COMPUTER SCIENCE

Lawrence was one of the first small colleges in the nation to enter the computer age, with its lease of an IBM system in 1963. Since then, the applicability of computer solutions to scientific research, academic studies, and commercial activity has expanded exponentially, and computer science has come into its own as an academic discipline.

Do you intend to do graduate studies in computing? The mathematics-computer science major provides a strong background in both disciplines and will equip you with the analytical skills needed to excel.

Are you planning to step straight into the job market after graduation? Employers are looking for graduates who are comfortable with more than the technical aspects of computing. At Lawrence, you have the option to pursue a broad education, augmenting computer science with study in other relevant disciplines.

Do you look at computing as a tool to apply to another field of study? The computer science program welcomes students whose primary interests are in areas as diverse as music, foreign languages, economics, and the sciences. The faculty will work with you to augment basic course work in computing with special projects relevant to your interests.

CURRICULUM

Emphasizing the development of problem solving skills and the theoretical basis of computer science, our courses reflect our belief that computer science is the analysis of problems much more than it is the writing of programs. The field of computing is evolving so rapidly that only through such a path will you be prepared to stay on the "cutting edge."

If you choose the mathematics-computer science major or the computer science minor, you will take a blend of applied mathematics and computer science courses. During your freshman and sophomore years, you will build the necessary foundation in mathematics and computing with work in calculus, discrete math, abstract algebra, object-oriented programming, data structures, and algorithms.

In your junior and senior years, you will focus upon more specialized areas and work on a significant independent study project. Students have designed projects in visualization, robotics, and parallel processing. Some of these independent studies have earned students honors at graduation:

Daniel Casner, '06, "Robot Planning"
Daniel Casner, '06, and Benjamin Willard, '07, "Mobile Robot Cooperation and Navigation"
Eric Seidel, '03, "An Implementation of the Bitslice DES Algorithm"
Alejandro Ozerkovsky, '96, "Computerized Modeling of Crystal Growth"
Paul Rybski, '95, "Heterogeneous Mobile Robotic Platforms Exhibiting Emergent Behavior Through a Parallel, Sensory-Defined, Event-Driven Architecture."

The many other independent study projects have included:

Automatic Generation of XSLT Transformations
Visualizing Graph Algorithms in Java
Rigid Body Dynamics and OpenGL
A Web-based Quiz Delivery System Using Java Database Connectivity and Remote Method Invocation
Computer Simulation of Lighting Effects in Theater Stage Design.

HARDWARE

The academic computing facilities on campus are abundant and diverse. The university's central e-mail, web and file sharing servers are accessible from all parts of the campus. Lawrence has high-bandwidth access for worldwide communication via the Internet, including Internet2. Computer science students have dedicated access to a

network of Windows systems as well as to advanced 64-bit architectures (e.g., Alpha, Itanium) running Unix or Linux. Our computing lab is housed in Briggs Hall, a building devoted to mathematics, computer science, and the social sciences that opened in 1997.

THE 3-2 PROGRAM IN ENGINEERING

The study of computer science at Lawrence is compatible with Lawrence's cooperative programs in engineering and applied sciences. If you choose to take part in one of these programs, you will spend three years at Lawrence, studying computer science and completing a basic sequence of mathematics, chemistry, and physics courses as well as half a dozen courses from the humanities and the social sciences.

Then you will study for two years at Columbia University, Rensselaer Polytechnic Institute, Washington University, or the University of Michigan. In those five years, you will acquire a Lawrence liberal arts education and a Bachelor of Arts degree, as well as a Bachelor of Science degree in engineering and applied sciences from the professional school.

AFTER LAWRENCE

Lawrence graduates make use of their preparation in computer science in every imaginable way.

Daniel Casner, '06, is pursuing a Ph.D. in computer science at Rensselaer Polytechnic Institute.
Matthew Wolin, '06, is pursuing a graduate degree in computer science at Loyola University.
Joseph Lawrance '03 is pursuing a Ph.D. in computer science at Oregon State University.
Romel Mostafa '01 is pursuing a graduate degree at Carnegie-Mellon University.
James Eagan '00 is pursuing a Ph.D. in computer science at Georgia Tech.

Lawrence students have also done graduate work at Duke University, University of Illinois, University of Oregon, Memphis State University, University of Iowa, University of Michigan, University of Minnesota, and New York Institute of the Arts (Computer Art).

Recent graduates have chosen from a wide variety of employers:

Nitin Tolani '06 is a software engineer at West Ben Mutual Insurance Company.
Thomas Conti '02 and Matthew Kruse '05 are employed at Epic Systems in Madison, WI.
Derek Johnson '02 is a software engineer for IBM Printing Systems.
Rishi Persad '00 is technical lead in Java Enterprise for American Computer Technologies.
Eric Bressler '98 manages worldwide support operations at Netegrity.
Eric Chan '99 is a networking specialist at Netegrity.
Rena Takahashi '98 is a Java Programmer Analyst at Hewlett-Packard.
Chaitanya Bannerjee '96 holds an MBA from Xavier University and is a senior software engineer at Fidelity Investments.
Jeremy Stenglein '96 obtained an MS in computer science at the University of Wisconsin and is a software engineer at Cisco Systems.
Jiri Tomek '96 is a software engineer for McHugh-Freeman, Waukesha, WI.
Paul Rybski '95 earned a Ph.D. in computer science at the University of Minnesota and is a postdoctoral fellow at Carnegie Mellon University.
Brian Swander '95 and Shaiwal Singh '94 are software engineers for Microsoft.
Christopher Hundhausen '91 earned a Ph.D. in computer science at the University of Oregon and is a professor at the University of Hawaii at Manoa.

Lawrence alumni also work for Northwestern Mutual Life, ESP Software Service, United Carrier Technologies, Wisconsin Electric Power Company, BDM International, Claremont Technology Group, and American Digital Cartography.

FACULTY

James S. Evans, professor of computer science and chemistry; director of information technology planning
Bates College, B.A.; Princeton University, M.A., Ph.D.
Interests: computer architecture and organization; structure and interactions of proteins

Joseph N. Gregg, Jr., associate professor of mathematics
Texas A&M University, B.S., M.S.; Princeton University, Ph.D.
Interests: architecture of large software systems, software for math education, complex systems

Kurt D. Krebsbach, associate professor of computer science
Lawrence University, B.A.; University of Minnesota, M.S., Ph.D.
Interests: artificial intelligence, automated planning, multi-agent systems, functional programming

Alan E. Parks, professor of mathematics
University of Wisconsin–Madison, B.A., M.A., Ph.D.
Interests: application of mathematics, computer algorithms, dynamics

Richard A. Sanerib, Jr., associate professor of mathematics
St. Anselm College, B.A.; University of Colorado, M.A., Ph.D.
Interests: logic, algebra, topology, computers, minority education