

Mathematics

PROGRAM OVERVIEW Students majoring in mathematics are able to plan programs appropriate for careers that require understanding of structures and patterns and analysis of data, or for further graduate study in theoretical or applied mathematics or related fields, such as other scientific disciplines or economics and M.B.A programs in business administration. Opportunities for mathematics majors arise in computing or high technology firms, chemical and pharmaceutical manufacturers and with government agencies, financial institutions and the insurance industry.

This program provides in-depth study of mathematical ideas, techniques, and applications. Students will have opportunities to use technology where appropriate to explore topics in both theory and application of mathematics. Most upper level classes are small enough to allow close interaction between students and faculty members. Interested students may also find opportunities for independent studies on topics of interest or to work with faculty members on student research projects.

Students who desire a more scientific emphasis will complete the Arts and Sciences College requirements for a B.S. degree; the mathematics requirements for the B.A. and B.S. degrees are the same.

FACULTY The Department of Mathematics and Computer Science includes 10 full-time faculty members. All have doctorates in computer science, mathematics, or mathematics education. Scholarly interests of faculty members in the department include computer graphics and other software-related areas, wireless networks, linear algebra, graph theory, history of mathematics, mathematical modeling, applied mathematics, abstract algebra, and topics in mathematics education, including use of technology. Faculty honors include college and university outstanding teaching awards, an outstanding mentor award, Thomas F. Sheehan and Windsor distinguished professorships, Burlington Northern Teaching Award for Innovative Teaching, and a Stalaker Lecturer. All full-time faculty are engaged in teaching classes from the introductory to advanced levels.

ACADEMIC PREPARATION Students should have a strong general high school preparation, including mathematics, but no specific classes are required.

REQUIREMENTS FOR MAJOR The mathematics major requires 42 credit hours. There is a core of mathematics and computer science courses that must be taken. In addition, a student must take at least 21 hours of upper-division coursework in mathematics and related areas. These courses should be chosen with an adviser to ensure the requirements are satisfied. Mathematics majors should also develop competencies in one or more areas of application of mathematics such as the physical sciences, life sciences, social sciences or business. Most of the courses in mathematics are very sequential in nature, and should be chosen with the help of an advisor in the department.

REQUIREMENTS FOR MINOR The mathematics minor, 23 credits, provides an introduction to some basic topics in mathematics theory and application, along with some upper level work in at least one area. The student must have a departmental minor adviser and complete the following mathematics and related courses: (1) Mathematics 50, 70, 80, 101, (2) two additional upper-level mathematics courses that must be approved for the program by the adviser (Mathematics 140, Cooperative Education, may not be one of these), and (3) Computer Science 65.

DRAKE CURRICULUM The Drake Curriculum, required of all undergraduates, is designed to help students meet personal and professional goals as they acquire fundamental knowledge and abilities in ten Areas of Inquiry, including communication, critical thinking, artistic experience, historical consciousness, information and technology literacy, international and multicultural experiences, scientific and quantitative literacy, values and ethics and engaged citizenship. Students work closely with their academic advisers to craft a program of study in general education that prepares students for civic and professional leadership.

The Drake Curriculum also requires first-year seminars, which foster development of critical thinking and written and oral communication skills through a topical focus; and a Senior Capstone, in which students demonstrate the capacity to bring information, skills and ideas to bear on one project.

INTERNSHIPS & OPPORTUNITIES Drake undergraduates are successful in finding internships with insurance companies, retail companies, banks and software developers. In some cases internships may develop into full-time employment. Majors in the department have opportunities for undergraduate research, problem-solving activities, mathematical competitions, and formal presentations at statewide mathematics meetings. Several are hired by the department as Math Lab tutors. Students have found part-time employment and internships at numerous companies and government agencies in the Des Moines area.

CAREER OPTIONS The mathematics major prepares students for various careers involving quantitative skills such as in actuarial work in the insurance industry, in banking, in various positions requiring expertise in computer systems or statistics, and in general applications of mathematics in related areas.

HONORS The Kappa Mu Epsilon Mathematics Awards are given for achievement on the annual Basil E. Gillam Freshman Mathematics Contest, which honors a long-time former department chair. In addition, each year an upper level student is chosen as Outstanding Student in Mathematics.

STUDENT ORGANIZATIONS AND ACTIVITIES Mathematics and secondary mathematics education majors are encouraged to participate in Kappa Mu Epsilon, the national honorary society in mathematics and local mathematics club.

HOW TO REACH US

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