Department Policies and Procedures for the M. S. Degree Program in Mathematics

This document should be used as a supplement to the information contained in the *Graduate Bulletin*.

"Upward, not Northward!" – from *Flatland, A Romance of Many Dimensions*, by Edwin A. Abbott (1884)

Our Program

The master's degree program in mathematics at the University of South Alabama provides a solid background in mathematics at the introductory graduate level. While the fundamental areas of mathematics – algebra, analysis and geometry/topology – are stressed, it is possible to concentrate in applied areas such as statistics, computer science and biomedical sciences. Our graduates have received assistantships at Ph.D.-granting institutions. Others have been offered attractive jobs in education or industry.

Advising

New graduate students should meet with the graduate coordinator before registration. At that meeting, an appropriate projected plan of study will be determined for the student's educational objectives.

Returning graduate students should meet with the graduate coordinator before registering for courses. After approval by the coordinator, the advising hold is lifted, and students may register.

If at any time you have any problems or concerns, please see the graduate coordinator. Sooner is better.

Masters Thesis and Project Based Comprehensive Examination

In addition to the standard coursework required of all graduate students in the masters program, every graduate student is required to demonstrate a mature application of skills and

knowledge through completing either a Masters Thesis or a Project Based Comprehensive Examination.

Masters Thesis

Students are strongly encouraged to write a Masters Thesis. They should discuss their pending decision with the Graduate Coordinator. A thesis committee will be appointed after the student selects a major professor to direct the thesis. Prior to enrolling in MA 599 (Thesis), a student must have a research prospectus approved by the thesis committee. A thesis defense is held upon the completion of the thesis. Thesis students are referred to the document *Thesis/Dissertation Preparation*, available at the Graduate School webpage.

Project Based Comprehensive Examination

Students who do not wish to write a Masters Thesis must instead complete a project based comprehensive examination. The project must be linked to a two-course sequence approved by the graduate coordinator (for example real analysis I and II, topology I and II, algebra I and II, linear algebra I and II, probability and theory of statistics, combinatorics and graph theory, etc.).

The project will be evaluated by a three-person comprehensive exam committee consisting of a member of the graduate faculty chosen by the student to serve as their project mentor, the instructor of the two-course sequence chosen for the project, and the graduate coordinator. In the case that this results in less than three people (for example, the project mentor is also the instructor of the course), the student and project mentor will agree on additional graduate faculty to serve on the three-person committee.

Material for the project must be agreed upon between the student and the project mentor and written up in a project description. The project description must be approved by the comprehensive exam committee prior to the semester the student intends to graduate. At the conclusion of the project, the student must present their work in a department seminar and submit a project portfolio. Both the presentation and the portfolio will be evaluated by the comprehensive exam committee.

The content of the portfolio can be quite varied. For instance, the portfolio might consist of a written exposition of an important result or a research paper. The student could also work out important examples, computations, or simulations relevant to the two-course sequence for their portfolio. Whatever the content of the portfolio, it must represent a substantive effort by the student beyond the typical scope of the chosen two-course sequence.

If the comprehensive exam committee deems that the student's work on the portfolio and presentation is unsatisfactory, the project-based comprehensive exam may be repeated once.

Graduate Student Seminar

All graduate students are required to participate in the **Graduate Seminar** (MA 592) at least twice. Graduate students on assistantships must participate during any semester while on assistance. Students receive credit for seminar only twice, but a credit override can be administered if students wish to have the seminar listed on their transcript each semester. The seminar meets weekly under the supervision of the graduate coordinator. In the seminar, students take turns reading and presenting published articles. The order of presentation will be determined at the beginning of each term.

Both *American Mathematical Monthly* and *Mathematics Magazine* are good sources of articles to present. The graduate coordinator must approve any article in advance, preferably a week before the presentation. After it is approved, the student should send electronic copies to everyone in the seminar.

The first meeting of each semester is reserved for orientation and advising purposes.

Department Colloquia and Seminars

Graduate students are strongly encouraged to attend Department colloquium and seminar talks. Talks and seminars are normally announced in advance via flyers in the Department Office and on the Department's webpage.

Colloquium talks are given by local faculty and visitors from other universities. When a colloquium talk is particularly suited to a graduate audience, the announcement will usually so indicate. It is important to meet visitors and hear about their mathematical work.

The seminars are usually conducted by local faculty. They normally include material from research papers, books, or preliminary versions of the speaker's research.

