Program overview

The Computer Science Master’s program provides graduates with a broad and deep knowledge of computer science by offering a strong core program with a wide selection of elective courses. The program maintains a balance between theory, systems, and applications, with emphasis on software development.

Our students gain the ability and confidence to use their knowledge by working on realistic scale projects within the graduate courses. Students are exposed to situations where they work as a member of a team as well as being individually responsible for an entire project; from problem specification to the completion of the solution. Additionally, students learn to conduct independent research and present their results in oral and written forms. Students graduate with the knowledge and skills required to develop and design high quality computer systems and application software. Students have the ability to follow the rapid changes in the field of Computer Science. As highly qualified professionals, our students are ready to compete for responsible positions in the computer industry, research institutions, government, or to pursue their education in PhD programs.

Faculty and principal areas of expertise

- **Balasubramanian, Ramprasad** Associate Professor, BSc 1989 University of Madras, India, MS 1991 University of Toledo, MSOperRes 1993 University of Kentucky, PhD 1999 University of South Florida. Specializations: computer vision, multi-vehicle coordination, distributed control, pattern recognition, artificial intelligence.
- **Bergandy, Jan** (Chairperson) Professor, MS 1976 Technical University of Poznan, MS 1976 Adam Mickiewicz University, PhD 1980 Technical University of Poznan. Specializations: object technology, distributed systems, software engineering.
- **Bergstein, Paul L** Associate Professor, BS 1978 SUNY College of Environmental Science and Syracuse University, MS 1981 Massachusetts Institute of Technology, PhD 1994 Northeastern University. Specializations: software engineering, programming languages, and database systems.
- **Khatib, Firas** Assistant Professor, BA 2001 University of California Berkeley, Ph.D. 2008, University of California Santa Barbara. Specializations: Bioinformatics, Citizen Science, Computational Biology, Distributed Computing, Protein Structure Determination/Prediction & Design, Machine Learning, and Molecular Dynamics.
- **Valova, Iren T** Professor, MSc 1991 Technical University, Sofia, Bulgaria, PhD 1997 Tokyo Institute of Technology. Specializations: artificial intelligence, neural networks, pattern recognition.
- **Xu, Haiping** Associate Professor, BS 1989 Zhejiang University, MS 1998 Wright State University, PhD 2003 University of Illinois at Chicago. Specializations: software engineering, distributed computing, multi-agent systems, and formal methods.

*Zhang, Xiaoqin Shelley* Associate Professor, BS 1995 University of Science and Technology of China, MS 1998, PhD 2002 University of Massachusetts Amherst. Specializations: multi-agent systems, intelligent agents, e-commerce.

Graduate Degrees and Program Requirements

**Computer Science Master’s program**

Applicants must submit the required application materials to the Office of Graduate Studies. In addition, they must submit GRE general scores. The personal statement should explain the candidate’s goals and objectives concerning his/her professional career.

Applicants should have a bachelor’s degree from an accredited institution (applicants who do not meet this criterion may also be considered for admission if they can demonstrate convincingly that they have the equivalent of a baccalaureate degree). In addition, they should demonstrate:

- Knowledge of program design in a high-level programming language (such as C, C++, Java)
- Knowledge of an assembly language, computer architecture, and operating systems
- Knowledge of software engineering
- Knowledge of mathematical analysis and elements of theoretical foundations of computer science and analysis of algorithms

**Degree requirements**

Candidates for the MS degree in CIS must complete a minimum of 30 semester hours of coursework, including three core courses, master project and six CIS elective courses. Graduate coursework comprises 500 and 600-level courses, although up to six credits of the total may be taken in advanced CIS undergraduate (400-level) courses. Candidates must pass the course CIS 599 graduate seminars for two semesters.

**Online MS program**

The Online MS in Computer Science program is a fully online program planned to allow students to graduate in four semesters. This Online program is designed to provide students an education equivalent to the education offered through our conventional MS program. Both programs have the same requirements. Our Online program requires a Master’s Project providing a culminating experience to every student by working one-on-one with a faculty member with expertise in the area of the student’s interest. UMass Dartmouth has been voted a Top Value school and the College of Engineering’s fully online MS in Computer Science program delivers on that value promise.

**Graduate Post-Baccalaureate Certificates**

A Post-Baccalaureate certificate offers working professionals recognition of a coherent program of advanced study at the graduate level. Each of our certificate programs is compatible with our MS degree requirements, enabling certificate recipients to transition to a degree program without loss of credits.

