Computer Science
Master of Science

The Department of Computer Science offers graduate study leading to the Master of Science degree, thesis and non-thesis options, a combined degree, and the Doctor of Philosophy in Scientific Computing (emphasizing the development of software, the science and the technology required to support Computational Science). The department is a part of the John D. Odegard School of Aerospace Sciences, which provides unique opportunities for research by faculty and graduate students. There is strong interest within the department in the areas of artificial intelligence, computer security, database, image processing, internet applications, networks, object oriented design, operating systems, simulation, software engineering, and theoretical computer science.

The mission of the Computer Science Department’s graduate program is to serve as a center for intellectual and educational development that promotes critical and logical thinking, and the mastery of a student focused Computer Science curriculum. The graduate program strives to give all students a solid foundation in the core areas of computer science, to prepare students for research and study beyond the master’s level, and to prepare students for careers in computing and software development.

In support of this mission, a curriculum has been developed which encourages a formal, abstract, theoretical, and practical approach to the study of computer science, while providing students with experience on state-of-the-art equipment. A number of hardware and software computing platforms are available to students.

**Goal 1:** Students will acquire a broad knowledge of theoretical and applied topics in computer science and develop communication skills.

**Goal 2:** Students will develop creative thinking, problem solving and research skills, and acquire expertise in a specific computer science domain.

**Admission Requirements**

1. Bachelor’s degree, normally in Computer Science.
2. Overall undergraduate GPA of at least 2.85.
3. Graduate Record Examination General Test or an undergraduate degree from a CSAB/ABET accredited degree program in Computer Science.
4. Satisfy the School of Graduate Studies’ English Language Proficiency requirements as published in the graduate catalog.
5. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

Applicants with a background in mathematics, science or engineering will also be considered if they are adequately prepared in the field of computer science.

Students who do not meet all of these prerequisites may be admitted in Qualified or Provisional status with the obligation of meeting the remaining requirements early in their graduate study.

**Degree Requirements**

Students seeking the Master of Science degree must satisfy all general requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Computer Science Department.
Required Core Courses - 12 credits (2 courses from each group):

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<th>Group 1</th>
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<tbody>
<tr>
<td>CSCI 522 Theoretical Foundations of Computer Science</td>
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<td>CSCI 532 High Performance Computing and Paradigms</td>
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<td>CSCI 565 Advanced Software Engineering</td>
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<td>CSCI 575 Analysis of Algorithms</td>
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<th>Group 2</th>
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<td>CSCI 513 Advanced Database Systems</td>
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<td>CSCI 551 Distributed Operating Systems</td>
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<td>CSCI 555 Computer Networks</td>
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Non-Thesis Option (32 credit hours):
1. The core of required courses (12 credits).
2. Six elective courses (18 credits). CSCI 500 Graduate Orientation and CSCI 566 Software Engineering Project may not be used as electives. Only three credits of CSCI 591 Directed Studies may be used as an elective.
3. CSCI 997 Independent Study, in a format suitable for publication (2 credits).
4. Successful completion of a written comprehensive examination in the four areas.
5. Preparation of an oral presentation of the study (CSCI 997 Independent Study) to the advisor, Graduate Program Committee, and interested faculty and students.

Thesis Option (30 credit hours):
1. The core of required courses (12 credits).
2. Four elective courses (12 credits). CSCI 500 Graduate Orientation and CSCI 566 Software Engineering Project may not be used as electives. Only three credits of CSCI 591 Directed Studies may be used as an elective.
3. Thesis (6 credits).
4. Successful completion of a written comprehensive examination in the four areas.
5. A final oral examination, which includes a defense of the thesis to the Faculty Advisory Committee, and interested faculty and students.

Faculty and Areas of Expertise
- Travis J. Desell, Ph.D., Programming Languages, Machine Learning, High Performance Computing, Scientific Computing
- Emanuel S. Grant, Ph.D., Domain-specific Modeling Languages, Formal Methods, Domain Analysis and Design, Requirements Engineering
- Wen-Chen Hu, Ph.D., Green Computing, Location-based Service, Hand-held Computing, Image Databases
- Eunjin Kim, Ph.D., Artificial Intelligence, Computational Intelligence, Fuzzy Logic, Relation System, Interval Computing, Soft Computing, Medical Computing, AI/CI in Medicine
- Thomas E. O'Neil, Ph.D., Natural Language Processing, Theoretical Computer Science, Programming Languages, Cognitive Sciences
- Hassan Reza, Ph.D., Software Architecture, System Engineering, Model Based Design and Testing, Cloud Computing, Service Oriented Architecture

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Deadlines apply. See our website for more details.

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