DEGREE: BSE
MAJOR: MATH
OPTION: STAT, ACTU or None
Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BSE MATHEMATICS MAJOR

A. Policies for Admission to the Major
1. New students (freshmen and transfers) must be admitted to the Mathematics major by the Office of Admissions upon admission to the University.
2. Admission into the Mathematics major from other departments is upon approval of the chairperson of the Department of Mathematics. A "C-" or better in MATH 161 and all Math courses already taken which count toward a Mathematics major is required for admission.
3. Non-degree and continuing education students must be admitted to the Mathematics major by the Office of Admissions, subject to approval by the chairperson of the Department of Mathematics.

B. Policies for Retention in the Major
1. University requirements for retention.
2. A Mathematics major taking any Math course required as a prerequisite for a later Math course must earn a grade of "C-" or better in that course before being admitted to the later course for which it is a prerequisite.
3. Periodically, a Mathematics major's progress will be reviewed in accordance with the "Department Evaluation of Majors" policy stated in the University catalog. A student who does not demonstrate satisfactory progress will be notified of the department's concern. Subsequent notifications may result in being terminated as a major in the department.

C. Policies for Completion of the Major
1. Completion of all University curricular requirements.
2. Any student in the BSE Mathematics program must earn a grade of "C-" or better in MATH 405 prior to student teaching. In order to receive a departmental approval for student teaching, a math major must attain at least a "C-" in each of the prerequisites for MATH 405: MATH 161, 211, 305, 310, 311, 322, 325, 333, 345, and 354.
3. Additionally, prior to student teaching, each student is subject to a departmental review.

D. Admission to Advanced Professional Studies and Certification (Education Majors)
All students enrolled in teacher preparation programs must be admitted to Advanced Professional Studies and meet Pennsylvania State requirements and university requirements prior to being enrolled in their initial Advanced Professional course. Students must meet additional Pennsylvania State requirements in order to be certified. A listing of Advanced Professional Studies courses and requirements is available in each department office, the Field Services office, and the Field Services website.

Note to the student: This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.
# MAJOR SEQUENCE AND DEGREE REQUIREMENTS

**Major:** BSE MATHEMATICS  
**Option:** Statistics, Actuarial Science, or No Option  
**Major Field Requirements:** 47.0-50.0 credits  
**Other Requirements:** 35.0 - 41.0 credits

When applicable, up to six of the REQUIRED RELATED courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

### REQUIRED MATHEMATICS COURSES (40-41.0 credits)

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Short Title</th>
<th>C.H.</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 161</td>
<td>Calculus I *</td>
<td>4.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 211</td>
<td>Calculus II</td>
<td>4.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 301</td>
<td>History of Mathematics</td>
<td>3.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 305</td>
<td>Teach Math Second School I</td>
<td>2.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 310</td>
<td>Intro Mathematical Proof</td>
<td>3.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 311</td>
<td>Calculus III</td>
<td>4.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 322</td>
<td>Linear Algebra I</td>
<td>4.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 325</td>
<td>Math Connections</td>
<td>3.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 345</td>
<td>Abstract Algebra I</td>
<td>3.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 354</td>
<td>Geometry: Classical &amp; Trans.</td>
<td>4.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 405</td>
<td>Teach Math Second School II</td>
<td>3.0</td>
<td>_____</td>
</tr>
<tr>
<td>MATH 464</td>
<td>Real Analysis I</td>
<td>3.0</td>
<td>_____</td>
</tr>
</tbody>
</table>

*With permission, MATH 163 Honors Calculus I may be taken in place of MATH 161.

### REQUIRED OPTION COURSES (10.0-13.0 credits)

Choose one of the following options: No Option, Statistics, or Actuarial Science.

#### A. Statistics Requirements (4.0-6.0 credits)

- MATH 333 Intro Probability & Statistics 4.0 _____
- OR-
- MATH 335 Mathematical Statistics I 3.0 _____
- AND-
- MATH 435 Mathematical Statistics II 3.0 _____

#### B. Additional Electives (3.0 credits)

- MATH 365 Ord. Differential Equations 3.0 _____
- MATH 370 Operations Research 3.0 _____
- MATH 372 Financial Mathematics I 3.0 _____
- MATH 375 Numerical Analysis 3.0 _____
- MATH 393 Number Theory 3.0 _____
- MATH 395 Intro Combinatorics 3.0 _____
- MATH 422 Linear Algebra II 3.0 _____
- MATH 445 Abstract Algebra II 3.0 _____
- MATH 457 Elem. Differential Geometry 3.0 _____
- MATH 465 Real Analysis II 3.0 _____
- MATH 467 Partial Differential Equations 3.0 _____
- MATH 471 Mathematical Modeling 3.0 _____
- MATH 472 Financial Mathematics II 3.0 _____
- MATH 483 Point - Set Topology 3.0 _____
- MATH 4 Topics in _____
- MATH 535 Statistical Methods I 3.0 _____
- MATH 536 Statistical Methods II 3.0 _____
- MATH 566 Complex Variables 3.0 _____
- MATH 592 Graph Theory 3.0 _____

### MATH Electives - Statistics Option (13.0 credits)

- MATH 335 Mathematical Statistics I 3.0 _____
- MATH 435 Mathematical Statistics II 3.0 _____
- MATH 535 Statistical Methods I 3.0 _____
- MATH 536 Statistical Methods II 3.0 _____
- MATH 537 Stat Prob Solving Seminar 1.0 _____

### MATH Electives - Actuarial Option (16.0 credits)

- MATH 335 Mathematical Statistics I 3.0 _____
- MATH 372 Financial Mathematics I 3.0 _____
- MATH 375 Numerical Analysis 3.0 _____
- MATH 419 Calc & Actuarial Sci Seminar 1.0 _____
- MATH 435 Mathematical Statistics II 3.0 _____
- MATH 535 Statistical Methods I 3.0 _____

### REQUIRED RELATED COURSES (8.0-14.0 credits)

- CSCI 161 Intro to Programming I 4.0 _____
- CSCI 140 Discrete Structures 4.0 _____

### Required Related: 6 credits

**AND for the Actuarial Science Option**

#### Additional Required Related: 6 credits

- ECON 101 Prin. Macroeconomics 3.0 _____
- ECON 102 Prin. Microeconomics 3.0 _____

Recommended courses: MATH 422, 536, BUAD 161, 162, 341