# APPLIED MATHEMATICS CONCENTRATION

https://math.illinois.edu/academics/undergraduate-program-mathematics

**For the Degree of Bachelor of Science in Liberal Arts and Sciences**

**Major in Mathematics, Applied Mathematics Concentration**

E-mail: mathadvising@illinois.edu

Minimum required major and supporting coursework 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.

**General education:** Students must complete the Campus General Education (https://courses.illinois.edu) requirements including the campus general education language requirement.

Twelve hours of 300- and 400-level courses in the major must be taken on this campus.

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.

Minimum hours required for graduation: 120 hours

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.

## Code | Title | Hours
--- | --- | ---
MATH 241 | Calculus III | 4
MATH 347 | Fundamental Mathematics | 3-4
or MATH 348 Fundamental Mathematics-ACP
MATH 416 | Abstract Linear Algebra | 3
MATH 417 | Intro to Abstract Algebra | 3
or MATH 422 Honors Abstract Algebra
MATH 424 | Honors Real Analysis | 3
or MATH 444 Elementary Real Analysis
or MATH 447 Real Variables
MATH 461 | Probability Theory | 3-4
or STAT 400 Statistics and Probability I
CS 101 | Intro Computing: Engrg & Sci | 3-4
or CS 125 Intro to Computer Science
Approved supporting coursework or any minor | 12

**Applied Mathematics Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MATH 441</td>
<td>Differential Equations</td>
<td>3</td>
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<tr>
<td>MATH 446</td>
<td>Applied Complex Variables</td>
<td>3</td>
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or MATH 44 Complex Variables
| CS 357 | Numerical Methods I | 3 |
or MATH 44 Intro Partial Diff Equations
or MATH 489 Dynamics & Differential Eqns
| MATH 412 | Graph Theory | 3 |
or MATH 41 Intro to Combinatorics
or MATH 48 Linear Programming
| One additional 400- or 500-level Math course | 3 |
| **Total Hours** | | **49-52** |

1. Students should have credit for MATH 220/MATH 221 and MATH 231 before enrolling in MATH 241.
2. 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.
3. If MATH 424 or MATH 447 is completed, a requirement for the Graduate Preparatory concentration has been satisfied.
4. If STAT 400 is completed, a requirement for the Operations Research concentration has been satisfied.