DEPARTMENT OF MATHEMATICS
GRADUATE HANDBOOK [1]
2025-26

[1]The current version of the graduate handbook is available at https://www.math.fsu.edu/~mhurdal/StudentResources/Graduate/index.math

Contents

1 ADMINISTRATION

- Department Chair, Ettore Aldrovandi (ealdrovandi@fsu.edu)
- Associate Chair for Graduate Studies (*the Graduate Chair*), Giray Ökten (gokten@fsu.edu). Oversees advising, admissions, and financial aid for graduate students.
- Director for Undergraduate Studies, Nick Cogan (ncogan@fsu.edu)
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- Major Directors
  - Samuel Ballas, Director of Pure Mathematics (sballas@fsu.edu)
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- Advisors
  - Elizabeth Scott, Graduate Academic Program Specialist (*the Graduate Advisor*; emscott2@fsu.edu)
    Helps graduate students with advising, registration, candidacy requirements, dissertation requirements, and graduation.
  - Lisa MacKay-Ring, Undergraduate Academic Program Specialist (*the Undergraduate Advisor*; math-advisor@fsu.edu). Helps mathematics majors.
  - Kim Brown, Advising First Advisor math-advisor@fsu.edu). Assists the department with non-mathematics undergrad majors enrolled in mathematics courses.

2 THE GRADUATE MAJORS

The Department of Mathematics has four graduate majors that offer both MS and PhD degrees: Pure Mathematics (`https://www.math.fsu.edu/puremath/`), Applied & Computational Mathematics (`https://www.math.fsu.edu/acmath/`), Biomathematics (`https://`

www.math.fsu.edu/biomath/),Financial Mathematics (https://www.math.fsu.edu/finmath/).In addition, Mathematics offers a major for the College of Arts Science's Interdisciplinary Data Science Master's degree. That degree is referred to as IDS–Math (https://www.math.fsu.edu/datascience/).

Each major has its own admissions committee, required and elective courses, and qualifier requirements. Please visit the major webpages for more information.

3 REGISTRATION AND THE GRIDS

Every semester, there will be a certain time period when students must register for their classes. A fine is imposed by the university to students who miss the deadline to register for classes.

The graduate advisor will send a registration memo to students every semester before the registration window opens. Students should consult their director or their major professor, as well as the registration memo, before registering for classes.

In addition, all students must complete the GRIDS every semester. This is a departmental online form where we keep track of all the courses and seminars the students are taking, and their schedules. We use GRIDs to check registration of the students, and to schedule the teaching duties for over 90 teaching assistants (TA) who are responsible for students in over 150 sections of our courses. More details on GRIDs will be given by the Coordinator of Graduate Teaching Assistants.

4 GRADUATE STUDENT COUNCIL

The Mathematics Graduate Student Council is a group of eight graduate students who serve as:

- A liaison between the graduate students and the administration, to foster communication
- A formal resource for faculty/staff to find out about issues important to the graduate students
- A resource for helping to acclimate the new class of graduate students into the life of the department

- A resource for new graduate students for navigating some of the technical graduate school requirements

The GSC website is, https://fsugsc2020.wixsite.com/fsumathgsc

5 COURSEWORK REQUIREMENTS

The coursework required for MS degrees (both terminal and in-flight) differs by major. The most up-to-date major requirements can be found on the major webpages. Below are the coursework requirements for incoming cohort of Fall 2025:

- **Applied and Computational Mathematics (ACM)** ACM offers both a course-based master's and a thesis-based masters. To satisfy the course-based option, first meet the ACM Core Courses requirement: the Foundations of Computational Math sequence; Graduate PDE's sequence; and the Methods of Applied Math sequence. Complete three courses from the Mandatory Course Requirements list, published here: https://www.math.fsu.edu/acmath/acmmandatorycourses.math Finally, select an additional 9 hours of graded coursework as electives. The total credit hours will be 36, with a minimum of 30 graded.

