The Mathematics Graduate Student Academic Handbook 2020-21

Effective 05/01/20

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 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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Chairman	Undergraduate Coordinator
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Secretary: Margaret Somers	Secretary: Connie Doby
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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.

When a student forms a supervisory committee, the chair of the committee takes on the advising role of the graduate coordinator. The graduate secretary facilitates enrollment in classes under department control such as the first year algebra sequence MAS 5311-12, the first year analysis sequence MAA 5228-9 for mathematics graduate students, 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, he requires you to fill out a form and obtain written permission from the individual with whom you seek to work. He also arranges for the proposed work to by approved by the graduate coordinator.

Each semester please review your hold screen in www.isis.ufl.edu 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://catalog.ufl.edu/ugrad/current/Pages/dates-and-deadlines.aspx. 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 School Fellow (domestic and international students): If you hold a Graduate School fellowship and are not currently a Graduate Teaching Assistant, then you must enroll for 12 credits Fall and Spring, and 8 credits in the Summer.

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. 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.

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 School Fellowship or 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/or the graduate coordinator. Usually at most one outside course per term is allowed.

Graduate Student Fellows are required to teach two semesters in their first year and in their third year of graduate study. When teaching their course load will be reduced to a full-time equivalent of 9 credits.

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

5.1 First Year Examination

Pass three First Year Semester Exams, including at least one of the first four listed (analysis), at least one of the last four listed (algebra), and at least one from MAA 5228, MAA 5229, MAS 5311, MAS 5312 (traditional).

MAA 5228 Modern Analysis 1
MAA 5229 Modern Analysis 2
MAD 6407 Numerical Analysis
MTG 5316 Introduction to Topology 1
MTG 5317 Introduction to Topology 2
MAD 6406 Numerical Linear Algebra
MAS 5311 Introduction to Algebra 1
MAS 5312 Introduction to Algebra 2

The First Year Exams are given in May, August and January. After completing one of the core courses, a student may take the corresponding part of the First Year Exam only the first three times the exam is offered. A student may petition the Graduate Committee to waive one or more parts. If a First Year Exam on either MAD 6406 Numerical Linear Algebra or MAD 6407 Numerical Analysis is used, then the student may not use the PhD Numerical Analysis Exam for the written part of the qualifying exam requirement. The exam section of Candidacy and Satisfactory Progress has deadlines by which the parts must be passed.

5.2 Language proficiency

The language exam requirement was removed by the Department in February 2019. Students entering the program after that date are no longer required to pass a language exam in French, German or Russian. The requirement remains in place for students who entered before the effective date.

5.3 Qualifying Examination

Pass the written and oral parts of the Qualifying Examination.

The written part of the exam is chosen with advice from the Supervisory Committee from the list exams given by departmental committees in the following areas: Algebra, Analysis, Combinatorics, Complex Analysis, Differential Geometry, Ergodic Theory and Dynamical Systems, Functional Analysis, Logic, Numerical Analysis, Partial Differential Equations, Probability, and Topology. The PhD exams are administered in May and August each year, and each written PhD exam may be taken at most twice.

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, including MAS 5311-2 and MAA 5228-9 or equivalent, 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. 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
- MAT6932 Calculus of Variations/Optimal Control (Fall) + MAP6208 Numerical Optimization (Spring)

Topology and Foundations

- MTG 6256-7 Differential Geometry
- MTG 6346-7 Topology
- MTG 6401-2 Ergodic Theory and Dynamical Systems

- MTG 7396-7 Advanced Topics in Topology
- MHF 6306-7 Logic

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 and 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 graduate faculty member not affiliated 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. 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.

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 their first two years, PhD students must take at least two 5000+ mathematics courses each semester.

During their second year, PhD students normally take two 6000+ sequences leading to PhD written exams, and complete their schedule with courses that fulfill their degree goals, either applied courses for an applied degree, additional 6000+ courses in a proposed area of research or the distribution 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.

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 First Year, and Qualifying Exams

PhD students must pass at least one part of the First Year Exam by May of the first full academic year of graduate study, at least two parts by August of that year, and three parts by the following February. Students who fail to achieve one of these three milestones will be transferred to the master's program.

Students are expected to complete the written part of the Qualifying by the spring offering of exams in second year of graduate study. If a student has not passed the written part of the qualifying exam by January of the third year of study, a petition to continue in the PhD program must be submitted by the student and the chair of the student's committee to the graduate committee, with a plan to pass the required exam at the next opportunity. Students whose petitions fail will not be permitted to continue in the PhD program.

Students who are granted a waiver of the First Year Examination must complete the written part of the Qualifying Exam by the fall offering of exams in the third year of study.

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.

5.14 PhD Comajor with Statistics

The Departments of Mathematics and Statistics jointly offer a Doctor of Philosophy degree with a comajor in mathematics and statistics for graduate students who wish to combine the strengths of both departments in a single degree program.

