Career Information for Mathematics Graduates

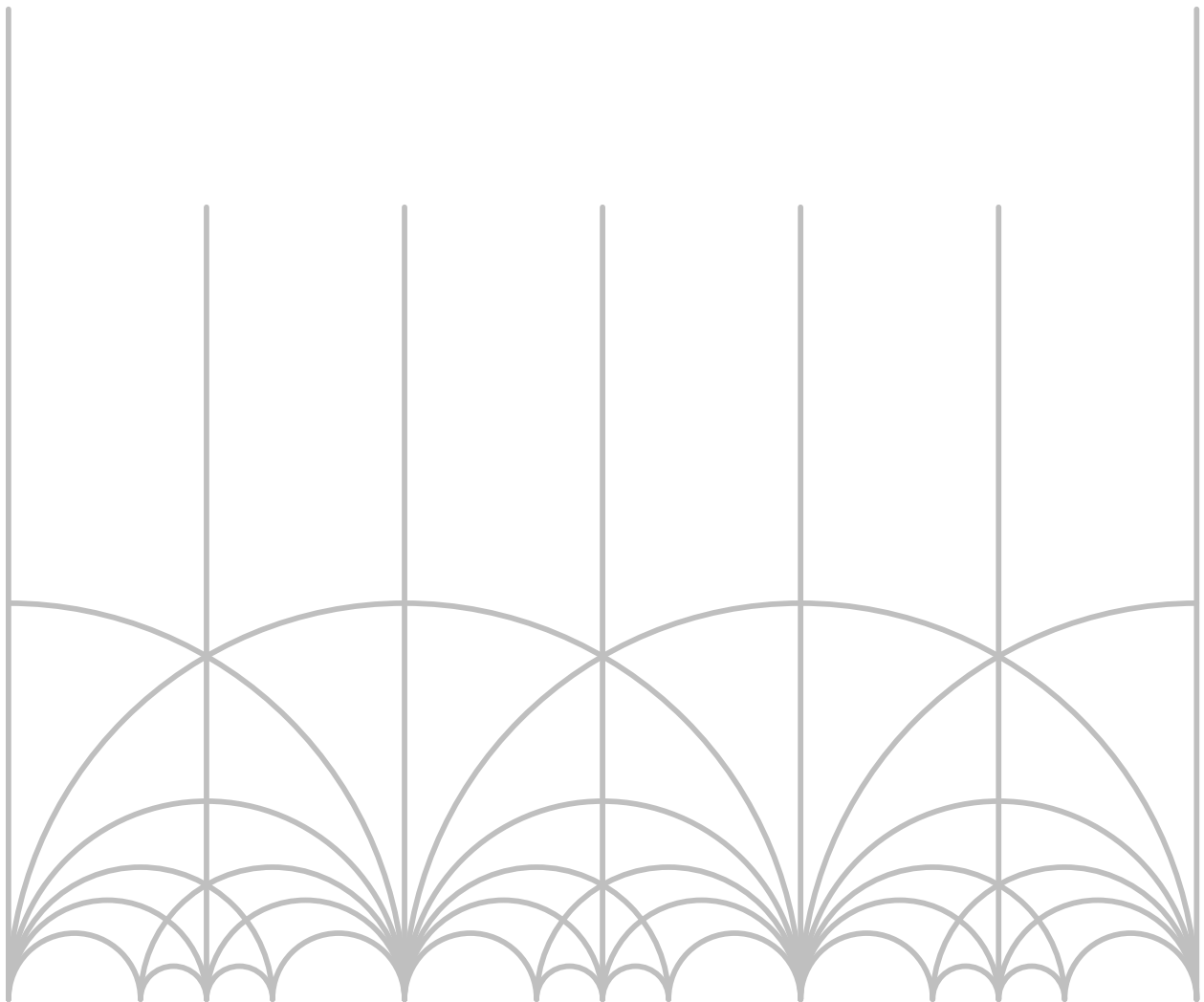
What can I do with a degree in mathematics? Do I need to get a masters or doctoral degree in order to embark on a particular career path?

You can find discussions of these questions, profiles of early career and established mathematicians, and many other career resources in the links below. Make sure to check these out early on in your degree program. Indeed, some of these links contain great resources for students as they progress through graduate school.

- The [SIAM Report on Mathematics in Industry](#). The Society for Industrial and Applied Mathematics has a comprehensive report on Mathematics in Industry. It includes some good suggestions for faculty and for students.
- The [SIAM Careers and Jobs page](#). Career resources for students and established mathematicians.
- [AMS: Mathematical Sciences Career Information](#). Resource page for non-academic employment.
- [AMS: Early Career Profiles](#). The American Mathematical Society has profiles of early career mathematics graduates (baccalaureate and masters).
- The AMS [Careers and Employment](#) page has great resources, including an excellent [Advice for New Ph.D.s](#) page. The latter contains a wealth of practical information and advice about academic and non-academic jobs. Be sure to visit this before starting your job search.
- [AWM Career Resources](#). The Association for Women in Mathematics has a great all round career resources page. This contains lots of links organized by category.
- [CaMeW](#) Wheaton Career Mentoring Workshop for women in final year of PhD program.
- [Sloan Career Cornerstone Center: Mathematics](#). Sloan Center has detailed brochures on careers in actuarial science, mathematics and statistics.
- [MAA: Student Careers](#). Career information for mathematics graduates from the Mathematical Association of America.
- [PhDs.org: Science, Math and Engineering Career Resources](#). Great general resource site for mathematicians and scientists. Includes topics like “Getting into Graduate School”, “Succeeding in Graduate School”, “Postdoctoral Life”, “Finding a Job”, “Career Guide for Scientists”, and “The Big Picture”.
- [YMN](#) The Young Mathematicians’ Network has many discussion forums, including ones on graduate life and on the job search process.
- [Mathjobs.org: Jobs for Mathematicians](#). Database of jobs for mathematicians. Contains a huge list of academic positions, and an online application process. This is the default site for academic jobs. It includes the [AMS Coversheet](#), and links to the [EIMS](#) job database.
- [Chronicle Careers](#). The Chronicle of Higher Education Career section has a searchable database of positions.
- [Cool Math - Careers in Mathematics](#).
- Terry Tao maintains a comprehensive [Career Advice](#) section on his blog. He offers advice at all levels; from primary school through post-doctoral level.
- John Baez’s [Advice for the Young Scientist](#) page has some excellent advice.
- The [OU Career Services](#) site has a wealth of career information for OU students.
- The Oklahoma [Greater Grads](#) resource center has information about internships and employment opportunities in Oklahoma.

You should also keep an eye on the talk schedules of the [OU Math Club](#) and the [Mathematics Graduate Students Association](#) (MGSA) (particularly the Graduate Student Seminar). These groups occasionally invite representatives from industry and academia to talk about career opportunities to OU mathematics students.

Financial Support



8 Financial Support

In this section we list the various forms of support that are available to graduate students in mathematics. These include graduate teaching and research assistantships, tuition waivers and health benefits, graduate summer assistantships, and miscellaneous awards and scholarships. We describe criteria used in the determination of graduate summer assistantships.

The final section concerns sources of travel support for graduate students. The Mathematics Department expects students to apply to several sources for travel funds. We list numerous possible sources here for your convenience.

8.1 Graduate Teaching Assistantships

Most students are employed as Graduate Teaching Assistants while earning their degrees. As a new Graduate Teaching Assistant, your transition into the role of educator will be facilitated by a lighter load in your first year, and by your participation in our graduate teaching seminar. Other Graduate Teaching Assistant duties include grading, working in the Mathematics Help Center, and assisting in multi-section courses.

During the 2007-08 academic year, stipends for Graduate Teaching Assistants who were fully English language qualified to teach ranged from \$14,700 to \$15,870. Stipends for Graduate Teaching Assistants who were not fully English language qualified to teach started at \$13,750.

8.2 Graduate Research Assistantships

Occasionally, faculty provide support for research assistants using funds from research grants. Research assistants usually participate in research-related projects under the supervision of the faculty member.

8.3 Tuition Waivers and Health Insurance

All full time Graduate Teaching Assistants at the University of Oklahoma receive [tuition waivers](#) and student health insurance. The University provides waivers for seven credit-hours of resident tuition and up to nine credit-hours of non-resident tuition per semester. Note that the minimum full load for a graduate student is six credit-hours per semester.

