B.S. Mathematics Requirements

The Department of Mathematics offers a comprehensive program designed to cultivate strong analytical and problem-solving skills and a deep understanding of mathematical principles. The curriculum provides students with a rigorous foundation in both pure and applied mathematics, complemented by specialized courses in areas that help graduates succeed in academia, industry, and beyond.

Note that all students must achieve 120 undergraduate credits and a minimum 2.0 overall GPA to graduate. The final GPA requirement for Mathematics is 2.0.

Required Mathematics Core Courses – 30 credits
MATH 181 Calculus I (4 credits)
MATH 182 Calculus II (4 credits)
MATH 224 Foundations of Higher Mathematics (3 credits)
MATH 260 Linear Algebra I (3 credits)
MATH 283 Calculus III (4 credits)
MATH 301 Probability & Statistics I (3 credits)
MATH 311 Abstract Algebra I (3 credits)
MATH 351 Real Analysis I (3 credits)
MATH 380 Senior Seminar in Mathematics (3 credits)

Specialization Courses – 12 credits
Students must satisfy the requirements for Specialization A or Specialization P.
Specialization A: Applied Mathematics
MATH 340 Differential Equations (3 credits)
Choose three courses, with at least one being MATH 302, MATH 306, MATH 362, or MATH 473.
MATH 250 Applied Regression Analysis (3 credits)
MATH 302 Probability & Statistics II (3 credits)
MATH 305 Mathematics of Finance I (3 credits)
MATH 306 Mathematics of Finance II (3 credits)
MATH 332 Numerical Analysis (3 credits)
MATH 347 Introduction to Dynamical Systems (3 credits)
MATH 361 Operations Research I (3 credits)
MATH 362 Operations Research II (3 credits)
MATH 367 Mathematical Modeling (3 credits)
MATH 403 Analysis of Data Sets (3 credits)
MATH 473 Partial Differential Equations (3 credits)
Specialization P: Pure Mathematics
Choose four courses, with at least one with being MATH 312, MATH 352, or MATH 460.
MATH 312 Abstract Algebra II (3 credits)
MATH 321 Combinatorics (3 credits)
MATH 330 Theory of Numbers (3 credits)
MATH 337 Introduction to Cryptography (3 credits)
MATH 352 Real Analysis II (3 credits)
MATH 369 Introduction to Graph Theory (3 credits)
MATH 400 Complex Variables (3 credits)
MATH 431 Topology (3 credits)
MATH 460 Linear Algebra II (3 credits)

Mathematics Electives – 9 credits
9 additional MATH credits at the 200-level or higher, with at least 6 credits at the 300-level or higher.

Other Required Courses
These courses may be taken as university electives or general education. However, they are required for the completion of the major.
Programming Courses – 6 credits
If MATH 210 is counted here, then it cannot count as a Mathematics Elective above.
CPSC 123 *or* 135 (Gen Ed Category C2) (3 credits)
CPSC 136, 220, 223, 240, 241, 242, 243, *or* MATH 210 Mathematical Computing and Typesetting (3 credits)
Laboratory Science Courses – 6-8 credits
Laboratory science sequence: choose two courses with the same prefix from the list below.
ASTR 140, 142, 205
BIOL 104, 106, 108, 120, 122, 160, 216, 218, 220, 222, 224, 226
CHEM 100, 102
EVSC 100, 210, 220, 222
GEOG 204, 304
GEOL 100, 102
PHYS 100, 102

University Electives – 24 to 27 credits

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B.S. Mathematics Major Check Sheet

Student Name: Student ID Number:

This check sheet provides a mechanism for students and advisors to keep track of a student's progress in the program. Please refer to the program requirements for more details regarding options.

Note that all students must achieve 120 undergraduate credits and a minimum 2.0 overall GPA to graduate. The final major-GPA requirement for Mathematics is 2.0.

Required Mathematics Core Courses – 30 credits

MATH 181: Calculus I	4 credits	Grade:
MATH 182: Calculus II	4 credits	Grade:
MATH 224: Foundations of Higher Mathematics	3 credits	Grade:
MATH 260: Linear Algebra I	3 credits	Grade:
MATH 283: Calculus III	4 credits	Grade:
MATH 301: Probability & Statistics I	3 credits	Grade:
MATH 311: Abstract Algebra I	3 credits	Grade:
MATH 351: Real Analysis I	3 credits	Grade:
MATH 380: Senior Seminar in Mathematics	3 credits	Grade:
Total Credits	30 total credits	

Specialization Courses – 12 credits
Students must satisfy the requirements for Specialization A or Specialization P
Specialization A: Applied Mathematics
See major program requirements sheet for guidelines.

