Mathematics at Benedictine University

Why study Mathematics at Benedictine?

When you choose to become a Mathematics major at Benedictine University, you will benefit from a program that emphasizes general knowledge and principles, and develops your intellectual capabilities. You will be guided in developing your abilities in mathematical reasoning and problem-solving. You will learn the basic techniques and models of the mathematical sciences.

Students will be challenged and study under experienced faculty who have doctoral degrees in the areas of applied mathematics, functional analysis, hyperbolic geometry, abstract algebra, biomathematics and statistics.

Students can become a teaching assistant, tutor high school and college students and perform undergraduate research as part of Benedictine University’s Natural Science Summer Research program as well as throughout the year. You may be able to participate in an internship in your field of interest, or you may gain the experience of performing research at off-campus locations such as Fermilab, Argonne National Laboratory or universities offering research experiences for undergraduates during the summer.

Benedictine University participates in the science education programs of the Associated Colleges of the Chicago Area. The annual student symposium in April provides a forum to present results of research or an interesting mathematical problem to students and faculty from member colleges. Benedictine University students have traditionally presented a significant percentage of all student papers at the symposium.

You will be able to participate in the Math Club, an organization that plans academic and social activities throughout the year. You may be eligible for the student chapters of the Mathematical Association of America or mathematics honors societies Kappa Mu Epsilon or Pi Mu Epsilon.

What careers are available with a degree in Mathematics?

A degree in Mathematics at Benedictine University offers you great flexibility in choosing a career. Benedictine’s Mathematics graduates are prepared to pursue productive careers in government, education, industry or business in such areas as actuarial science, statistics, quality control, teaching at the secondary level, research, mathematical modeling and other applications in both science and business.

A major in Mathematics prepares you for graduate work in mathematics, computer science and other sciences. Students who choose to concentrate in Actuarial Science are prepared to take the first two exams required toward fellowship in the Society of Actuaries.

In recent years, 30 percent of our graduates went on to graduate programs in the mathematical sciences, 30 percent became high school math teachers and 40 percent were hired in non academic careers. According to the 2015 Fall Alumni Program Review Survey, recent graduates have gone on to the following careers:

• Mathematics instructor at the high school, community college and university level.
• Graduate student in mathematical science, medical school and optometry school.
• Business consultant.
• Pricing associate.
• Market research analyst.
• Catastrophe modeling analyst.
How does the program work?
When you choose to become a Mathematics major, you will take a minimum of 37 semester credit hours from mathematics courses that include three semesters of calculus, differential equations, linear algebra, real analysis and abstract algebra. You will complete a mathematics sequence of two courses in an area of interest. The remainder of the major will be filled by taking electives from the list below. Proficiency in your field is demonstrated by passing a comprehensive examination, which can be taken as early as your junior year.

Elective offerings in Mathematics

- Abstract Algebra II
- Complex Variables
- Cryptology
- Discrete Mathematics
- Fourier Analysis
- Mathematical Modeling in Biology
- Modern Geometry
- Probability and Statistics I
- Probability and Statistics II
- Real Analysis II
- Theory of Interest
Bachelor of Science in Mathematics
Preparation for Science and Mathematics Teaching

Why prepare to teach science or mathematics at Benedictine?
Illinois faces a shortage of highly qualified science and mathematics teachers at every level of instruction. Benedictine University has a long commitment to preparing these educators who will teach our future generations of scientists, engineers, health care workers, mathematicians and scientifically informed citizens. Candidates seeking a teaching career must have a sincere desire to teach, show intellectual promise and display personal, professional and academic characteristics indicative of competent teachers.

The School of Education’s major goal, according to its conceptual framework, is to create effective practitioners who are committed to scholarship, lifelong inquiry, leadership and social responsibility. These enduring outcomes are developed and nurtured through the curriculum. Educators develop scholarship by acquiring a breadth and depth of knowledge in the field. As scholars, they develop lifelong inquiry by immersing themselves in a process of on-going questioning and reflection that results in informed thinking and decision making. They assume leadership roles in a variety of venues where they can affect change and improve practice. Their leadership is guided by a sense of social responsibility to create fair and equitable environments that support and enhance learning in order to maximize each individual’s potential.