Details about health insurance can be found in the [Graduate Assistant Handbook](#), which is located on the [Current Students](#) page of the Graduate College web-site. There is also a great deal of information on the OU Human Resources page about [Student Health Insurance](#).

Students are responsible for certain fees. A detailed description of all fees and tuition can be found on the [Office of the Bursar's](#) page.

8.4 Graduate Summer Assistantships

There are also assistantships available for the summer semester (June and July) with a stipend of approximately \$2,500. The exact number of summer teaching assistantships varies from year to year.

The Department Chair, in consultation with the Graduate Committee, devised the following list of criteria which is used to rank the list of applicants for summer support.

1. A high priority is given to fully english language qualified international students. Rationale for this is because these students are able to teach undergraduates, but are not able to work off campus due to INS regulations.
2. A high priority is given to international students who are not fully english language qualified, and who are at most in the second year of their program. Rationale is the same as in case 1 above.

3. Domestic students who have not received summer support in recent years get higher priority than domestic students who have received summer support recently.
4. Students who are receiving fellowship support may get lower priority (depending on amount of the fellowship award).
5. All other factors being equal, we use students' progress through the program to give a ranking.

8.5 Graduate Fellowships

The department uses endowed funds in combination with funds from the College of Arts and Sciences and from the Graduate College to offer several **Graduate Fellowships in Mathematics** to top incoming students. Fellowship recipients receive a standard GTA offer together with a stipend add-on of \$6,000 per annum. The department automatically nominates top candidates for fellowship support.

The Graduate College has several graduate recruitment fellowships available for students. The mathematics department automatically nominates top eligible candidates for these fellowships. In the past we have had success with the Wethington fellowships and with the Hoving fellowships.

8.6 Awards and Scholarships

Students can receive awards and scholarships from the Mathematics Department based on their academic performance, teaching and citizenship. These include the Academic Achievement Award, the Harold Huneke Teaching Award, the Richard V. Andree Memorial Scholarship, the Harold Huneke Scholarship, and the John Clark Brixey Graduate Scholarship. Each year, the Graduate Committee solicits nominations from the mathematics department faculty for these awards. A [list of recent award recipients](#) can be found on the Mathematics Graduate Students web-site.

The MGSA makes two annual awards, the Good Mentor Award and the Good Citizen Award, to mathematics graduate students, based on their contributions to mathematics undergraduates and to their peers.

In addition to Mathematics Department and MGSA awards, there are scholarships available from the College of Arts and Sciences, and from the Graduate College. Students are strongly encouraged to apply for [awards and scholarships](#) from the [College of Arts & Sciences](#). Letters of recommendation from faculty members will need to be included with these applications, so be sure to check the deadlines and to start the application process early.

The [Graduate College](#) has a good survey page on [scholarships and travel grants](#).

8.7 Extramural Fellowships and Grants

Students should keep an eye out for extramural fellowship opportunities.

- Check the websites of the various professional organizations (AMS, SIAM, MAA, AWM etc) and the major funding agencies (NSF, DoD, NSA etc) for possible graduate fellowships.
- [scholarships.fatomei.com](#) has a database of various funding opportunities at the graduate level.
- [www.PhDs.org](#) maintains a [Graduate Fellowships and Grants](#) list.
- There is a good list of [graduate fellowship opportunities for minorities](#) at SUNY Buffalo.
- The [Women in Math Project](#) at the University of Oregon has an excellent Grants and Scholarships resource page.
- The [AWM](#) keeps a good list of fellowship and travel fund opportunities.

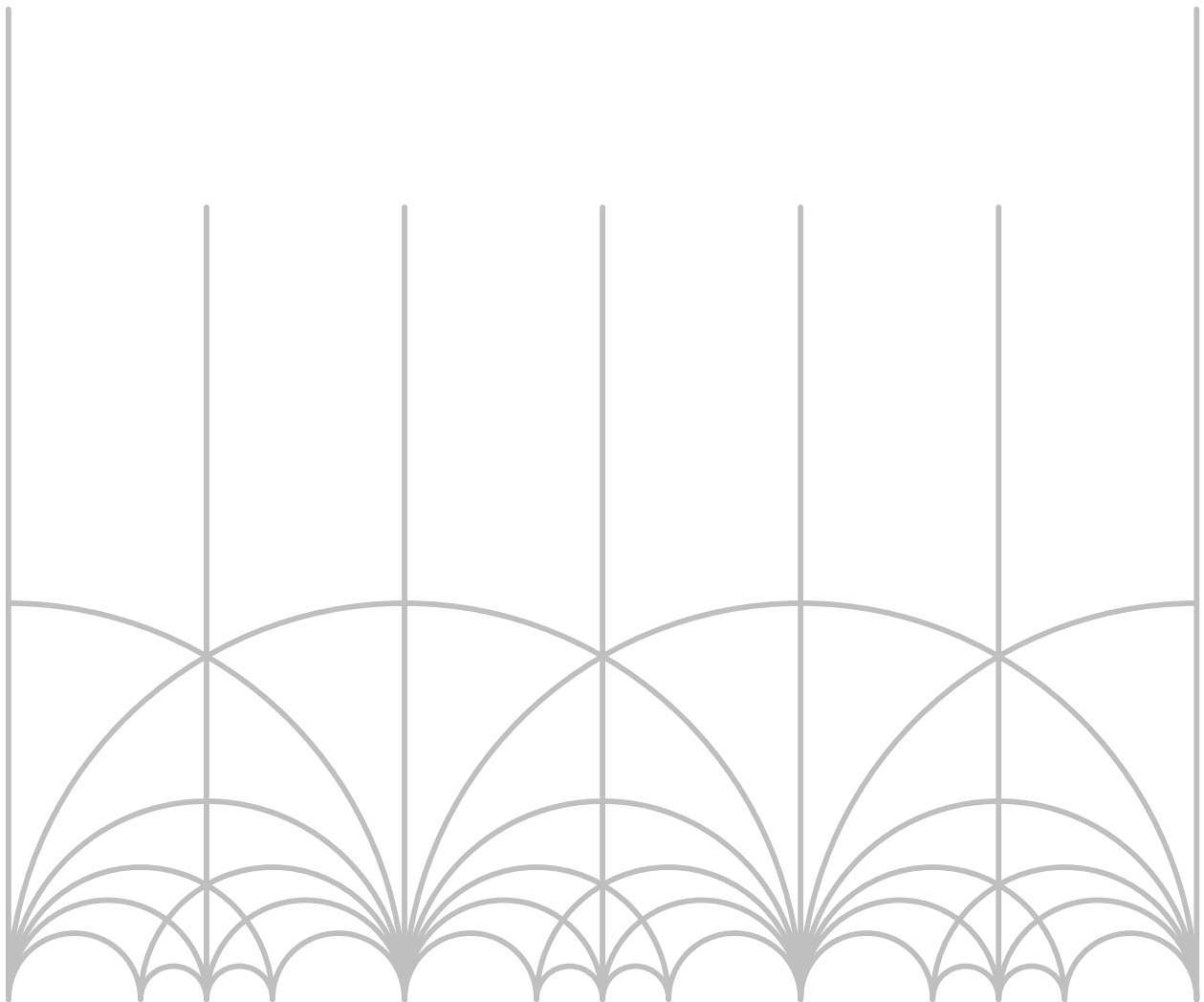
8.8 Travel Funds for Graduate Students

Conferences and workshops play an important role in your professional development. You may find that there are more opportunities for you to attend and to present at conferences and workshops in the latter years of your program. Attending an out of state conference can be quite a costly endeavour on a graduate student stipend. The list below is a good place to start your search for travel funds.

You should be prepared to apply to many sources to try to secure travel funds. Here are some options to consider. Some sources will only provide “matching funds”; in this case you will need to secure funds from several sources at once.

1. The conference or workshop organizers may have some funds set aside for graduate student participants. This should be the first place you look for funds.
2. The [Graduate College](#) has a good webpage on [travel grants](#), including information about their [Robberson grants](#). Be sure to keep an eye on the Graduate College page for new programs (such as the new T. H. Lee Williams International travel scholarship), deadlines etc.
3. The [Graduate Student Senate](#) may have [Research and Conference Grants](#) available. You can ask your student senators about this. Watch for deadlines.
4. The Mathematics Department has some matching funds available for students who are attending conferences. Download and fill out [this form](#). You should also download and fill out the department [pretravel form](#). These forms should be filled out before you embark on a trip.
5. The [College of Arts and Sciences](#) has [Student Research and Educational Travel funds](#).
6. Your PhD Advisor may have some matching funds.
7. Search in funding databases for other possible sources of funding. For example the [Community of Science](#) funding page is a good place to start.

