# DEPARTMENT OF MATHEMATICS
## SOUTHEAST MISSOURI STATE UNIVERSITY
### REQUIREMENTS FOR A MATHEMATICS MAJOR - BACHELOR OF SCIENCE

**Major: Mathematics (Applied Mathematics and Statistics Option)**

<table>
<thead>
<tr>
<th>University Studies¹ (includes EN100)</th>
<th>Prerequisite</th>
<th>Degree: Bachelor of Science</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses</td>
<td>MA134</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>MA 138 Discrete Mathematics I</td>
<td>MA134</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MA 140 Analytic Geometry and Calculus I</td>
<td>MA133, MA134</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>MA 145 Analytic Geometry and Calculus II</td>
<td>MA140</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MA 240 Analytic Geometry and Calculus III</td>
<td>MA145</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MA 250 Foundations of Mathematics</td>
<td>MA138 and (MA139 or MA140)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Applied Mathematics and Statistics Option Requirements**

<table>
<thead>
<tr>
<th>Applied Mathematics and Statistics Option Electives</th>
<th>Degree: Bachelor of Science</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 223 Elementary Probability &amp; Statistics</td>
<td>MA134</td>
<td>3</td>
</tr>
<tr>
<td>MA 448 Mathematics Seminar</td>
<td>MA240</td>
<td>1</td>
</tr>
</tbody>
</table>

**Applied Mathematics and Statistics Option Electives**

- **Theoretical Component** (Select one mathematics course from the following list.)
  - MA 445 Modern Algebra
  - MA 523 Probability & Statistics I
  - MA 546 Advanced Calculus I

- **Applied Component** (Not more than two courses outside of Mathematics)
  - MA 245 Vector Calculus
  - MA 338 Discrete Mathematics II
  - MA 345 Linear Algebra
  - MA 350 Differential Equations I
  - MA 423 Statistical Analysis for Forensic Science
  - MA 425 Applied Regression Analysis
  - MA 443 Elementary Number Theory
  - MA 464 Mathematical Cryptography
  - MA 523 Probability and Statistics I
  - MA 524 Probability and Statistics II
  - MA 545 Linear Algebra and Matrices
  - MA 546 Advanced Calculus I
  - MA 547 Advanced Calculus II
  - MA 550 Differential Equations II
  - MA 580 Experimental Design and Analysis of Variance
  - CH 311 Foundations of Physical Chemistry
  - CH 312 Advanced Physical Chemistry
  - CS 345 Discrete Structures II
  - EP 262 Engineering Mechanics Dynamics
  - EP 361 Thermal Analysis
  - EP 372 Signals and Systems
  - EP 374 Control Systems
  - PH 341 Optics
  - PH 370 Mechanics
  - PH 371 Electromagnetics
  - PH 570 Mathematical Physics

- **Advanced Component** (Select one mathematics course from the following list.)
  - MA 524 Probability and Statistics II
  - MA 532 Foundations of Geometry
  - MA 545 Linear Algebra and Matrices
  - MA 547 Advanced Calculus II
  - MA 548 Enumerative Combinatorics
  - MA 549 Graph Theory
  - MA 550 Differential Equations II

---

**MA 003 MFAT (Major Field Achievement Test)**

- Degree: Bachelor of Science | Hours |
- WP 003 75 Hour Writing Test | 0     |
- Electives² | 29 |
- Minimum degree requirement | 120 |

---

1. MA140 will satisfy the Logical Systems Requirement in University Studies.
2. No minor is required.