MATH 340: Differential Equations	credits	Grade:
Course 1:	credits	Grade:
Course 2:	credits	Grade:
Course 3:	credits	Grade:
Total Credits	total credits	

Specialization P: Pure Mathematics
See major program requirements sheet for guidelines.

Course 1:	credits	Grade:
Course 2:	credits	Grade:
Course 3:	credits	Grade:
Course 4:	credits	Grade:
Total Credits	total credits	

Mathematics Electives – 9 credits

Course 1:	3 credits	Grade:
Course 2:	3 credits	Grade:
Course 3:	3 credits	Grade:
Total Credits	9 total credits	

Other Required Courses

These courses may be taken as university electives or general education. However, they are required for the completion of the major.

Programming Courses

If MATH 210 is counted here, it cannot count as a Mathematics Elective above.

CPSC 123 Intro to Scientific Programming *or* CPSC 135 Computer Science I (Category C2)	3 credits	Grade:
CPSC 136, 220, 223, 240, 241, 242, 243, *or* MATH 210: Mathematical Computing and Typesetting	3 credits	Grade:
Total Credits	6 total credits	

Laboratory Science Courses

Choose two courses with the same prefix from the courses listed on the major program requirements sheet.

Course 1:	credits	Grade:
Course 2:	credits	Grade:
Total Credits	6-8 total credits	

University Electives – 24 to 27 credits

Course 1:	credits	Grade:
Course 2:	credits	Grade:
Course 3:	credits	Grade:
Course 4:	credits	Grade:
Course 5:	credits	Grade:
Course 6:	credits	Grade:
Course 7:	credits	Grade:
Course 8:	credits	Grade:
Course 9 (if necessary):	credits	Grade:
Total Credits	24-27 total credits	

Summary of Graduation Requirements

Total credits from major courses	**51**
Total credits from general education program	**42-45**
Total credits from university electives	**24-27**
Minimum total credits to graduate	**120**
Minimum overall GPA	**2.0**
Minimum GPA in major program	**2.0**
Comprehensive Exam	**PASS**

Program Plan Code: BS_MATH_MATH
Effective Date: Spring 2024

B.S. Mathematics 8-Semester Planner

Student Name: Student ID Number:

Each semester listed below provides information including course categories, typical credit hours (CH.), and space to add specific course selections. This planner is a suggested path. Consult with your advisor regarding your unique plans and interests as you make choices about your schedule.

First Semester Plan

Major	MATH 181	4 CH.	Selection:
Gen Ed	FYSM 100	3 CH.	Selection: FYSM 100
Gen Ed	Category A1	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**16 CH.**	

Second Semester Plan

Major	MATH 182	4 CH.	Selection:
Gen Ed	CPSC 123 *or* CPSC 135 (Category C2)	3 CH.	Selection:
Gen Ed	Category A2	3 CH.	Selection:
Gen Ed	Category A3	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**16 CH.**	

Third Semester Plan

Major	MATH 283	4 CH.	Selection:
Major	MATH 224	3 CH.	Selection:
Gen Ed	CPSC 136, 220, 223, 240, 241, 242, 243, *or* MATH 210:	3 CH.	Selection:
Gen Ed	Lab Science Course (Category C1)	3-4 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**16-17 CH.**	

Fourth Semester Plan

Major	MATH 260	3 CH.	Selection:
Major	MATH 301	3 CH.	Selection:
Gen Ed	Lab Science Course with the same prefix (Category C3)	3-4 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**15-16 CH.**	

Fifth Semester Plan

Major	MATH 351	3 CH.	Selection:
Major	MATH Specialization	3 CH.	Selection:
Major	MATH Elective	3 CH.	Selection:
Gen Ed	Category A4	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**15 CH.**	

Sixth Semester Plan

Major	MATH 311	3 CH.	Selection:
Major	MATH Specialization	3 CH.	Selection:
Major	MATH Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**15 CH.**	

Seventh Semester Plan

Major	MATH 380	3 CH.	Selection:
Major	MATH Specialization	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**15 CH.**	

Eighth Semester Plan

Major	MATH Specialization	3 CH.	Selection:
Major	MATH Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Gen Ed	Gen. Ed. Course *or* University Elective	3 CH.	Selection:
Total		**12 CH.**	

Additional Notes:
1. At least 120 credits are required to graduate.
2. For Lab Science Courses, choose two courses with the same prefix from the following list: ASTR 140,142, 205; BIOL 104, 106, 108, 120, 122, 160, 216, 218, 220, 222, 224, 226; CHEM 100, 102; EVSC 100, 210, 220, 222; GEOG 204, 304; GEOL 100, 102; PHYS 100, 102
3. For MATH Specialization A (Applied Mathematics) and P (Pure Mathematics), see major program requirements sheet.

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