BACHELOR OF SCIENCE IN MATHEMATICS

COURSE	TITLE	S.H.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start Success Seminar	
or HONR 1500	Intro to Honors	
General Education Requirements		
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.)		6
Natural Sciences (2 courses, 1 with lab) (6-7 s.h.)		7
Social Science (6 s.h.)		6
Social and Personal Awareness (6 s.h.)		6
Major Requirements		
Foreign Language/Comp Sci/Data Analytics Requirement. Must complete two CSIS or three DATX courses or foreign language requirement		**3-9**
	Foreign Language Course (1-2 Courses depending on testing and placement)	
CSIS 3700	Data Structures and Objects	
CSIS 3701	Advanced Object-oriented Programming	
DATX 5801	Data Management	
DATX 5803	Data Visualization	
DATX 5805	Predictive Modeling Algorithms	
Core Courses		
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	3
CSIS 2610L	Programming and Problem-Solving Lab	1
Select one of the following:		2
MATH 4896	Senior Undergraduate Research Project	
MATH 4897H	Thesis	
STEM 4890	STEM Internship	
Select two 3700-level or higher MATH/STAT/DATX courses.		6
Select two 4800-level MATH/STAT/DATX courses.		6
Minor -select any discipline.		12
Electives to meet 120 hours		22
Total Semester Hours		**120-128**

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) is 40. Students who fulfill the foreign language/comp sci/data analytics requirement by obtaining the Certificate in Data Analytics cannot apply those courses toward the upper-division math elective requirement.

Year 1		
Fall		**S.H.**
YSU 1500	Success Seminar	1-2
or SS 1500	or Strong Start Success Seminar	
or HONR 1500	or Intro to Honors	
MATH 1571	Calculus 1	4
ENGL 1550	Writing 1	3-4
or ENGL 1549	or Writing 1 with Support	
GER domain (AH)		3
GER domain (SS)		4
Elective		2-3
	Semester Hours	**17-20**
Spring		
MATH 1572	Calculus 2 (Prerequisite)	4
ENGL 1551	Writing 2	3
CSIS 2610	Programming and Problem-Solving	3
CSIS 2610L	Programming and Problem-Solving Lab	1
GER domain (AH)		4
	Semester Hours	**15**
Year 2		
Fall		
MATH 2673	Calculus 3 (Prerequisite)	4
MATH 3715	Discrete Mathematics (Prerequisite)	3
GER domain (NS with lab)		4
Choose one of the following:		
Foreign Language Course		3-4
or		
CSIS 3700 & 3700L or DATX 5801	Data Structures and Objects or Data Management	
	Semester Hours	**14-15**
Spring		
MATH 3720	Linear Algebra and Matrix Theory (Prerequisite)	3
STAT 3743	Probability and Statistics (Prerequisite)	4
Minor Course		3
CMST 1545	Communication Foundations	3
Choose one of the following:		
Foreign Language Course		3-7
or		
CSIS 3701 or DATX 5803	Advanced Object-oriented Programming or Data Visualization	
	Semester Hours	**16-20**
Year 3		
Fall		
MATH 3721	Abstract Algebra 1 (Prerequisite)	4
Minor Course		3
Elective		3
GER domain (SPA)		3
GER domain (NS)		3
	Semester Hours	**16**
Spring		
MATH 3751	Real Analysis 1 (Prerequisite)	4
MATH/STAT/DATX Elective (Upper Division)		3
Minor Course		3
GER domain (SPA)		3

GER domain (SS)		3
	Semester Hours	**16**
Year 4		
Fall		
MATH 4896	Senior Undergraduate Research Project (Prerequisite)	2
MATH/STAT/DATX Elective (Upper Division)		3
Minor Course (Upper Division)		3
Elective		3
Elective		3
	Semester Hours	**14**
Spring		
MATH/STAT/DATX elective (4800 level or higher)		3
MATH/STAT/DATX elective (4800 level or higher)		3
Minor Course		3
Elective		3
	Semester Hours	**12**
	Total Semester Hours	**120-128**

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.