The Mathematics Graduate Student Academic Handbook 2025-26

Effective June 1, 2025

Contents

1 Introduction

The Department of Mathematics offers the opportunity to study and conduct research in pure and applied mathematics while working toward a Master of Science or Doctor of Philosophy Degree. Also offered are the Master of Arts in Teaching and Master of Science in Teaching. The Master of Science program can be completed by exam or by thesis. Within the exam option there is also an applied mathematics track.

The University of Florida Graduate Catalog is the University of Florida's official record of graduate policies, critical dates, deadlines, course descriptions and faculty members for all graduate students. It is the student's responsibility to know and comply with the rules and to meet the deadlines.

This handbook is a supplemental resource for mathematics graduate students, describing policies specific to the Mathematics graduate program.

The primary means of communication within the department and with the graduate school is by email and it is the responsibility of the student to check Gatorlink email daily.

2 Department Administration

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3 Advising/Registration

Each entering student is expected to consult with the graduate coordinator prior to finalizing their first semester registration. Initial advising sessions with the graduate coordinator are held in connection with the departmental orientation for new graduate students.

Entering students are assigned a faculty mentor and a graduate student mentor who can be helpful, especially in the first year.

When a student forms a supervisory committee, the chair of the committee takes on the advising role of the faculty mentor.

The graduate secretary facilitates enrollment in classes under department control such as the qualifying exam course sequences, the special topics courses MAT 6932, and individual work in the form of MAT 6905, MAT 6910, MAT 7979, MAT 7980, and in EAP 5836 Academic Spoken English 2. For individual work, you are required to fill out a form and obtain written permission from the individual with whom you seek to work. The graduate secretary also arranges for the proposed work to by approved by the graduate coordinator.

Each semester please review your hold screen in ONE.uf for any holds on your record that will prevent registration. Please register on time to avoid late fees. Registration and payment deadlines can be found at https://gradcatalog.ufl.edu/graduate/calendar/. Please pay your portion of the fees by the fee payment deadline even if your tuition waiver has not been processed in order to avoid late fees. Timely and appropriate registration is your responsibility.

4 Enrollment requirements

Graduate School Enrollment Requirements

The Graduate School requires levels of enrollment for students varying by the type and amount of support.

Graduate Teaching Assistant (domestic and international students): If you are a TA, then you must enroll for 9 credits Fall and Spring, and 3 credits for each Summer term you teach (3 credits if Summer A or B, 6 credits if Summer C). Students who are not native speakers of English should review English Language Skills Requirements for Employment to check whether they have an additional course requirement for their first term of teaching.

Part-time student: Minimum part-time enrollment in either Fall or Spring is 3 credits; for Summer, the minimum is 2 credits. The Department of Mathematics does not offer "part-time" status except under extenuating circumstances.

Doctoral student in qualifying term: During the term in which you take the oral qualifying examination, minimum enrollment in courses that count toward the degree is 3 credits in Fall or Spring; for Summer the minimum is 2 credits.

Doctoral student in final term: Minimum required enrollment for a final term in Fall or Spring is 3 credits in MAT 7980; for a final term in the Summer the minimum is 2 credits in MAT 7980.

Master of Science thesis student in term of graduation: Minimum enrollment in MAT 6971 is 3 credits in either Fall or Spring; for Summer the minimum is 2 credits, whether or not you are continuing for the PhD.

Master of Science (exam), Master of Arts in Teaching, Master of Science in Teaching student in term of graduation: Minimum enrollment in a course counting toward the degree is 3 credits in either Fall or Spring; for Summer the minimum is 2 credits, whether or not you are continuing for the PhD. Final term enrollment must be in a course that counts towards the Master's degree, so MAT7979/80 are not permitted.

Students with disabilities: Reduction of enrollment requirements may be a reasonable academic accommodation. For further information, contact the Disability Resource Center.

