# MATHEMATICS, BSLAS

for the degree of Bachelor of Science in Liberal Arts & Sciences Major in Mathematics

**Department website:** https://www.math.illinois.edu/

**Department faculty:** Mathematics Faculty (https://math.illinois.edu/directory/faculty/)

**Advising:** Math advising (https://math.illinois.edu/academics/undergraduate-program/undergraduate-advising/)

**Overview of College Admissions & Requirements:** Liberal Arts & Sciences (http://catalog.illinois.edu/schools/las/academic-units/)

**College website:** https://las.illinois.edu/

**Email:** mathadvising@illinois.edu

Students in the Mathematics major can choose one of the following to complete the major:

### Mathematics Major (p. 1)

Mathematics major, Applied Mathematics concentration (http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/applied-mathematics/)

Mathematics major, Graduate Preparation concentration (http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/graduate-preparatory/)

Mathematics major, Mathematics Teaching concentration (http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/teaching-mathematics/)

Mathematics major, Operations Research concentration (http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/operations-research/)

### Undergraduate Programs in Mathematics

Actuarial Science, BSLAS (http://catalog.illinois.edu/undergraduate/las/actuarial-science-bslas/)

Mathematics, BSLAS (p. 1)

Mathematics & Computer Science, BSLAS (http://catalog.illinois.edu/undergraduate/eng_las/mathematics-computer-science-bslas/)

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Mathematics is a broad discipline that contains a range of areas of specialization within it. The required core courses provide fundamental background for mathematics in general. The concentrations allow the student to broaden this background or begin to specialize. Students must complete the core courses and a concentration.

An entering student in mathematics should have academic preparation to enroll in MATH 220 (http://catalog.illinois.edu/search/?P=MATH%20220) during the first semester. Admission to MATH 220 (http://catalog.illinois.edu/search/?P=MATH%20220) requires an acceptable ALEKS score. A student should attain grades of B in calculus in order to enroll in MATH 241.

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### Mathematics Courses

Select a total of two courses from two of the following three lists:

**Geometry**

- MATH 402 Non Euclidean Geometry
- MATH 403 Euclidean Geometry
- MATH 423 Differential Geometry

**Differential Equations and Complex Analysis**

- MATH 481 Vector and Tensor Analysis
- MATH 441 Differential Equations
- MATH 446 Applied Complex Variables

**Number Theory**

- MATH 453 Elementary Theory of Numbers

Two additional 400- or 500-level Math courses

### Minimum Required Major and Supporting Course Work

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 241</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 347</td>
<td>Fundamental Mathematics</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 348</td>
<td>Fundamental Mathematics-ACP</td>
<td></td>
</tr>
<tr>
<td>MATH 416</td>
<td>Abstract Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 417</td>
<td>Intro to Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 427</td>
<td>Honors Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 424</td>
<td>Honors Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 444</td>
<td>Elementary Real Analysis</td>
<td></td>
</tr>
<tr>
<td>or MATH 447</td>
<td>Real Variables</td>
<td></td>
</tr>
<tr>
<td>MATH 461</td>
<td>Probability Theory</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 400</td>
<td>Statistics and Probability I</td>
<td></td>
</tr>
<tr>
<td>CS 101</td>
<td>Intro Computing: Engrg &amp; Sci</td>
<td>3-4</td>
</tr>
<tr>
<td>or CS 125</td>
<td>Introduction to Computer Science</td>
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</tr>
</tbody>
</table>

Approved supporting coursework or any minor

<table>
<thead>
<tr>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

Total Hours: 46-49

1. Students should have credit for MATH 220/MATH 221 and MATH 231 before enrolling in MATH 241.
Beginning in Fall 2012, students may not receive credit for both MATH 416 and either ASRM 406 (formerly MATH 410) or MATH 415. However, if one course is taken prior to Fall 2012, credit may be earned for both MATH 416 and either of ASRM 406 (formerly MATH 410) or MATH 415.

If MATH 424 or MATH 447 is completed, a requirement for the Graduate Preparatory concentration has been satisfied.

If STAT 400 is completed, a requirement for the Operations Research concentration has been satisfied.