

# BACHELOR OF SCIENCE IN MATHEMATICS

COURSE	TITLE	S.H.
<b>FIRST YEAR REQUIREMENT -STUDENT SUCCESS</b>		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start Success Seminar	
or HONR 1500	Intro to Honors	
<b>General Education Requirements</b>		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
CMST 1545	Communication Foundations	3
Mathematics Requirement (met with MATH in major)		
Arts and Humanities (6 s.h.)		
Natural Sciences (2 courses, 1 with lab) (6-7 s.h.)		
Social Science (6 s.h.)		
Social and Personal Awareness (6 s.h.)		
<b>Major Requirements</b>		
Core Courses		
Foreign Language 1550		4
Foreign Language 2600		4
MATH 1571	Calculus 1	4
MATH 1572	Calculus 2	4
MATH 2673	Calculus 3	4
MATH 3715	Discrete Mathematics	3
MATH 3720	Linear Algebra and Matrix Theory	3
MATH 3721	Abstract Algebra 1	4
MATH 3751	Real Analysis 1	4
STAT 3743	Probability and Statistics	4
CSIS 2610	Programming and Problem-Solving	4
Select one of the following:		
MATH 4896	Senior Undergraduate Research Project	2
MATH 4897H	Thesis	
STEM 4890	STEM Internship	
Select two 3700-level MATH/STAT courses.		
Select two 4800-level MATH/STAT courses.		
Minor Courses:		
Select any discipline.		
Elective		
Select three upper division electives		
<b>Total Semester Hours</b>		<b>120-122</b>

Suggested minors include biology, chemistry, computer science, economics, geology, physics, psychology, one engineering specialty (from chemical, civil, electrical, industrial, mechanical), or statistics. The total number of required semester hours of credit in mathematics (excluding statistics courses) for this track is 40.

<b>Year 1</b>		
<b>Fall</b>		<b>S.H.</b>
YSU 1500	Success Seminar	1
MATH 1571	Calculus 1	4
ENGL 1550	Writing 1	3-4
or ENGL 1549	or Writing 1 with Support	
GER domain (AH)		3

Foreign Language 1550		4
Elective		1
<b>Semester Hours</b>		<b>16-17</b>
<b>Spring</b>		
MATH 1572	Calculus 2 (Prerequisite)	4
CSIS 2610	Programming and Problem-Solving	4
ENGL 1551	Writing 2	3
Foreign Language 2600		4
<b>Semester Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Fall</b>		
MATH 2673	Calculus 3 (Prerequisite)	4
MATH 3715	Discrete Mathematics (Prerequisite)	3
Minor Course		3
GER domain (NS with lab)		4
GER domain (AH)		3
<b>Semester Hours</b>		<b>17</b>
<b>Spring</b>		
MATH 3720	Linear Algebra and Matrix Theory (Prerequisite)	3
STAT 3743	Probability and Statistics (Prerequisite)	4
Minor Course		3
CMST 1545	Communication Foundations	3
GER domain (SS)		3
<b>Semester Hours</b>		<b>16</b>
<b>Year 3</b>		
<b>Fall</b>		
MATH 3721	Abstract Algebra 1 (Prerequisite)	4
Minor Course		3
GER domain (SP)		3
GER domain (NS)		3
<b>Semester Hours</b>		<b>13</b>
<b>Spring</b>		
MATH 3751	Real Analysis 1 (Prerequisite)	4
MATH/STAT Elective (Upper Division)		3
Minor Course (Upper Division)		3
GER domain (SP)		3
GER domain (SS)		3
<b>Semester Hours</b>		<b>16</b>
<b>Year 4</b>		
<b>Fall</b>		
MATH 4896	Senior Undergraduate Research Project (Prerequisite)	2
MATH/STAT Elective (Upper Division)		3
Minor Course (Upper Division)		3
Elective (Upper Division)		3
Elective (Upper Division)		3
<b>Semester Hours</b>		<b>14</b>
<b>Spring</b>		
MATH/STAT elective (4800 level or higher)		3
MATH/STAT elective (4800 level or higher)		3
Minor Course (Upper division)		3
Elective (Upper Division)		3
<b>Semester Hours</b>		<b>12</b>
<b>Total Semester Hours</b>		<b>119-120</b>

## Learning Outcomes

The student learning outcomes for a BS in mathematics are as follows:

- Students will develop and demonstrate the ability to reason mathematically by constructing mathematical proofs and recognizing and accurately analyzing numerical data in all core courses. Students will learn that truth in mathematics is verified by careful argument, and will demonstrate the ability to make conjectures and form hypotheses, test the accuracy of their work, and effectively solve problems.
- Students will learn to identify fundamental concepts of mathematics as applied to science and other areas of mathematics, and to interconnect the roles of pure and applied mathematics.
- Students will demonstrate that they can communicate mathematical ideas effectively by completing a senior capstone project involving an investigative mathematical project and presenting their findings and results in both a written format and as an oral presentation to faculty and other students.