Tuition Waivers: If you are on a Graduate Teaching Assistantship, then your tuition waiver covers the tuition (but not the fees) for the required enrollment as long as the courses count toward the degree. For further details on what is not included see the Graduate School Policy on Tuition/Fee Waivers. If you enroll for more than the amount required or courses that do not count for your degree program, you are financially responsible for the corresponding tuition. If you drop below the enrollment required for an appointment, you become financial responsible for the entire tuition and fees for that term. For more details, including graduate school policies on grades, drop-add, and financial responsibility, see Graduate School Registration Requirements.

Department of Mathematics Enrollment Requirements

In your first two years of graduate study, you are expected to enroll in at least two mathematics courses each spring and fall.

After the second year of graduate student, you are expected to enroll in at least one mathematics course each spring and fall. Research only is acceptable for at most two terms, one of which is the final term for the doctorate.

Courses taken outside the Department of Mathematics require permission of your advisor and the graduate coordinator. Usually at most one outside course per term is allowed.

Others with Enrollment Requirements

Other units which may have enrollment requirements include the Financial Aid Office, the UF International Center, governmental funding agencies and foundations offering particular fellowships. Be sure to meet all the constraints that apply to you. Graduate School definitions of full-time registration and full-time equivalent, which may be helpful in determining your responsibilities, are included in the Graduate School Registration Requirements.

5 PhD Program

The following subsections describe the departmental requirements for the PhD degree.

5.1 Qualifying Examination

Each PhD student must complete the Qualifying Examination to advance to candidacy. The Qualifying Examination consists of a written component and an oral component, as follows:

5.2 Written Qualifying Examinations

Pass two exams in three of the four two-semester course sequences listed below (six exams total, one for each semester), with grades of Pass or High Pass. At least one exam must be passed from the analysis sequence, and at least one from the Algebra sequence.

Analysis (MAA 6616, MAA 6617)
Algebra (MAS 6331, MAS 6332)
Topology (MTG 6346, MTG 6347)
Numerical Analysis (MAD 6406, MAD 6407)

The written qualifying exams are given in May, August and January. (In January only exams from the first (Fall term) course in each sequence are offered, in May only exams from the second (Spring term) course in each sequence are offered.)

Refer to the section Qualifying Exams below for deadlines by which the parts must be passed.

5.3 Oral Qualifying Examination

The oral exam is conducted by the Supervisory Committee. It is scheduled only after the written part has been passed. It focuses on the intended area of research and includes other appropriate material at the Supervisory Committee's discretion.

5.4 Research and Dissertation

Conduct research under the guidance of a faculty member and prepare, present and defend a dissertation which shows independent investigation and is acceptable in form and content to the Supervisory Committee and the Graduate School.

5.5 Courses and Grades

A total of 90 credits of graduate work are required. In addition the above work must satisfy certain **distribution requirements**. The **extent** part of the distribution requirements is fulfilled by completing a minimum of 36 credits in 6000+ graduate mathematics courses. Note that reading courses MAT 6905, 6910 and research credits MAT 7979, 7980 do NOT count toward the 36 credit requirement. A maximum of 18 credits of MAT 6932 will count toward the requirement. The English language course EAP 5836 does not count toward the 90 credit requirement.

Students who already have a master's degree on entering the PhD program are eligible for a *Master's Degree Acknowledgement (MDA)*, which reduces the total credit requirement for the PhD

from 90 credits to 60 credits. (The 36 credit requirement described in the previous paragraph is unaffected.) To apply for the MDA, contact the graduate coordinator.

