

Mathematics, Ph.D.

Requirements

The Doctor of Philosophy program in mathematics requires a minimum of 72 s.h. of graduate credit. The program places strong emphasis on preparation for research and teaching. The department maintains no division between pure and applied mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education (see Teaching and Learning in the Catalog) and the Program in Applied Mathematical and Computational Sciences.

Ph.D. students in mathematics must satisfy the following requirements for coursework (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must spend at least three years in residence at a graduate college, including at least one year at the University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. examinations (consult the Department of Mathematics graduate studies director).

To further encourage mathematical breadth, students must earn at least 33 s.h. of graduate credit in regular courses equivalent to or more advanced than Ph.D. comprehensive examination preparatory courses. For a list of accepted Department of Mathematics courses and rules to ensure proper distribution, contact the department.

The Ph.D. examinations consist of a qualifying exam and a comprehensive exam. Students choose three areas from the department's list of qualifying examination areas: algebra, analysis, differential equations with numerical methods, numerical analysis, and topology. For each qualifying area, there is a two-semester course sequence numbered 5000 or above that is designated as preparatory, although exams may differ from course content. Parts of the qualifying exam are taken over a two-week period. An exam committee gives one grade (pass, fail, conditional pass) on each part of the qualifying examination.

The Ph.D. comprehensive exam tests students on research-related topics. Candidates also take an oral final examination on their dissertation material.

Ph.D. students are required to demonstrate reading proficiency in French, German, or Russian by passing a reading test administered by the Department of Mathematics. Consult the department for details.

The most distinctive aspect of a Ph.D. is the thesis. The department expects the thesis to be an original mathematical work comparable in content and writing quality to that found in standard published research journals. The thesis is written under the supervision of a mathematics department faculty member and must be approved by the Ph.D. defense committee.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College on the Graduate College website. Applicants to the Ph.D. program have preference for admission and funding.

Admission to the Ph.D. program is competitive and based on a combination of undergraduate or graduate coursework and grades, letters of recommendation, and test scores.

Required scores on the Graduate Record Examination (GRE) quantitative section and Test of English as a Foreign Language (TOEFL) are the same as those for admission to the M.S. program, but applicants to the Ph.D. program must have an undergraduate or graduate g.p.a. of at least 3.40.

Career Advancement

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.