The B.S. degree program in mathematics is more specifically application-oriented than the B.A. degree program in mathematics, requiring a greater concentration in mathematical analysis and science. The program is designed to position its graduates for a career in business, industry, or research in mathematics.

### Major in Mathematics, BS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Credits Required for Major</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Minimum Residency** 50% of Major Courses

**Minimum GPA 2.0 for Major**

### REQUIRED MATHEMATICS COURSES

- **Calculus I (C- or better required)** - Choose 1 of the following:
  - MATH 161 Calculus 1
  - MATH 163H Honors Calculus 1
- MATH 211 Calculus 2 (C- or better required)
- MATH 310 Intro to Mathematical Proof (C- or better required)
- MATH 311 Calculus 3 (C- or better required)
- MATH 322 Linear Algebra 1 (C- or better required)
- MATH 335 Mathematical Statistics 1
- MATH 345 Abstract Algebra 1 (C- or better required)
- MATH 365 Ordinary Differential Equation
- MATH 375 Numerical Analysis
- MATH 464 Real Analysis 1

### REQUIREMENTS FOR NO DECLARED OPTION

- Additional Mathematics Course - Choose 1 of the following:
  - MATH 422 Linear Algebra 2
  - MATH 435 Mathematical Statistics 2
  - MATH 467 Partial Differential Equations
  - MATH 472 Financial Mathematics II

- Elective Mathematics Courses - Choose 6 hours from:
  - MATH 354 Classical and Transformational Geometry
  - MATH 370 Operations Research
  - MATH 372 Financial Mathematics I
  - MATH 393 Number Theory
  - MATH 395 Introduction Combinatorics
  - MATH 422 Linear Algebra 2
  - MATH 435 Mathematical Statistics 2
  - MATH 445 Abstract Algebra 2
  - MATH 457 Elementary Differential Geometry
  - MATH 465 Real Analysis 2

- **Total Hours** 43-44

### Req Related for Mathematics, BS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Credits Required Related for Mathematics, BS</strong></td>
<td></td>
</tr>
</tbody>
</table>

**REQUIRED RELATED - STATISTICS OR NO OPTION**

- Intro. to Computing I
  - CSCI 161 Introduction to Programming 1
- General Physics I
  - PHYS 231 Physics 1 with Calculus

**ADDITIONAL REQUIRED RELATED (A OR B) - Choose 1 of the following:**

**A.) COLLEGE OF SCIENCE AND TECHNOLOGY COURSES - See Appendix 1**

**B.) COURSES FROM A SINGLE DEPARTMENT - See Appendix 2**

**Total Hours** 9

### Appendix 1. A.) COLLEGE OF SCIENCE AND TECHNOLOGY COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Credits Required Related Science - Choose 2 classes totaling at least 5 hours from:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional Mathematics Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 422 Linear Algebra 2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 435 Mathematical Statistics 2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 467 Partial Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH 472 Financial Mathematics II</td>
<td>3</td>
</tr>
</tbody>
</table>

- Elective Required Related Science - Choose 2 classes totaling at least 5 hours from:
  - Any BIOL course(s)
  - Any CHEM course(s)
  - Any CSCI course(s)
  - Any ESCI course(s)
  - PHIL 312 Mathematical Logic
  - Any PHYS course(s)

**Note:** This requirement may not be satisfied with BIOL 100, BIOL 108H, BIOL 204, BIOL 205, BIOL 207, BIOL 208, BIOL 247, BIOL 257, any CHEM 101-104 course(s), CHEM 110, CHEM 188, CHEM 235, CSCI 101, CSCI 111, CSCI 121, ESCI 101, ESCI 102, ESCI 104, ESCI 105, ESCI 107, ESCI 110, PHYS 103, PHYS 117, PHYS 131, PHYS 132, PHYS 198, or PHYS 205.

**Directed Required Related Science - Choose 1 of the following:**

- BIOL 375 Biometry
- CSCI 162 Introduction to Programming 2
- ESCI 340 Cloud Physics & Precip Process
- ESCI 341 Atmospheric Thermodynamics
- ESCI 342 Atmospheric Dynamics 1
- PHYS 232 Physics 2 with Calculus
Appendix 2. B.) COURSES FROM A SINGLE DEPARTMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four courses from a SINGLE department</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you select Option B. Four courses from a SINGLE department, your advisor must email a list of courses to degreeaudit@millersville.edu for them to fulfill this requirement.