Mathematics, BLAS

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/)

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 complete the advanced courses successfully.

Undergraduate programs in Mathematics
Actuarial Science, BLAS (http://catalog.illinois.edu/undergraduate/las/actuarial-science-bslas/)
Mathematics, BLAS (http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/)
Mathematics & Computer Science, BLAS (http://catalog.illinois.edu/undergraduate/eng_las/mathematics-computer-science-bslas/)

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A Major Plan of Study form, declaring concentration and supporting coursework, must be completed and submitted to the LAS Student Academic Affairs Office except for students in the Teaching of Mathematics concentration. Please complete this form with an advisor in the Mathematics Undergraduate Office within 1-2 semesters of completing MATH 347 or MATH 348.

Departmental distinction: Distinction will be awarded on the basis of selection of 400-level courses in mathematics and the grade point average. Graduation with High Distinction or Highest Distinction in Mathematics requires participation in the Program for Distinction in Mathematics or Mathematics Education. Full details are available at the departmental website.

General education: Students must complete the Campus General Education (https://courses.illinois.edu/) requirements including the campus general education language requirement.
Minimum required major and supporting course work: normally equates to 46-57 hours including 27-35 hours of mathematics beyond calculus, 3-4 hours of computer science, and 12 hours of supporting coursework. Twelve (12) hours of 300- and 400-level courses in the major must be taken on this campus. Minimum hours required for graduation: 120 hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 241</td>
<td>Calculus III</td>
<td>4</td>
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<tr>
<td>MATH 347</td>
<td>Fundamental Mathematics</td>
<td>3-4</td>
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<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>
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<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>
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<tr>
<td>CS 101</td>
<td>Intro Computing: Engrg &amp; Sci</td>
<td>3-4</td>
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<tr>
<td>or CS 125</td>
<td>Introduction to Computer Science</td>
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<tr>
<td>Approved supporting coursework or any minor</td>
<td>12</td>
<td></td>
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</tbody>
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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
MATH 481 Vector and Tensor Analysis

Differential Equations and Complex Analysis
MATH 441 Differential Equations
MATH 446 Applied Complex Variables
MATH 448 Complex Variables

Number Theory
MATH 453 Elementary Theory of Numbers
Two additional 400- or 500-level Math courses | 6

Total Hours | 46-49

1 Students should have credit for MATH 220/MATH 221 and MATH 231 before enrolling in MATH 241.

Information listed in this catalog is current as of 04/2021
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.