5.14.1 Admission to the program

Students completing the M.S. or M.A. degree in Mathematics or the M.S. or MSTA degree in Statistics at the University of Florida who wish to continue into the Ph.D. Comajor program must request approval from the Graduate Committee of the Department of Mathematics or the Graduate Program Committee of the Department of Statistics. This should be done in writing during the final semester of the Masters program. The appropriate Graduate (Program) Committee will determine suitability of masters students for entry into the Ph.D. Comajor program based on their overall performance in the masters program.

Students in the Ph.D. program of either department who wish to enter the Ph.D. Comajor program must also apply in writing to one of the Graduate (Program) Committees.

5.14.2 Courses

Each student will plan with the Graduate Committee an appropriate program of courses to give the student a broad knowledge of the major areas of mathematics and statistics, as well as to prepare the student to do research in a particular field.

The total number of semester hours required is 90. Of the 90 hours, at least 6 courses (including at least 4 at the 6000+ level) must be in Mathematics, with a grade of B or better. At least 5 courses (including at least 3 at the 6000+ level) must be in Statistics, with a grade of B or better.

Note that students will not be required to take the full complement of Masters level courses in both disciplines, provided they meet the above course requirements. Examinations Students must

1. demonstrate mastery of basic concepts of real analysis and algebra

2. demonstrate mastery of basic concepts of theoretical statistics and applied statistics

3. demonstrate all-round competence expected of a Ph.D. Comajor in Mathematics and Statistics

4. prepare, present and defend a dissertation

The requirements in (1) may be fulfilled by either obtaining grades of Pass or High Pass on both parts of the First Year written examination given by the Department of Mathematics during the first two weeks of each semester, in May, September and January. In normal circumstances, a student is expected to pass each part in no more than three attempts.

The requirements in (2) may be fulfilled by either obtaining grades of Pass or High Pass on both parts of the Masters Comprehensive Examination given by the Department of Statistics. In normal circumstances, a student is expected to pass each part in no more than two attempts.

To fulfill (3), the student must pass the Ph.D. Qualifying Examination which consists of three parts, two written and one oral. One written exam must be from the Department of Mathematics and the other from the Department of Statistics, in areas determined by the Supervisory Committee. The student must pass each written part in no more than two attempts.

The oral exam is on the research proposal and other appropriate material at the Supervisory Committees discretion. The two written exams must be passed before the oral part of the Qualifying Exam is taken. The oral examination must be taken no later than the beginning of the fourth year of graduate study. A student may normally take the exam only once. The student is normally admitted to candidacy when these requirements are satisfied.

The dissertation in (4) must show independent investigation and be acceptable in form and content to the supervisory committee and the Graduate School. Supervisory Committee

At the doctoral level, each student in the comajor program will form a supervisory committee which shall consist of no fewer than 5 members, at least two from each department and at least one from a discipline other than the two comajor fields. Formed with the approval of both departmental chairs, this supervisory committee will be responsible for determining both written Ph.D. examinations and administering the oral Ph.D. qualifying examination and the final defense.

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 5311-5312 Introduction to Algebra and MAA 5228-5229 Modern Analysis or passage of the corresponding parts of the First Year 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 6.7 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 First Year Semester Exams with a grade of Masters Pass or better, including at least one of the first four listed below, at least one of the last four listed below and at least one of the exams on MAA 5228, MAA 5229, MAS 5311, MAS 5312 (traditional).

   MAA 5228 Modern Analysis 1
   MAA 5229 Modern Analysis 2
   MAD 6407 Numerical Analysis
   MTG 5316 Introduction to Topology 1
   MTG 5317 Introduction to Topology 2
   MAD 6406 Numerical Linear Algebra
   MAS 5311 Introduction to Algebra 1
   MAS 5312 Introduction to Algebra 2

   After completing one of the core courses, a student may take the corresponding part of the First Year Exam only the first three times the exam is offered.

   If the final part of the First Year 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.

   Note: if a First Year Exam on either MAD 6406 Numerical Linear Algebra or MAD 6407 Numerical Analysis is used, then the student may not use the PhD Numerical Analysis Exam for the written part of the qualifying exam requirement.

6.5 Examination for the MS in Applied Mathematics (exam)

Each student must pass three of the following six First Year Semester Exams with a grade of Masters Pass or better, including one of the first three parts and at least one of the last three parts.

The First Year Exam, given in May, August and January, consists of six parts corresponding to the material covered in the six core courses:

MAS 5311 Introduction to Algebra 1
MAS 5312 Introduction to Algebra 2
MAD 6406 Numerical Linear Algebra
MAD 6407 Numerical Analysis
MAA 5228 Modern Analysis 1
MAA 5229 Modern Analysis 2

If the exams have been passed more than one term prior to the term 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.

6.6 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.

6.7 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 5311-5312 Introduction to Algebra and MAA 5228-5229 Modern Algebra or passage of the corresponding parts of the First Year 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 5311-2 and MAA 5228-9.

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

- Individual 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