



### ***Twin Cities Campus***

## **Mathematics Ph.D.**

*School of Mathematics*

### **College of Science and Engineering**

Link to a [list of faculty](#) for this program.

#### **Contact Information:**

127 Vincent Hall, 206 Church Street SE, Minneapolis, MN 55455 (612-624-6391; fax: 612-624-6702)

Email: [gradprog@math.umn.edu](mailto:gradprog@math.umn.edu)

Website: <http://www.math.umn.edu/grad/>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2019
- Length of program in credits: 60
- This program does not require summer semesters for timely completion.
- Degree: Doctor of Philosophy

Along with the program-specific requirements listed below, please read the [General Information](#) section of the catalog website for requirements that apply to all major fields.

The School of Mathematics offers a PhD in mathematics, and a PhD in mathematics with emphasis in applied mathematics.

Special areas of research include ordinary and partial differential equations; probability; real, complex, harmonic, functional, and numerical analysis; differential and algebraic geometry; topology; number theory; commutative algebra; group theory; logic; combinatorics; mathematical physics; and applied and industrial mathematics, mathematical biology, and dynamical systems.

## **Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

## **Prerequisites for Admission**

The preferred undergraduate GPA for admittance to the program is 3.00.

Undergraduate degree in mathematics or equivalent.

Other requirements to be completed before admission:

Applicants should have the prerequisite material of abstract algebra, analysis, and topology. The GRE Math subject test is strongly recommended. To receive full consideration for financial support, international applicants should have a TOEFL score of at least 100 with a speaking score of at least 23.

#### **Special Application Requirements:**

Applications are accepted for fall semester only. The application deadline is December 15. Additional information is available at [math.umn.edu/graduate](http://math.umn.edu/graduate).

International applicants must submit score(s) from one of the following tests:

- TOEFL
  - Internet Based - Total Score: 79
  - Internet Based - Writing Score: 21
  - Internet Based - Reading Score: 19
  - Internet Based - Speaking Score: 18

Key to [test abbreviations](#)(TOEFL).

For an online application or for more information about graduate education admissions, see the [General Information](#) section of the catalog website.

## **Program Requirements**

24 credits are required in the major.

12 credits are required outside the major.

24 thesis credits are required.

This program may be completed with a minor.

Use of 4xxx courses towards program requirements is not permitted.

Language Requirement: French, German, Italian, or Russian

A minimum GPA of 3.00 is required for students to remain in good standing.

The PhD requires 24 credits in mathematics courses, 12 credits in a minor or in a supporting program, and 24 thesis credits. If a supporting program is chosen, it may consist partly or entirely of mathematics courses outside the student's major research area.

Students choose a program of coursework in consultation with their advisor and the director of graduate studies.

The PhD preliminary written examination, given twice each year, covers real analysis, complex analysis, algebra, and manifolds and topology. Students are expected to pass the written exam by the end of their second year; complete required coursework and pass the preliminary oral exam by the end of their fourth year; and pass the final oral exam and complete their dissertation by the end of the sixth year.

Reading proficiency is required in one of the following: French, German, Italian, or Russian

#### **Thesis Credits**

Take 24 credits after passing preliminary oral exam.

[MATH 8888](#) - Thesis Credit: Doctoral (1.0 - 24.0 cr)