Life as a Graduate Teaching Assistant



9 Life as a Graduate Teaching Assistant

In this section, we describe some of the typical GTA assignments. We also sketch what you should expect on your first day in front of a class. We list some University and Department resources available to GTAs. We end with a description of some of the contents of a good teaching portfolio.

9.1 Typical GTA Assignments

The Mathematics Department at the University of Oklahoma is responsible for teaching between 10,000 and 12,000 students per year. As a GTA you play an important role in our teaching mission.

In order to facilitate their transition into the role of instructor, GTAs are given a reduced load in their first semester in the program. In addition they enroll in a one credit hour teaching seminar (MATH 5990) run by the Mathematics Department. After the first year, a GTA will typically spend more time in front of a class in the Fall semester than in the Spring semester. This is due to the differences in enrollments of OU students in mathematics courses in the Fall and Spring semesters.

In Spring 2007 the Graduate Committee distributed a survey to the graduate students, asking about their impressions of the equity among the various GTA assignments. Based on the feedback from this survey, GTA assignments were modified to obtain the following list of assignments. There may be slight variations in these assignments from semester to semester.

1. English Language Qualified, First Year.

- Teach 1 section of MATH 1503.
- 5 hours in Help Center.

2. English Language Qualified, Subsequent Years.

- Teach 2 sections of Precalculus. (Fall)
- 3 hours in the Help Center.

or

- Teach 1 section of Precalculus. (Spring)
- 5 hours in the Help Center.

or

- Teach 1 section of Business Calc.
- 5 hours in Help Center.

3. Grading Only (typical first year non language qualified).

- Grading for 4 courses (5 hours each).

4. Grading, Help Center (partially language qualified).

- Grading for 2 courses (5 hours each).
- 10 hours in Help Center.

5. Help Center Only (partially language qualified).

- 15 hours in Help Center.

6. Large Calculus Class Discussion Sections.

- 2 discussion sections of Calc I or of Calc II (approx 40 students total).
- Grading for above sections.
- Attendance in Calc I/II classes. (1 to 3 hours depending on professor).
- 3 hours in Help Center (office hours for Calculus students).

7. Critical Thinking Discussion Sections.

- 4 discussion sections of MATH 1473 (approx 80 students total).
- Grading for above sections.

9.2 Teaching Assignment Request Forms

Each year, the department Chair and Associate Chair strive to strike a balance between the educational needs of the thousands of OU students who enroll in Mathematics courses and the schedules of faculty and GTAs. Each semester GTA's and faculty fill out teaching assignment request forms, indicating personal scheduling conflicts (classes that they are taking, committee assignments, seminar times etc) and their teaching preferences.

While the Chair and Associate Chair try to accommodate as many teaching requests as possible, ultimately assignments are based more on avoiding scheduling conflicts, and on ensuring that every class has an instructor! Other constraints include the language qualification status of the GTA; for example, a partially language qualified student may be eligible for a calculus discussion section, but not for a section of precalculus instruction.

9.3 The first day in front of a class

Many GTAs are daunted by the prospect of their first day in front of a class. Much of this fear should be offset by the fact that the first GTA assignment is usually as an instructor of a section of a large, well structured and centrally coordinated class, such as MATH 1503. Dr. Nancy Matthews covers topics like what to expect on day 1 in her discussion of MATH 1503 at the new student orientation during the week before Fall semester starts.

9.4 Resources for GTAs

The Mathematics Department and the University provide numerous resources for GTAs. Remember that your peers and faculty are also excellent resources for teaching information and advice.

Mathematics Department.

1. **Math Orientation Day.** Every Fall semester (week before classes start) the Mathematics Department has an orientation day for new graduate students. During the orientation, students are given information about the add/drop process, about how to prepare for teaching MATH 1503, professional conduct of GTAs, and an introduction to MATH 5990.
2. **MATH 5990.** Mathematics GTAs take the one credit hour teaching seminar (MATH 5990) during the first semester that they teach at OU.
3. **Office.** Mathematics GTAs are allocated office space in the Physical Sciences building.
4. **Computer facilities.** Most GTA offices have computers connected to the department network. In addition, the department has several computer networks and printers available for graduate students. The computers come equipped with most standard software (LaTeX, Mathematica, MS Office, etc) which are useful for instruction.

5. **Office supplies.** Students have access to the department photocopier in PHSC 423, and to office supplies for instructional use.
6. **Computer accounts.** Every mathematics graduate student is eligible for a department computer account. You can use this to store your web page. Many instructors load class web pages on their department account, and link to these from their main web page.
7. **Room for review.** It is possible to book one of the Department rooms (on 8th, 9th, 10th or 11th floors of PHSC) for conducting reviews for your class. Booking is done at the main math office in 423 PHSC.

University.

1. The [Program for Instructional Innovation \(Pii\)](#) provides a one week training workshop for new GTAs. Be sure to check out the Pii web-site for [tips](#) and other [Pii resources](#) for instructors.
2. The [Improving Teaching in the Academy \(ITA\)](#) site is designed to promote excellence and professionalism within teaching. ITA has a series of modules which are tailored to Teaching Assistants at the university level. You will use ITA training material during the one week Pii GTA training workshop that is held before the Fall semester begins.
3. The University uses the *Desire to Learn (D2L)* web-based course management system. You can logon (using your OU 4+4) to the learn.ou.edu site in order to communicate with your class via email, and to post grades and course materials. There is pretty good information about how to use D2L online. Every semester the College of Arts and Sciences offers [training workshops](#) in D2L.
4. The Office of Classroom Management (325-1087) will help you book a room on campus for a class review session.