*more on other side*
Acceptance to a Certificate Program
Applicants must have an earned MS in an appropriate field. One applies for acceptance to a graduate certificate program through the Office of Graduate Studies. Applicants follow the procedures for graduate degree acceptance into the MS in Computer Science, using the certificate application. Thus, they submit a certificate application form and supply an essay and official transcripts of all post-secondary work. However, they are not required to submit GRE scores or recommendation letters.

A joint faculty committee will review applications for acceptance to this certificate program. One element in the review will be to assess whether a student has met the stated prerequisites and in general has the appropriate combination of background and experience to succeed in the program. It is possible for acceptance to be offered with a contingency that the student must also take one or more undergraduate prerequisite courses. See the General Catalogue for description and requirements on Computer Science, Computer Networks and Distributed Systems, or Software Development and Software Engineering Certificates.

BS/MS Undergraduate/Graduate Integrated Program Option in Computer Science
The Computer Science department offers an integrated program that allows qualified UMass Dartmouth undergraduate majors in Computer Science to proceed directly to the master’s degree program and complete both degrees with a reduction in overall credits required.

Financial Assistance
A number of teaching and research assistantships are available on a competitive basis. Additionally, other assistance, such as graduate assistantships, may be available.

Strengths/Highlights
The Computer Science department maintains two general-purpose Windows labs and one general purpose Linux lab. Students have free access to any of the open-source software and licensed software used in the department. Students also have free remote access to the lab machines at any time. The department maintains a high-performance computing cluster used for research. Students conducting research on parallel and distributed computing may utilize the computing cluster for advanced mathematical and network simulations. Specialized research labs are available for students working on projects in the areas of robotics, networking, parallel and distributed computing, databases.

Faculty Research
Computer Science faculty members are involved in research and professional activities in their research areas of expertise. From Year 2006 to 2011, CIS faculty members have been awarded over $2.3 million research grants from National Science Foundations, Department of Energy, Department of Defense, Office of Naval Research, Naval Undersea Warfare Center in Newport, Rhode Island, Commonwealth Information Technology Initiative, UMASS Dartmouth Foundation and companies from local computer industries. Computer Science faculty members actively served as conference chairs, co-chairs, program committee members and grant proposal reviewers for federal funding agencies.

Alumni and Outstanding Students
Alumni of UMass Dartmouth’s Computer Science graduate program are making an impact worldwide in the field. Many Alumni credit the education they received at UMass Dartmouth for helping them realize their success.

Joe Biron, who earned a bachelor’s degree in 2002, is an independent business owner now pursuing his master’s degree at UMass Dartmouth. “The computer science education I received prepared me with a deep background with computational theory and software engineering. The curriculum strikes a balance between fundamental concepts and contemporary skills and prepares the student with a foundation for ongoing learning in the ever-changing field of computer software.”

David Wilusz, who earned his master’s degree in 1995, feels that UMass Dartmouth gave him an in-depth understanding of several key areas, including compiler construction and operating systems architecture, and honed his programming skills. For many years after graduation, he worked as a software engineer in the Boston area. Wilusz earned an MBA from Babson College in 2006 and is now Vice President of Credit Products at Markit in New York City, a company that provides data and analytics to Investment banks and hedge funds. “Although no longer a software engineer, I still write code from time to time and the technical background I acquired at UMass Dartmouth continues to serve me well in solving complex technical and architectural issues.”

Thomas Silveria earned a master’s degree in 1996. His career has included jobs at Periphonics Corporation in Bohemia, NY; Lockheed Martin in a number of communities; and Raytheon in Portsmouth, RI. A senior software engineer, Silveria noted, “UMass Dartmouth’s Computer and Information Science Department will provide you with a world class education. All you have to do is apply yourself.”

Bhushan Bauskar received a master’s degree in 2004. He is a technical specialist at Citigroup Inc. in New York City. “I acquired and honed not only computer science skills, but also management and people skills that are assisting me immensely in my career. I am thankful to the department for providing such a strong foundation for my career.”

Jatin Patel and Bhavesh Shrestha earned master’s degrees in 2008. Patel is a database engineer at Microsoft in Redmond, WA, and Shrestha is employed by Vecna Technologies, Inc., in the Cambridge Research Laboratory, where he is researching artificial intelligence. Both said that their bright futures would not have been possible without the academic and financial support offered by the department.

Contact information
Dr. Xiaojin Shelley Zhang
Graduate Program Director, Computer Science
508-999-8294 | shelley.zhang@umassd.edu

Please forward all credentials to:
Office of Graduate Studies
UMass Dartmouth
285 Old Westport Road
Dartmouth, MA 02747-2300
508.999.8604, phone 508.999.8183, fax
graduate@umassd.edu | www.umassd.edu/graduate