  Students enrolled in the MS through the BS-MS pathway for ACM must finish the coursework plan designed for them when they entered the pathway as undergraduates.

  To satisfy the ACM thesis-based option, complete the ACM Core Courses and Mandatory Courses requirements described above. Take one, 3-hour, graded elective. Then register for at least 6 credit hours of MAT 5971:Thesis. For more information on thesis requirements, see the major webpage:https://www.math.fsu.edu/acmath/msdetails.math

- **Biomathematics** The core curriculum includes 4 courses to be satisfied by all students, and a weekly seminar. Remaining courses are chosen from a list of options, depending on the student's interest and faculty advice. PhD and Master's students in Biomathematics complete 36 hours of approved coursework (not including seminars), of which a maximum of 6 credits can be taken S/U (pass/fail). At least five 3-hour courses must be in the Department of Mathematics. Students completing this coursework are awarded a Master's degree.

  All Biomath students take the following: MAP 5486 Computational Methods in Biology; MAP 5932 Spatial and Temporal Models in Biology; MAD 5306 Graph Theory and Net-

works or other approved biomathematics course; MAP 6437 Biomathematics Projects; MAP 6939 A Biomathematics seminar (1 hour credit each semester).

Complete two pre-approved interdisciplinary courses from Biology, Chemistry, Statistics, Computer Science, or Scientific Computing.

Take 5 mathematics electives, for a total of 36 hours of listed courses (not including seminars).

- **Financial Mathematics** The coursework for PhD and MS degrees differs. In addition, the MS degree offers two tracks to choose from. These tracks are not majors, but help a student to organize his or her course selection.

  Financial Math PhD Coursework MAP 5601 Introduction to Financial Mathematics; MAP 6621 Financial Engineering I; MAP 5615 Monte Carlo Methods in Financial Mathematics; MAT 5939r Financial Mathematics Proseminar, 1 hour in Fall and Spring, for a total of 2 hours. MAD 5403-4 Foundations of Computational Math, I-II; STA 6346, Advanced Probability and Inference I; MAA 5616, Measure and Integration I; MAP 5932 Stochastic Analysis; and four additional approved elective courses in the first two years. It is recommended that PhD students include among their elective courses MAA 5617 Measure and Integration II and MAP 5932 Financial Engineering II.

  Financial Math MS, Financial Engineering Track To complete the degree, students take the following courses:

  MAP 5601 Introduction to Financial Mathematics; MAP 6621 Financial Engineering I; MAP 5615 Monte Carlo Methods in Financial Mathematics; MAT 5939r Financial Mathematics Proseminar, 1 hour in Fall and Spring, for a total of 2 hours. ISC 5305 Scientific Programming; STA5326 Distribution theory and Inference or STA 6346 Advanced Probability and Inference I; CAP 5768 Introduction to Data Science; and five or six additional approved elective courses.

  Financial Math MS, Actuarial Science Track Students will take the following courses (unless adjusted when a student has already passed an Actuarial exam):

  MAP 5601 Introduction to Financial Mathematics; MAP 5932 Financial Mathematics for Actuaries; MAP 5932 Short Term Actuarial Math I; MAT5932 Short-Term Actuarial Models II; MAP 5177 Long-Term Actuarial Models I; MAP 5178 Long-Term Actuarial Models II; STA 5325 Mathematical Statistics; STA 5207 Applied Regression Methods; STA 5856 Time Series and Forecasting Methods;

Plus two additional seminars from the following list: Actuarial P-Seminar, 1 hr; Actuarial FM-Seminar, 1 hr; MAT 5939 Financial Mathematics Proseminar, 1 hr

- **Pure Mathematics** All students enrolled in the pure math graduate program who have taken 36 graduate credit hours of graduate courses, and have passed the three core course sequences are eligible for a masters degree. This includes students who are intending to continue on as a doctoral candidate as well as students who opt to leave the program with a masters.The three core course sequences are the following

  Algebra: Groups, rings, and vector spaces (GRV) I II (MAS5307 MAS5308), Abstract Algebra I (MAS5311);

  Topology: Topology I II (MTG5326 MTG5327), Algebraic topology (Top IIIa) (MTG5346) or Differential topology (Top IIIb) (MTG5932);

  Analysis: Measure and integration I II (MAA5616 MAA5617); Theory of functions of a complex variable I (MAA5406).

