APPLIED MATHEMATICS, MS

This program is designed to provide students with the opportunity to broaden and deepen their knowledge of mathematics with an emphasis on those areas that have been most important in science and engineering. The student will also examine, through seminars and case studies, examples of significant applications of mathematics to other areas. This expanded base of knowledge, together with extensive experience in problem solving should prepare the student for further studies leading to the Ph.D. degree or for immediate employment in many areas of industry and government.

To enter the program the student should have a Bachelor's degree in mathematics, or a related field, and have completed undergraduate courses in Linear Algebra and Differential Equations. Students without these prerequisites may take them without credit toward the M.S. degree. Partial tuition waivers may be available to qualified students.

Requirements
Non-thesis Option

Course ID	Title	Credits
Required Courses		
Select one of the following Analysis Courses:		3
MATH 6050	Real Analysis I	
MATH 6060	Real Analysis II	
MATH 7210	Analysis I	
Select one of the following Statistics Courses:		3
MATH 6020	Mathematical Statistics	
MATH 6030	Stochastic Processes	
MATH 6040	Linear Models	
MATH 7360	Data Analysis	
MATH 6370/7370	Time Series Analysis	
MATH 7310	Applied Mathematics I	3
MATH 7320	Applied Math II	3
MATH 7350	Scientific Computing I	3
MATH 7980	Reading and Research	3
Optional Courses		
Select four additional courses from the optional list [1]		12
Total Credit Hours		**30**

[1] Other courses not listed may be substituted with the approval of the Graduate Studies Committee. Up to six credits may be transferred from other departments or institutions with the approval of the Graduate Studies Committee.

Additional Requirements

A **four-hour written examination** to be taken upon completion of the course work, with topics drawn from differential equations, and scientific computation. The student is given two chances to pass this exam. The Ph.D. Qualifying examination in Applied Mathematics **or** Scientific Computation can be substituted for the Masters exam.

A **programming project** designed to demonstrate proficiency in one of MATLAB, Fortran, C, or C++.

Thesis Option
Required Courses

Course ID	Title	Credits
Required Courses		
Select one of the following Analysis Courses:		3
MATH 6050	Real Analysis I	
MATH 6060	Real Analysis II	
MATH 7210	Analysis I	
Select one of the following Statistics Courses:		3

MATH 6020	Mathematical Statistics	
MATH 6030	Stochastic Processes	
MATH 6040	Linear Models	
MATH 7360	Data Analysis	
MATH 6370/7370	Time Series Analysis	
MATH 7310	Applied Mathematics I	3
MATH 7320	Applied Math II	3
MATH 7350	Scientific Computing I	3
Optional Courses		
Select three additional courses from the optional list [1]		9
Total Credit Hours		**24**

[1] Other courses not listed may be substituted with the approval of the Graduate Studies Committee. Up to six credits may be transferred from other departments or institutions with the approval of the Graduate Studies Committee.

Additional Requirements

A thesis approved by the thesis committee consisting of a faculty member acting as advisor and two additional faculty. The thesis is typically much more substantial than the MATH 7980 Reading and Research (1-9 c.h.) project.

A **programming project** designed to demonstrate proficiency in one of MATLAB, Fortran, C, or C++.

Optional Courses

Course ID	Title	Credits
MATH 6020	Mathematical Statistics	3
MATH 6030	Stochastic Processes	3
MATH 6040	Linear Models	3
MATH 6050	Real Analysis I	3
MATH 6060	Real Analysis II	3
MATH 6210	Differential Geometry	3
MATH 6300	Complex Analysis I	3
MATH 7210	Analysis I	3
MATH 7220	Analysis II	3
MATH 7530	Partial Diff Equations I	3
MATH 7540	Partial Diff Equitns II	3
MATH 7570	Scientific Computatn II	3
MATH 7580	Scientific Computing III	3
MATH 7730	Topics In Applied Math	3
MATH 7740	Topics In Computation	3
MATH 7750	Topics/Differential Equa	3

MATH 7980 Reading and Research (1-9 c.h.) consists of a semester-long project in differential equations, scientific computation, optimization, analytical methods, engineering or other topics in applied mathematics. The project must be under the supervision of a faculty member from the Mathematics Department.