

# BS 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

The Mathematics Department offers a "Standard" BS, a BS with emphasis in Actuarial Science and Mathematical Finance, and a Dual Degree in Mathematics and Secondary Education with an Emphasis in Mathematics Education. In each case all MU General Education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), University graduation requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>) and Arts and Science Breadth and Depth requirements (for the BS) must be satisfied, in addition to the Department Level Requirements (<http://catalog.missouri.edu/collegeofartsandscience/mathematics/department-level-requirements-mathematics/>). Note that the courses accepted for the science requirement by the Mathematics department are more restrictive than the Arts and Science requirement.

All BS degrees require completion of the Foreign Language requirement by one of: four years of a language in high school, completion of a foreign language sequence at MU, or a Foreign Language Alternative (12 credits at the 2000 level or above in an area, or related areas, approved by the Director of Undergraduate Studies).

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

- Completion of ENGLISH 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 (24 credits)

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	Algorithm Design and Programming I	

**Total Credits** **25**

## Additional requirements for the BS degree

- MATH 4700
- MATH 4720
- Four approved 4000 level Math electives

- Science Requirement: 12 or more credits from the two groups below. Both groups must be represented.

Group I:

PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5

Group II: Any 4000 level courses in Statistics or Computer Science.

## Additional requirements for the BS Degree (Dual degree for Math and Secondary Education majors)

- One of: MATH 4300, MATH 4500, or MATH 4700
- One of MATH 4510 or MATH 4720
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

## Additional requirements for the BS degree (Double major in Math and Economics)

- MATH 4700
- One of MATH 4310, MATH 4720, or MATH 4900
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

## 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		5 MATH 1700	5
HIST 1100 or POL_SC 1100*		3 Behavioral Science Elective Course	3
Humanities/Fine Arts Elective Course		3 Humanities/Fine Arts Elective Course	3
ENGLISH 1000*		3 INFOTC 1040	3
			<b>14</b>

Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
2000-level General Education Elective		3 MATH 3000	3
PHYSCS 2750		5 PHYSCS 2760	5
GERMAN 1100		5 GERMAN 1200	5
			<b>16</b>

Third Year			
Fall	CR	Spring	CR
MATH 4700		3 MATH 4720	3
MATH 4140		3 4000-level MATH Course	3
Writing Intensive Elective Course		3 2000-level General Education Elective	3

GERMAN 2100	3 Humanities/Fine Arts Course	3
Elective Course	3 Elective Course	3
<b>15</b>		<b>15</b>

<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
4000-level MATH course	3	4000-level MATH course	3
4000-level Course in STAT or CMP SC	3	4000-level MATH course	3
4000-level MATH course	3	Elective Course	3
Elective Course	3	Elective Course	3
Elective Course	3	Elective Course	3
<b>15</b>		<b>15</b>	

**Total Credits: 120**