Master of Science Degree in General Mathematics

About This Program

The Department of Mathematics offers master's degree programs in mathematics with concentrations in General Mathematics, Applied Mathematics, Computational Mathematics, Data Science, Mathematics Education, Pure Mathematics, and Statistics. All students are to use the thesis plan, thesis-substitute plan, or non-thesis plan.

The objectives of the UT Arlington Mathematics Department's graduate program are:

- Develop the students' ability to do independent research and prepare them for more advanced studies in mathematics.
- Provide advanced training and preparation for professional careers as mathematicians, mathematics teachers, and those employed in engineering, scientific and business fields.

Graduate work will be offered in algebra, complex and real variables, data science, differential equations, functional analysis, geometry, mathematics education, numerical analysis, probability, statistics and topology.

Competencies

1. Upon graduation, students will be equipped to solve complex mathematical problems in various mathematical fields.
2. Upon completion, students will have demonstrated the application of mathematical theories to real-world problems.
3. Upon graduation, students will be able to teach and communicate mathematical concepts effectively, and be prepared for careers in mathematics, teaching, and related fields.

Admissions Criteria

UNCONDITIONAL ADMISSION

For unconditional admission, a student must meet the following requirements:

1. A BA or BS degree in mathematics or closely related field.
2. An overall GPA in the final 60 hours of coursework of a 3.0 or better, as calculated by the Graduate School, on a 4.0 scale.
3. Minimum of 350 on the verbal and 650 on the quantitative portions of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 143 on the verbal and 151 on the quantitative portions of the GRE if taken after August 2011.
4. For applicants whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (or a minimum score of 213 on a computer-based test, or a minimum score of 79 on an internet-based test) or a minimum score of 40 on the Test of Spoken English.
5. Three favorable letters of recommendation from people familiar with the applicant's academic work.

Applicants who do not satisfy requirements 2 or 3 above may be considered for unconditional admission if further review of their undergraduate transcript, recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the Master's Program without deficiency.

PROBATIONARY ADMISSION

If an applicant does not meet a majority of standards for unconditional admission outlined above, they may be considered for probationary admission after careful examination of their application materials. Probationary admission requires that the applicant receive a B or better in the first 12 hours of graduate coursework at UT Arlington.

Students who are unconditionally admitted or admitted on probation will be eligible for available scholarship and/or fellowship support. Award of scholarships or fellowships will be based on consideration of the same criteria utilized in admission decisions. To be eligible, candidates must be new students coming to UT Arlington in the fall semester, must have a GPA of 3.0 in the last 60 undergraduate credit hours plus any graduate credit hours as calculated by the Graduate School, and must be enrolled in a minimum of 6 hours of coursework in both long semesters to retain the fellowship.

DENIAL OF ADMISSION

Applicants may be denied admission if they have less than satisfactory performance on a majority of the admission criteria described above.

DEFERRED ADMISSION

A deferred decision may be granted when a file is incomplete or when a denied decision is not appropriate. An applicant unable to supply all required documentation prior to the admission deadline, but who otherwise appears to meet admission requirements, may be granted provisional admission.

Curriculum

Foundations

MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
Concentration Foundations		
Select a concentration:		15
General Mathematics		
MATH 5317	REAL ANALYSIS	
MATH 5322	COMPLEX VARIABLES I	
MATH 5327	FUNCTIONAL ANALYSIS I	
MATH 5331	ABSTRACT ALGEBRA I	
MATH 5338	NUMERICAL ANALYSIS I	
Applied Mathematics		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
Select four of the following:		
MATH 5350	APPLIED MATHEMATICS I	
MATH 5351	APPLIED MATHEMATICS II	
MATH 5320	ORDINARY DIFFERENTIAL EQUATIONS	
MATH 5321	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
Or an area-related graduate course chosen in consultation with the student's advisor.		
Computational Mathematics		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5338	NUMERICAL ANALYSIS I	
MATH 5339	NUMERICAL ANALYSIS II	
MATH 5371	APPLIED NUMERICAL LINEAR ALGEBRA	
or MATH 5373	NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS	
Or an area-related graduate course chosen in consultation with the student's advisor.		
Data Science		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5305	STATISTICAL METHODS	
MATH 5371	APPLIED NUMERICAL LINEAR ALGEBRA	
or MATH 6310	FOUNDATION OF DATA SCIENCES	
Select two of the following:		
MATH 5312	MATHEMATICAL STATISTICS I	
MATH 5338	NUMERICAL ANALYSIS I (OR AN AREA-RELATED COURSE CHOSEN IN CONSULATION WITH THE STUDENT'S ADVISOR)	
MATH 6311	OPTIMIZATION ON BIG DATA	
MATH 6312	DATA MINING	
Mathematics Education		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5305	STATISTICAL METHODS	
Select three of the following:		
MATH 5341	MODERN GEOMETRY	
MATH 5342	CONCEPTS AND TECHNIQUES IN ALGEBRA	
MATH 5344	MATHEMATICS-SPECIFIC TECHNOLOGIES	
MATH 5345	HISTORICAL APPROACH TO REAL ANALYSIS	
MATH 5346	CONCEPTS AND TECHNIQUES IN PROBLEM SOLVING	
Pure Mathematics		
MATH 5322	COMPLEX VARIABLES I	
MATH 5331	ABSTRACT ALGEBRA I	
Select three from the following:		
MATH 5304	GENERAL TOPOLOGY	

