

MATHEMATICS, MS

Mathematics MS: Standard Option (Option A).

The Requirements tab in this section of the catalog lists the requirements for the standard mathematics option for the master's degree in mathematics.

Overview of all Mathematical Sciences Department MS programs

The Department of Mathematical Sciences offers graduate programs of study in mathematics with specializations in the fields of algebra, analysis, topology, applied mathematics, probability and statistics, and actuarial science.

The programs of study at the master's level are designed to suit both the student intending to continue toward a PhD as well as the student who wishes to begin a professional career upon completion of the master's program.

The student may prepare for a career in teaching at the secondary or college level and for a career in research in the academic, industrial, government, or business communities.

Three options for the master's degree are offered: the standard mathematics option (A), the statistics option (B), and the actuarial science option (C). Students who plan to continue for a PhD degree with a focus on mathematics/statistics should elect an option from options A, B, C, or the dual master's degree option.

Dual Master's Degree Option

In addition to multiple options available for MS in mathematics, the Department of Mathematical Sciences at UWM and the Department of Technomathematics of Fachhochschule Aachen (FHA), Germany have recently created a Dual Master's Degree Program in Mathematics. The students enrolled in this program will be able to earn Master's degrees from both institutions upon completion of the common course requirements.

The program is designed in such a way that students typically will be able to complete all the course requirements within a two-year time period (one year at each institution). Within this program students can choose courses that will allow them to concentrate in the areas of Statistics, Numerical Analysis or General Mathematics. Complete information on the admission policy and graduation requirements, including sample schedules, is available at the Department of Mathematical Sciences web page <http://uwm.edu/math/graduate/>.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (<http://uwm.edu/graduateschool/program-deadlines/>) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (<https://uwm.edu/onestop/dates-and-deadlines/>).

Admission

An applicant must meet Graduate School requirements (<http://uwm.edu/graduateschool/admission/>) plus these departmental requirements to be considered for admission to the program:

1. Application materials require a Reason Statement.
2. Completion of three semesters of undergraduate calculus.
3. At least 18 credits of acceptable undergraduate preparation beyond calculus.

Applicants may be admitted with specific program-defined course deficiencies provided that the deficiencies amount to no more than two courses.

The student is expected to satisfy deficiency requirements within three enrolled semesters. The deficiencies are monitored by the Graduate School and the individual graduate program unit. No course credits earned in making up deficiencies may be counted as program credits required for the degree.

Credits and Courses

Minimum degree requirement is 30 or 36 credits, depending upon which option the student chooses.

In either option, at least half of the credits earned toward the degree must be in courses numbered 700 or above.

30-credit option:

Code	Title	Credits
21 credits from Math and MthStat courses		21
Minimum 12 credits numbered 800 or above		
Up to 9 credits of approved coursework outside the department		9
Total Credits		30

36-credit option:

Code	Title	Credits
24 credits from Math and MthStat courses		24
Maximum of 12 credits numbered 499 or below		
Up to 12 credits of approved coursework outside the department		12
Total Credits		36

Thesis

A thesis is optional. A student choosing the thesis option must enroll in **MATH 890**. A maximum of 3 credits of thesis may be counted toward the degree requirements. An acceptable thesis will represent an original contribution and may involve applications, a novel exposition, or computational aspects of a mathematical problem or theory. The student must pass an oral defense of the thesis.

Examination or Project

Each student who does not elect the thesis option must satisfy one of the following requirements:

1. Pass a written comprehensive examination.
2. Present a satisfactory oral and written report on a comprehensive project done under the supervision of a faculty advisor.

The project option is open only to students who complete the 36-credit graduation requirement. Students electing the project should register

for 1 to 3 credits of **MATH 891**. Students planning to continue for a PhD should select the written comprehensive examination option.

Additional Requirements

Major Professor as Advisor

The student must have a major professor to advise and supervise the student's studies as specified in Graduate School regulations. The entering graduate student is assigned a temporary advisor by the Associate Chair for Graduate Programs.

Time Limit

Under the 30-credit option, the student must complete all degree requirements within five years of initial enrollment. Under the 36-credit option, the student must complete all degree requirements within seven years of initial enrollment.

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Mathematics MS Learning Outcomes

Students graduating from the program will be able to:

1. **apply** advanced knowledge of a range of topics in Mathematics or related fields, in the context of the chosen MS option.
2. **apply** analytical and critical thinking skills required for the efficient use and understanding of the mathematical sciences.