# Applied Mathematics - BS, Biological Science Emphasis

## Program Requirements

Biological Science Emphasis: Consult with departmental advisor.

### First Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>Introductory Biology I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 119</td>
<td>Fundamentals of Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 104 or ENGL 103</td>
<td>Composition and Rhetoric or Introduction to Rhetoric and Composition</td>
<td>3</td>
</tr>
<tr>
<td>MATH 171</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>General Elective (^1,4)</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Semester Credit Hours:** 16

#### Spring

<table>
<thead>
<tr>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 112</td>
<td>Introductory Biology II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>Fundamentals of Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 203 or ENGL 210</td>
<td>Writing about Literature or Technical and Professional Writing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 172</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>General Elective (^1,4)</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Semester Credit Hours:** 16

### Second Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200-470 (<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/biol/">http://catalog.tamu.edu/undergraduate/course-descriptions/biol/</a>)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 227 &amp; CHEM 237</td>
<td>Organic Chemistry I and Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Several Variable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 300</td>
<td>Foundations of Mathematics</td>
<td>3</td>
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</tbody>
</table>

**Semester Credit Hours:** 14

#### Spring

<table>
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<tr>
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<tbody>
<tr>
<td>BIOL 200-470 (<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/biol/">http://catalog.tamu.edu/undergraduate/course-descriptions/biol/</a>)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 228 &amp; CHEM 238</td>
<td>Organic Chemistry II and Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 308</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 323</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a>) (^2,5)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Semester Credit Hours:** 16

### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BICH 410</td>
<td>Comprehensive Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 409</td>
<td>Analysis on the Real Line</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fourth Year

#### Fall

Select 6 hours from the following: \(^3\)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 325</td>
<td>The Mathematics of Interest</td>
<td>3</td>
</tr>
<tr>
<td>MATH 407-499 (<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/math/">http://catalog.tamu.edu/undergraduate/course-descriptions/math/</a>)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Select from one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>CSCE 110</td>
<td>Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSCE 111</td>
<td>Introduction to Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>CSCE 206</td>
<td>Structured Programming in C</td>
<td>4</td>
</tr>
<tr>
<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a>) (^2)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a>) (^2)</td>
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**Semester Credit Hours:** 13

#### Spring

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<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 442</td>
<td>Mathematical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>Select 3 hours from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MATH 325</td>
<td>The Mathematics of Interest</td>
<td>3</td>
</tr>
<tr>
<td>MATH 407-499 (<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/math/">http://catalog.tamu.edu/undergraduate/course-descriptions/math/</a>)</td>
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<td>University Core Curriculum (<a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a>) (^2)</td>
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<tr>
<td>General Elective (^4)</td>
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**Semester Credit Hours:** 13

**Total Semester Credit Hours:** 120
1 MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 147/MATH 151/MATH 171, or MATH 148/MATH 152/MATH 172.

2 Of the 18 hours shown as University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/), 3 must be from language, philosophy and culture, 3 from creative arts, 6 from American history, 6 from Government/Political Science.

3 Select from MATH 325, MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/). One course must be a W or C course.

4 Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; ISEN 101; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376, PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201 STAT 301 - 303 (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/)).

5 PBSI 107 or SOCI 205 is recommended for Medical School.

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D’s in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)s and 3 hours of Cultural Discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/)s. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.