MATH 5326	ALGEBRAIC TOPOLOGY	
MATH 5329	HOMOLOGICAL ALGEBRA	
MATH 5330	ALGEBRAIC GEOMETRY	
MATH 5332	ABSTRACT ALGEBRA II	
MATH 5334	DIFFERENTIAL GEOMETRY	
OR select 3 from the following:		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5304	GENERAL TOPOLOGY	
MATH 5317	REAL ANALYSIS	
MATH 5321	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
MATH 5327	FUNCTIONAL ANALYSIS I	
MATH 5334	DIFFERENTIAL GEOMETRY	
Statistics		
MATH 5300	INTRODUCTION TO SCIENTIFIC COMPUTING	
MATH 5305	STATISTICAL METHODS	
MATH 5312	MATHEMATICAL STATISTICS I	
MATH 5313	MATHEMATICAL STATISTICS II	
Select one of the following:		
MATH 5356	APPLIED MULTIVARIATE STATISTICAL ANALYSIS	
MATH 5357	SAMPLE SURVEYS	
MATH 5358	REGRESSION ANALYSIS	
Thesis, Thesis Substitute, or Non-Thesis Option		**9-15**
For the thesis option select:		9
6 hours in MATH 5398 or MATH 5698.		
At least 3 hours of additional electives. [2]		
For the thesis-substitute option select:		12
MATH 5395	SPECIAL PROJECT	
At least 9 hours of additional electives. [2]		
For the non-thesis option select:		15
At least 15 hours of additional electives approved by the graduate advisor. [2]		
Total Hours		**30-36**

[1] Core requirements can also be fulfilled by completing core requirements in the PhD (BS Entry) program.

[2] Electives may not be chosen from MATH 5336, MATH 5337, MATH 5340, MATH 5341, MATH 5342, MATH 5343, MATH 5344, MATH 5345, MATH 5346, MATH 5347, MATH 5348, MATH 5352, MATH 5370, MATH 5375, MATH 5376, MATH 5377, MATH 5378, MATH 5379. However, students in the Mathematics Education thesis or thesis-substitute track may choose three hours from MATH 5336, 5337, 5340-5348,5352, 5370, 5375-5379. Students in the Mathematics Education non-thesis track may choose six hours from MATH 5336, 5337, 5340-5348,5352, 5370, 5375-5379. Students in the Computational Mathematics track may choose three approved hours of electives in science and/or engineering. Elective courses for pure-mathematics track must be chosen from MATH 5300, MATH 5304, MATH 5317, MATH 5321, MATH 5326, MATH 5327, MATH 5329, MATH 5330, MATH 5332, MATH 5334, MATH 5380, or MATH 5392 courses offered in the pure-mathematics track.

Program Completion

Students in thesis degree plan or thesis-substitute plan must pass a final Master's examination.

Advising Resources

FOR PHD AND MASTER OF SCIENCE (M.S.) ADVISING

Location:

Pickard Hall 403

Email:

hristo@uta.edu

Phone:

(817) 272-5763

Web:

Contact Information and Scheduling (https://www.uta.edu/academics/schools-colleges/science/departments/mathematics/advising/)

FOR MASTER OF ARTS (M.A.) ADVISING

Location:

Pickard Hall 434

Email:

mathgradMAadvising@uta.edu

Phone:

817-272-3261

Web:

Contact Information and Scheduling (https://www.uta.edu/academics/schools-colleges/science/departments/mathematics/advising/)