The department offers the doctor of philosophy degree with a major in mathematics and a master of arts degree in mathematics.

The Ph.D. degree requires proficiency in basic and advanced graduate mathematics and the completion of a dissertation containing a significant piece of original research in some area of mathematics. The scope of the research program in mathematics is broad. The Ph.D specialty and dissertation may be in any area of mathematics, including but not limited to algebra, algebraic geometry, applied mathematics, combinatorics, computational mathematics, complex analysis, differential equations, differential geometry, dynamical systems, harmonic analysis, logic, mathematical biology, number theory, probability, and topology. A complete list of faculty and their areas of expertise is available through the department website (https://www.math.wisc.edu).

Students in the Ph.D. program also have the option to earn a master of arts degree.

The M.A. degree is available with the named option titled foundations of advanced mathematics. It is designed to strengthen the student's mathematics background and enhance the opportunities for applications to Ph.D. programs and for employment as a mathematician in nonacademic environments.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A., with available named option in Foundations of Advanced Studies

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

The coursework must consist of graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students in the M.A. program are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No more than 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

M.A.: 30 graduate credits related to mathematics, including at least 24 credits in the mathematics department (cross-listed courses included). At least 12 credits from a specified list of 700 core courses must be taken. Advanced computer science which involves substantial programming. (Requirement waived with two passed qualifying exams.)

M.A., FAS option: MATH 522 Analysis II and MATH 542 Modern Algebra. 30 graduate credits in mathematics, including at least 12 credits from a specified list of 700 core courses must be taken.

#### OVERALL GRADUATE GPA REQUIREMENT

M.A.: 3.3 GPA required

M.A., FAS option: 3.0 GPA required

#### OTHER GRADE REQUIREMENTS

At least 12 credits from a specified list of 700 courses are required to be passed with grade B or higher.

#### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing.
2. Probation.
3. Unsatisfactory progress.

#### ADVISOR / COMMITTEE

M.A.: Students are recommended to meet with an advisor.

M.A., FAS option: Before each fall semester, students will submit a tentative plan of study and meet with a graduate advisor.

#### ASSESSMENTS AND EXAMINATIONS

n/a

#### TIME CONSTRAINTS

Two years. Extensions have to be approved by the program.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their
absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

No language requirements.

**ADMISSIONS**

Admission is competitive. Applicants to the Ph.D. program are automatically considered for financial support. For more information about application to the Ph.D. and M.A. programs, see the department’s admission website (https://www.math.wisc.edu/graduate/admissions).

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

- Students learn a substantial body of mathematics presented in introductory graduate level courses in mathematics.
- Students select and utilize appropriate methodologies to solve problems.
- Students communicate clearly in written/oral presentations.

**PROFESSIONAL CONDUCT**

- Students recognize and apply principles of ethical and professional conduct.

**PEOPLE**

**Faculty:** Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denissov, Ellenberg, Feldman, Gong, Jin, Lempp, Mari Beffa (chair), Miller, Mitchell, Paul, Seeger, Seppäläinen, Smith, Terwilliger, Thiffeault, Viaclovsky, Waleffe, Yang, Zlatoš; Associate Professors Anderson, Arinkin, Gurevich, Maxim, Roch, Stechmann, Valkó; Assistant Professors Andrews, Dymarz, Erman, Kent, Kim, Li, Marshall, Sam, Spagnolie, Stovall, Street, Tran, B. Wang, L. Wang, M. Wood, P. Wood, Yin; Affiliate Faculty Bach, Cai, Del Pia, Ferris, Ron, Sifakis.