MATHEMATICS

Mathematics Majors

The CORE courses consist of:

Code	Title
MATH 145	Multi-variable Calculus
MATH 213	Linear Algebra and Differential Equations
MATH 220	Applied Statistics
MATH 300	Introduction to Proofs
MATH 395	Technical Communication I
and one of	
CS 109	Discovering Computer Science
CS 110	Discovering Computer Science: Digital Media and Games
CS 111	Discovering Computer Science: Scientific Data and Dynamics
or	
CS 112	Discovering Computer Science: Markets, Polls, and Social Networks

Bachelor of Arts Degree in Mathematics

The minimum requirement for the Bachelor of Arts in Mathematics are the six CORE courses plus four courses; two foundation courses and two modeling courses.

The **FOUNDATION** courses focus on teaching abstract reasoning and the reading, creation, and writing of rigorous proofs in the study of the foundational structures of mathematics.

Code	Title
MATH 400	Combinatorics
MATH 410	Abstract Algebra
MATH 413	Advanced Linear Algebra
MATH 440	Real Analysis
MATH 445	Topology
MATH 447	Complex Analysis
MATH 334	Theory of Computation

The **MODELING** courses, while not devoid of proofs, include a significant study of how mathematical techniques can be used to model and analyze real-world problems.

Code	Title
MATH 415	Operations Research
MATH 420	Statistical Modeling
MATH 425	Applied Probability
MATH 427	Probability Computing and Graph Theory
MATH 430	Fourier Analysis
MATH 435	Mathematical Modeling

Bachelor of Science Degree in Mathematics

The minimum requirement for the Bachelor of Science in Mathematics are:

Code	Title
MATH 145	Multi-variable Calculus
MATH 213	Linear Algebra and Differential Equations
MATH 220	Applied Statistics
MATH 300	Introduction to Proofs
MATH 395	Technical Communication I
CS 109	Discovering Computer Science
or CS 110	Discovering Computer Science: Digital Media and Games
or CS 111	Discovering Computer Science: Scientific Data and Dynamics
or CS 112	Discovering Computer Science: Markets, Polls, and Social Networks
Four Foundation courses, one of which must be:	
MATH 440	Real Analysis
plus two additional 400-level courses.	

Bachelor of Science in Applied Mathematics

The minimum requirements for a Bachelor of Science in Applied Mathematics are:

Code	Title
MATH 145	Multi-variable Calculus
MATH 213	Linear Algebra and Differential Equations
MATH 220	Applied Statistics
MATH 300	Introduction to Proofs
MATH 395	Technical Communication I
CS 109	Discovering Computer Science
or CS 110	Discovering Computer Science: Digital Media and Games
or CS 111	Discovering Computer Science: Scientific Data and Dynamics
or CS 112	Discovering Computer Science: Markets, Polls, and Social Networks
Four Modeling courses	
Plus two additional 400-level courses, one of which must be MATH 440	

Mathematics Minors

Minor in Mathematics

The minimum requirements for a mathematics minor are:

Code	Title
MATH 145	Multi-variable Calculus
MATH 213	Linear Algebra and Differential Equations
MATH 220	Applied Statistics
MATH 300	Introduction to Proofs
One 400-level MATH course	
and one of	
CS 109	Discovering Computer Science
or CS 110	Discovering Computer Science: Digital Media and Games
or CS 111	Discovering Computer Science: Scientific Data and Dynamics

or CS 112	Discovering Computer Science: Markets, Polls, and Social Networks

Minor in Applied Mathematics

The minimum requirements for an Applied Mathematics minor are:

Code	Title
MATH 145	Multi-variable Calculus
MATH 213	Linear Algebra and Differential Equations
MATH 220	Applied Statistics
CS 109	Discovering Computer Science
or CS 110	Discovering Computer Science: Digital Media and Games
or CS 111	Discovering Computer Science: Scientific Data and Dynamics
or CS 112	Discovering Computer Science: Markets, Polls, and Social Networks

and two 400-level Modeling courses

Additional Points of Interest

First Class

Students who have not had calculus in high school should start in MATH 130. Students who have had calculus in high school should start in either MATH 135 or MATH 145, depending on their placement score.

Research at Denison

Denison offers a number of research opportunities, including funding for summer research projects. The Anderson Foundation and the Denison University Research Foundation (DURF) support qualified students conducting summer research. For off-campus research opportunities in Mathematics, see the various National Science Foundation Research Experience for Undergraduates (https://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5044) experiences. Interested students should consult a faculty member as early as possible in the fall semester.

Off-Campus Study

The Department of Mathematics supports students who want to globalize their education by completing some portion of their undergraduate education abroad. Study abroad experiences enhance one's knowledge while learning another culture and way of life. Students can gain valuable international experience that will benefit future career goals and/or graduate school opportunities. Math majors who are fluent in another language will have special advantages in the job market. Funds from institutional, need-based, or merit aid can be applied to the costs of a semester off-campus study with an approved program.

Transfer Credits

Students may take up to two classes outside the department to transfer towards the major at Denison. Additional courses taken outside Denison may accrue credit hours towards graduation, but will not contribute to requirements in the major. Courses taken outside the university must be **pre-approved** for acceptance towards major requirements. Students should provide the department chair syllabi for the intended courses for department approval. Students may petition the department chair for exceptions to this policy. In particular, transfer students may be eligible to transfer additional courses towards major requirements.

Cross-listed Courses

Students in any Math major may take up to two cross-listed courses to count as an elective requirement in the major. Students in any Math minor may up to one cross-listed course to count as an elective requirement in the minor.