



Graduate Studies in the Department of Mathematical Sciences

If you are interested in mathematics and its applications, and you want to further your education, then we, the Department of Mathematical Sciences at The University of Alabama in Huntsville (UAH), invite you to come study with us.

Whether you are a college student planning a mathematics oriented career in a high tech environment or education, or are professional seeking to better understand the mathematics underlying your field, you will find that our mathematical expertise and deep commitment to quality graduate education makes UAH the ideal graduate school in mathematics and applied mathematics.

A Little About Us

Our interest in graduate education goes back to the early days of UAH. The first degree awarded by UAH was a Master's degree in mathematics. This was in 1964, four years before any undergraduate degrees were awarded! Since then, we have worked hard to offer the best graduate education possible. We are committed to providing both the formal training and the close personal attention which quality graduate education requires.

Today, our faculty are recognized nationally and internationally for their research and scholarship. Many have also been called upon to do consulting work for such research organizations as NASA and the Army Missile Command.

Some of our areas of expertise are:

- *applied dynamical systems*
- *combinatorics*
- *continuum and fluid mechanics*
- *Fourier analysis*
- *functional analysis*
- *generalized functions*

- *graph theory*
- *linear algebra*
- *mathematical biology*
- *mathematical modeling*
- *matrix theory*
- *nonlinear operator theory*
- *numerical analysis*
- *ordinary and partial differential equations*
- *probability*
- *stochastic processes*

Programs of Study

Programs are available leading to either the Master of Arts or the Master of Science in Mathematics, and to the Ph.D. in Applied Mathematics. Options are also available for earning a Master of Arts in Mathematics with Alabama Class A teaching certificate.

The programs of study leading to these degrees are worked out by the student with their faculty advisor. This should be done early in the student's career. (Note: Graduate students are advised by the Graduate Program Director until they choose a personal faculty advisor. It is strongly recommended that beginning students contact the Graduate Program Director for consultation as soon as practical, preferably *before* signing up for courses.)

The Master's Program

Individual programs of study leading to the Master's degree are designed to meet the particular needs of the individual students, whether they be:

- students planning on a mathematics oriented career in education or a high tech industry, or
- professionals in science and engineering seeking in-depth knowledge of the mathematics within their fields.

The Master of Science degree requires either 33 hours of approved coursework or 24 hours of approved coursework and a thesis. A program of study leading to the Master of Science degree includes at least six hours of approved graduate coursework in an outside minor from either the College of Engineering or the College of Science. There are two courses required of all Master's students (one in analysis and one in algebra). The other courses within a student's program of study are primarily determined according to the student's interests and needs. A student pursuing a Master's degree can develop, in consultation with his or her advisor, a program of study stressing any of a number of areas of mathematics including probability and statistics, differential equations, numerical analysis and discrete mathematics.

Students wishing to obtain an Alabama Class B Middle or High School Certificate should consider participation in the Non-traditional Fifth-Year Program or the Master of Arts in Teaching (MAT) program offered through the College of Education. Please see the College of Education section of the Graduate Catalog or contact the College of Education for more information on these programs.

Students completing course requirements for their Master's degree are expected to take an oral exam covering the material in their program of study. The preliminary examination for the Ph.D. program can be substituted for this exam.

The Ph.D. Program

The Ph.D. program is designed to enable the student to master a significant body of mathematics and to conduct fundamental research in applied mathematics. It is administered jointly by the three campuses of the University of Alabama System (Huntsville, Tuscaloosa and Birmingham). While all course work is normally done on a single campus, the resources of all three campuses are available.

The Ph.D. degree in Applied Mathematics requires satisfactory completion of at least 54 hours of approved course work along with the presentation of a dissertation containing mathematical results suitable for publication in a nationally recognized professional journal. The course work includes four core courses (in real analysis, linear algebra and numerical linear algebra), a major (six courses or more) in an area related to the research presented in the dissertation, and an outside minor (at least four courses, normally in some area of science or engineering). Separate exams cover the core courses (the preliminary joint program exam) and the entire program of study (the comprehensive qualifying exam).

