Morris Campus

Mathematics B.A.

Division of Science & Mathematics - Adm

Division of Science and Mathematics

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2016
- Required credits to graduate with this degree: 120
- Required credits within the major: 52
- Degree: Bachelor of Arts

Objectives--The mission of the discipline is to advance knowledge of mathematics by teaching mathematics and its processes, by research in mathematics and mathematical pedagogy, and by dissemination of this knowledge to students and the community we serve.

Historically, the study of mathematics has been central to a liberal arts education. The mathematics curriculum serves as an integral part of students' active pursuit of a liberal arts education. The mathematics program serves students who major or minor in mathematics, seek secondary mathematics teaching licensure, major or minor in programs that require a mathematical background, or wish to fulfill components of a general education.

The mathematics curriculum is designed to help students develop competence in problem-solving, mathematical techniques and methods; to sharpen students' mathematical intuition and abstract reasoning, as well as their quantitative literacy. The curriculum is also designed to encourage and stimulate the type of independent and critical thinking required for research beyond the confines of the textbook. It provide students with the basic knowledge and skills to make mathematical contributions to modern society. The mathematics program enables students to do in-depth and independent mathematics-related research projects that require students to integrate their mathematical knowledge from different areas, and to enhance their communication skills by way of written reports and oral presentations. The program seeks to enable students to observe and communicate how the development of mathematics has been part of historical and current cultural and scientific developments. The curriculum prepares students to enter graduate school, pursue careers in applied mathematics, or teach mathematics.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements. For more information, see the general education requirements.

Program Requirements

Students are required to take 2 semester(s) of any second language.

A minimum GPA of 2.00 is required in the major to graduate. The GPA includes all, and only, University of Minnesota coursework. Grades of "F" are included in GPA calculation until they are replaced. Courses may not be taken S-N unless offered S-N only. Up to 5 credits of coursework with a grade of D or D+ may be used to meet the major requirements if offset by an equivalent number of credits of B- or above in courses at or above 2xxx. Exceptions to requirements may be granted on an individual basis, after consulting with the math faculty.

Majors should begin with MATH 1012 - PreCalculus I or MATH 1013 - PreCalculus II or MATH 1101 - Calculus I. Students with questions about placement are encouraged to discuss them with members of the mathematics faculty.

Recommended electives for students planning to pursue graduate work in pure mathematics:
MATH 4201 - Complex Analysis
MATH 4211 - Real Analysis
MATH 4221 - Topology
MATH 4231 - Abstract Algebra II
MATH 4241 - Number Theory

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MATH 4252 - Differential Geometry
MATH 4253 - Combinatorics

Recommended electives for students planning to work or pursue graduate work in applied mathematics or related fields:
MATH 2401 - Differential Equations
MATH 3401 - Operations Research
MATH 3411 - Discrete and Combinatorial Mathematics
MATH 4401 - Numerical Methods With Applications in Mathematical Modeling
MATH 4452 - Mathematical Modeling

Residency Requirement
Students must complete a minimum of three 3xxx or higher math courses at UMM.

Required Courses
MATH 1101 - Calculus I [M/SR] (5.0 cr)
MATH 1102 - Calculus II [M/SR] (5.0 cr)
MATH 2101 - Calculus III [M/SR] (4.0 cr)
MATH 3111 - Linear Algebra (4.0 cr)
MATH 2202 - Mathematical Perspectives [M/SR] (4.0 cr)
MATH 3221 - Real Analysis I (4.0 cr)
MATH 3231 - Abstract Algebra I (4.0 cr)
MATH 4901 - Senior Seminar (2.0 cr)
Take 1 or more course(s) from the following:
- MATH 2401W - Differential Equations [M/SR] (4.0 cr)
- MATH 3401 - Operations Research (4.0 cr)
- MATH 3411 - Discrete and Combinatorial Mathematics (4.0 cr)
- MATH 4401 - Numerical Methods with Applications in Mathematical Modeling (4.0 cr)
- MATH 2452 - Introduction to Mathematical Modeling (4.0 cr)

Take 4 or more credit(s) from the following:
- MATH 2xxx
- MATH 3xxx
- MATH 4xxx

Take 1 or more course(s) from the following:
- CSCI 1201 *{Inactive}*[M/SR] (4.0 cr)
- CSCI 1301 - Problem Solving and Algorithm Development [M/SR] (4.0 cr)

Take 1 or more course(s) from the following:
- STAT 2601 - Statistical Methods [M/SR] (4.0 cr)
- STAT 2611 - Mathematical Statistics [M/SR] (4.0 cr)

Mathematical Applications Course
Take 1 or more course(s) from the following:
- CHEM 3501 - Physical Chemistry: Thermodynamics [SCI] (4.0 cr)
- CSCI 2101 - Data Structures [M/SR] (5.0 cr)
- CSCI 3413 - Computing Systems: Concepts (3.0 cr)
- CSCI 3501 - Algorithms and Computability (5.0 cr)
- CSCI 3601 - Software Design and Development (5.0 cr)
- ECON 3201 - Microeconomic Theory (4.0 cr)
- ECON 3202 - Macroeconomic Theory (4.0 cr)
- ECON 3501 - Introduction to Econometrics [M/SR] (4.0 cr)
- ECON 4111 - Mathematical Economics I (2.0 cr)
- ECON 4112 - Mathematical Economics II (2.0 cr)
- GEOL 3401 - Geophysics [SCI] (4.0 cr)
- GEOL 3501 - Hydrology [SCI] (4.0 cr)
- MATH 3501 *{Inactive}*(2.0 cr)
- MATH 3502 *{Inactive}*(2.0 cr)
- PHIL 1102 - Introduction to Symbolic Logic [M/SR] (4.0 cr)
- PHYS 1101 - General Physics I [SCI-L] (5.0 cr)
- PHYS 1102 - General Physics II [SCI-L] (5.0 cr)
- PHYS 2101 - Modern Physics [SCI-L] (4.0 cr)
- PHYS 3301 - Optics (4.0 cr)
- PHYS 3101 - Classical Mechanics [SCI] (4.0 cr)
- PHYS 4101 - Electromagnetism (4.0 cr)
- PHYS 4201 - Quantum Mechanics (4.0 cr)
- STAT 3601 - Data Analysis [M/SR] (4.0 cr)
- STAT 3611 - Multivariate Statistical Analysis [M/SR] (4.0 cr)
- STAT 4601 - Biostatistics (4.0 cr)

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