

Bachelor of Arts in Mathematics

Why study mathematics?

Because mathematics is a framework upon which humanity builds an understanding of the world.

The degree of Bachelor of Arts in Mathematics offers in depth training in mathematics. A B.A. degree in mathematics at KU allows you to focus on the mathematics that is most relevant and interesting to you. A total of 120 hours is required to graduate with a B.A. in the College of Liberal Arts and Sciences. The requirements for all students earning a B.A. in the College include the KU Core Curriculum (<http://kucore.ku.edu>), a laboratory or field experience, and proficiency in a language other than English.

Undergraduate Admission

Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Unless they are college transfer students with at least 24 hours of credit, prospective students must send ACT or SAT scores to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (<http://admissions.ku.edu>) for application deadlines and specific admission requirements.

Visit the International Support Services (<http://www.iss.ku.edu>) for information about international admissions.

Students considering transferring to KU may see how their college-level course work will transfer on the Office of Admissions (<http://credittransfer.ku.edu>) website.

Admission to the College of Liberal Arts and Sciences

Admission to the College is a different process from admission to a major field. Some CLAS departments have admission requirements. See individual department/program sections for departmental admission requirements.

Mathematics Programs

Separate programs lead to the B.A. in mathematics and the B.S. in mathematics. The B.A. has fewer mathematics course requirements and more general education requirements. The B.S. requires more mathematics courses, an applied mathematics concentration, and fewer general education courses. Students wishing to attend graduate school in mathematics or to pursue a career that makes substantial use of mathematics (as an actuary, for example) should get a B.S. in mathematics. Many students majoring in mathematics are interested in a liberal arts degree; such students may want to consider the B.A. in mathematics. Students who wish to teach mathematics in high school should pursue a B.A. or B.S. in mathematics while participating in the UKanTeach program (<http://ukanteach.ku.edu>).

Requirements for the B.A. Major

Code	Title	Hours
Mathematics Core Knowledge and Skills		
Majors must complete courses as specified in each of the following areas:		
Calculus I. Satisfied by one of the following:		
MATH 125	Calculus I	4
	or MATH 145	Calculus I, Honors
Calculus II. Satisfied by one of the following:		
MATH 126	Calculus II	4
	or MATH 146	Calculus II, Honors
Calculus III. Satisfied by one of the following:		
MATH 127	Calculus III	4
	or MATH 147	Calculus III, Honors
Elementary Linear Algebra. Satisfied by one of the following:		
MATH 290	Elementary Linear Algebra	2
	or MATH 291	Elementary Linear Algebra, Honors
Analysis. Satisfied by one of the following:		
MATH 500	Intermediate Analysis	3
	or MATH 765	Mathematical Analysis I
Linear Algebra. Satisfied by one of the following:		
MATH 590	Linear Algebra	3
	or MATH 790	Linear Algebra II
Math Sequence Requirement		
Majors must choose one of the following 2-course sequences.		6
Courses selected above may contribute to the minimum of 6 hours.		
Probability & Statistics. Satisfied by:		
MATH 627	Probability	
& MATH 628	and Mathematical Theory of Statistics	
Geometry. Satisfied by:		
MATH 660	Geometry I	
& MATH 661	and Geometry II	
Analysis. Satisfied by:		
MATH 765	Mathematical Analysis I	
& MATH 766	and Mathematical Analysis II	
Numerical Analysis. Satisfied by:		
MATH 781	Numerical Analysis I	
& MATH 782	and Numerical Analysis II	
Linear & Modern Algebra. Satisfied by:		
MATH 790	Linear Algebra II	
& MATH 791	and Modern Algebra	
Analysis & Complex Variables. Satisfied by:		
MATH 500	Intermediate Analysis	
& MATH 646	and Complex Variable and Applications	
Statistics & Regression Analysis. Satisfied by:		
MATH 526	Applied Mathematical Statistics I	
& MATH 605	and Applied Regression Analysis	
Statistics & Time Series Analysis. Satisfied by:		
MATH 526	Applied Mathematical Statistics I	
& MATH 611	and Time Series Analysis	
Number Theory & Introductory Modern Algebra. Satisfied by:		
MATH 540	Elementary Number Theory	
& MATH 558	and Introductory Modern Algebra	

Modern Algebra & Coding Theory. Satisfied by:

MATH 558 & MATH 601	Introductory Modern Algebra and Algebraic Coding Theory
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Numerical Methods & Linear Algebra. Satisfied by:

MATH 581 & MATH 591	Numerical Methods and Applied Numerical Linear Algebra
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Linear Algebra. Satisfied by:

MATH 590 & MATH 790	Linear Algebra and Linear Algebra II
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Complex Variables & Partial Differential Equations. Satisfied by:

MATH 646 & MATH 647	Complex Variable and Applications and Applied Partial Differential Equations
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Partial Differential Equations & Calculus of Variations. Satisfied by:

MATH 647 & MATH 648	Applied Partial Differential Equations and Calculus of Variations and Integral Equations
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Combinatorics & Graph Theory. Satisfied by:

MATH 724 & MATH 725	Combinatorial Mathematics and Graph Theory
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Math Breadth

Majors must complete a minimum of 5 mathematics courses numbered 300 and above (each at least 3 credits), excluding MATH 365, MATH 409 and MATH 410, but including the upper division courses used to satisfy the core and sequence requirements. 15

The goals are to gain exposure to a variety of concepts and methods in mathematics, develop abstract and critical thinking, and acquire knowledge to prepare for a career using mathematics, further study of mathematics, or interdisciplinary work involving mathematics.