The **breadth** part of the distribution requirements is fulfilled by completing sequences in two of the following four categories, two semesters in a third, and a semester in the fourth:

Algebra, Combinatorics and Number Theory

- MAS 6331-2 Algebra
- MAS 7396-7 Advanced Topics in Algebra
- MAD 6206-7 Combinatorics
- MAD 7396-7 Topics in Combinatorics
- MAS 7215-6 Theory of Numbers

Analysis

- MAA 6616-7 Analysis
- MAA 6406-7 Complex Analysis
- MAA 7526-7 Functional Analysis

Applied Mathematics

- MAD 6406-7 Numerical Analysis
- MAP 6327-8 Applied Differential Equations
- MAP 6356-7 Partial Differential Equations
- MAP 6467-8 Stochastic Differential Equations
- MAP 6472-3 Probability
- MAP 6487-8 Biomathematics Seminar
- MAP 6213 Variational Analysis (Fall) + MAP 6208 Numerical Optimization (Spring)

Topology and Foundations

- MTG 6256-7 Differential Geometry
- MTG 6346-7 Topology
- MTG 7396-7 Advanced Topics in Topology
- MHF 6306-7 Logic

Additional courses, such as special topcis courses numbered MAT 6932, may also be counted towards the breadth requirement.

The course MAE 6617, Mathematics Teaching and Learning in Higher Education, is offered by the Department of Mathematics Education in the School of Teaching and Learning, and is open to mathematics PhD students. It is typically offered in the Spring term of odd-numbered years. The course may be counted towards the 36 credit extent requirement, but does not count towards the breadth requirement.

Students must achieve a grade point average of 3.0 or better in all course work and a grade point average of 3.0 or better in all course work in mathematics.

5.6 Teaching requirement

Teach a minimum of two semesters at the college level.

5.7 Residence Requirement

Complete 30 credits enrolled at the University of Florida campus beyond the first 30 credits counted toward the doctoral degree.

5.8 Dissertation Advisor and Supervisory Committee

A PhD student is expected to have secured a dissertation advisor by March 15 of the Spring semester of the second year and a supervisory committee by the end of March of the Spring semester of the second year; failure to have one by January of the third year will result in academic probation.

At no time after the end of the third year may a PhD student be without a dissertation advisor and supervisory committee. If you change advisors at any time, you must notify the Graduate Secretary.

A PhD supervisory committee typically consists of five members of the graduate faculty: the advisor, an external member (a UF graduate faculty member who does not have Graduate Faculty Status with the Department of Mathematics), and three additional members. Usually at least three members of the committee are graduate faculty in the UF Department of Mathematics. Special appointments are required in order to include menmbers who are not UF faculty, such as faculty from other universities. You may form a committee with only four members but the oral qualifying exam and the thesis defense must be attended by five appropriate graduate faculty members, including all members of the supervisory committee. In all cases, at least one-half the members, including the chair or co-chair, of Mathematics PhD committees must be mathematics department faculty holding graduate faculty status in mathematics.

5.9 Candidacy

Students normally are admitted to candidacy when they have a dissertation topic approved by their supervisory committee and have passed the written and oral parts of the qualifying examination.

5.10 Satisfactory Progress Criteria

Graduate students in mathematics are required to make satisfactory progress. In the first year, progress is measured by the **Rubric for First Year Progress (PhD)**. Students not making satisfactory progress will be placed on probation. If probationary status is not resolved by the end of the semester in which it is initiated, the student will not be allowed to continue as a graduate student in mathematics and any guarantee of support will be terminated. Exceptions to the rules will be made through written appeals to the Graduate coordinator or the Graduate Committee. Graduate students in mathematics must meet university requirements for satisfactory progress (see the subsection on Unsatisfactory Progress or Unsatisfactory Scholarship in the General Regulations section of the Graduate Catalog). Additionally, the Department of Mathematics requires the following:

5.11 Course and Grade Requirements

During each of their first two years, PhD students must take at least two 5000+ mathematics courses each semester. In the first year PhD students normally take two 6000+ sequences leading to written qaulifyting exams, and complete their schedule with courses that fulfill their degree goals, typically additional 6000+ courses in a proposed area of research or to fulfill the distribution requirements. During the second year students will typically take a third qualifying exam sequence, and additional courses related to an intended research area or to fulfill breadth requirements.

