Doctor of Philosophy in Mathematics (Data Science, BS Entry)

About This Program

The Doctor of Philosophy degree in Mathematics provides a program of study that may be tailored to meet the needs of those interested in applied or academic careers. This program allows students to pursue topics ranging from traditional mathematics studies to applied mathematical problems in engineering and sciences.

A dynamic program leading to the Doctor of Philosophy in Mathematics with a Data Science emphasis will aim at both real and demonstrated competency on the part of the student over material from various branches of mathematics.

The nature of the dissertation will range from research in mathematics to the discovery and testing of mathematical models for analyzing given problems in engineering and sciences and in locating and developing mathematical and computational techniques for deducing the properties of these models as to solve these problems effectively and efficiently. Such dissertations will be concerned with research problems from pure mathematics, applied mathematics, mathematics education and statistics.

Competencies

1. Upon graduation, students will have mastered advanced topics in various branches of mathematics, with a focus on data science.
2. Upon graduation, students will be capable of conducting independent and original research, developing and testing mathematical models for real-world problems in engineering and sciences, and applying mathematical theories and computational techniques to solve complex issues.
3. Upon graduation, students will be adept at using mathematical models to analyze real-world problems and effectively teaching and communicating complex concepts.
4. Through the completion of this program, students will be equipped to develop professional ethics and practices in research, manage research projects including data collection, analysis, and interpretation, and be well-prepared for careers in academia, applied mathematics, engineering, and related scientific fields.

Admissions Criteria

UNCONDITIONAL ADMISSION

For unconditional admission a student must meet the following requirements:

1. A bachelor's degree in mathematics or in a closely related field.
2. A minimum GPA of 3.00 on the 4.00 scale in undergraduate course work, as calculated by the UT Arlington Graduate School.
3. A minimum of 350 on the verbal part and 700 on the quantitative part of the Graduate Record Examination (GRE) if taken prior to August 2011. Minimum of 143 on the verbal and 155 on the quantitative portions of the GRE if taken after August 2011.
4. For an applicant 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. At least three letters of recommendation from people familiar with the applicant's academic work and/or professional work.

Applicants who do not satisfy requirement 2 and/or 3 above may be considered for an unconditional admission if a further review of their undergraduate transcript(s), recommendation letters, correspondence or direct interactions with mathematics faculty, and statement of professional or research interests indicates that they are qualified to enter the BS to PhD program without deficiency.

If an applicant does not meet a majority of standards for an unconditional admission outlined above, he/she may be considered for a probationary admission after a careful examination of his/her application materials. A probationary admission requires that the applicant receive grades of B or better in the first 12 hours of graduate course work at UT Arlington.

DENIAL OF ADMISSION

An applicant may be denied admission if he/she has less than satisfactory performance on a majority of the admission criteria described above.

DEFERRED DECISION

A deferred decision may be granted when the applicant's file is incomplete or when a denial on his/her admission is not appropriate. An applicant who is unable to supply all required documentation prior to the admission deadline but who otherwise appears to have met admission requirements may be granted provisional admission.

SCHOLARSHIPS AND FELLOWSHIPS

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.

Curriculum

Mathematics Specialization		
MATH 5307	MATHEMATICAL ANALYSIS I	3
MATH 5317	REAL ANALYSIS	3
MATH 5322	COMPLEX VARIABLES I	3
MATH 5327	FUNCTIONAL ANALYSIS I	3
MATH 5333	LINEAR ALGEBRA AND MATRICES	3
MATH 5338	NUMERICAL ANALYSIS I	3
Computer Science Specialization		
CSE 5301	DATA ANALYSIS & MODELING TECHNIQUES	3
CSE 5311	DESIGN AND ANALYSIS OF ALGORITHMS	3
CSE 5334	DATA MINING	3
In addition to the MATH/CSE core requirements, the student is required to take two area-related courses in MATH or CSE, chosen in consultation with their advisor.		6
Additional Electives		
Select 12 hours in MATH courses numbered 5300 or above in consultation with advisor.		12
Dissertation		
Select at least 9 hours from the following: [1]		9
MATH 6399	DISSERTATION	
MATH 6699	DISSERTATION	
MATH 6999	DISSERTATION	
MATH 7399	DOCTORAL DEGREE COMPLETION	
Total Hours		**54**

[1] Doctoral students must enroll in MATH 6699,MATH 6999, or MATH 7399 in the semester in which the dissertation is defended. Students typically enroll in one these courses, defend, and apply for graduation in the same term. MATH 7399 may only be taken once.

Program Completion

MILESTONES

Th BS-entry PhD plan typically requires 4-5 years of full-time study to complete.

Students must complete a preliminary examinations, diagnostic evaluation, and comprehensive examination. ~~examination~~

After passing the comprehensive examination students will enroll in dissertation hours until, in the judgement of the student's dissertation committee, the dissertation is ready to defend.

Students may apply to receive a master's degree in passing after completing the requirements stated in the catalog.

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/)