

# MATHEMATICS, MS: STATISTICS

## Mathematics MS: Statistics (Option C)

Currently enrolled students have the option of following the old or new requirements. Students entering in **Fall 2014** or later must complete the new requirements.

## Overview of 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, actuarial science, industrial mathematics, and atmospheric 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.

Five options for the master's degree are offered: the standard mathematics option (A), the industrial mathematics option (B), the statistics option (C), the actuarial science option (D), and the foundations of advanced studies option (E). Students who plan to continue for a PhD degree with a focus on mathematics/statistics should elect an option from options A, B, C, and E, or the dual master's degree option. The department also offers a master's degree in atmospheric science.

## 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/>).

## Credits and Courses

An applicant must meet Graduate School requirements (<http://uwm.edu/graduateschool/admission/>) plus the following departmental requirements to be considered for admission to the program: completion of three semesters of undergraduate calculus and at least 18 credits of acceptable undergraduate preparation beyond calculus; these credits should include courses on probability and statistics equivalent to the sequence MTHSTAT 361/MTHSTAT 362, and courses on advanced calculus equivalent to the sequence MATH 521/MATH 522.

Applicants with deficiencies in probability and statistics may be admitted to the program but will be required to complete the sequence MTHSTAT 361/MTHSTAT 362. Applicants with calculus deficiencies may also be admitted to the program but will be required to complete the sequence MATH 521/MATH 522. Students are expected to make up deficiencies within four enrolled semesters; no course credits earned in making up deficiencies may count toward the degree credit requirement.

The minimum requirement is 30 graduate credits. Students must complete the following:

Code	Title	Credits
Select one of the following:		3-6
MATH 535	Linear Algebra	
MATH 631 & MATH 632	Modern Algebra I and Modern Algebra II	
MATH 768	Applied Stochastic Processes	
MATH 571	Introduction to Probability Models	
Select one of the following:		6
MATH 621 & MATH 622	Introduction to Analysis I and Introduction to Analysis II	
MATH 711 & MATH 712	Theory of Functions of a Real Variable I and Theory of Functions of a Real Variable II	
MTHSTAT 563	Regression Analysis	3
MTHSTAT 564	Time Series Analysis	3
MTHSTAT 761 & MTHSTAT 762	Mathematical Statistics I and Mathematical Statistics II	6
Select at least one other 560-level MthStat course, such as the following:		3
MTHSTAT 562	Design of Experiments	
MTHSTAT 565	Nonparametric Statistics	
MTHSTAT 568	Multivariate Statistical Analysis	
Total Credits		24-27

Students who already have taken some of these courses as undergraduates, or equivalent courses at another institution, should choose alternatives from the following list, subject to the advisor's approval:

Code	Title	Credits
MthStat courses numbered 700 or above		
Statistics course offered by the Division of Biostatistics of the Medical College of Wisconsin		
MATH 413	Introduction to Numerical Analysis	3
MATH 415	Introduction to Scientific Computing	3
MATH 417	Computational Linear Algebra	3

MATH 711 & MATH 712	Theory of Functions of a Real Variable I and Theory of Functions of a Real Variable II	6
MATH 713	Theory of Functions of a Complex Variable I	3
MATH 714	Theory of Functions of a Complex Variable II	3
MATH 721	Abstract Measure and Integration	3
MATH 768	Applied Stochastic Processes	3
MATH 771	Theory of Probability	3
ACTSCI 596 & ACTSCI 597	Actuarial Statistics I and Actuarial Statistics II	6

### Thesis Option

Students have the option of writing a thesis, subject to the advisor's approval. Students who write a thesis are exempt from the Master's Proficiency Exam, and they earn 3 credits toward the degree by enrolling in MATH 790. Students who choose the thesis option must pass an oral defense of the thesis.

## 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. Each entering graduate student is assigned a temporary advisor by the Department Graduate Program Coordinator.

### Master's Proficiency Exam

Students who do not complete the thesis option are required to pass a written comprehensive examination that tests basic knowledge of statistical theory and either mathematical analysis or algebra.

### Time Limit

Students must complete all degree requirements with 5 years of initial enrollment.