Mathematics, Computer Science, and Physics

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Mathematics

The mathematics program helps students understand the structure of mathematics, demonstrate skills, solve problems, and apply mathematics in meaningful vocations and services.

Students begin study at the mathematical level consistent with their ability and previous education. If students begin with and successfully complete the second course in the calculus sequence, the first course requirement for the major or minor is waived.

Students use computers on an NT network located near mathematics classrooms and have use of them both inside and outside of class. The computers, equipped with specialized mathematics software packages such as Maple V and Geometer's Sketchpad, are used extensively in the calculus sequence as well as many upper-division mathematics courses.

Internships and field experiences for qualified students in mathematics are arranged during May Term and/or Summer Term at businesses in diverse locations such as Chicago, Illinois; Corvallis, Oregon; Rochester, Minnesota; Oak Ridge, Tennessee; Greenbelt, Maryland; Waterloo, Iowa; and Waverly, Iowa.
Mathematics program goals:

- Students will develop a coherent and broad-based understanding of the mathematics discipline consistent with the current MAA recommendations.
- Students will be prepared for entry into mathematics professions such as actuarial scientist or applied mathematician, for graduate study, and for the professional and personal challenges of the discipline.
- Students will appreciate mathematical knowledge and skills and be prepared to confront the ethical and societal issues associated with the mathematics profession.
- Students will be prepared to apply their knowledge of mathematics and computer technology to specific problems and produce solutions.
- After graduation, students who have completed the mathematics major and have sought employment will be employed in a math-related field or enrolled in graduate school.

Major in Mathematics

11 course credits:
CS 120 Introduction to Computers and Programming
MA 250 Applied Calculus
MA 251 Foundational Differential Calculus (½)
MA 252 Foundational Integral Calculus (½)
MA 255 Multivariable Calculus
MA 301 Linear Algebra
MA 461 Perspectives in Mathematics
Five course credits from
MA 300 Foundations of Analysis
MA 302 Algebraic Structures
MA 303 Discrete Structures
MA 304 Modern Geometries
MA 305 Advanced Calculus
MA 307 Mathematical Modeling
MA 313 Probability and Statistics
MA 314 Statistical Applications
MA 371 Internship
MA 401 Differential Equations
MA 402 Analytical Mechanics
MA 403 Complex Variables
MA 409 Numerical Analysis
MA 449 Mathematics Seminar
MA 450 Independent Study
Students meet the requirement for OCAC/ILAC in Mathematics by completing the required number of presentations and information searches.

Minor in Mathematics

6 course credits:
CS 120 Introduction to Computers and Programming
MA 250 Applied Calculus
MA 251 Foundational Differential Calculus (½)
MA 252 Foundational Integral Calculus (½)
MA 301 Linear Algebra
Two course credits from any MA courses numbered 200 or above, except MA 212,
MA 312, and MA 371/MA 372.

Major in Mathematics Teaching

For the mathematics teaching major and endorsements, see Education Department listings.