  Students enrolled in the MS through the BS-MS pathway for Pure must finish the coursework plan designed for them when they entered the pathway as undergraduates.

6 QUALIFIERS

PhD students must pass qualifier exams required by their major. Detailed information on qualifiers, exam topics, sample exams, and general guidelines can be found at `https://www.math.fsu.edu/qualifiers/`.

Two important rules are:

1. There is a cap set at two attempts: a qualifier in a given subject will not be given again to a student who has failed it twice. (The cap does not include the qualifiers taken by new students in August of their first year, which is known as the “free qualifier policy".)

2. Teaching assistants (TA) must pass their qualifiers no later than the beginning of the fourth semester of graduate study.

7 DISSERTATION COMMITTEE REQUIREMENTS

Before taking the candidacy exam, the student will have a dissertation committee appointed. The committee must include, at minimum (1) A committee chair, the student’s primary

advisor (2) a University Representative, a tenured member of faculty from outside the department (3 and 4) at least two other members of the math faculty. Therefore, a committee will have a minimum of 4 members. If a student's advisor is outside the math department, there must also be a mathematics co-advisor. Each advisor counts as half the role, and two other members from mathematics must still be appointed. Thus, a committee could have 5, 6, etc members. There is no maximum, only a minimum.

The committee is appointed by request of the primary advisor. He or she puts in writing (email is acceptable) a request to the department Chair. The department Chair will approval, reject, or question the committee appointments.

8 DISSERTATION MANUSCRIPT REQUIREMENTS

The semester in which a student intends to defend, the dissertation manuscript must meet all formatting and deadline requirements of the Manuscript Clearance office. There will be a pre-defense manuscript deadline and a post-defense (corrected) manuscript deadline. Those deadlines, and other manuscript requirements, are published by the Graduate School every semester: `https://gradschool.fsu.edu/current-students/thesis-treatise-and-dissertation/manuscript-clearance-deadlines`

9 TIMELY PROGRESS AND REQUIREMENTS FOR PHD STUDENTS

In summary, graduate students are expected to maintain a minimum 3.0 GPA, complete their qualifier exams by the start of their fourth semester, pass their candidacy exam in their third year, and successfully defend their dissertation by the end of the Spring semester of their sixth year. The following sections outline the details and consequences of not meeting these progress requirements.

- **GPA Requirement:** Students must have at least 3.0 cumulative GPA each semester. If a student has a cumulative GPA lower than 3.0, then the student is put on probation by the University. A student on probation must raise their cumulative GPA over 3.0 the following semester, or else they are dismissed by the University.

- **The Graduate Qualifiers:** Each graduate major has its own choice of qualifier exams. However, all students must pass the qualifier exams at the same schedule, independent of their major.

Students are required to complete their qualifiers by the beginning of their fourth semester of graduate study; failure to do so will constitute a lack of academic progress.

- **The Doctoral Candidacy Exam:** A student gets only two chances to pass their doctoral candidacy exam. Failure to pass the exam within two attempts results in academic dismissal.

  Students are required to pass their doctoral candidacy exams in their third year, Fall, Spring, or Summer semesters; failure to do so will constitute a lack of academic progress.

- **The Dissertation Defense:** The outcome of a dissertation defense falls into one of four categories: Pass, Pass with Major Revisions, Re-Examine, or Fail. If a student receives a Re-Examine decision, they are granted one additional opportunity to pass the defense. A failing result leads to academic dismissal. Students are required to successfully defend their dissertations by the end of their sixth year, spring semester; failure to do so will constitute a lack of academic progress.

