Duluth Campus

Mathematics B.S.

Mathematics & Statistics

Swenson College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 57
- Degree: Bachelor of Science

The program in mathematics develops competence in mathematical techniques and sharpens mathematical insight. Mathematics is fundamental to solving problems in physics, chemistry, biology, medicine, business, engineering, and technology. The mathematics major prepares students for careers in business, industry, and government and for further graduate studies.

Note: the B.S. in statistics and actuarial science is listed separately.

Honors Requirements: To graduate with departmental honors, a student must complete the program with an overall and department GPA of 3.50, satisfactorily complete a research project under the guidance of a department faculty member, and convey research results in a written report and in a department colloquium.

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

The Board of Regents, on recommendation of the faculty, grants degrees from the University of Minnesota. Requirements for an undergraduate degree from University of Minnesota Duluth include the following:

1. Students must meet all course and credit requirements of the departments and colleges or schools in which they are enrolled including an advanced writing course. Students seeking two degrees must fulfill the requirements of both degrees. However, two degrees cannot be awarded for the same major.
2. Students must complete all requirements of the Liberal Education Program.
3. Students must complete a minimum of 120 semester credits.
4. At least 30 of the last 60 degree credits earned immediately before graduation must be awarded by UMD.
5. Students must complete at least half of their courses at the 3xxx-level and higher at UMD. Study-abroad credits earned through courses taught by UM faculty and at institutions with which UMD has international exchange programs may be used to fulfill this requirement.
6. If a minor is required, students must take at least three upper division credits in their minor field from UMD.
7. The minimum cumulative UM GPA required for graduation will be 2.00 and will include only University of Minnesota coursework. A minimum UM GPA of 2.00 is required in each UMD undergraduate major and minor. No academic unit may impose higher grade point standards to graduate.
8. Diploma, transcripts, and certification will be withheld until all financial obligations to the University have been met.

Program Requirements

1. Minor or second major from another area of study.

Double Majors ONLY:
A student pursuing a second major in Statistics and Actuarial Science can count STAT 3612 as a major elective, but no other STAT course required for the Statistics and Actuarial Science major can be counted as a major elective.

Introduction to Calculus Courses (10 cr)

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Calculus I
Take one of the following three Calculus I courses:
MATH 1290 - Calculus for the Natural Sciences [LE CAT2, LOGIC & QR] (5.0 cr)
or MATH 1296 - Calculus I [LE CAT, LOGIC & QR] (5.0 cr)
Calculus II
MATH 1297 - Calculus II [LOGIC & QR] (5.0 cr)

Mathematics Core Courses (23 cr)
Core courses cannot count as electives.
MATH 3280 - Differential Equations with Linear Algebra (4.0 cr)
MATH 3298 - Calculus III (4.0 cr)
MATH 3355 - Discrete Mathematics (4.0 cr)
MATH 4201 - Elementary Real Analysis (4.0 cr)
MATH 4326 - Linear Algebra (3.0 cr)
STAT 3611 - Introduction to Probability and Statistics (4.0 cr)

Required Mathematics Undergraduate Colloquium (1 cr)
Students must register their last semester before graduation.
MATH 3941 - Undergraduate Colloquium (1.0 cr)

Required From Other Departments (8 cr)
Computer Science
CS 1511 - Computer Science I [LE CAT] (5.0 cr)
or CS 1581 - Honors: Computer Science I [LE CAT] (5.0 cr)
Advanced Writing
Advanced Writing - WRIT 31xx (3.0 cr)

Electives (15 cr)
Take 5 courses of at least 3 credits each.
Core courses cannot count as electives.
MATH electives must be at least 3100.
Of the 5 major electives courses, at least 2 must be from MATH 4xxx-5xxx, a 3rd must be from MATH 4xxx-5xxx or STAT 5xxx.
The other 2 must be chosen from MATH 3xxx - 4xxx - 5xxx or STAT 3xxx - 4xxx - 5xxx.
MATH 3326, 4370 or STAT 3411 cannot count as major electives.
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- MATH 3xxx
- MATH 4xxx
- MATH 5xxx
- STAT 3xxx
- STAT 4xxx
- STAT 5xxx

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- MATH 4xxx
- MATH 5xxx
- STAT 5xxx

Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- MATH 4xxx
- MATH 5xxx

Program Areas of Emphasis
Mathematics includes a wide variety of areas in which students can specialize: traditional mathematics (preparation for Graduate School), applied analysis, computational mathematics, discrete mathematics, and mathematics education. Although no area is required for the MATH major, students are encouraged to work with their advisors to develop a coherent major plan. See the Department of Mathematics and Statistics Web page: http://www.d.umn.edu/math for descriptions of elective course groups.

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