

# DEPARTMENT OF COMPUTER SCIENCE

## Faculty

Peter Fejer, Professor and Chair; Professors Ethan Bolker, Richard H. Eckhouse, Joan Lukas, Robert Morris, Elizabeth O'Neil, Patrick O'Neil, Dan Simovici, Richard Tenney; Associate Professors William Campbell, Colin Godfrey, George Lukas, Kenneth Newman, Dennis Wortman; Assistant Professors Dina Goldin, Woojin Paik.

## The Department

The Department of Computer Science offers programs leading to a BA or BS in computer science. Both degree students not majoring in computer science and non-degree students may earn a major certificate (equivalent to a major in computer science) or a minor certificate (oriented to applications) in computer science. At the graduate level, the department offers the master's degree and PhD in computer science.

The department also offers introductory courses in information technology (IT) to prepare non-computer science majors to enter the workplace with the knowledge and skills necessary for careers in medicine, management, criminal justice, natural sciences and other fields. There is no BA/BS degree in IT, but rather a selection of courses that may lead to competencies and certificates.

## Requirements and Recommendations

### Preparatory Work

Any student who intends to take a computer science course at or below CS 110 (Introduction to Computer Programming) must furnish proof to the department that he or she is prepared for that course. This proof must be a suitable score on the Mathematics Diagnostic Test. However, the diagnostic test will be waived for students who have successfully completed MA 140, Calculus I, at UMass Boston or its equivalent elsewhere.

### Majors

To earn a BA degree in computer science, a student must take:

- MATH 140, MATH 141 and MATH 260
- CS 110, CS 210, CS 240, CS 241, CS 260, CS 310, CS 320 and CS 420
- One theoretical elective and two applied electives, chosen from lists maintained and periodically revised by the department. At least one of the applied electives must be at the 400 level or above.

Students pursuing a major in the department must take a minimum of four upper division courses (at the 300 level or above) in their major at UMass Boston. Each major is strongly advised to seek advice pertinent to his or her situation from an advisor in the department. A hold is placed on each student's registration during Advanced Registration until the student has spoken to an advisor. Majors who wish to take courses in Management Science and Information Systems (in the College of Management) should consult the department before enrolling.

### The Bachelor of Science Degree

To earn a BS degree in computer science, a student must:

- Fulfill the requirements for the BA degree, as indicated above
- Take six courses in the sciences outside the Department. Those courses must be appropriate for majors in those departments offering the courses and must include Physics 113 and Physics 114. In addition, one laboratory course is required. One of the six science courses may also qualify as the laboratory course (for example, CHEM 103 counts as a laboratory course, but PHYSICS 113 does not); also CS 440 may be counted as a laboratory course.

### Honors

To graduate with Honors, a Computer Science major must:

- maintain an overall GPA of 3.0 or higher,
- achieve a GPA of 3.5 or higher in the major,
- successfully complete CS 498 (Honors), including an oral defense of the thesis.

The Honors thesis and defense will be judged by a three-person committee consisting of the thesis advisor and two other faculty members whose background is relevant to the project. Membership of the committee must be approved by the Computer Science Research Support Committee. All members of the Honors committee must be present at the defense and must unanimously agree on conferral of Honors. Honors theses will be published by the Department as Technical Reports.

### Certificates in Computer Science

To earn a major certificate in computer science a student must fulfill all the requirements for the BA degree in computer science listed above.

To earn a minor certificate a student must take

- CS 110 (Introduction to Computer Programming)
- CS 210 (Intermediate Computing with Data Structures)
- CS 240, (Programming in "C")
- MATH 140
- CS 310 (Advanced Data Structures and Algorithms)
- One of the following three:
- CS 241 (Computer Organization and Architecture)
- either CS 260 (Numerical Computing) or a computer elective
- one applications course.

Students interested in these programs should consult the computer science information brochure available in the department (see also the "Computer Science Programs" section of this publication).

### Transfer Credit Policy

Students receiving transfer credit for mathematics courses taken at other institutions who wish to take more mathematics at UMass Boston at a level below MATH 141 may find that their placement test scores indicate that they must repeat courses for which they already have credit. If they do, they will forfeit the transfer credit. An alternative which entails no loss of credit is to audit the UMass Boston course as preparation for retaking the placement exam.

Transfer credit for AP calculus or more advanced work, or through CLEP is handled by the Admissions Office in cooperation with the department.

### Preparation in Fundamental Skills

The CAS Office of Academic Support Programs offers the two-credit courses MATHSK 097 and MATHSK 098 to prepare students for MATH 115 and to provide instruction in elementary mathematics. For details, consult the "Academic Skills" section of this publication.