What are the advantages of teacher preparation at Benedictine?
• Personal attention and guidance provided by skilled academic advisors.
• The career flexibility made possible by a liberal arts degree.
• The opportunity to gain experience through off-campus preclinicals and a 16-week student teaching experience under the guidance of licensed professionals.
• Integration of technology into coursework.
• Quality instruction from experienced faculty who have worked extensively in both private and public schools.
• The value of a dual degree with a major field of study and minor in education.
• Advantage of job placement aid through the Academic and Career Enrichment Center.
• Licensure as a teacher in Illinois.

What are the requirements for secondary education licensure?
The student prepares for licensure in Secondary Education by completing a minor in education and academic major outside the education department. The approved majors for secondary education licensure at Benedictine University in the College of Science are Biology, Chemistry, Mathematics and Physics. Upon completion of the program, students receive endorsements in their major area of study.

In addition to the required coursework for the academic major and the education minor, students also receive a solid foundation in methodologies through the following experiences:
• Preclinicals: observing and teaching under a licensed professional teacher in an off-campus classroom setting.
• Micro-teaching: the opportunity to participate in and evaluate various teaching activities.
• Student Teaching: a full semester of teaching supervised by a licensed professional.

As candidates progress through their program, they will develop an understanding of the Illinois Professional Teaching Standards and the Content-Area Standards for Educators. In addition to successful completion of their coursework, they will also develop a portfolio based on the education Teacher Performance Assessment (edTPA) that demonstrates their growth in teaching and service to education as well as their understanding of the Illinois standards. Their preparedness to teach will also be demonstrated through passage of the Test of Academic Performance (TAP), Content-Area Test and Assessment of Professional Teaching Test.
Recommended Program

Secondary Licensure (Education minor; major varies by program)

A grade of “C” or better is required in all coursework necessary for licensure.

FRESHMAN
Calculus for Physical Sciences I 5
Introduction to Computing 2
Python Programming Laboratory 2
Writing Colloquium 3
Wellness 2
Social Scientific I: Individuals/Organizations/Societies (QIO) course 3
17

Calculus for Physical Sciences II 4
Discrete Mathematics 4
Educating Students with Exceptionalities 3
Research Writing 3
Physical Scientific (QPS) course 3
17

JUNIOR
Probability and Statistics I 3
Abstract Algebra I or Real Analysis I 3
Preclinical Experience Level I with Seminar 1
Technology for Teachers 3
Assessment in Action 3
American Government 3
16

Probability and Statistics II 3
Modern Geometry 3
Preclinical Experience Level II with Seminar 1
Methods of Teaching Mathematics-Middle/Jr. and High School 3
Methods of Reading and Reading/ Writing in the Content Area for Middle and Secondary Schools 3
American History to 1865 or American History since 1865 3
16

SOPHOMORE
Calculus III 4
Introduction to Education Seminar 1
Philosophical (QPL) course 3
Religious/Theological (QRT) course 3
Catholic and Benedictine Intellectual Traditions (IDS 201-204) 3
Speech Communication 3
17

Linear Algebra 3
Differential Equations 4
Educational Foundations 3
Educational Psychology 3
Artistic/Creative (QCA) course 3
16

SENIOR
Abstract Algebra I or Real Analysis I 3
Mathematics for Middle and Secondary Teachers 3
Preclinical Experience Level III with Seminar 1
Creating an Inclusive Learning Environment 3
Literary/Rhetorical (QLR) course 3
Human Dignity or the Common Good (IDS 301-304) 3
16

Student Teaching (w/ Seminar) Education Minor 12
12

Checklists for each teaching licensure area in the College of Science are available on the Benedictine University website.

One course in the general education program must be selected to satisfy a multicultural/Non-Western culture requirement.

Programs in education require successful completion of state licensure exams. The Test of Academic Performance must be successfully passed prior to admission into the Teacher Education Program. This exam can be taken during the freshman year.

A cumulative GPA of 2.750 and a 3.000 GPA in the major are required for teacher education programs.

Changes in state licensure requirements must be met at the time they go into effect. This could change the program requirements. See your academic advisor with questions.

What does secondary licensure at Benedictine offer?
The Education program at Benedictine University is a licensure program that complements a major field of study. The program prepares students for a career in teaching at middle school and senior high school levels (6-12) for both public and private schools.