- **Remediation Plan:** A graduate student found to be lacking academic progress must meet with their major professor/ director and Graduate Chair to develop a detailed remediation plan for improvement.

- **Requirements for Teaching Assistants:** Teaching assistant (TA) funding is competitive, with priority given to students who are making good academic progress. It is uncommon for students who are not meeting academic progress expectations to receive TA support. In addition to making good academic progress, to receive funding TAs must

  – complete the Mathematics Department certification requirements for levels 1 and 2 TA assignments;

  – either have completed or be working toward Mathematics Department certification for levels 3-5 TA assignments;

  – either be certified in spoken English or be enrolled in an approved English class;

  – have satisfactory job performance.

10 SCHOLARLY ENGAGEMENT REQUIREMENT

PhD students must satisfy the Scholarly Engagement requirement of FSU. To do so, PhD students must demonstrate active involvement in the scholarly community through interac-

tion with faculty and peers. In the Mathematics Department this requirement is satisfied by registering and participating in appropriate research seminars, as well as in the mathematics colloquium for a minimum of two semesters.

11 SEMINAR AND COLLOQUIUM REQUIREMENTS

As referenced above, each PhD student must register for the mathematics department colloquium a minimum of two semesters. Colloquium is held each Fall and Spring. Students may register pre-Candidacy and/or while Candidates.

While consistent seminar participation is encouraged for all, seminar graduation requirements vary according to major.

ACM: After earning Candidacy, a PhD student must register for seminars in at least three different semesters.

Biomath: The student must enroll in a seminar each Fall and Spring semester, and after the first year, at least one of these should be a specialized biomathematics seminar.

Financial Math: Starting in the third year, PhD students are expected to attend MAP6939 Research Seminar in Financial Mathematics each semester.

Pure: Regular seminar participation is expected. Seminar enrollment is monitored by the Director.

12 YEARLY STUDENT EVALUATIONS

The Graduate School mandates that departments evaluate their graduate students annually. The Mathematics department performs these annual reviews in October and November, except in the case of first year students. New students are evaluated near the end of their first year, in March or April. The Graduate Advisor will supply students and faculty with the requisite form, the "Annual Progress Report."

13 TEACHING ASSISTANT TRAINING PROGRAM

All graduate teaching assistants go through a teacher-training program supervised by the Coordinator of Graduate Teaching Assistants. The first assignment of the new TAs is the job of Proctor in Computer Assisted Instruction (CAI) classrooms. Gradually, as TAs progress in the training program, assignments with higher responsibilities will be made. For more details see `https://www.math.fsu.edu/graduate-general-info/TAtraining.math`.

TAs must go over the Teaching Information Guide for Graduate Students (GIG) which describes the general requirements and obligations of Graduate Teaching Assistants (https://www.math.fsu.edu/~mhurdal/StudentResources/Graduate/index.math).

14 TRAVEL SUPPORT POLICY

Subject to availability of funds, the department offers financial support to graduate students who are traveling to conferences or workshops to present a talk, poster, or to attend. Students can also get partial travel funding from COGS (https://sga.fsu.edu/student-government/33rd-congress-graduate-students/funding) travel grant. Also, check if the conference you plan to attend provides any financial support. All of these funds are allocated on a first come first served basis.

AMS, SIAM, and SMB have travel grants for graduate students. Please check their web pages for more information: http://www.ams.org/majors/travel-grants/travel-grants, https://www.siam.org/conferences-events/conference-support/travel-and-registration-su https://www.smb.org/travel-grants.

- **ATTENDANCE:** There are different rules for pre-candidates and candidates. A doctoral candidate can receive funding to attend a conference in his/her research . A doctoral pre-candidate can receive funding to attend a meeting with a training component, such as conferences where there are lectures for graduate students. These type of grants are limited to once an academic year.

