# APPLIED MATHEMATICAL SCIENCES - BS, MATH EMPHASIS

## Program Requirements

### First Year

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 104</td>
<td>Composition and Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 103</td>
<td>or Introduction to Rhetoric and Composition</td>
<td></td>
</tr>
<tr>
<td>MATH 171</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>University Core Curriculum [1][2]</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Freshman Science elective [1]</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>General elective [3,4]</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 172</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>University Core Curriculum [1][2]</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>University Core Curriculum [1][2]</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Freshman Science elective [1]</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>General elective [3,4]</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### Second Year

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<tr>
<td>STAT 211</td>
<td>Principles of Statistics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 110</td>
<td>Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSCE 111</td>
<td>Introduction to Computer Science Concepts and Programming</td>
<td></td>
</tr>
<tr>
<td>CSCE 121</td>
<td>Introduction to Program Design and Concepts</td>
<td></td>
</tr>
<tr>
<td>CSCE 206</td>
<td>Structured Programming in C</td>
<td></td>
</tr>
</tbody>
</table>

### Third Year

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 409</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Select 3 hours from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 325</td>
<td>The Mathematics of Interest</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 210-470</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>ISEN 320</td>
<td>Operations Research I</td>
<td>3</td>
</tr>
<tr>
<td>ISEN 340</td>
<td>Operations Research II</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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 335-482</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

| University Core Curriculum [1][2] |                                      |              |
| University Core Curriculum [1][2] |                                      |              |

### Fourth Year

**Fall**

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 412</td>
<td>Theory of Partial Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 414</td>
<td>Fourier Series and Wavelets</td>
<td>3</td>
</tr>
<tr>
<td>MATH 442</td>
<td>Mathematical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MATH 469</td>
<td>Introduction to Mathematical Biology</td>
<td>3</td>
</tr>
<tr>
<td>MATH 470</td>
<td>Communications and Cryptography</td>
<td>3</td>
</tr>
<tr>
<td>MATH 471</td>
<td>Communications and Cryptography II</td>
<td>3</td>
</tr>
</tbody>
</table>

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Applied Mathematical Sciences - BS, Math Emphasis

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td></td>
</tr>
<tr>
<td>MATH 417</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 437</td>
<td></td>
</tr>
<tr>
<td>Select 3 hours from the following:</td>
<td>3</td>
</tr>
<tr>
<td>MATH 325</td>
<td></td>
</tr>
<tr>
<td>The Mathematics of Interest</td>
<td></td>
</tr>
<tr>
<td>MATH 407-499</td>
<td></td>
</tr>
<tr>
<td>(<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/math/">http://catalog.tamu.edu/undergraduate/course-descriptions/math/</a>)</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>)</td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>MATH 417</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 437</td>
<td></td>
</tr>
<tr>
<td>Select 3 hours from the following:</td>
<td>3</td>
</tr>
<tr>
<td>MATH 325</td>
<td></td>
</tr>
<tr>
<td>The Mathematics of Interest</td>
<td></td>
</tr>
<tr>
<td>MATH 407-499</td>
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</tr>
<tr>
<td>(<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/math/">http://catalog.tamu.edu/undergraduate/course-descriptions/math/</a>)</td>
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</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>)</td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total Semester Credit Hours | 120 |

1. Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from: ASTR 111, ATM 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

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. MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

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; PHYS 201/PHYS 202, PHYS 205; PSYC 301; STAT 201, STAT 301-303 (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/); WFSC 101).


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 151 MATH 151 MATH 151MATH 151MATH 151MATH 171, MATH 152 /MATH 172, MATH 221 /MATH 251/ MATH 253 , MATH 300, MATH 323 MATH 323 MATH 323MATH 323MATH 323MATH 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/) 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.