After the first two years, PhD students must take at least one 5000+ mathematics course per semester. A student can count a reading/research course, e.g. MAT 6905, MAT 6910, MAT 7979, MAT 7980 toward the 5000+ mathematics course per term, for at most two non-summer terms. At most five credits of MAT 6910 count toward the degree, and at most 18 credits of MAT 6932 count toward the degree. In addition, the English language course EAP 5836 does not count towards the degree.

The breadth part of the distribution requirements are normally completed by the end of the fourth year and must be completed by the end of fall term of the fifth year of graduate study.

Each mathematics graduate student must maintain a cumulative grade point average of 3.0 or better.

5.12 Qualifying Exam Deadlines

PhD students must pass at least two parts of the written qualifying exam by May of the first full academic year of graduate study, at least four parts by August of that year, and all six parts by the following May. Students who fail to achieve one of these three milestones will be transferred to the master's program.

Students must take the oral part of the Qualifying Exam prior to the midpoint of the fall semester of the fourth year of graduate study.

5.13 Time Limits

The Ph.D. requirements must be completed by the end of the Summer B/C semester of the eighth calendar year after the first term enrolled in any University of Florida mathematics graduate program.

6 Master of Science by Examination

6.1 Total Credit Hours

The MS (exam) requires 32 credit hours.

6.2 Teaching requirement

Teach a minimum of one semester at the college level.

6.3 Courses

The MS (exam) requires successful completion of MAS 6331-6332 Algebra and MAA 6616-6617 Analysis or passage of the corresponding parts of the written qualifying exam.

The MS (exam) requires either least 18 credits of mathematics courses at the 6000+ level or, in the applied track, requires a specialization package either designed by the student with prior approval of the Graduate Committee or selected from subsection 6.6 below. The typical package combines at least 12 credits of 6000+ mathematics with two or more graduate level courses from an area of application/specialization.

Individual work in the form of MAT 6905, MAT 6910, MAE 6940 will not count toward the requirements for mathematics courses at the 6000+ level.

6.4 Examination for the MS in Mathematics (exam)

Each student must pass three qualifying exams from the following list, with a grade of Masters Pass or better, including at least one from Algebra or Analysis.

MAS 6331 Algebra 1
MAS 6332 Algebra 2
MAA 6616 Analysis 1
MAA 6617 Analysis 2
MAD 6406 Numerical Linear Algebra
MAD 6407 Numerical Analysis
MTG 6346 Topology 1
MTG 6347 Topology 2

If the final part of the qualifying exam has been completed earlier than the term prior to the one in which the student applies for the Master of Science degree, the student must take an oral exam to ensure the final examination is comprehensive.

6.5 Satisfactory Progress Criteria

1. Maintain a grade point average of 3.0 or better in all classes and in all mathematics classes.
2. Complete at least two mathematics courses for 6 credits each semester.
3. The examination requirement should be completed by the May offering of the second academic year. Progress towards this requirement is considered to be **meeting expectations**, **near**

expectations, or **below expectations** according to the **Rubric for First Year Progress (MS)**. Students who have failed to pass one part of the First Year Exam by the August offering may, with the approval of the Graduate coordinator, be permitted to enter the MAT/MST program.

4. Complete the program in three years.

6.6 Approved packages for applied math track of MS (exam)

Applied Differential Equations Package
Mathematics Core (choose 2 semesters):

MAP 6356-7 Partial Differential Equations
MAP 6375-6 Numerical PDE
MAP 6327 Applied Differential Equations

Mathematics Electives (choose 2 semesters):

MAD 6406 Numerical Linear Algebra
MAP 6487-8 Biomath Seminar
MAP 6467-8 Stochastic Differential Equations
Other courses from the core

Outside Electives (choose 2 semesters):