- **POSTERS:** The department provides some support to candidates who are presenting posters at conferences. These type of grants are limited to once an academic year.

- **RESEARCH TALK:** The department provides some support to candidates giving a research talk at a conference. These type of grants are limited to once an academic year.

- **JOB TALK:** There is a one-time department travel grant available to a doctoral candidate during his/her graduate studies. This is intended to support the student's main job talk. It will likely happen in year 4 or 5 of the student's graduate studies. Students should discuss with their major professor what the most appropriate conference will be for their main job talk.

- **CLARA KIBLER DAVIS SCHOLARSHIPS:** Female graduate students are eligible to receive a Clara Kibler Davis Scholarship to support their travel. Your travel support letter will explain the conditions if you receive this scholarship.

Applications for these travel grants will be made to the Associate Chair for Graduate Studies. Please note that this travel support policy is subject to department budget constraints. Students seeking a second travel award during an academic year will have lower priority. **How to apply:** Email the Associate Chair for Graduate Studies with the following information:

1. The name of the conference, the dates, the title of your talk or poster (if you are giving one), the name of your major professor.

2. In a short paragraph explain how the conference will benefit your research.

3. Ask your major professor if you are a candidate, or your director if you are a pre-candidate, to send the Associate Chair for Graduate Studies an email supporting your travel.

Students must check with Ms. Gina Fort before they make their travel plans and make sure they provide the necessary paperwork to receive the grants.

15 CONTINUOUS ENROLLMENT AND TAKING SUMMER OFF

A student who is not a doctoral candidate is free to take the summer semester off. However, you must be careful not to jeopardize your enrollment: "Continuous enrollment at Florida State University is defined as enrollment without an interruption of two or more consecutive semesters (including summer term). Credits earned at other institutions during any semester while not registered at Florida State University will not constitute continuous enrollment at the University. Graduate, law, and medical students who are not enrolled at the University for two or more consecutive semesters (or consecutive semester and summer term), and who are not on approved leave of absence, must apply for readmission before resuming their studies." `https://registrar.fsu.edu/bulletin/graduate-information/academic-regulations-procedur` Furthermore, if you are a TA or RA in the summer, you must register as a full time student.

A doctoral candidate, on the other hand, is required by the university to take at least 2 dissertation hours during summer. The only exception to this rule is the following: If the student will not be using department or university resources, which includes electronic library resources, email, as well as interacting with the student's major professor, then the

student can take the summer off. To pursue this option and take the summer off, the student should get an approval from the major professor and the Graduate Chair.

The following university rule on dissertation enrollment is taken from the bulletin: `https://registrar.fsu.edu/bulletin/graduate-information/academic-regulations-procedures`

"After completing the required coursework, passing the Preliminary Examination, submitting an Admission to Candidacy to the Office of the Registrar, and continuing to use campus facilities and/or receiving faculty supervision, but not yet having been cleared by the Manuscript Clearance Office, a full-time student shall register for a minimum of two credit hours of dissertation per semester, including Summer term, plus additional credit hours adding up to the required full-time load, until completion of the degree. A student also must be enrolled in a minimum of two hours of dissertation in the semester of graduation as part of any full-time load or underload."

16 INTERNSHIPS

Graduate students are strongly encouraged to explore summer internship opportunities. For students planning for employment in the industry, a summer internship will play a crucial role in securing a good job after graduation. For students interested in a research position after graduation, an internship at a national lab, or in the industry, could provide invaluable experience on the application of mathematics.

Talk to your director or the Graduate Chair to learn more about internships. You can do an internship and earn course credit for it, if you wish. International students need authorization before they can work as an intern.

17 GRADUATE ASSISTANTS AND OUTSIDE EMPLOYMENT

Funded students (TAs and RAs) may take on additional employment, such as tutoring, for example. However, funded students are encouraged to report all outside employment to the Associate Chair for Graduate Studies to ensure there is no conflict of interest.