M.S. in Mathematical Sciences

The program has a history of successfully preparing students for doctoral studies as well as for positions in industry and teaching.

Each student’s program is designed individually to meet the student’s interests and goals.

Applicants from countries where English is not the first language are required to demonstrate English proficiency. Please consult the graduate school website for required scores.

Departmental Requirements

For the MS degree, both thesis and non-thesis options are available. The thesis option requires 24 semester hours of coursework plus the completion of the six-semester-hour thesis. The non-thesis option requires 36 semester hours of coursework including MATH 5396 or STAT 5396. In either case, a maximum of nine (9) semester hours of approved upper-division undergraduate courses is acceptable. Particular courses of study for the MS must be approved by the departmental committee on graduate studies. The passing of a comprehensive examination is required. All full-time MS students must enroll in MATH 5195 or STAT 5195 each semester in residence, excluding summers and the last semester of thesis.

Degree Plan

Required Credits: 30-36

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 5331</td>
<td>Real Variables</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5351</td>
<td>Complex Variables</td>
<td>3</td>
</tr>
<tr>
<td>STAT 5380</td>
<td>Mathematical Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>Select thesis or non-thesis option:</td>
<td>7-13</td>
<td></td>
</tr>
</tbody>
</table>

**Thesis Option**

- MATH 5195 Graduate Seminar
- MATH 5398 Thesis 1
- MATH 5399 Thesis 2

**Non-Thesis Option**

- MATH 5195 Graduate Seminar
- MATH 5396 Graduate Research

Other Electives:

Select 9 additional hours from the following:

- MATH 5311 Topics in Applied Mathematics
- MATH 5321 Principles of Analysis
- MATH 5325 Principles of Algebra
- MATH 5329 Numerical Analysis
- MATH 5330 Comp Methods of Linear Algebra
- MATH 5335 Techniques in Optimization
- MATH 5341 General Topology
- MATH 5343 Numerical Solution Part Diff Equat
- MATH 5345 Numerical Optimization
- MATH 5370 Special Topics

**Other Electives (thesis or non-thesis):**

Select fourteen hours from the following:

- MATH 5311 Topics in Applied Mathematics
- MATH 5321 Principles of Analysis
- MATH 5325 Principles of Algebra
- MATH 5329 Numerical Analysis
- MATH 5330 Comp Methods of Linear Algebra
- MATH 5335 Techniques in Optimization
- MATH 5341 General Topology
MATH 5343  Numerical Solution Part Diff Equat
MATH 5345  Numerical Optimization
MATH 5370  Special Topics
STAT 5329  Statistical Programming
STAT 5335  Applied Experimental Design
STAT 5336  Categorical Data Analysis
STAT 5354  Post-Genomic Analysis
STAT 5370  Special Topics
STAT 5381  Mathematical Statistics II
STAT 5385  Applied Regression Models
STAT 5386  Stochastic Processes
STAT 5388  Multivariate Data Analysis
STAT 5391  Time Series Analysis
STAT 5392  Statistical Computing
STAT 5428  Intro to Statistical Analysis
STAT 5474  Statistical Machine Learning I
STAT 5494  Statistical Machine Learn. II

Total Hours 30-36

Applied Mathematics Track
Thesis Option

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 5309</td>
<td>Intro to Applied Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5321</td>
<td>Principles of Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5322</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5329</td>
<td>Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5398</td>
<td>Thesis 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5399</td>
<td>Thesis 2</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5195</td>
<td>Graduate Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

All full-time students must enroll in MATH 5195 each semester in residence, excluding summers and the last semester of thesis.

Free Elective Course Menu for Thesis Option (11 credit hours required)
MATH 5XXX / STAT 5XXX - Any graduate level MATH/STAT courses 11

Total Hours 30

Non-Thesis Option

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 5309</td>
<td>Intro to Applied Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5321</td>
<td>Principles of Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5322</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5329</td>
<td>Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5396</td>
<td>Graduate Research</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5195</td>
<td>Graduate Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

All full-time students must enroll in MATH 5195 each semester in residence, excluding summers and the last semester of thesis.

Free Elective Course Menu for Thesis Option (20 credit hours required)
MATH 5XXX / STAT 5XXX - Any graduate level MATH/STAT courses 20

Total Hours 36