Mathematical Statistics (M.A.)

Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (http://bulletins.wayne.edu/graduate/general-information/admission/).

The entrance requirements for the master’s program in statistics includes successful completion of course work equivalent to the following:

**Code** | **Title** | **Credits**
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MAT 2010 | Calculus I | 4
MAT 2020 | Calculus II | 4
MAT 2030 | Calculus III | 3
MAT 2250 | Elementary Linear Algebra | 3
MAT 2150 | Differential Equations and Matrix Algebra | 4
MAT 5070 | Elementary Analysis | 4

At least 3 more credits in Mathematics at the 5000 level.

Credit accrued in courses such as the history of mathematics or the teaching of mathematics, in which the study of mathematics itself is not the primary purpose will not be counted toward this requirement.

Program Requirements

The Master of Arts in Mathematical Statistics is offered under the following options:

**Plan A:** Twenty-four credits in course work plus an eight credit thesis in the area of mathematical statistics.

**Plan B:** Twenty-seven credits in course work plus a three credit essay in the area of mathematical statistics.

**Plan C:** Thirty credits in course work.

Degree Requirements

**Code** | **Title** | **Credits**
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MAT 5000 | Numerical Methods I | 3
MAT 5110 | Numerical Methods II | 3
MAT 5410 | Applied Linear Algebra | 4
MAT 5420 | Algebra I | 3
MAT 5430 | Algebra II | 2
MAT 5540 | Topological Data Analysis | 2
MAT 5600 | Introduction to Analysis I | 2
MAT 5610 | Introduction to Analysis II | 2
MAT 5710 | Introduction to Stochastic Processes | 2
MAT 5750 | Mathematics of Finance | 2
MAT 5770 | Mathematical Models in Operations Research | 2
STA 5820 | Introduction to Data Science | 2
STA 5830 | Applied Time Series | 2
MAT 5870 | Methods of Optimization | 2
MAT 5890 | Special Topics in Mathematics | 2
MAT 6420 | Advanced Linear Algebra | 2
MAT 6600 | Complex Analysis | 2
STA 6830 | Design of Experiments | 2
STA 6840 | Applied Regression Analysis | 2
MAT 7400 | Advanced Algebra I | 2
MAT 7700 | Advanced Probability Theory I | 2
MAT 7710 | Advanced Probability Theory II | 2
MAT 7770 | Special Topics in Probability | 2
STA 7810 | Advanced Statistics Theory I | 2
STA 7820 | Advanced Statistics Theory II | 2
STA 7870 | Topics in Statistics | 2

1. MAT 7700 is recommended. Other courses may be approved by the Departmental Graduate Committee on an individual basis.

2. Topic has to be related to probability or statistics and needs the approval of the Departmental Graduate Committee.

A final oral examination. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Departmental Graduate Committee.

A public lecture on the thesis or essay for each student in Plan A or Plan B.

By the time twelve credits have been earned, each student must submit a Plan of Work, approved by a departmental adviser, to the director of the program. In the Plan of Work, the student must choose Plan A, Plan B, or Plan C. The Plan of Work must be approved by the Departmental Graduate Committee, at which time the student will be advanced to candidacy. Students are not allowed to take more than twelve credits in the program unless candidacy has been established.

NOTE: Candidates for the Master of Arts in Mathematical Statistics are exempt from the Graduate School requirement that six credits in the major field must be in courses numbered 7000 and above.

NOTE: The following courses cannot be applied towards this degree:

**Code** | **Title** | **Credits**
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MAT 5000 | Fundamental Concepts of Mathematics and Proof Writing | 3
MAT 5070 | Elementary Analysis | 4
MAT 6130 | Discrete Mathematics | 3
MAT 6140 | Geometry: An Axiomatic Approach | 3
MAT 6150  Probability and Statistics for Teachers  4
MAT 6170  Algebra: Ring Theory Through Exploration, Conjecture, and Proof  4
MAT 6180  Algebra: Group Theory Through Exploration, Conjecture, and Proof  3
MAT 6200  Teaching Arithmetic, Algebra and Functions from an Advanced Perspective  3
MAT 6210  Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective  3

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (http://bulletins.wayne.edu/graduate/general-information/academic-regulations/) and the College of Liberal Arts and Sciences (http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/).