Electrical and Computer Engineering
EEL 5441 Fundamentals of Photonics
EEL 5490 Lightning
Materials Science & Engineering
EMA 6805-6 Mathematical Methods in Materials Science
Industrial and Systems Engineering
ESI 6448 Discrete Optimization Theory
Physics
PHY 6346-7 Electromagnetic Theory

Biomathematics and Modeling Package
Mathematics Core (choose 2 semesters):

MAP 6327 Applied Differential Equations
MAP 6472-3 Probability and Potential Theory
MAD 6406-7 Numerical Linear Algebra, Numerical Analysis

Mathematics Electives (choose 2 semesters):

MAP 6356-7 Partial Differential Equations
MAP 6467-8 Stochastic Differential Equations
MAP 6487-8 Seminar in Biomathematics
Other courses from the math core

Statistics Electives (choose 2 semesters):

STA 6207-8 Applied Statistical Methods/Regression Analysis
STA 6326-7 Introduction to Theoretical Statistics
STA 6177 Survival Analysis and Clinical Trials
PHC 6051C Biostatistical Methods 1 (focus on infectious disease)
PHC 6052 Introduction to Biostatistical Methods

The above classes are offered by the Department of Statistics, Department of Biostatistics. See the Biostatistics Course Page for more information on alternate course numbering and which department is offer which courses.

Combinatorics and Optimization Package

Mathematics Core (choose 2 semesters): MAD 6406 Numerical Linear Algebra
MAD 6407 Numerical Analysis
MAP 6206 – 6207 Combinatorial Theory
Mathematics Electives (choose 2 semesters): MAP 6208 Numerical Optimization
MAD 7396 – 7 Topics in Combinatorial Theory
Other courses from the core
Outside Electives (choose 2 semesters):

ESI 6314 Deterministic Methods in Operations Research
ESI 6417 Linear Programming and Network Optimization
ESI 6418 Linear Programming Extensions and Applications
ESI 6448 Discrete Optimization Theory
ESI 6492 Global Optimization
ESI 6912 Fundamentals of Mathematical Programming
COT 5405 Analysis of Algorithms
COT 6315 Formal Languages and Computation Theory
COT 5442 Approximation Algorithms (proposed)

The above classes are offered by the Department of Industrial and Systems Engineering and the Department of Computer and Information Science and Engineering.

Probability and Statistics Package

Mathematics Core (choose 2 semesters):

MAP 6472-3 Probability and Potential Theory
MAP 6467-8 Stochastic Differential Equations

Mathematics Electives (choose 2 semesters):

MAD 6406 Numerical Linear Algebra
MAD 6407 Numerical Analysis
MAP 6417-8 Fourier Series
Other courses from the math core

Statistics Electives (choose 2 semesters):

STA 6326-7 Intro to Theoretical Statistics
STA 6466-7 Probability Theory

The above classes are offered by the Department of Statistics.

Numerical Methods Package
Mathematics Core (choose 3 semesters):

MAD 6406 Numerical Linear Algebra
MAD 6407 Numerical Analysis
MAP 6208 Numerical Optimization

Outside Electives (choose 3 semesters):

STA 6207-8 Applied Statistical Methods; Regression Analysis
STA 6326-7 Introduction to Theoretical Statistics
COT 5405 Analysis of Algorithms
COP 5615 Operating System Principles
CDA 5155 Computer Architecture Principles
COP 5555 Programming Language Principles

The above classes are offered by the Department of Computer and Information Science and Engineering and the Department of Statistics.

7 Master of Science by Thesis

7.1 Total Credit Hours

The MS (thesis) requires 33 credit hours.

7.2 Teaching requirement

Teach a minimum of one semester at the college level.

7.3 Courses

The MS (thesis) program requires successful completion of MAS 6331-6332 Algebra and MAA 6616-6617 Analysis or passage of the corresponding parts of the written qualifying exam.

