Applied Mathematical and Computational Sciences, Ph.D.

Requirements

The Doctor of Philosophy program in applied mathematical and computational sciences requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is autonomous, broadly based, and interdisciplinary. It is designed to help students achieve a command of theoretical and applied mathematics and obtain basic knowledge in another area (engineering, medicine, or one of the behavioral, biological, physical, or social sciences).

The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics, so it is often a part of student training and dissertation research.

Prospective students should have a desire to apply a mathematical science (mathematics or statistics) to relevant problems in another area.

Course of Study

Faculty members help each student plan a course of study that is consistent with the student’s background, interests, and goals.

These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in an outside area to enable students to use mathematical techniques in that area.

Students can arrange their study plans to earn a master’s degree from another department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.

Qualifying and Comprehensive Examinations

Students take a qualifying examination over three of the four core course sequences required for the Ph.D. (analysis, differential equations, numerical analysis, and topology). They also take a comprehensive examination related to their intended research area.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College. To be prepared for graduate-level coursework in mathematics and an additional area, applicants should have a bachelor’s or master’s degree with a strong mathematics component and some background in the additional area.

Financial Support

Financial support is provided to every student admitted. Fellowships and research and teaching assistantships are available to qualified applicants and fellowship support is available during summer sessions.

Career Advancement

Career opportunities for applied mathematicians include positions in colleges, universities, governmental laboratories, business, industry, and consulting firms.