

# Computer Science

**PROGRAM OVERVIEW** The major in computer science, offered by the Department of Mathematics and Computer Science, enables a student to develop an understanding of the theory and practice of computing within the context of a liberal arts and sciences education. In addition to computer programming, majors in computer science study computer languages, logic, data structures and applications of computing. The art and science of problem solving are emphasized.

A degree in computer science can serve as preparation for technical careers such as computer programming, software engineering, systems analysis or system administration. A student with a B.A. or B.S. in computer science is also prepared to serve other disciplines as a problem solver, or to pursue graduate study in computer science. Because of their problem-solving skills, computer science graduates with knowledge of other disciplines may find themselves sought as candidates for graduate study in those fields.

Students who desire a more scientific emphasis will complete the Arts and Sciences College requirements for a B.S. degree; the computer science requirements for the B.A. and B.S. degrees are the same. This program brings a problem solving focus to the study of computer science and applications of computer science. 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.

**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 Stalnaker Lecturer. All full-time faculty are engaged in teaching classes from the introductory to advanced levels.

**ACADEMIC PREPARATION** Students majoring in computer science should have a strong general high school preparation, including four years of mathematics. No specific computer language is required.

**REQUIREMENTS FOR MAJOR** The computer science major requires between 40 and 42 credit hours. All programs are to be planned in careful consultation with a departmental adviser and must have the approval of the adviser. Since many of the courses that computer science majors take are arranged in sequences, students should be sure the prerequisites are satisfied before enrolling in any of the courses.

**REQUIREMENTS FOR MINOR** Students who choose a minor in computer science must have a departmental minor adviser and complete a minimum of 21 hours of computer science and related courses, including (1) CS 65, 66, 130, 135; (2) two additional upper-division computer science or IS courses (excluding CS 140 — the tutoring course, and the Capstone course) and (3) Mathematics 54 — Discrete Mathematics. Completion of Mathematics 80 — Linear Algebra is strongly recommended.

**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** The department encourages computer science majors to participate in research and to gain experience through internships. Students find placement with such organizations as insurance companies and computer developers. Several are hired by the Department as Math Lab tutors or by the computer center as consultants. The Sheppard Computing Lab in Howard Hall with Linux machines and the Mathematics Computer Lab with Windows machines in Meredith Hall are available for use and are administered by an upper level computer science student.

**CAREER OPTIONS** The computer science major prepares individuals for graduate school and for careers in computer applications such as programming and systems analysis. Many computer-related positions require advanced training or training outside the area of computer science, and so computer science students not planning to attend graduate school should take courses in other areas as well, such as statistics, other sciences, business, or economics.

**HONORS** Each year an upper class student is chosen as the Outstanding Student in Computer Science.

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# HOW TO REACH US

**WRITE** Office of Undergraduate Admission  
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