MATHEMATICS - B.A.

College of Arts and Sciences
Department of Mathematical Sciences
www.kent.edu/math

About This Program

The Bachelor of Arts degree in Mathematics is a flexible program, grounded in the liberal arts and suited for students' individual interests and needs. The program combines well with a second major and/or minors.

Students may apply early to the Master of Arts in Economics degree and double count 9 credit hours of graduate courses toward both degree programs. See the **Combined Bachelor's/Master's Degree Program Policy** in the University Catalog for more information.

Contact Information

- **Xiaoyu Zheng** | xzheng3@kent.edu | 330-672-9089
- Speak with an Advisor
  - Kent Campus
  - Stark Campus
- Chat with an Admissions Counselor: Kent Campus | Regional Campuses

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus
  - Stark Campus

Examples of Possible Careers and Salaries*

Data scientists and mathematical science occupations, all other

- 30.9% much faster than the average
- 33,200 number of jobs
- $98,230 potential earnings

Mathematical science teachers, postsecondary

- 1.3% slower than the average
- 60,100 number of jobs
- $73,650 potential earnings

Mathematicians

- 3.0% about as fast as the average
- 2,900 number of jobs
- $110,860 potential earnings

Natural sciences managers

- 4.8% about as fast as the average
- 71,400 number of jobs
- $137,940 potential earnings

Secondary school teachers, except special and career/technical education

- 3.8% about as fast as the average
- 1,050,800 number of jobs
- $62,870 potential earnings

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students.

First-Year Students on the Kent Campus: First-year admission policy on the Kent Campus is selective. Admission decisions are based upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

First-Year Students on the Regional Campuses: First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

International Students: All international students must provide proof of proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international students.

Former Students: Former Kent State students who have not attended another institution since Kent State and were not academically dismissed will complete the re-enrollment process through the Financial, Billing and Enrollment Center. Former students who attended another college or university since leaving Kent State must apply for admissions as a transfer or post-undergraduate student.

Transfer Students: Students who attended an educational institution after graduating from high school or earning their GED must apply as transfer students. For more information, visit the admissions website for transfer students.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR) (min C grade)	5
MATH 12003	ANALYTIC GEOMETRY AND CALCULUS II (min C grade)	5
MATH 20011	DECISION-MAKING UNDER UNCERTAINTY	3
MATH 21001	LINEAR ALGEBRA (min C grade)	3
MATH 22005	ANALYTIC GEOMETRY AND CALCULUS III (min C grade)	4
MATH 30055	MATHEMATICAL THEORY OF INTEREST [1]	3
or MATH 31011	PROOFS IN DISCRETE MATHEMATICS	
or MATH 32044	ORDINARY DIFFERENTIAL EQUATIONS	
Mathematics (MATH) Upper-Division Electives (30000 or 40000 level) [2]		9
Computer Programming Elective, choose from the following:		3-4
CS 10051	COMPUTER SCIENCE PRINCIPLES (KMCR)	
CS 10062	PROGRAMMING FOR PROBLEM SOLVING IN SCIENCES	
CS 13001	COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING	
CS 13011 & CS 13012	COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING (min C grade in both courses)	
EMAT 25310	CREATIVE CODING	
Mathematics Elective, choose from the following: [3]		3-4
MATH 40011	PROBABILITY THEORY AND APPLICATIONS	
MATH 40012	THEORY OF STATISTICS (WIC) [4]	
MATH 40055	ACTUARIAL MATHEMATICS I (ELR) (WIC) [4]	
MATH 40056	ACTUARIAL MATHEMATICS II	
MATH 41001	MODERN ALGEBRA I (ELR) (WIC) [4]	
MATH 41002	MODERN ALGEBRA II (ELR) (WIC) [4]	
MATH 42001	ANALYSIS I (ELR) (WIC) [4]	
MATH 42002	ANALYSIS II (ELR) (WIC) [4]	
MATH 42031	MATHEMATICAL MODELS AND DYNAMICAL SYSTEMS	
MATH 42039	MODELING PROJECTS (ELR) (WIC) [4]	
MATH 42201	NUMERICAL LINEAR ALGEBRA	
MATH 42202	NUMERICAL APPROXIMATION AND OPTIMIZATION	
Writing-Intensive Elective, choose from the following: [4]		3-4
MATH 40012	THEORY OF STATISTICS (WIC)	
MATH 40055	ACTUARIAL MATHEMATICS I (ELR) (WIC)	
MATH 41001	MODERN ALGEBRA I (ELR) (WIC)	
MATH 42001	ANALYSIS I (ELR) (WIC)	
MATH 42039	MODELING PROJECTS (ELR) (WIC)	
Additional Requirements (courses do not count in major GPA)		
UC 10001	FLASHES 101	1
Foreign Language (see Foreign Language College Requirement below)		10-16
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines)		6
Kent Core Basic Sciences (must include one laboratory)		6-7
Kent Core Additional		6
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		35
Minimum Total Credit Hours:		**120**

1. Students should choose one of MATH 30055, MATH 31011 and MATH 32044 in consultation with their major advisor. A minimum C grade is required in the selected course if it serves as a prerequisite for any 40000-level course the student plans to take.
2. The following courses cannot be applied as mathematics electives: MATH 30011, MATH 32051, MATH 32052, MATH 34001, MATH 34002, MATH 38001 and MATH 42024. Students should select courses in consultation with their major advisor.
3. Students should select their mathematics elective in consultation with their major advisor.
4. A minimum C grade must be earned to fulfill the writing-intensive requirement. Students should select their writing-intensive elective in consultation with their major advisor.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.000	2.000

Foreign Language College Requirement, B.A.

