

MATHEMATICS: MATH DOCTORAL PREPARATION, BSLAS

for the degree of Bachelor of Science in Liberal Arts & Sciences Major in Mathematics, Math Doctoral Preparation Concentration

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

Mathematics, BSLAS (<http://catalog.illinois.edu/undergraduate/las/mathematics-bslas/#text>)

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

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

Minimum required major and supporting course work: Normally equates to 52-56 hours including 27-35 hours of mathematics beyond calculus, 3-4 hours of computer science, and 12 hours of supporting coursework. Twelve hours of 300- and 400-level non-S/U-graded courses in the major must be taken on this campus. Minimum hours required for graduation: 120 hours.

Code	Title	Hours
Required Core Courses		
MATH 241	Calculus III (Students should have credit for MATH 220/MATH 221 and MATH 231 before enrolling in MATH 241.)	4
MATH 347 or MATH 348	Fundamental Mathematics	3-4
MATH 416	Abstract Linear Algebra (Students may not receive credit for both MATH 416 and either ASRM 406 or MATH 415.)	3
MATH 417 or MATH 427	Intro to Abstract Algebra Honors Abstract Algebra	3

MATH 424 or MATH 444 or MATH 447	Honors Real Analysis (If MATH 424 or MATH 447 is completed, a requirement for the Math Doctoral Preparation concentration has been satisfied.) Elementary Real Analysis Real Variables	3
MATH 461 or STAT 400	Probability Theory (If STAT 400 is completed, a requirement for the Data Optimization concentration has been satisfied.) Statistics and Probability I	3-4
CS 101 or CS 124 or CS 125	Intro Computing: Engrg & Sci Introduction to Computer Science I Introduction to Computer Science	3-4

Approved supporting coursework outside Mathematics (Supporting coursework may be completed with 12 advisor-approved hours of a single math-related area outside of MATH/ASRM not used for a major requirement and must include at least one advanced course; ANY minor which is fulfilled with at least 12 hours of courses, including one advanced course, not used for the major nor cross-listed with MATH/ASRM; or any double major or dual degree.) 12

Math Doctoral Preparation

The courses chosen from the core and the Math Doctoral Preparation concentration must include at least two of honors MATH 416, MATH 424, MATH 425, MATH 427, MATH 428.

MATH 418 or MATH 428	Intro to Abstract Algebra II Honors Topics in Mathematics	3
MATH 448	Complex Variables	3
MATH 423 or MATH 425 or MATH 432 or MATH 481	Differential Geometry Honors Advanced Analysis Set Theory and Topology Vector and Tensor Analysis	3
MATH 441	Differential Equations	3 or 4
Two additional 400-level or approved 500-level mathematics courses not graded with S/U grading. (Courses awarded S/U grades may not be used to fill this requirement.)		6

Total Hours 52-56

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. See the corresponding section on the Degree and General Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year			
First Semester	Hours	Second Semester	Hours
Free elective course		1 MATH 231	3
MATH 220 or 221		4 CS 101 (or CS 124 or CS 125)	3
Composition I or General Education course		4 General Education course or Composition I	3
Language Other than English (3rd level)		4 Language Other than English (4th level)	4
General Education course		3	
			13
			16

Second Year			
First Semester	Hours	Second Semester	Hours
MATH 241		4 MATH 416	3
MATH 347		3 MATH 461 or STAT 400	3
General Education course		3 Supporting Coursework	3
General Education course		3 General Education course	3
Free elective course		3 General Education course	3
			15
			16

Third Year			
First Semester	Hours	Second Semester	Hours
MATH 424 (or MATH 444 or MATH 447)		3 MATH 423 or MATH 425 or MATH 432 or MATH 481	3
MATH 441		3 400-500 level MATH course	3
General Education course		3 General Education course	3
Supporting Coursework		3 Supporting Coursework	3
Free elective course		3 Free elective course	3
			15
			15

Fourth Year			
First Semester	Hours	Second Semester	Hours
MATH 417 or 427		3 MATH 418 (or Math 428)	3
MATH 448		3 400-500 level MATH course	3
General Education course		3 General Education course	3
Supporting Coursework		3 Free elective course	3

Free elective course	3 Free elective course	3
		15
		15

Total Hours 120

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Department of Mathematics (<https://math.illinois.edu/>)
 Mathematics Faculty (<https://math.illinois.edu/directory/faculty/>)
 Math Advising (<https://math.illinois.edu/academics/undergraduate-program/undergraduate-advising/>)
 Math Advising email (mathadvising@illinois.edu)

College of Liberal Arts & Sciences (<https://las.illinois.edu/>)
 LAS Admissions and Requirements Overview (<http://catalog.illinois.edu/schools/las/>)