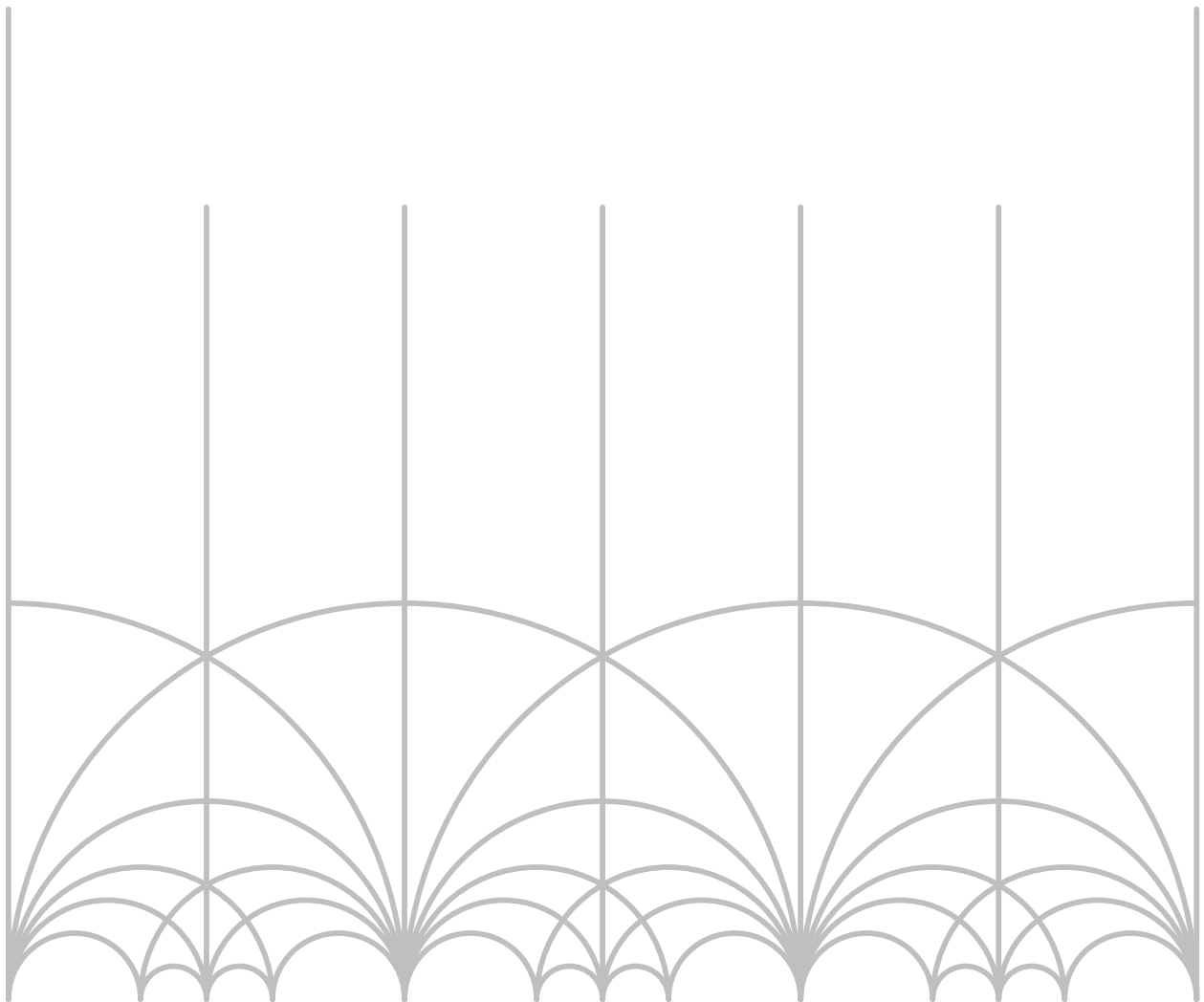
9.5 Developing your Teaching Portfolio

1. **Classroom visits.** See if you can get faculty, peers or instructional development people to visit your class, and to give you feedback on your teaching. In case of a peer, offer to visit their class and evaluate their teaching.
2. **Technology in Classroom.** Do you use programable calculators in any classes? Have you ever written any code for these calculators, or augmented existing code? Likewise, do you use Mathematica, Maple, Matlab or other mathematics package as an aid for students in class? Do you ever bring in a laptop to class, with some mathematics demonstration?
3. **Use of web technology.** Do you post additional class material on your own web page (do you have a web page?!), or do you use the University D2L pages? One advantage of the former is that prospective employers are able to see what materials you give to classes.
4. **Teaching statement.** Early on in your graduate program you should start thinking about what you would like to include in a statement of teaching philosophy. Students often leave this activity until their last year of graduate study, when they are already very stressed about job applications and finishing their thesis. Try writing some paragraphs down describing your teaching philosophy. Then Google the phrase “mathematics teaching statement” and download some examples from the web. How does your statement compare? (Do not necessarily rush to change yours!)
5. **Endorsement for Preparation for Teaching Undergraduate Mathematics.** The Department now offers a certificate of *Endorsement for Preparation for Teaching Undergraduate Mathematics* to students who have taught at least one college mathematics course and who have completed at least six

hours of coursework focused on the teaching and learning of undergraduate mathematics. These courses are taught by members of the department with expertise in undergraduate mathematics pedagogy research. This certificate is a good addition to your teaching portfolio, and is something that can catch the eye of a prospective employer.

6. **Range of classes.** It is good to try to broaden the range of classes that you have taught during your graduate career.
7. **Research with undergraduates.** Most institutions are very interested to hear about any experience you had on research projects with undergraduates. See if there are faculty who are doing research projects with undergraduates, and ask if there is a possible role for you as a mentor for the undergraduate.
8. **Summer Teaching.** Summer teaching assignments often give you complete control over all aspects of a course. This is very good teaching experience. Some GTAs get summer teaching assignments from local institutions.
9. **Visiting local institutions.** The Department usually has faculty from local institutions (community colleges, four year colleges, universities) talk in the *Graduate Student Seminar* about academic career paths. Would you be interested in visiting some of these institutions, and shadowing a particular faculty member for a day? Use the Graduate Student Seminar presentations as opportunities to introduce yourself to these faculty, and to ask if it is possible for you to visit their institution for a day. These visits will help you get a much better understanding of what a particular academic path is like, and may provide a good focus for your teaching statement.

Computing Resources and Policies



10 Computing Resources and Policies

In your various roles at the University of Oklahoma, you will need to become familiar with a range of computing facilities and electronic communication systems. As a mathematics graduate student, you receive storage space and an email account on the mathematics department server. You can use the storage space for storing email, file storage, and for maintaining a web page. As a student of the University of Oklahoma, you receive an OU-email address (associated with your OU 4+4 ID) and an OU web page. Among your duties as an instructor, you may need to use spreadsheet software (or the university's Desire2Learn system) to record/post student grades. In your studies, you may need to use various mathematical software, typesetting software, and to access literature databases.

The purpose of this document is to spell out the different computing facilities and online resources that are provided for you by the Mathematics department and by the University of Oklahoma. It provides a list of key personnel, so you know who to go to for help with various tasks. It also spells out important departmental policies regarding your math.ou.edu email address. University policy documents pertaining to users of OU information technology can be found on the following site.

<http://www.ou.edu/committees/itc/policy.html>

10.1 Email and Web Pages.

1. *Email accounts.* Every graduate student receives an account (with storage space for web pages and email) on the mathematics department servers. The email address associated with your mathematics department account is of the form *username@math.ou.edu*. This is the email address that is listed by your name on the mathematics department people web page. Please note that **email messages from Mathematics department faculty and staff will be to your math.ou.edu address.** It is *your responsibility* to check this email on a regular basis; at least once per day. You can either check your math email directly, or you may wish to automatically *forward* your math email to your preferred mail server (eg. OU email, Gmail, yahoo mail, etc). There are directions for *email forwarding* on the Mathematics Graduate Students Association (MGSA) web page. Make sure to set up mail forwarding (to a server that you check at least once per day) before the start of the semester.
2. *The mathgrads email alias.* There is an alias for emailing all current mathematics graduate students at once. This is *mathgrads AT math DOT ou DOT edu*. The email addresses listed in this alias are all of the form *username@math.ou.edu*.
3. *OU email.* University offices outside of the Mathematics department will contact students via their @ou.edu email addresses. It is your responsibility to make sure that email from ou.edu and from math.ou.edu all gets forwarded to a common server that you check on a regular basis. Be aware that neither the University nor the Mathematics Department considers “not having read email” a valid excuse for having missed out on important communications. Check the *University Email Notifications* link on <http://www.ou.edu/committees/itc/policy.html> for a complete statement of the University's policy.
4. *Your web page.* We strongly recommend that you set up your own professional web page on the mathematics server as soon as possible. A professional web page is an increasingly important tool in today's job market. One way to think of your web page is as a way of maintaining a live online CV. You can add information about your teaching, research, service, talks given, links to preprints, articles etc on your web page as events occur. This will be invaluable when it comes time to prepare for the job market. Your department web page is a good place to post a schedule if you ever are organizing a student seminar.

The MGSA has detailed instructions on how to set up a basic web page on the mathematics department server. You may prefer to activate and use your OU web page, or you may have a professional web page on some other server. In any case, you should contact the department's WWW administrator to have your page linked from the department's people page.

5. *Security and Privacy Issues.* There are several issues that you should be aware of.

- *Basics.* Be mindful of the physical security of the Mathematics Department hardware. Keep doors to offices and workstation rooms locked.
Remember to always **log out** at the end of a session at a workstation! If you leave yourself logged on, you are vulnerable to someone (accidentally or deliberately) deleting files from your account, reading/using your email etc.
- *Passwords.* The department's account request form has some suggestions about password security. Take these seriously.
- *Email Addresses.* Don't publish your complete email address on your web page, on your Facebook page etc, or it may get harvested by spam robots.
- *Email Attachments.* Be careful about opening unfamiliar attachments to emails, especially on Windows machines.
- *Privacy.* Students should be aware that situations may arise where the Chair or Committee A members need to access an individual's email account.
You may also wish to see the "Privacy Statement" section of the *Interim Email Policy* link on <http://www.ou.edu/committees/itc/policy.html> for a statement of the University's email privacy policy.

10.2 Hardware and Software.

1. *Mathematics Department Servers.* The department maintains two servers, *Aftermath* and *Zeus*, both of which run the Linux operating system.
Aftermath: Login shells, some software.
Zeus: File server, provides NFS service to workstations throughout the department. The file system is protected by a RAID back-up system. The systems manager should be able to recover a user's lost data for up to 3 or 4 weeks.
2. *Graduate Student Computer Rooms.* There are two workstation clusters for graduate students in the department.

