

# APPLIED MATHEMATICS & STATISTICS, AND SCIENTIFIC COMPUTATION, MASTER OF SCIENCE (M.S.)

Students must complete 30 credits of coursework in one of the three areas of concentration. All three concentrations offer both thesis and non-thesis options.

Students choose from one of the following concentrations:

## APPLIED MATHEMATICS

Course	Title	Credits
<b>Thesis Option - 30 credits</b>		
Numerical Analysis course (course options below; other courses must be approved by director)		3
AMSC660	Scientific Computing I	
AMSC661	Scientific Computing II	
AMSC663	Advanced Scientific Computing I	
AMSC664	Advanced Scientific Computing II	
AMSC666	Numerical Analysis I	
AMSC714	Numerical Methods For Stationary PDEs	
AMSC715	Numerical Methods for Evolution Partial Differential Equations	
AMSC763	Advanced Linear Numerical Analysis	
AMSC764	Advanced Numerical Optimization	
Additional courses with primarily math content		9
AMSC799	Master's Thesis Research	6
Application Area courses		6
Applied Math or appropriate seminar		1
Additional coursework		5
<b>Non-thesis Option - 30 credits</b>		
Numerical Analysis course (course options below; other courses must be approved by director)		3
AMSC660	Scientific Computing I	
AMSC661	Scientific Computing II	
AMSC663	Advanced Scientific Computing I	
AMSC664	Advanced Scientific Computing II	
AMSC666	Numerical Analysis I	
AMSC714	Numerical Methods For Stationary PDEs	
AMSC715	Numerical Methods for Evolution Partial Differential Equations	
AMSC763	Advanced Linear Numerical Analysis	
AMSC764	Advanced Numerical Optimization	
Additional courses with primarily math content		12
Application Area courses		6
Applied Math or appropriate seminar		1
Additional coursework		8
Pass the Qualifying Exam requirement		
Mathematics Written Qualifying Exam		
Application Area Qualifying Exam		

Math coursework sequence qualifying exam

Submit a Scholarly Paper

## Applied Statistics

**Thesis option** requires 25 credits of coursework including 18 credits of statistics core courses, six credits in an application area, and one credit of seminar. Students are also required to complete six credits of AMSC799.

**Non-thesis option** requires 33 credits of coursework including 18 credits of statistics core courses, six credits in an application area, six credits of electives, two credits of seminar, and one credit of AMSC762. Students are also required to pass three qualifying exams, and submit a scholarly paper.

## Scientific Computation

Course	Title	Credits
<b>Thesis option - 30 credits</b>		
Scientific computing core courses		6
CMSC616	Foundations of Parallel Computing (Formerly CMSC818X)	3
Core science courses		6
Scientific computing application courses		3
Elective courses		6
AMSC799	Master's Thesis Research	6
<b>Non-thesis Option - 30 credits</b>		
Scientific computing core courses		6
CMSC616	Foundations of Parallel Computing (Formerly CMSC818X)	3
6 credits from the following courses:		6
AMSC714	Numerical Methods For Stationary PDEs	
AMSC715	Numerical Methods for Evolution Partial Differential Equations	
AMSC808	Advanced Topics in Applied Mathematics (AMSC808N Numerical Methods for Data Science and Machine Learning)	
AMSC763	Advanced Linear Numerical Analysis	
AMSC764	Advanced Numerical Optimization	
Core science courses		6
Scientific computing application courses		3
Elective courses		6
Students must also submit a scholarly paper.		