## APPLIED MATHEMATICS - BS, BIOLOGICAL SCIENCE EMPHASIS

### Program Requirements

Biological Science Emphasis: Consult with departmental advisor.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</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</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</td>
<td>1,4</td>
<td>1</td>
</tr>
<tr>
<td>Semester Credit Hours</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

| Spring | BIOL 112 | Introductory Biology II | 4 |
| CHEM 120 | Fundamentals of Chemistry II | 4 |
| ENGL 203 | Writing about Literature or Technical and Professional Writing | 3 |
| MATH 172 | Calculus II | 4 |
| General Elective | 1,4 | 1 |
| Semester Credit Hours | 16 |

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Fall</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<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>4</td>
</tr>
<tr>
<td>Semester Credit Hours</td>
<td>14</td>
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</tr>
</tbody>
</table>

| CHEM 228 & CHEM 238 | Organic Chemistry II and Organic Chemistry Laboratory | 4 |
| MATH 308 | Differential Equations | 3 |
| MATH 323 | Linear Algebra | 3 |
| University Core Curriculum | [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/](http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) | 2,5 |
| Semester Credit Hours | 16 |

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Fall</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>
<tr>
<td>Semester Credit Hours</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Fall</th>
<th>Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 319</td>
<td>Organic Chemistry III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 311</td>
<td>Several Variable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 322</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 325</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>University Core Curriculum</td>
<td><a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a></td>
<td>2,5</td>
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<tr>
<td>University Core Curriculum</td>
<td><a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/</a></td>
<td>2</td>
</tr>
<tr>
<td>Semester Credit Hours</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

| Spring | MATH 442 | Mathematical Modeling | 3 |
| Select 3 hours from the following: | 3 |
| MATH 325 | The Mathematics of Interest | 3 |
| Select from one of the following: | 4 |
| CSCE 110 | Programming I | 3 |
| CSCE 206 | Introduction to Computer Science Concepts and Programming | 3 |
| University Core Curriculum | [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/](http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) | 2,5 |
| University Core Curriculum | [http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/](http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) | 2 |
| Semester Credit Hours | 13 |

| Total Semester Credit Hours | 120 |

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1. MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171,
or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171, or 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; 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 Ds 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/) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.