

MATHEMATICS (BA)

The mathematics curriculum prepares students for graduate study, for responsible positions in business, industry, and government, and for teaching positions in secondary and elementary schools. Basic skills and techniques provide for entering a career as an actuary, banker, bio-mathematician, economist, industrial researcher, lawyer, management consultant, market research analyst, mathematician, mathematics teacher, operations researcher, quality control specialist, statistician, or systems analyst.

Calculus Placement

Any student planning to take a course in the Calculus sequence including MATH-1250 Pre-Calculus, MATH-1300 Calculus I, MATH-1350 Calculus II, and MATH-2300 Calculus III must receive proper placement. For information, see "General Admission Policies > Locally Administered Placement Examinations > Calculus Placement" in the Catalog.

Mathematical Reasoning Foundation (MR) Placement

Many students will have degree plans that require courses that satisfy the general education Mathematical Reasoning Foundation (MR) requirement. Those who do not should choose the proper mathematics course to optimize their success and educational benefit of the course. (Note that College Algebra does not satisfy the MR requirement.) Students who are well prepared to pass College Algebra are likely well prepared to take MATH-1220 Introductory Statistics as their MR course. This is the best choice for most students whose major does not already require an MR course. Students who currently lack the computational skills to succeed in Introductory Statistics should consider taking MATH-1020 Mathematics As a Liberal Art which de-emphasizes rote computation in favor of surveying a wider array of mathematical topics and applications and providing thoughtful written reflection on those topics and applications. Students with questions should contact the Chair of the Department of Mathematics and Computer Science.

Admission to the Mathematics Major

In order to be admitted to the mathematics major, a student must have completed at Benedictine College at least one required mathematics course from the list above, and must have a grade point average of at least 2.7 in mathematics courses at Benedictine College.

Program Mission

The mission of the Mathematics Program is to provide students with the necessary tools to enter a career in their field with a broad, robust knowledge of mathematics. In addition, our students acquire the conceptual knowledge and procedural skills needed to analyze and solve problems as mathematicians in our world.

Program Outcomes

1. Graduates will demonstrate conceptual knowledge of mathematics within the framework of a liberal arts education.
2. Graduates will develop analytical and problem-solving skills.
3. Graduates will be able to read, understand, and construct a variety of mathematical proofs.
4. Graduates will speak and write about mathematics with precision, clarity, and organization.

5. Graduates will be prepared for a diverse world in a career utilizing their mathematical skills and knowledge, or for graduate study in the mathematical sciences.
6. Secondary mathematics education graduates will be prepared for teaching licensure by ensuring their content knowledge and fostering effective pedagogy.

Program Requirements

Code	Title	Hours
MATH-1300	Calculus I	4
MATH-1350	Calculus II	4
MATH-2300	Calculus III	4
MATH-2500	Linear Algebra	3
MATH-2550	Discrete Mathematical Structures I	3
MATH-3200	Probability & Statistics	3
MATH-3600	Modern Algebra I	3
MATH-3610	Modern Algebra II	3
or MATH-4800	Introduction to Real Analysis	
MATH-4930	Directed Research	2
Upper-division math electives		6
CSCI-1140	Introduction to Computer Science I	4
or CSCI-2300	Programming for Scientists & Engineers	
MATH-COMP	Senior Comprehensive Exam	0
Total Hours		39

For each of the above curricula, the student's upper-division program is to be planned with an advisor from the department and approved by the chair of the department.

Transfer students majoring in Mathematics must take a minimum of 40% of the coursework required for the major at Benedictine College.

Recommendations

A student should not attempt a mathematics course unless he or she received at least a 'C' in its prerequisite. For a natural world foundation, PHYS-2100 Classical Physics I is recommended for mathematics majors.

Those students planning to enroll in graduate school in mathematics should include both MATH-3610 Modern Algebra II and MATH-4800 Introduction to Real Analysis in their course of study.

Suggested Sequence of Courses for a Bachelor of Arts Degree in Mathematics

Course	Title	Hours
Freshman Year		
First Semester		
ENGL-1010	English Composition	3
MATH-1300	Calculus I	4
Foreign Language		4
THEO-1100	Introduction to Theology	3
EXSC-1115	Wellness for Life	1
GNST-1000	BC Experience	1
Hours		16
Second Semester		
MATH-1350	Calculus II	4

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Foreign Language	4
Historical Foundation	3
Select one of the following:	3
PHIL-1750 Principles of Nature	
Natural World Foundation	
Person and Community Foundation	3
Hours	17

Sophomore Year

First Semester

MATH-2300 Calculus III	4
MATH-2550 Discrete Mathematical Structures I	3
Natural World Foundation (with lab)	4
CSCI-1140 Introduction to Computer Science I	4
EXSC Fitness Course	1
Hours	16

Second Semester

MATH-2500 Linear Algebra	3
Aesthetic Foundation	3
Faith Foundation	3
Historical Foundation	3
Natural World Foundation	4
Hours	16

Junior Year

First Semester

MATH-3600 Modern Algebra I	3
MATH-3200 Probability & Statistics (or Mathematics elective)	3
Electives	4
Aesthetic Foundation	3
Philosophical Inquiry Foundation	3
Hours	16

Second Semester

MATH-3610 Modern Algebra II	3
or MATH-4800 or Introduction to Real Analysis	
Mathematics Elective	3
Electives	4
Faith Foundation	3
Philosophical Inquiry Foundation	3
Hours	16

Senior Year

First Semester

MATH-3200 Probability & Statistics (or Mathematics elective)	3
MATH-4930 Directed Research	2
Electives	11
Hours	16

Second Semester

MATH-4800 Introduction to Real Analysis	3
or MATH-3610 or Modern Algebra II	
Mathematics Elective	3
Electives	10

MATH-COMP	Senior Comprehensive Exam	0
Hours		16
Total Hours		129