MATHEMATICS (M.S.)

The M.S. in Mathematics is the most rigorous program at the Master's level and is designed for students who intend to study at the Ph.D. level in mathematical sciences, as well as for other students who are looking for a challenge.

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 MS in Mathematics program include successful completion of course work equivalent to the following:

Code	Title	Credits
Calculus sequence:		
MAT 2010	Calculus I	
MAT 2020	Calculus II	
MAT 2030	Calculus III	
MAT 2250	Elementary Linear Algebra	3
MAT 2150	Differential Equations and Matrix Algebra	4
or MAT 2350	Elementary Differential Equations	
MAT 5070	Elementary Analysis	4
MAT 5420	Algebra I	4

As preparation for graduate study, the Department of Mathematics strongly recommends undergraduate course work along the line of the Prospective Graduate Study Concentration, described in the Mathematics B.A. and B.S. degree programs in the Undergraduate Bulletin.

Program Requirements

The Master of Science in Mathematics is offered under the following options:

Plan A: *Twenty-six credits in course work plus an eight credit thesis*.

Plan B: *Twenty-nine credits in course work plus a three credit essay*.

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

Degree Requirements

Code	Title	Credits
At least twenty-four credits in course work from the Department of Mathematics, including credits earned toward a thesis or essay under Plan A or Plan B options.		
Select one of the following (if not previously completed):		
MAT 5420 & MAT 5430 & MAT 6420	Algebra I and Algebra II and Advanced Linear Algebra	
MAT 6420 & MAT 7400	Advanced Linear Algebra and Advanced Algebra I	
Select one of the following (if not previously taken):		
MAT 5600 & MAT 5610 & MAT 6600	Introduction to Analysis I and Introduction to Analysis II and Complex Analysis	
MAT 6600 & MAT 7600	Complex Analysis and Real Analysis I	
Select one of the following:		
MAT 6500	Topology I (if not previously taken)	
MAT 7500	Topology II	

Select at least two of the following (other courses may be approved by the Departmental Graduate Committee on an individual basis):

STA 5030	Statistical Computing and Data Analysis	
MAT 5100	Numerical Methods I	
MAT 5110	Numerical Methods II	
MAT 5210	Advanced Calculus	
MAT 5220	Partial Differential Equations	
MAT 5230	Complex Variables and Applications	
MAT 5280	Methods of Differential Equations	
MAT 5400	Elementary Theory of Numbers	
MAT 5410	Applied Linear Algebra	
MAT 5520	Introduction to Topology	
MAT 5530	Elementary Differential Geometry and its Applications	
MAT 5700	Introduction to Probability Theory	
MAT 5710	Introduction to Stochastic Processes	
MAT 5770	Mathematical Models in Operations Research	
STA 5800	Introduction to Mathematical Statistics	
MAT 5870	Methods of Optimization	
STA 6840	Applied Regression Analysis	
MAT 7200	Ordinary Differential Equations	
MAT 7210	Partial Differential Equations	
MAT 7230	Finite Element Methods	
MAT 7240	Advanced Partial Differential Equations	
MAT 7400	Advanced Algebra I	
MAT 7410	Advanced Algebra II	
MAT 7500	Topology II	
MAT 7510	Algebraic Topology I	
MAT 7520	Algebraic Topology II	
MAT 7600	Real Analysis I	
MAT 7610	Real Analysis II	
MAT 7700	Advanced Probability Theory I	
STA 7810	Advanced Statistics Theory I	
STA 7820	Advanced Statistics Theory II	

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 Science in Mathematics are exempt from the requirement of the Graduate School 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
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 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