The MS (thesis) requires at least 12 credits of mathematics courses at the 6000+ level (not counting MAT 6931) and enrollment in MAT 6931 Masters Research during the term the student graduates. At most six credits of MAT 6931 count toward the degree, and six credits spread over two terms are usually required to write a thesis.

Individual work in the form of MAT 6905, MAT 6910, MAE 6940 will not count toward the requirements for mathematics courses at the 6000+ level.

7.4 Thesis for the MS (thesis)

Each student must prepare and present a thesis acceptable in form and content to the supervisory committee and the Graduate School. It must contain some original research material.

Each student must defend the thesis in an oral exam administered by the supervisory committee.

7.5 Satisfactory Progress Criteria

1. Maintain a grade point average of 3.0 or better in all classes and in all mathematics classes.
2. Complete at least two mathematics courses for 6 credits each semester.
3. Complete the program in three years.

8 Master of Science/Arts in Teaching Mathematics

This degree is Master of Science in Teaching provided the minor (see 2 below) is in science, and is Master of Arts in Teaching otherwise.

8.1 Course Requirements

At least 36 semester hours of work must be completed. Usually at least 39 hours are necessary for the MAT degree and at least 45 hours are necessary for the MST degree. This must be distributed as indicated below. (Please consult the Course Guide for course abbreviations.)

1. 24 hours in mathematics courses numbered 5000 or above. This must include the sequences MAS 6331-2 and MAA 6616-7.
2. 6 hours in a suitable minor, at the 3000 level or above for science.
3. 6 credit hours in a mathematics department teaching internship (MAE 6943). This requirement is waived for those with three years' teaching experience in state-certified schools at middle school or above.
4. At least one course must be taken from each of three different areas among the following list: social and/or psychological foundations of education; education technology; counselor education; special education, and community college curriculum. Other areas may be added or substituted at the discretion of the supervisory committee. These courses may be used to comprise a minor. A list of acceptable courses may be obtained from the department graduate coordinator.

8.2 Teaching Requirement:

One semester college teaching is required.

8.3 Portfolio Requirement:

A teaching portfolio which includes at a minimum a curriculum vitae, statement of teaching philosophy, artifacts of teaching practice, e.g.sample quizzes, tests, homework assignments, syllabi, and reflections on teaching practice.

8.4 Final Examination:

Near the conclusion of the program, a final comprehensive oral examination will be conducted by the student's supervisory committee. Passing the first year examination (see MS-MA requirements above) constitutes an acceptable substitute for this oral examination if completed no later than six months prior to graduation.

9 Annual Academic Evaluation

Every fall, each graduate student prior to the year of graduation is asked by the graduate secretary to fill out an academic progress form, have it signed by their mentor/advisor and returned to the graduate secretary, or for students in their fourth year and beyond who have advanced to candidacy, a Curriculum Vita or Resume, Teaching Statement and Research Statement are requested. In addition, the graduate secretary requests an evaluation in the fall of each student by their advisor or from one or more of their instructors for students in their first two years. Each student is interviewed by a subcommittee of the graduate committee early in the spring. In late spring, the graduate coordinator writes a annual letter of academic evaluation after reviewing the results of the graduate committee interview, the student record and and any written or oral exams since the last evaluation. In between annual evaluations, the graduate coordinator monitors compliance with benchmarks appropriate to the students program.

10 Forms

- Independent study form
- Formation of Supervisory Committee (MS)
- Formation of Supervisory Committee (MST/MAT)
- Formation of Supervisory Committee (PhD)
- Rubric for First Year Progress (MS)
- Rubric for First Year Progress (PhD)
- Rubric for MAT/MST Final Exam
- Rubric for PhD Oral Qualifying Exam
- Schedule Final Exam (MS)
- Schedule Final Exam (MST/MAT)

- Schedule PhD Oral Qualifying Exam
- Schedule Defense of Dissertation
- Teaching Observation Form