Many advances in technology and business are achieved by people applying technical knowledge from statistics, computing science, finance, economics and mathematics. The curriculum in applied mathematical sciences provides study in all of these areas, with ample electives available to allow further in-depth study of any of these areas. In fact, there are six emphases in this curriculum: Applied Mathematics, Statistics, Actuarial Science, Economics, Biological Science and Scientific Computing. The Actuarial Science emphasis includes mathematical finance.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to technological industries and/or modern financial markets. On the other hand, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

### Program Requirements

#### First Year

**Fall**

- ENGL 104 or ENGL 103: Composition and Rhetoric or Introduction to Rhetoric and Composition 3
- MATH 171: Analytic Geometry and Calculus 4
- Select one of the following: 4
  - CSCE 110: Programming I
  - CSCE 111: Introduction to Computer Science Concepts and Programming
  - CSCE 121: Introduction to Program Design and Concepts
  - CSCE 206: Structured Programming in C
- Freshman Science elective 1
- Elective 2

**Semester Credit Hours** 16

**Spring**

- MATH 172: Calculus 4
- Select one of the following: 4
  - CSCE 110: Programming I
  - CSCE 111: Introduction to Computer Science Concepts and Programming
  - CSCE 121: Introduction to Program Design and Concepts
  - CSCE 206: Structured Programming in C
- American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) 3
- Freshman Science elective 1

**Semester Credit Hours** 16

#### Second Year

**Fall**

- ECON 202 or ECON 203: Principles of Economics or Principles of Economics 3
- MATH 211: Several Variable Calculus 4
- MATH 500: Foundations of Mathematics 3
- STAT 211: Principles of Statistics I 3
- American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) 3

**Semester Credit Hours** 16

**Spring**

- MATH 308: Differential Equations 3
- MATH 232: Linear Algebra 3
- POLS 206: American National Government 3
- STAT 212: Principles of Statistics II 3
- Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) 3

**Semester Credit Hours** 15

#### Third Year

**Fall**

- MATH 409: Advanced Calculus I 3
- MATH 411 or STAT 414: Mathematical Probability or Mathematical Statistics I 3
- STAT 404: Statistical Computing 3
- PHYS 206 & PHYS 226: Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences 4
- POLS 207: State and Local Government 3

**Semester Credit Hours** 16

**Spring**

- ISEN 320 or ISEN 340: Operations Research I or Operations Research II 3
- MATH 417 or MATH 437: Numerical Methods or Principles of Numerical Analysis 4
- STAT 408: Introduction to Linear Models 3
- Select one of the following: 4
  - OCNG 451: Mathematical Modeling of Ocean Climate
  - PHYS 207 & PHYS 227: Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences

**Semester Credit Hours** 14

#### Fourth Year

**Fall**

- Select one of the following: 3
  - COMM 203: Public Speaking
  - COMM 205: Communication for Technical Professions
  - COMM 243: Argumentation and Debate
- Select 6 hours from the following: 6

**Semester Credit Hours** 16
**Applied Mathematical Sciences - BS, Statistics Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 325</td>
<td>The Mathematics of Interest</td>
</tr>
<tr>
<td>MATH 407-MATH 499</td>
<td><a href="http://catalog.tamu.edu/undergraduate/course-descriptions/math">http://catalog.tamu.edu/undergraduate/course-descriptions/math</a></td>
</tr>
<tr>
<td>STAT 415</td>
<td>Mathematical Statistics II</td>
</tr>
<tr>
<td>STAT 485</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>STAT 489</td>
<td>Special Topics in...</td>
</tr>
<tr>
<td>Creative Arts</td>
<td><a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a></td>
</tr>
</tbody>
</table>

**Spring**

Select 6 hours from the following: 6

- CSCE 210 - CSCE 470 | [http://catalog.tamu.edu/undergraduate/course-descriptions/csce](http://catalog.tamu.edu/undergraduate/course-descriptions/csce) 4
- ISEN 320 - ISEN 499 | [http://catalog.tamu.edu/undergraduate/course-descriptions/isen](http://catalog.tamu.edu/undergraduate/course-descriptions/isen)
- STAT 404 - STAT 482 | [http://catalog.tamu.edu/undergraduate/course-descriptions/stat](http://catalog.tamu.edu/undergraduate/course-descriptions/stat)

**Elective** 5

**Semester Credit Hours** 12

**Total Semester Credit Hours** 120

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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, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

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

3. Select 3 hours from any 200-400 level course.


5. Three (3) elective hours must be chosen from the area of International and Cultural Diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements) and three (3) hours must be chosen from the area of Cultural Discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements). These may be in addition to University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum) courses, or if a course in this category satisfies an area of the Core, it can be used to meet both requirements. Students desiring teacher certification should consult the requirements for certification before registering for electives. Remaining electives may be selected from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 101; BUSN 100; ISEN 101; KINE 199; LAND 101; MATH 102-148, 151-166 | [http://catalog.tamu.edu/undergraduate/course-descriptions/math](http://catalog.tamu.edu/undergraduate/course-descriptions/math), MATH 304, MATH 309, MATH 311, MATH 367, MATH 368, MATH 375, MATH 376; PHYS 109/ASTR 109, PHYS 119/ASTR 119,PHYS 201, PHYS 202, PHYS 205; PSYC 301; STAT 201, STAT 301 - 303 | [http://catalog.tamu.edu/undergraduate/course-descriptions/stat](http://catalog.tamu.edu/undergraduate/course-descriptions/stat); WFSC 101).

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Maximum of 4 hours of MATH 148, MATH 152, or MATH 172 may be used in this degree program.

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

Maximum of 4 hours of CHEM 119, CHEM 107/CHEM 117 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.