Fourth floor. Adjacent to the photocopier room. Access during business hours only. Workstations (running Microsoft Windows), printer, scanner (color). Note that the main office photocopier can print directly from workstations, and can scan documents directly to email (as black-and-white pdf documents).
Ninth Floor. Room 911. Students have 24-hour access (with key). Workstations (running Microsoft Windows), printers.
3. *Computers in Offices.* Department is working hard to ensure that every graduate student office has a computer which can be shared by occupants. There are networked printers in rooms 911, 419 and 421.
4. *Operating Systems.* All workstations are PCs running the Microsoft Windows operating system. The servers *Aftermath* and *Zeus* are Linux machines.

Students can logon to *Aftermath* via the secure shell ssh program (eg. via the Windows PUTTY program) if they need terminal access to a Linux machine.

5. *Miscellaneous Software.* The department has site licenses for the basic mathematical, typesetting, and office software. Most of these are installed on the department workstations.

The systems manager and the department Computer Committee will consider requests for additional software to be loaded on the workstations.

- *Mathematical Software.* The department has site licenses for Mathematica and MATLAB.
- *LaTeX.* The department workstations come with the mathematics typesetting package LaTeX installed. You should take the time early in your graduate career to learn LaTeX. The MGSA maintains a LaTeX resource page, and also provides annual lectures on the basics of LaTeX typesetting. The department workstations have Winedt (a general purpose text editor, works well with the version of LaTeX) and Winfig (graphics program).
- *Office Suites.* Workstations come with Microsoft Office installed.

10.3 Some University Resources.

1. *University IT Store.* <http://itstore.ou.edu/index.asp?sct=yes>
As a student you may be able to get good deals on software (some of it is free!) from the IT store. Be sure to check this out. Use your OU 4+4 ID to log into the IT Store.

2. *Library.* <http://libraries.ou.edu/>
The library's LORA system gives you access to MathSciNet (which is the definitive database of mathematics literature reviews and bibliographical information (available in bibtex format)), JStore, etc from off campus. It is worth spending the time configuring your library homepage to have these resources readily available, for easy access from off campus.

Access to these databases is automatic from department computers, but you will need to go through the library LORA page if you wish to access these facilities from an off campus computer. You will need your OU 4+4 ID and password for this.

It is extremely important to become conversant with the various literature databases such as MathSciNet. They are an essential resource for academic research (eg. literature searches) and writing (eg. compiling bibliographies).

3. *Desire2Learn and course management.* <https://learn.ou.edu/index.asp>
Desire2Learn is the University's course management system. Some professors will require that you have a working knowledge of the gradebook and grade reporting using Desire2Learn. Most of this system is fairly intuitive to understand. There are good online tutorials for using Desire2Learn (check the D2L Help section after logging on to the D2L system). You can also ask more experienced students if you have questions. As a last resort, Beth McCoy is the College of Arts&Sciences Desire2Learn guru.
4. *Wireless access in PHSC and on campus.* OU IT supports wireless access at many places on campus, including the base of PHSC. The Mathematics Department maintains several wireless access points throughout the tower portion of PHSC. You will need to provide the Department systems manager with your MAC address, and you will need to obtain a password, in order to connect to the Department's wireless network.

10.4 Online Information and Resources.

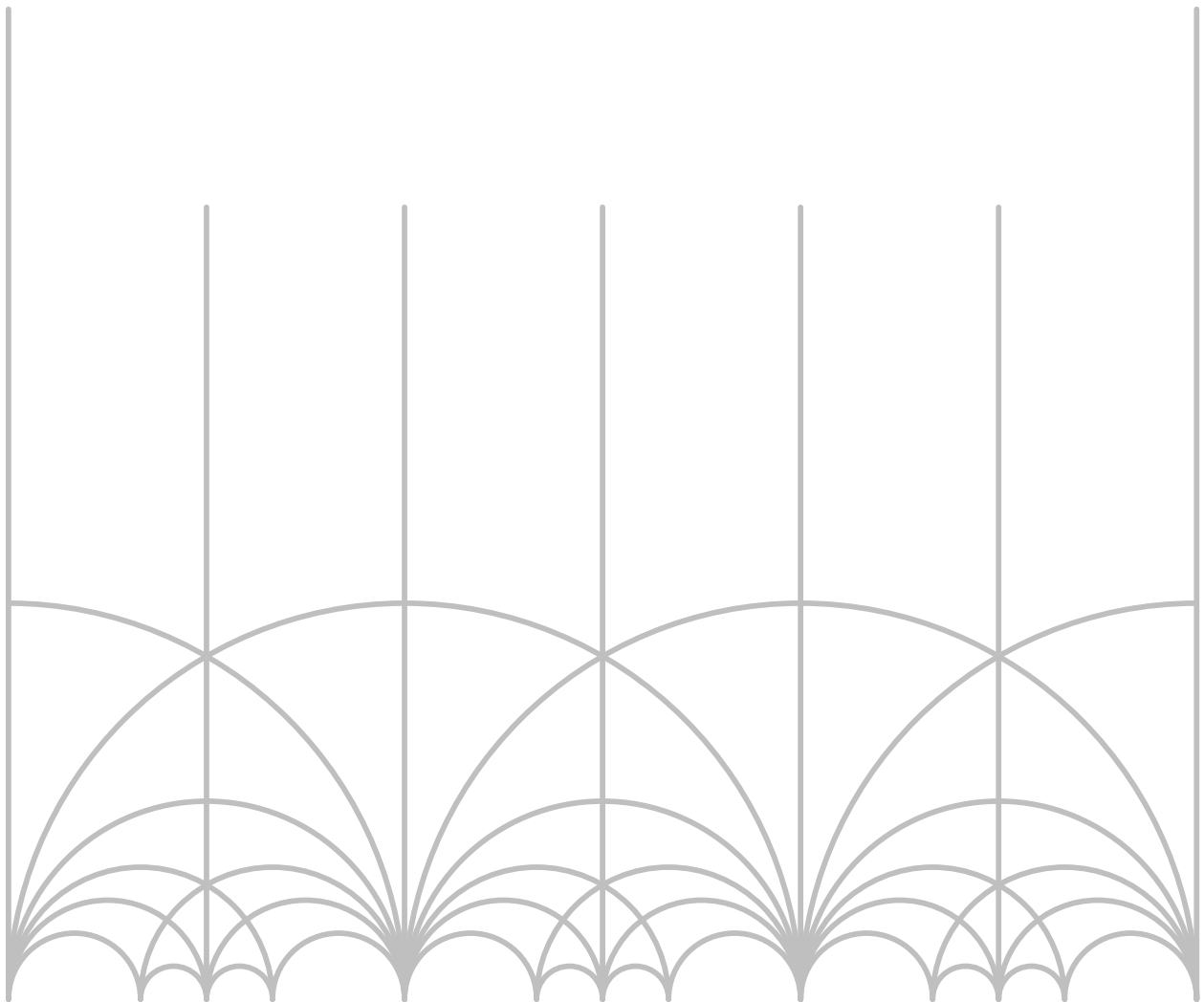
You can find a lot of information online. Here are some good sources of information for mathematics graduate students. Please let the graduate directors know if there is other information which you would like to see online.

- *Mathematics Graduate Student Handbook.* This is linked under the *Current Students* section of the [Graduate Study](#) page. It contains information about the mathematics graduate programs, about your daily life as a student and as an instructor, and provides direct links to the Grad College, and other University offices which are important for graduate students.
- *MGSA resources.* In addition to information about LaTeX, web page creation and email forwarding, the MGSA has a wealth of other resources. Check out their page at <http://math.ou.edu/~mgsa/>
- *Graduate College Forms.* The [Graduate College](#) forms which are relevant for each step of your degree program are available on their web site. So also are the forms for travel awards and for scholarships.
- *Department Forms.* The department pre-travel form, and the graduate student travel funds request form are found under the *Travel funds* link on the Graduate Study web page. This also has links to other travel funding sources.