Directed Studies

The Department endeavors to offer graduate courses in a timely manner to fulfill the needs of its students. However, the need occasionally arises for a student to pursue an individual study with a faculty member by enrolling in MA 594 (Directed Studies). Students interested in an individual study should begin by discussing their need with the Graduate Coordinator. The student must find a faculty member who agrees to direct the study. The student then completes the Department form *Request for MA 594* which involves a brief outline of what the study will accomplish. Approval is required by the involved faculty member, the Graduate Coordinator and the Department Chair.

Special Topics Courses

Occasionally the need arises to offer a course which is not one of the regular courses described in the *Graduate Bulletin*. This can be done as a Special Topics course (MA 590). Approval is required at the college level by the Graduate Arts and Sciences Program (GASP) Committee. Faculty proposing such a course should submit appropriate documentation to the Department Graduate Committee two quarters in advance of the proposed offering to allow adequate time for review.

Grades

Graduate students are expected to maintain a GPA of at least 3.0. If your grade point average drops below 3.0, then you will be placed on academic probation. You will have two terms to bring up your average or be dismissed by the Dean of the Graduate School.

Graduate Assistantship Duties

Graduate assistantships are awarded competitively. Graduate assistantships normally include a complete waiver of tuition. The student is responsible for paying the associated registration fees.

Each graduate assistant will be assigned to work 20 hours per week. Any problems with duties should be reported to the Graduate Coordinator for the Department. The information in this section should be used as a supplement to the *Graduate Assistant Information* which is available on the Graduate School webpage.

Graduate assistants are required to work in various ways for the Department. The different job assignments are described below. Occasionally, graduate assistants are assigned jobs from different categories, but the total combined work load of 20 hours per week is maintained.

Assistantship students will serve the department as follows.

I. Recitation Session Leaders

12 hours for Teaching assistant duties. A GTA works with one or two course instructor and holds two pairs of 50-minute recitation sessions, one pair for each course section. Weekly assessment of basic competencies and factual knowledge are given in the form of quizzes, graded and recorded by the GTA. Scores are incorporated into the determination of the final grades. Examinations are given during recitation sessions. The instructor prepares the examinations. The GTA assists with grading. The allotted time allows for preparation and grading.

6 office hours per week in the Calculus I tutoring lab (MSPB 205): The tutoring lab is provided as a free service for students taking Calculus I courses.

2 hours for attending department colloquia and pre-colloquia gatherings: The department is a community of scholars. Graduate students have an obligation to attend colloquia. It is also important that they meet and talk with visitors.

Total: 20 hours.

II. Instructional Lab Assistants

18 hours per week in the Instructional Lab for Developmental Studies.

2 hours for attending department colloquia and pre-colloquia gatherings: The department is a community of scholars. Graduate students have an obligation to attend colloquia. It is also important that they meet and talk with visitors.

Total: 20 hours.

Note: Graduate students who have other duties will receive credit for their pre-assigned hours.

Graduate Faculty

Gayan Abeynanda	Partial Differential Equations, Resonance, Spectral Theory
Sarah Allred	Graph Theory
Olivia Atutey	Variable/Feature Selection, Nonparametric Statistics, and Statistical Inference
H Frazier Bindele	Nonparametric Statistics, Robust Statistical Methods
Audi Byrne	Math Modeling, Biological Mathematics
Steven Clontz	Set-Theoretic Topology and Continuum Theory
Mark Colarusso	Lie theory, Algebraic Geometry, Representation Theory, Integrable Systems, Poisson Geometry
Jacob Dasinger	Mathematics Education
Joanna Furno	Dynamical Systems
Kevin Grace	Matroid Theory, Graph Theory
Jeffrey Mudrock	Combinatorics, Graph Theory
Madhuri Mulekar	Selection and Ranking Procedures, Sequential Estimation, Testing Procedures, and Statistics Education
Vasiliy Prokhorov	Approximation Theory
Andrei Pavelescu	Group Theory, Graph Theory
Elena Pavelescu	Geometric Topology and Spatial Graphs
Ruchira Perera	Partial Differential Equations, Bloch Spectrum of Phonomic Materials
Cornelius Pillen	Representations of Finite Groups, Algebraic Groups, Lie Algebras
Paramahansa Pramanik	Probability and Stochastic Processes, Mathematical Statistics, Mathematical Biology
Armin Straub	Number Theory, Special Functions, Combinatorics, Symbolic Computation
Arik Wilbert	Geometric and Combinatorial Representation Theory, Categorification, TQFT