

BA in Mathematics

Degree Program Description

Mathematics is part of the foundation of all the sciences, engineering, statistics, and many social sciences. A degree in mathematics provides one with both the applied mathematics knowledge necessary to engage in these disciplines, and formal reasoning skills that can be applied in any area. The major is well suited for those interested in mathematics alone, or for those looking to supplement another major. Our students go on to jobs or further study in all the above disciplines, as well as many others (medical school or law school, for instance).

Major Program Requirements

Arts and Science Breadth and Depth requirements (for the BA) must be satisfied, in addition to the Department Level Requirements (<https://catalog.missouri.edu/collegeofartsandscience/mathematics/department-level-requirements-mathematics/>). The foreign language requirement must be satisfied either by taking a foreign language for 4 years in high school or by completing a language sequence at MU. In addition to University (<https://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), general education (<https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), and College of Arts and Science (<https://catalog.missouri.edu/collegeofartsandscience/#undergraduatetext>) requirements, students must also meet the following major program requirements. All major requirements in the College of Arts and Science must be completed with grades of C- or higher unless otherwise indicated.

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLSH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (expect for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

Core Math Requirements for all Math degrees

| | | |
|----------------------------------|---|---|
| MATH 1500 | Analytic Geometry and Calculus I | 5 |
| MATH 1700 | Calculus II | 5 |
| MATH 2300 | Calculus III | 3 |
| MATH 3000 | Introduction to Advanced Mathematics | 3 |
| MATH 4100 | Differential Equations | 3 |
| MATH 4140 | Matrix Theory | 3 |
| INFOTC 1040 | Introduction to Problem Solving and Programming | 3 |
| or CMP_SC 1050 or CMP_SC 1300 | Algorithm Design and Programming I Computing with Data in Python | |

Total Credits 25

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

| First Year | | | |
|--|----|---|----|
| Fall | CR | Spring | CR |
| MATH 1500 (Math and Quantitative Reasoning) | | 5 MATH 1700 | 5 |
| CMP_SC 1300 or INFOTC 1040 | | 3 Biological or Physical Science lab | 4 |
| ENGLSH 1000 | | 3 Second Language Requirement | 4 |
| Missouri State Law Requirement: Social Science from Arts and Science | | 3 Second major, minor, certificate, or elective | 3 |

| Second Year | | | |
|---|----|---|----|
| Fall | CR | Spring | CR |
| MATH 2300 | | 3 MATH 4100 | 3 |
| Biological or Physical Science | | 3 MATH 4140 | 3 |
| Humanities from Arts and Science | | 3 Humanities | 3 |
| Second Language Requirement | | 4 Second Language Requirement | 4 |
| Second major, minor, certificate, or elective | | 3 Second major, minor, certificate, or elective | 3 |

| Third Year | | | |
|---|----|--|----|
| Fall | CR | Spring | CR |
| MATH 3000W | | 3 MATH 4700 | 3 |
| Math, approved 4000-level | | 3 Biological, Physical, or Mathematical Science (not MATH) | 3 |
| Behavioral Science from Arts and Science | | 3 First Writing Intensive | 3 |
| Second major, minor, certificate, or elective | | 3 Second major, minor, certificate, or elective | 3 |
| Social Science | | 3 Second major, minor, certificate, or elective | 3 |

| Fourth Year | | | |
|---------------------------------|----|---|----|
| Fall | CR | Spring | CR |
| MATH 4720 | | 3 Math, approved 4000-level | 3 |
| Math, approved 4000-level | | 3 Math, approved 4000-level | 3 |
| Behavioral Science, 2000+ level | | 3 Humanities, 2000+ level | 3 |
| Humanities | | 3 Second major, minor, certificate, or elective | 2 |
| Social Science, 2000+ level | | 3 Second major, minor, certificate, or elective | 2 |

Total Credits: 120

Additional requirements for the BA degree

- MATH 4700 Advanced Calculus of One Real Variable I
- MATH 4720 Introduction to Abstract Algebra I
- Four approved 4000 level Math electives