MAJOR IN MATHEMATICS,  
APPLIED MATHEMATICS  
CONCENTRATION

Major Completion Map

Distinctive Requirements for Degree Program:

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Mathematics, Applied Mathematics Concentration assumes students enter college prepared to take calculus. Entering students who are not prepared to take calculus will need to fulfill pre-calculus requirements in the first semester: MATH 117, MATH 118, MATH 124, MATH 125, MATH 126. A minimum grade of C is required in all Mathematics, Statistics, and Computer Science courses that are required by the major.

### Freshman

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Critical</th>
<th>Recommended</th>
<th>AUCC</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO 150</td>
<td></td>
<td></td>
<td>1A</td>
<td>3</td>
</tr>
<tr>
<td>MATH 160</td>
<td></td>
<td>X</td>
<td>1B</td>
<td>4</td>
</tr>
<tr>
<td>MATH 192</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3B</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<td>3D</td>
<td>3</td>
</tr>
<tr>
<td>Pre-Calculus Requirements must be completed by the end of Semester 1, if needed (MATH 117, MATH 118, MATH 124, MATH 125, MATH 126).</td>
<td>X</td>
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</tbody>
</table>

**Total Credits**: 14

### Sophomore

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Critical</th>
<th>Recommended</th>
<th>AUCC</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 261</td>
<td></td>
<td>X</td>
<td>1B</td>
<td>4</td>
</tr>
<tr>
<td>PH 141</td>
<td></td>
<td>X</td>
<td>3A</td>
<td>5</td>
</tr>
<tr>
<td>STAT 315</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3B,3B</td>
<td></td>
</tr>
<tr>
<td>Select four credits from the following:</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CS 150B</td>
<td>Culture and Coding: Python (GT-AH3)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CS 152</td>
<td>Python for STEM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 162</td>
<td>CS1—Introduction to Java Programming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 164</td>
<td>CS1—Computational Thinking with Java</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 151</td>
<td>Mathematical Algorithms in Matlab I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 158</td>
<td>Introduction to R Programming</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>MATH 161</td>
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</table>

**Total Credits**: 16

### Total Credits

**Freshman**: 14

**Sophomore**: 16

**Total Credits**: 30
DSCI 369  Linear Algebra for Data Science
MATH 369  Linear Algebra I

Select one course from the following:  
MATH 340  Intro to Ordinary Differential Equations
MATH 345  Differential Equations

MATH 261, PH 141 must be completed by the end of Semester 4.  

Total Credits  4

Junior

Semester 5  Critical  Recommended  AUCC  Credits
MATH 450  Introduction to Numerical Analysis I  X  4A  3

Select two courses from the following:  
MATH 301  Introduction to Combinatorial Theory
MATH 331  Introduction to Mathematical Modeling
MATH 332  Partial Differential Equations
MATH 360  Mathematics of Information Security

Related Area (See Concentration Coordinator)  3
Elective  3

MATH 369 must be completed by the end of Semester 5.  

Total Credits  15

Semester 6  Critical  Recommended  AUCC  Credits
MATH 317  Advanced Calculus of One Variable  X  4B  3
MATH 451  Introduction to Numerical Analysis II  X  3

Biological and Physical Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)  3A  3
Mathematical Science Elective  3
Related Area (See Concentration Coordinator)  3

MATH 340 or MATH 345 must be completed by the end of Semester 6.  

Total Credits  15

Senior

Semester 7  Critical  Recommended  AUCC  Credits
Mathematical Science Elective  6

Related Area (See Concentration Coordinator)  3
Electives  6

MATH 450 must be completed by the end of Semester 7.  

Total Credits  15

Semester 8  Critical  Recommended  AUCC  Credits
JTC 300  Strategic Writing and Communication (GT-CO3)  X  2  3
MATH 435  Projects in Applied Mathematics  X  4C  3

Select one course from the following:  
MATH 417  Advanced Calculus I
MATH 419  Introduction to Complex Variables
MATH 430/ECE 430  Fourier and Wavelet Analysis with Apps

Related Area (See Concentration Coordinator)  X  3
Elective  X  0-3

The benchmark courses for the 8th semester are the remaining courses in the entire program of study.

Total Credits  12-15

Program Total Credits:  120