10.5 Who's who?

- *Systems manager.* Contact this person for general computing questions regarding the Mathematics department workstations or servers.
Gavin Nipper. 325-6592. gavin AT ou DOT edu.
- *Math WWW administrator.* Contact this person if you have questions or comments regarding the main math page, and the people, events and contact sub-pages. Essentially anything that is not managed by the people listed below.
Ralf Schmidt. 325-3684 rschmidt AT math DOT ou DOT edu.
- *Math Graduate Study page administrator.* Contact this person for questions and comments regarding the page <http://math.ou.edu/grad/> and all sub-pages.
Noel Brady. 325-0833 nbrady AT math DOT ou DOT edu
- *Math Undergraduate Studies page administrator.* Contact this person for questions and comments regarding the page <http://math.ou.edu/undergrad/> and sub-pages.
Keri Kornelson. 325-7946 kkornelson AT math DOT ou DOT edu.
- *MathClub Page and Blog.* Contact this person for questions and comments regarding the undergraduate MathClub page <http://www.math.ou.edu/mathclub> and the MathClub Blog <http://oumathclub.wordpress.com/>
Jon Kujawa. 325-2390. kujawa AT math DOT ou DOT edu.
- *MGSA page administrator.* The MGSA pages are an important resource for mathematics graduate students. Contact this person for comments and questions regarding the page <http://math.ou.edu/~mgsa> and its sub-pages.
Thomas Madsen. Thomas.L.Madsen-1 AT ou DOT edu.
- *College of Arts&Sciences Desire2Learn contact.*
Beth McCoy. 325-0862. bmccoy AT ou DOT edu.
- Seminar pages are maintained by current seminar organizers.

English Language Qualification



11 English Language Qualification

The Mathematics Department is pleased to have many excellent international students in its program and supports their efforts to improve their English language skills. The University of Oklahoma requires that all graduate assistants having direct contact with students must pass written and oral examinations to demonstrate proficiency in English. These exams are administered through the [English Assessment Program](#) (EAP), which is located in Robertson Hall, Room 201. Detailed information about the English language assessment process, the three tests, and the test schedules may be found on the [EAP page](#) under the [International Students](#) section of the Graduate College web-site.

In order to fulfill its curricular obligations, the Mathematics Department depends on the fact that international graduate students will become fully language qualified by the end of their second year in the program, and will become full participants in its educational mission.

11.1 Benefits of Language Qualification.

Here are some specific benefits of language qualification.

- Students who complete their language qualification will receive a stipend increase beginning the semester after qualification.
- Language qualification is a major factor in deciding who obtains summer teaching support. This summer teaching is a valuable source of income for international students.
- Students who are language qualified at an early stage are eligible for more advanced and more diverse teaching assignments. These students graduate with very broad teaching portfolios, and tend to be more competitive in the job market.

In addition to these benefits, there are negative consequences to not being fully language qualified after the second year.

- Students who are not language qualified at the end of their second year, will go on probationary status (see subsection [11.5](#)).
- Students on probationary status are not eligible for department travel support.
- Students on probationary status are not eligible for Summer Teaching Assistantships.

11.2 Overview of the Language Qualification Process.

Here is a summary of the Language Qualification process. Please refer to the [EAP page](#) for a more detailed discussion.

- To demonstrate oral proficiency, the graduate assistant must first take the **SPEAK** test administered at the English Assessment Center.
- The next step in the process is the **TEACH** test. In this test, the student must give a short lecture and respond successfully to questions.
- Finally, to demonstrate written proficiency, the student must pass the **WRITTEN** test administered at the English Assessment Center.
- In order to be fully language qualified, the student must pass the **SPEAK** test, and must pass both the **TEACH** and **WRITTEN** tests at the **instruct** level.

11.3 Resources for Students.

The University and the Department provide a variety of resources to help international graduate assistants improve their English language skills.

- EAP provides **SPEAK** test practice handbooks and tapes. These are available in Bizzell Memorial Library at the main circulation desk.
- The EAP offers a non-credit **Spoken English Class**. The Mathematics Department will pay the cost of taking this course once. Make sure that you contact the Department Office Manager **before** you make any arrangements for taking this course.
- The Department pays for the student's first attempt at each of the **SPEAK**, **TEACH**, and **WRITTEN** tests. The Department will also pay for the student's successful attempt at each test.
- The MGSA has a system set up whereby international students can get help on preparing for these tests from other mathematics graduate students. Take a look at the following page <http://math.ou.edu/~mgsa/englishqualifications.html> for some good advice.
- The student is responsible for the costs of subsequent EAP tests. However, Department will reimburse the student for the cost of a test if student passes it at the **instruct** level.
- EAP provides a **Written English Class: English Writing for International Students** (ENGL 2113.001). This is a credit course, and students are responsible for fees and tuition.
- Your fellow students in the Mathematics Department are a great resource. Make sure to talk often to native English speakers among your peers. Ask for a group of your peers to give you practice runs at the **TEACH** test, to look at sample essays that you have written etc.
- The University **Center for English as a Second Language** (CESL) provides additional resources to international students.

11.4 Satisfactory Progress.

Ideally, a student will pass all three tests in the first academic year. Here is a possible scenario for a student who enters in the Fall.

- Fall Semester. Study for, take and pass the **SPEAK** test.
- Spring Semester. Study for, take and pass the **TEACH** test at the **instruct** level.
- Summer. Study for, take and pass the **WRITTEN** test at the **instruct** level.
- After each test taken you should do the following:
 1. Ask Dr. Janis Paul for a review of the test. This will occur after the test has been graded.
 2. Bring the following **Report Form** to the review, and fill it out right after the review.
 3. Give a copy of the report to Anne Jones.
 4. Visit with a Graduate Director to discuss your plan of action for passing the remaining English language tests.

The Department realizes that this ideal scenario may not work for all students. The Department allows students **two years** in order to become fully language qualified.

However, any student who has not passed the **SPEAK** test and the **TEACH** test (at least at the support level) by the end of their first year will be required to enroll in the EAP Spoken English class in the Fall semester of their second year. They will also be required to take tests every semester until they are language qualified.

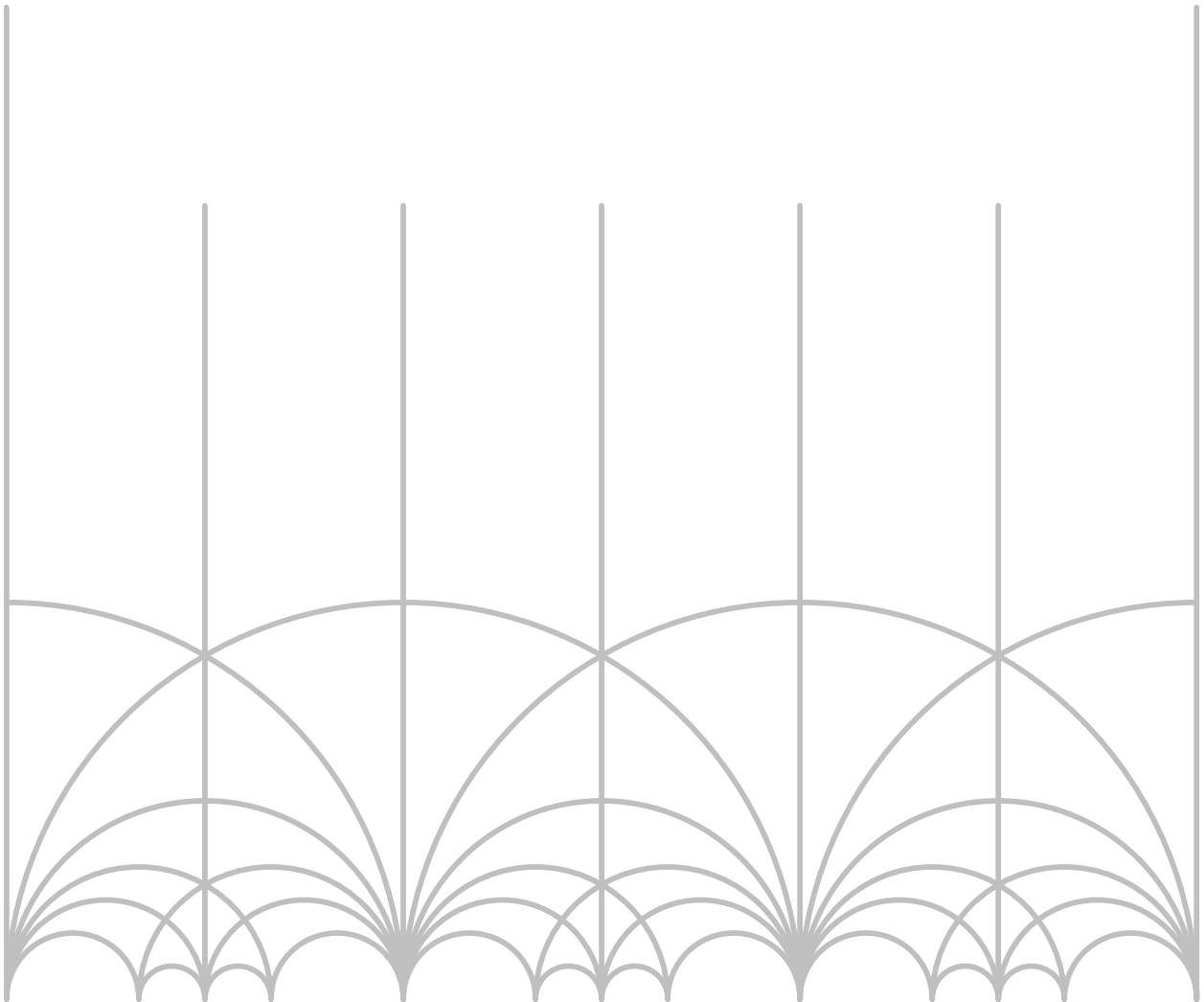
11.5 Probationary Status.