Students pursuing the Bachelor of Arts degree in the College of Arts and Sciences must complete the following:

1. Elementary I and II of any language (or equivalent) **and**
2. One of the following options:
   a. Intermediate I and II of the same language
   b. Elementary I and II of a second language
   c. Any combination of two courses from the following list:
      i. Intermediate I of the same language
      ii. One to two college-level course(s) completed outside the United States
      iii. Courses: ARAB 21401, ASL 19401, CHIN 25421, MCLS 10001, MCLS 20001, MCLS 20091, MCLS 21417, MCLS 21420, MCLS 22217, MCLS 28403, MCLS 28404

All students with prior foreign language experience should take the foreign language placement test to determine the appropriate level at which to start. Some students may start beyond the Elementary I level and will complete the requirement with fewer courses. This may be accomplished in one of three ways:

1. Passing a course beyond Elementary I through Intermediate II level
2. Receiving credit through one of the alternative credit programs offered by Kent State University
3. Demonstrating language proficiency comparable to Elementary II of a foreign language

Certain programs may require specific languages, limit the languages from which a student may choose or require coursework through Intermediate II. Students who plan to pursue graduate study may need a particular language proficiency.

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		**Credits**
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
UC 10001	FLASHES 101	1
Computer Programming Elective		3-4
Foreign Language		4
Kent Core Requirement		3
	Credit Hours	**16**
Semester Two		
MATH 12003	ANALYTIC GEOMETRY AND CALCULUS II	5
Foreign Language		4
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**15**
Semester Three		
MATH 22005	ANALYTIC GEOMETRY AND CALCULUS III	4
Foreign Language and/or General Elective		3
Kent Core Requirement		3
Kent Core Requirement		3
General Elective		3
	Credit Hours	**16**
Semester Four		
MATH 20011	DECISION-MAKING UNDER UNCERTAINTY	3
Foreign Language and/or General Elective		3
Kent Core Requirement		3
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**15**
Semester Five		
MATH 21001	LINEAR ALGEBRA	3
MATH 30055 or MATH 31011 or MATH 32044	MATHEMATICAL THEORY OF INTEREST or PROOFS IN DISCRETE MATHEMATICS or ORDINARY DIFFERENTIAL EQUATIONS	3
Kent Core Requirement		3
General Electives		6
	Credit Hours	**15**
Semester Six		
Mathematics (MATH) Upper-Division Elective (30000 or 40000 level)		3
Kent Core Requirement		3
Kent Core Requirement		3
General Electives		6
	Credit Hours	**15**
Semester Seven		
Mathematics Elective		3-4
Mathematics (MATH) Upper-Division Elective (30000 or 40000 level)		3
General Electives		9
	Credit Hours	**15**
Semester Eight		
Mathematics (MATH) Upper-Division Elective (30000 or 40000 level)		3
Writing-Intensive Elective		3-4
General Electives		7
	Credit Hours	**13**
	Minimum Total Credit Hours:	**120**

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
Diversity Domestic/Global (DIVD/DIVG)	2 courses
Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.	
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 credit hours
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

Kent Core Requirements

Kent Core Composition (KCMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	**36-37**

Program Learning Outcomes

Graduates of this program will be able to:

1. Reason in mathematical arguments at a level appropriate to the discipline, including using precise definitions, articulating assumptions and reasoning logically to conclusions.
2. Engage effectively in problem solving, including exploring examples, devising and testing conjectures and assessing the correctness of solutions.

3. Approach mathematical problems creatively, including trying multiple approaches and modifying problems when necessary to make them more tractable.
4. Communicate mathematics clearly both orally and in writing.

Program Policies
Foreign Language Requirements

In general, students may elect any foreign language taught through the Department of Modern and Classical Language Studies. However, certain majors, concentrations and minors require specific languages or limit the languages from which students may choose. In addition, students who plan to pursue graduate study may need particular languages for that study. In such cases, students should seek the advice of the appropriate department before selecting a language.

Progress Toward Fulfillment

College of Arts and Sciences students are encouraged to begin meeting the foreign language requirement as early as possible in their program to ensure timely degree completion.

Mandatory Outcomes Assessment

In addition to the other General Requirements of the college, candidates for an undergraduate degree in the College of Arts and Sciences are required, as a condition of graduation, to participate in an outcomes assessment. These outcomes assessments are conducted by each undergraduate degree program in the College of Arts and Sciences.