Major Hours & Major GPA

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

Major Hours

Satisfied by 29 hours of major courses.

Major Hours in Residence

Satisfied by a minimum of 15 hours of KU resident credit in the major.

Major Junior/Senior Hours

Satisfied by a minimum of 15 hours from junior/senior courses (300+) in the major.

Major Junior/Senior Graduation GPA

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<http://clas.ku.edu/undergrad/tools/gpa>).

Below is a sample 4-year plan for students pursuing the BA in Mathematics. To view the list of courses approved to fulfill KU Core Goals, please visit the KU Core website (<http://kucore.ku.edu/courses>).

This degree plan assumes students will have the equivalent of MATH 101 prior to freshman year, fall semester.

Freshman

Fall	Hours Spring	Hours
ENGL 101 (Goal 2.1 (2 crs req), BA Writing I) ¹	3 ENGL 102 (Goal 2.1 (2 crs req), BA Writing II)	3

MATH 125 or 145 (Goal 1.2 Quantitative Reasoning, BA Quant Req)	4 MATH 126 or 146 (Major Requirement)	4
1st Semester Language (BA Second Language)	5 2nd Semester Language (BA Second Language)	5
First Year Seminar (Goal 1.1 Critical Thinking)	3 Goal 2.2 Communication	3
		15

Sophomore

Fall	Hours Spring	Hours
MATH 127 or 147 (Major Requirement)	4 MATH 590 (Major Requirement)	3
MATH 290 or 291 (Major Requirement)	2 4th Semester Language, or 1st semester of Another Language (BA Second Language)	3-5
3rd Semester Language (BA Second Language)	3 Goal 3 Social Science	3
Goal 3 Natural Science	3 Goal 4.2 Global Awareness	3
Lab Science (BA Lab Requirement)	1-2 Elective or possible minor course 300+ (Total Hours)	3
Elective or possible minor course (Total Hours)	3 Elective (Total Hours)	1
		16-17
		16-18

Junior

Fall	Hours Spring	Hours
MATH 500 (Major Requirement)	3 Math Sequence Course 300+ (Major Requirement) ²	3
Goal 3 Humanities	3 Math Elective or Sequence Course 300+ (Major Requirement) ²	3
Goal 4.1 US Diversity	3 Goal 5 Social Responsibility & Ethics	3
Elective or possible minor course 300+ (Total Hours)	3 Elective or possible minor course 300+ (Total Hours)	3
Elective or possible minor course 300+ (Total Hours)	3 Elective or possible minor course 300+ (Total Hours)	3
		15
		15

Senior

Fall	Hours Spring	Hours
Math Sequence Course 300+ (Major Requirement) ²	3 Elective or possible minor course 300+ (Total Hours)	3
Math Sequence Course 300+ (Goal 6 Integration & Creativity) ³	3 Elective or possible minor course 300+ (Total Hours)	3
Elective or possible minor course 300+ (Total Hours)	3 Elective or possible minor course 300+ (Total Hours)	3
Elective or possible minor course 300+ (Total Hours)	3 Elective or possible minor course 300+ (Total Hours)	3
Elective or possible minor course 300+ (Total Hours)	3 LA&S 492 (Job Search Strategies), or elective	1
		15
		13

Total Hours 120-123

- ¹ The BA requires completion of two courses of collegiate-level writing instruction. Students who test out of Composition will still need to complete ENGL 102 (or equivalent) and one additional Goal 2.1 course.
- ² Majors must complete a 2-course sequence (<http://catalog.ku.edu/liberal-arts-sciences/math/ba/#requirements>). Courses selected to fulfill other major requirements, may also contribute to the minimum of 6 hours for the sequence.
- ³ Completion of four upper division mathematics courses that form two sequences in mathematics and statistics can fulfill KU Core Goal 6 (<http://kucore.ku.edu/experiences>).
- ⁴ Visit this website (<https://collegeadvising.ku.edu/sites/collegeadvising.ku.edu/files/docs/BA.QuantitativeReasoning.pdf>) for a list of courses that fulfill the BA Quantitative Reasoning requirement.

Please note:

All students in the College of Liberal Arts and Sciences are required to completed 120 total hours of which 45 hours must be at the Jr/Sr (300+) level.

The same course cannot be used to fulfill more than one KU Core Goal. However, overlap of a KU Core course with a major or degree-specific requirement is allowed. Overlapping is recommended to allow more opportunities to explore other majors and/or minors.

Departmental Honors

For undergraduate departmental honors, the student must satisfy the College requirements for honors, attain a grade-point average of 3.5 in all mathematics courses numbered 500 and above. The student must also complete two out of the following four sequences: MATH 727 and MATH 728; MATH 765 and MATH 766; MATH 781 and MATH 782; and MATH 790 and MATH 791, with a grade no lower than B- in each of these courses. The student must make a satisfactory oral presentation to the department, preferably on a topic related to his or her mathematics course work. Preparation should include enrollment in MATH 699 Directed Reading (for 1 or more credit hours) with a faculty mentor.