MATHEMATICS, PH.D.

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 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/graduate).

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.

FUNDING

Prospective students should see the program website for funding information.

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/#policiesandrequirements) in addition to the requirements of the program.

DOCTORAL DEGREES

Ph.D.

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

For students in the Ph.D. program the coursework in the mathematics department is expected to consist only 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

With program approval, students in the Ph.D. program are allowed to count no more than 22 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral 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 ten years or more prior to admission to a doctoral 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 ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

No program-specific courses required.

DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

OVERALL GRADUATE GPA REQUIREMENT

3.3 GPA required

OTHER GRADE REQUIREMENTS

No additional grade requirements.

PROBATION POLICY

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

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

ADVISOR / COMMITTEE

Students who are not yet working with a dissertation advisor are required to meet semiannually with their academic advisor. All students must have a dissertation advisor by the end of the sixth semester.

ASSESSMENTS AND EXAMINATIONS

All students are required to pass at least one qualifying exam by the beginning of their fourth semester (the spring semester of the second year), and two by the beginning of their sixth semester (the spring semester of the third year).

Students must satisfy all the requirements for dissertator status by the end of the eighth semester (end of fourth year).
TIME CONSTRAINTS
Eight years. Extensions have to be approved by the program.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten 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 in introductory and research level graduate courses in mathematics.
• Students complete a dissertation under the guidance of an advisor. The dissertation should make an original and substantive contribution to its subject matter.
• Students demonstrate breadth within the learning experiences.
• Students present research in seminar talks, conferences or publications.
• Students communicate complex ideas in a clear and understandable manner.

PROFESSIONAL CONDUCT
• Students foster ethical and professional conduct.

PEOPLE
Faculty: Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denissoy, 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.