The University and Community

The city of Huntsville (metro population: 430,700+) is located in northern Alabama between the Tennessee River and the foothills of the Appalachian Mountains. The region offers a pleasant physical climate and a diverse cultural environment.

Huntsville is best known as a center of research in the space sciences, rocketry and advanced technologies. The presence of NASA's Marshall Space Flight Center, the U.S. Army Missile Command and other major research entities has fostered a substantial industry oriented towards research and high technology. One of the more prosperous and cosmopolitan communities in the Southeast, Huntsville is home to, among other amenities, a symphony orchestra, several community theatre groups, the Space and Rocket Museum, an art museum and a professional baseball team.

The University of Alabama in Huntsville began in 1950 as a branch of the University of Alabama at the request of scientists and engineers working on the U.S. space and rocket program. Today, as a completely autonomous campus within the University of Alabama System, UAH continues to be closely involved with the work done by NASA,

the U.S. Army Missile Command and the many high tech research and engineering firms in the area.

Approximately 6,000 undergraduate students and 2,000 graduate students are enrolled at UAH. The campus is relatively large, open and green. Excellent housing and recreational facilities exist on campus and nearby.

Admission to the Graduate Program

You can apply for admission to the graduate mathematics program through the UAH Graduate School. Admission requirements to the Graduate School include a bachelor's degree from an approved educational institution, satisfactory performance in previous academic work, and satisfactory performance on the GRE. Details may be found in the website for the Graduate School.

In addition to meeting the Graduate School admission requirements, all applicants should have satisfactorily completed a complete sequence in calculus, introductory courses in linear algebra, abstract algebra and real analysis (equivalent to the UAH courses MA 244, MA 442 and MA 452) and at least six semester hours in other upper-level mathematics courses. Deficiencies in more than two of these courses must be made up before admission to the graduate mathematics program.

Graduate and Research Assistantships

A number of teaching and research assistantships are awarded each year to qualified students. Assistantships are also available for the summer. The amount of the awards depends on the assistant's level of training (as of Fall 2017), they ranged from \$12,000 to \$14,000 per academic year). All tuition and fees are waived for students holding assistantships. Other benefits include membership in the Alabama Credit Union, access to the University's Student Wellness Clinic, and email and computer accounts.

To be considered for a teaching assistantship you must be unconditionally admitted to the graduate mathematics program, have your GRE scores on file with the University and have at least three qualified people write letters of reference addressing your potential for graduate work in mathematics and your potential for teaching or tutoring undergraduate students. To avoid delays in consideration it is recommended that you apply for admission to the program and for an assistantship at the same time. To apply for a teaching assistantship:

1. Apply to the UAH Graduate School for admission to the Graduate Program,

2. Fill out the Application for Graduate Teaching or Research Assistantship, and
3. Have three qualified people write letters of reference supporting your application for assistantship. These letters should address your potential for graduate work in mathematics and your potential for teaching or tutoring undergraduate students.

The Application for Assistantship and the letters of reference should be sent to:

Graduate Program Director

Department of Mathematical Sciences
University of Alabama in Huntsville, Shelby Center 258A
Huntsville, Alabama 35899

Additional support is available through the UAH Graduate Co-op Program. Qualified graduate students can alternate six months of graduate study with six months of full-time work in a local company or government agency. While in the school phase of this program, the student may hold a graduate assistantship.

For Further Information

For more general information about the mathematics programs at The University of Alabama in Huntsville, please contact:

Department of Mathematical Sciences
The University of Alabama in Huntsville
Huntsville, Alabama 35899, USA

256.824.6470 (Office)
mathgrad@uah.edu

For information about the various graduate programs at The University of Alabama in Huntsville, please contact:

Graduate School
University of Alabama in Huntsville
Huntsville, Alabama 35899, USA

256.824.6002

The University of Alabama in Huntsville is an affirmative action/equal opportunity institution.