Students who do not complete their language qualification before the end of their fourth semester will go on probationary status. A student on probationary status is required to follow the rules listed below. Failure to do so may result in termination of the graduate assistantship.

1. Each examination not yet passed must be attempted at least once during each semester in residence. The Mathematics Department will pay the cost of the first attempt at each test (regardless of the outcome of the test). In order to obtain the necessary authorization, report to the Department Office Manager before paying the test fee at the Bursar's office. The Department will also refund the cost of any test which is passed at the instruct level.
2. After each test taken you should do the following:
 - (a) Ask Dr. Janis Paul for a review of the test if you did not pass at the instruct level. This will occur after the test has been graded.
 - (b) Bring the following **Report Form** to the review, and fill it out right after the review.
 - (c) Give a copy of the report to Anne Jones.
 - (d) Visit with a Graduate Director to discuss your plan of action and time line for passing the remaining English language tests.
3. Students on probation are expected to participate in all departmentally sponsored activities designed to improve language and teaching skills. Students will be notified of these activities as appropriate.

Students on probationary status are expected to follow these rules every semester. They will be monitored and will be subject to review by the Graduate Committee. If the Committee finds no compelling reason to recommend an extension of the probationary period, the assistantship will be terminated. The Committee may in unusual circumstances recommend that the Chair extend the probationary period.

Appendix 1



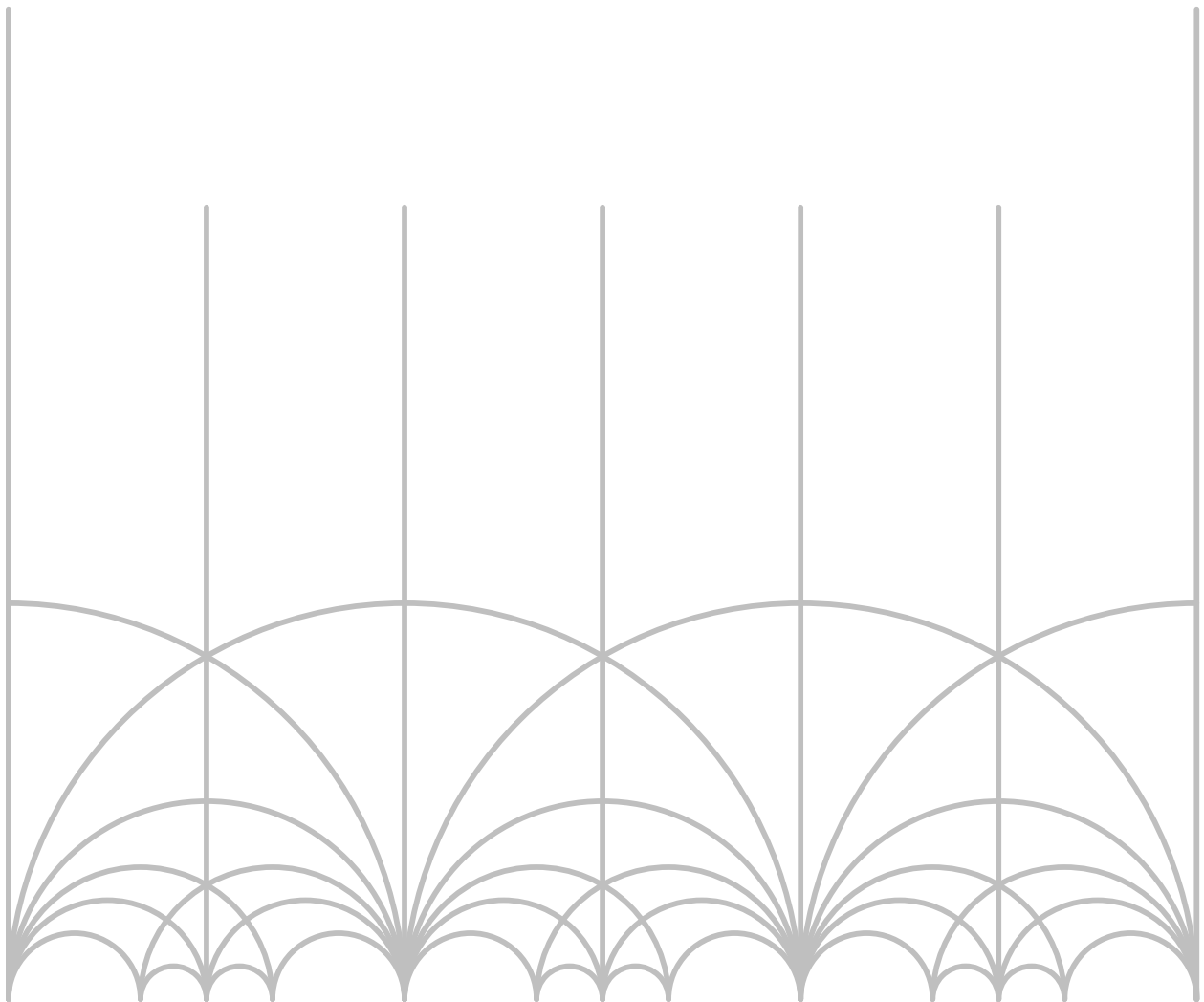
Appendix 1. Important Numbers and Web sites.

“The number you have dialed is imaginary. Please rotate your phone 90 degrees and try again”.

1. Department Main Office. (325-6711) (423 PHSC)
2. Department [Graduate Studies Web-page](#).
3. Ms. Anne Jones. Assistant to the Graduate Directors. (325-2719) (ajones AT ou DOT edu)
4. Graduate Advising.
 - Noel Brady (325-0833) (nbrady AT math DOT ou DOT edu)
 - Alan Roche (325-6594) (aroches AT math DOT ou DOT edu)
 - John Albert (MSc Advisor) (325-3782) (jalbert AT math DOT ou DOT edu)
5. Computer Systems Manager. Gavin Nipper (325-6592)
6. Web-page manager. Ralf Schmidt. (rschmidt AT math DOT ou DOT edu)
7. Graduate Study web-page. Noel Brady. (nbrady AT math DOT ou DOT edu)
8. Mathematics graduate student email alias. (mathgrads AT math DOT ou DOT edu)
9. [MGSA page](#). A range of services for mathematics graduate students by the MGSA.
10. Department graduate student [Travel Funds](#) information page. Your first stop for travel funds.
11. Department [Financial Support](#) information page. Find out about fellowships, scholarships and awards.
12. [Career Information](#) for Mathematics graduates page. This contains good links for career profiles, help and advice on all aspects of the job search process, and links to employment databases. It also has great links to pages of general advice on surviving graduate school and (academic) professional life beyond.
13. Classroom Scheduling.
 - Department rooms (on 8th through 11th floor). Main Math Office. (325-6711)
 - Other Classrooms. Office of Classroom Management. (325-1087)
14. OU [College of Arts and Sciences](#).
15. OU [Graduate College](#). (325-3811) Ms. Kristi Glenn works with students from Mathematics department.
16. The [Graduate College Bulletin](#). The answers to many of your questions are here.
17. The [Graduate Assistant Handbook](#). And here!
18. OU [International Student Services](#). Information regarding different visa types, travel issues, international student orientation, tax help, and more.
19. OU [Graduate Student Senate](#). (325-4051)
20. OU [Bursar's Office](#). Tuition and fees information. (325-3121)

21. OU [Human Resources](#).
22. OU [Health Insurance Information](#) for graduate students.
23. The OU [English Assessment Program](#). Where international graduate students earn their English language proficiency certification.
24. Your OU 4+4 will get you onto the [learn.ou.edu](#) site, which contains information about classes you are taking and about classes you are teaching. Beth McCoy (325-0862) runs [workshops](#) on D2L every semester.
25. The [AMS](#) web page.
26. The [MathSciNet](#) page. The database of mathematics articles. Searchable by author, keyword, title, and much more. You need to access this from an on campus computer. You can access it from an off campus computer via the [OU library](#) page (requires your OU 4+4). Simply follow the LORA link and then find it among databases.
27. The [UC Davis](#) front to the mathematics arXiv (mathematics e-print database).
28. The [Mathematics Genealogy Project](#) page. Trace your mathematical history back from your advisor to the very early days of mathematical advising. Addictive site.
29. The OU [itStore](#).

