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
MATH 7320 | Applied Math II
MATH 7350 | Scientific Computing I
MATH 7980 | Reading and Research

**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
MATH 7320 Applied Math II
MATH 7350 Scientific Computing I

Optional Courses
Select three additional courses from the optional list

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

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

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.