Computer Science

The George R. Brown School of Engineering

Chair
Keith Cooper

Professors
Robert S. Cartwright, Jr.
Ronald N. Goldman
G. Anthony Gorry
Kenneth W. Kennedy, Jr.
Moshe Y. Vardi
Joe D. Warren
Willy E. Zwaenepoel

Adjunct Professors
Jack Dongarra
Geoffrey Fox
Charles Henry
S. Lennart Johnsson

Associate Professors
Alan L. Cox
Peter Druschel
Dave Johnson
Lydia Kavraki
Devika Subramanian

Adjunct Associate Professors
P. Read Montague
Scott K. Warren

Assistant Professors
Scott Rixner
Walid Taha
Dan Wallach

Adjunct Assistant Professor
Vikram Adve

Senior Faculty Fellow
John Mellor-Crummey

Research Scientists
Bradley Broom
Zoran Budimlic
Robert Fowler
Richard Hanson
Guohua Jin
Charles Koelbel
Linda Torczon

Lecturers
Ian Barland
Ed Chen
John Greiner
Dung “Zung” Nguyen
Stephen Wong

Postdoctoral Research Associate
Doron Bustan

Joint Appointments

(with Electrical and Computer Engineering)
Professor
J. Robert Jump

Associate Professors
Joseph Cavallaro
Peter Varman

Assistant Professor
Edward Knightly

(with Psychology)
Professor
Daniel N. Osherson

(with Chemistry)
Professor
James Tour

Degrees Offered: B.A., B.S.C.S., M.C.S., M.S., and Ph.D.

Computer science is concerned with the study of computers and computing, focusing on algorithms, programs and programming, and computational systems. The main goal of the discipline is to build a systematic body of knowledge, theories, and models that explain the properties of computational systems and to show how this body of knowledge can be used to produce solutions to real-world computational problems. Computer science is the intellectual discipline underlying information technology, which is widely accepted now as the ascendant technology of the next century. Students in computer science at Rice benefit from the latest in equipment and ideas as well as the flexibility of the educational programs. The research interests of the faculty include algorithms and complexity, artificial intelligence and robotics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages.

The department offers two undergraduate degrees; the Bachelor of Arts degree (B.A.) and the Bachelor of Science in Computer Science degree (B.S.C.S.). The department offers two master’s degrees: the professional Master of Computer Science degree (M.C.S.) and the research-oriented Master of Science degree (M.S.). The department also offers a doctoral degree (Ph.D.).

A joint M.B.A./Master of Engineering degree is also available in conjunction with the Jesse H. Jones Graduate School of Management.

Degree Requirements for B.A. in Computer Science

For general university requirements, see Graduation Requirements (pages 18–20). The undergraduate program in computer science has been designed to accommodate a wide range of student interests. The program is sufficiently flexible for a student to customize it to her or his interests. A student can develop a broad educational program that couples computer science education with a variety of other fields in engineering, natural sciences, the humanities, or social sciences. Alternatively, a program might be designed for a student preparing for graduate study in computer science or possibly for a career in computing and information technology.

The undergraduate program consists of required core courses, which are introductory courses covering material required of all majors; required breadth courses, which are upper-level courses ensuring knowledge in a broad range of areas; and electives that give students the freedom to explore specific interests. Students majoring in computer science must complete between 58 and 60 semester hours of courses in these three categories.

Core Courses (8 courses for a total of 28 hours, required for all majors, usually taken in the freshman and sophomore years)

MATH 101/102 Single Variable Calculus I and II
COMP 210 Introduction to Principles of Scientific Computation
COMP 212 Intermediate Programming
COMP 280 Mathematics of Computer Science
COMP 314 Applied Algorithms and Data Structures
COMP 320 Introduction to Computer Organization

I course from the following:
MATH 211 Ordinary Differential Equations and Linear Algebra
MATH 221 Honors Calculus III
**Ph.D. Program.** The Ph.D. degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires four to six years of study. To earn a Ph.D. in computer science, students must:

- Meet departmental course requirements
- Complete a COMP 590 project by the end of the third semester
- Complete a master’s thesis by the end of the fifth semester, if a previous master’s thesis has not been approved by the graduate committee
- Pass a qualifying examination in an area of specialization within seven semesters after entering the Ph.D. program
- Conduct original research, submit an acceptable Ph.D. thesis proposal, and successfully defend the thesis proposal
- Submit an acceptable Ph.D. thesis that reports research results and pass a final oral defense

Students who successfully meet the first three requirements are awarded the Master of Science degree. Students successfully meeting all requirements, plus any departmental and university requirements, are awarded the Ph.D. degree.

**Financial Assistance.** Fellowships and research assistantships are available to students in the Ph.D. program. Both provide a monthly stipend for the academic year and cover all tuition expenses. More substantial monthly stipends may be available during the summer for students working on departmental research projects. In all cases, continued support is contingent on satisfactory progress in the program. Ph.D. students also are expected to assist in the teaching and administration of undergraduate and graduate courses.

**Additional Information.** For further information and application materials, write the Department of Computer Science–MS 132, Rice University, P.O. Box 1892, Houston, Texas 77251-1892.

**See COMP in the Courses of Instruction section.**