Appendix 2



Appendix 2. General Examination Survey.

In Spring 2007 we distributed a survey to graduate students who had been through the General Examinations, asking them about their knowledge of the various stages (and approximate times taken) leading the General Examinations. Here are the results.

As part of the Graduate Committee's ongoing process of program evaluation, we invite you to give your impressions of the General Examination portion of the PhD.

Here is the process as we see it for someone in the traditional PhD track in Mathematics. This process typically takes about two years beyond the Qualifying Examinations. Please read this overview, and answer the accompanying questions. Your feedback is important for both the Graduate Committee and as a source of collective advice for future students.

1. **Advisory Conference.** Soon after passing your third Qualifying Examination, you will have to choose a research area. You will then identify a faculty member who is willing to be your PhD Advisor. The two of you will form a PhD Advisory Committee (typically 4 members from the department and one member from outside the department), and hold an *Advisory Conference*.

The purpose of this conference is to determine your course of study with input from your Advisor and your Committee, and to provide a detailed description of how you intend to meet the Graduate College's 90 credit requirement for the PhD degree. These details are recorded on the *Advisory Conference Report*, which is then signed and submitted to the Graduate College.

2. **Seminar Talks.** Your Advisor may suggest that you give some talks (two talks is typical) in one (or more) of the Department Seminars. These talks are typically based on material from a 2-semester course that is distinct from the written examination courses below. Some members of your Committee members should be present at these talks. Other advisors may require that you take a written examination in lieu of these seminar talks.
3. **Written Examinations.** You will take 3 written examinations. Each examination is based on material from a 2-semester course.
4. **Oral Examination.** You will take an oral examination on the material in 2 and 3 above. This is administered by your Advisory Committee.

We distributed 18 surveys to current students in the traditional PhD program who have passed the General Examination. We received 10 completed surveys. The results are summarized below.

General Questions.

- Q1.** *Were you **aware** of these steps before you embarked on this portion of the program?*
- 4 Yes, 5 No, 1 Somewhat.
- Q2.** *Were you **aware** that the average time to complete this stage of the program is about 2 years?*
- 4 Yes, 6 No.
- Q3.** *Did you take any electives (non-core courses) during the time you were preparing for the Qualifying Examinations which were useful for your General Examination?*
- 7 Yes, 3 No.
- Q4.** *Did you take any electives (non-core courses) during the time you were preparing for the Qualifying Examinations which helped you focus in on a research area and identify a potential PhD Advisor soon after passing the Qualifiers?*
- 5 Yes, 5 No.
- Q5.** *While preparing for the Qualifying Examinations, did you give much thought to how your program would progress beyond these examinations? In particular, did you think much about finding a PhD Advisor, and about the General Examination?*
- 6 Yes, 4 No.

Finding a PhD Advisor.

Q6. *What advice would you give to students who are still preparing for their Qualifying Examinations, about the process of finding a PhD Advisor?*

6 said to take a (reading/advanced) course with a faculty member who is likely to become an Advisor. 3 said to choose an area of mathematics first and then think about Advisor. 2 said to talk to more senior students who are already working with a particular faculty member. 2 said to get to know professors personalities in addition to their research areas.

Q7. *How did you end up finding your **PhD Advisor**?*

- (a) *Took advanced (post Qualifying sequence) course with Advisor before completing Qualls.* 2 people.
- (b) *Took advanced (post Qualifying sequence) course with Advisor after completing Qualls.* 4 people.
- (c) *Took topics course with Advisor.* 3 people.
- (d) *Took reading course with Advisor.* 7 people.
- (e) *Read some of Advisor's papers.* 2 people.
- (f) *Looked at Advisor's web page.* 3 people.
- (g) *Talked to more senior students with same Advisor.* 3 people.
- (h) *Other ideas?*

Which of the above would you recommend to junior students who have yet to find an Advisor?

(a) 2; (b) 3; (c) 3; (d) 6; (e) 2; (f) 3; (g) 4; (h) 2.

Q8. *Are there things that the Department could do which would help facilitate the process of PhD Advisor-Advisee matching?*

- (a) 5 said No; there's enough happening currently.
- (b) 3 said that they'd like to see more introductory/survey talks by professors or by research groups. Students mentioned the Graduate Student Monday Seminar as a possible forum. Ideas?
- (c) 3 said that the Department should encourage students to take advanced courses or reading courses with professors as early as possible (during last year of Qualifier Course sequence).

Seminar Talks.

Q9. *Did you have to give **seminar talks** as part of your General Examination?*

7 Yes, 3 No.

(a) *If so, how many did you give? In what seminar?*

Average 2 talks.

Analysis, Representation Theory, Geometry/Topology, Geometric Group Theory.

(b) *Did you consider this to be a useful part of your General Examination?*

6 Yes.

(c) *Did you give practice talks to your advisor or other faculty members?*

4 Yes.

(d) *Did you give practice talks to your peers, perhaps in one of the graduate student seminars?*

5 Yes.

(e) *What recommendations do you have for future students to prepare for this portion of the General Examination?*

i. Give practice talks in graduate student seminars. (4 people)

ii. Practice, practice, practice! (3 students) One said that this was the hardest part of the General Examination, but the most rewarding.

iii. Start preparing earlier than you think. (1 student)

Written Examinations.

Q10. *How did you prepare for the **written portion** of the General Examination?*

- (a) *Just did homework and examinations in the relevant 2-semester courses.*
8 Yes.
- (b) *Asked professors for sample questions/sample examinations.*
4 Yes.
- (c) *Asked more senior students for copies of their examinations.*
4 Yes.
- (d) *Any other strategies?*
 - i. Do work with a fellow student who is also preparing for a General Examination.
 - ii. Preferably do work over summer, take exams in Fall.
 - iii. Work with peers whenever possible. Study everything!
 - iv. Get sleep before exams.

In retrospect, would you have done anything differently to prepare for this portion of the General Examination?

- (a) Start preparing earlier.
- (b) Schedule examinations for the Fall semester; prepare during the Summer.
- (c) More consistent daily work/preparation. Not fits and starts.

What advice would you give to younger students to help them prepare for the written examinations?

- (a) Practice **writing** answers, not just figuring things out in your head.
- (b) Focus on seminar talks. Don't strive for perfection in written examinations. You'll have a chance to correct small errors during oral examination.
- (c) Prepare! Early, often, with peers if possible.
- (d) Take examination in hardest course first.

Oral Examination.

Q11. *How did you prepare for the **oral portion** of the General Examination?*

(a) *Have other students ask you questions. (mock oral exams)*

1 Yes.

(b) *Have faculty ask you questions.*

1 Yes.

(c) *Have faculty give you feedback on your written examinations, and suggest topics to study for the oral exam.*

8 Yes.

(d) *Give talks in the student seminars.*

2 Yes.

(e) *Other ideas/strategies?*

i. Review everything from written examinations; (c).

ii. Work problems on blackboard in front of peers. (perhaps a version of (a) above).

Which of the above would you recommend strongly to future students?

(c) was recommended most often, followed by (a) and (b).

Do you have other suggestions for students preparing for the oral exam?

(a) Reiterate (c).

(b) Get rest.

(c) Try to relax.