

# COMPUTER SCIENCE, MS

Roosevelt's Department of Computer Science and Information Technology offers a Master of Science in computer science. This program is designed for individuals who want to upgrade the knowledge they already have in this field of computer science or those who desire a career change.

Due to the rapidly changing nature of this field of study, credit for courses taken more than six years prior to the semester in which the graduate degree is to be granted will not be counted toward the degree. Students who have been active in the field may petition the CST Executive Committee for a possible waiver of this time limit.

## Academic Performance

An overall grade point average of B (3.0) or higher must be maintained in graduate-level courses with no more than two grades of C (see the Academic Standing (<http://catalog.roosevelt.edu/graduate/policies/academic-standing>) policy page in this catalog).

## Advising

Students are assigned a graduate advisor upon entry to the program so that they can map out a curriculum plan. Up to nine hours of graduate level credit may be transferred if they are approved by the CST department and not already used as part of any degree. Students should consult with their advisor every semester to get approval for the following term's course registration.

## Admission

Students do not need to have a bachelor's degree in computer science or mathematics to pursue these graduate programs and students with background or degrees in STEM fields often possess the prerequisite knowledge for graduate work in computer science. For those lacking the necessary foundational background, certain undergraduate courses may be needed. Students with any regionally accredited bachelor's degree and an undergraduate grade point average of at least 2.8 on a 4.0 scale are admitted. An applicant with a lower grade point average may be admitted at the discretion of the department.

The graduate degree in Computer Science is designed for individuals who want to upgrade the knowledge they already have in the field of computer science or those who desire a career change into one of these sought-after fields. With the wide selection of courses, this degree may be shaped as a professional master's degree as well as a step in pursuing a doctoral degree.

## Prerequisites

Graduate students will be continued in the program if they satisfactorily complete all prerequisite courses required of them with grades of C or higher, and with a B average in the computing courses, as well as any courses required of international students by the English Language Program. It is possible to make up any deficiencies after being admitted as a graduate student, but no credit toward the degree will be given for meeting these requirements. Students may enroll in prerequisite courses and certain graduate-level courses concurrently, provided the particular prerequisites for those graduate courses have been satisfied.

## Requirements

To earn the MS in computer science, students must complete all prerequisites and at least 33 credit hours of course work, including two required courses, three seminars, and four 400-level CST electives. Courses must be chosen in consultation with an advisor.

Any courses that were taken as part of the undergraduate program may not be repeated for graduate credit. Because of the rapidly changing nature of this field of study, computing courses taken more than six years ago cannot be counted towards degree requirements unless the student has been continuously registered during the timeframe in question (excluding summers).

Students may fulfill the capstone requirement either by completing graduate research and a master's thesis/project or by taking additional coursework and a comprehensive examination. Students who elect to complete a thesis or project must select a faculty mentor and register for CST 485 THESIS/PROJECT RESEARCH in their second-to-last semester. During the last semester, they must register for either CST 490 MASTERS THESIS or CST 499 MASTERS PROJECT.

## Prerequisite Courses

One course in mathematics equivalent to the Roosevelt course listed below:

MATH 245	DISCRETE STRUCTURES	3
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Three courses in computer science equivalent to the Roosevelt courses listed below:

CST 150	COMPUTER SCIENCE I	4
CST 250	COMPUTER SCIENCE II	4
CST 280	INTRODUCTION TO ALGORITHMS	3

## Requirements

### Core Courses:

CST 408	ADVANCED ALGORITHMS	3
CST 486	INFORMATION RETRIEVAL	3

### Seminar Courses

Select three of the following seminars: 9

CST 411	SEMINAR IN ARTIFICIAL INTELLIGENCE	
CST 412	SEMINAR IN THEORY OF COMPUTATION	
CST 413	SEMINAR: INFORMATION IN SOCIETY	
CST 455	GRADUATE SEMINAR	

### Electives

Select 4 Computer Science graduate courses as electives. 12

All CST graduate courses can be taken as an Elective and the set of courses offered varies from semester to semester, with special courses and topics often being offered.

CST 401	WEB SEARCH	
CST 402	CLOUD COMPUTING & RICH WEB APPLICATIONS	
CST 405	ALGORITHM DESIGN	
CST 406	BIG DATA	
CST 410	FORMAL LANGUAGES AND AUTOMATA	
CST 415	PARALLEL SYS & HIGH PERFORMANCE COMPUTING	

CST 421	DATA MINING	
CST 423	COOPERATION AND COMPETITION – GAME THEORY AND APPLICATIONS	
CST 444	O.O.P & WEB SERVICES	
CST 450	BOOLEAN ALGEBRA & SWITCHING	
CST 451	BIOINFORMATICS	
CST 466	CRYPTOGRAPHY	
CST 467	WEB-BASE DATABASE APPLICATIONS	
CST 471	DISTRIBUTED DATABASES	
CST 472	PROGRAMMING LANGUAGES	
CST 475	COMPUTER FORENSICS	
CST 476	DISTRIBUTED APPLICATIONS	
CST 478	PATTERN RECOGNITION	
CST 482	COMPUTER GRAPHICS	
CST 480	SPECIAL TOPICS	
CST 495	INDEPENDENT STUDY	
CST 4XX Any CST Course 400 or above		
Masters research followed by a thesis or project is recommended. Students must complete a minimum of 3 credits research followed by 3 credits for the thesis or project to meet this requirement. Alternatively, student can complete 6 credits of CST coursework plus a pass a comprehensive masters exam in their final semester. Students choosing the exam option must petition the program chair in writing during the first week of their final semester. <sup>1</sup>		6
CST 490	MASTERS THESIS	
CST 499	MASTERS PROJECT	
Two CST graduate electives		
Total Credit Hours		33

<sup>1</sup> Students may choose to take CST 485 THESIS/PROJECT RESEARCH Research in Section 4 above in their second-to-last semester and either CST 490 MASTERS THESIS or CST 499 MASTERS PROJECT with the same faculty mentor in their last semester as their capstone, or take two additional elective CST courses and petition to take the comprehensive exam in their last semester. Petitions to take the comprehensive exam must be submitted in writing to the department chair in the first week of the semester in which the student wishes to graduate. Comprehensive exams are not administered during the summer nor during any other shortened semester. The comprehensive exam includes questions from each course in the student's curriculum, though not all questions must be answered to pass the exam. The CST department can provide more information on this capstone option.

A student who has not completed a thesis or other final project must maintain continued registration during fall and spring semesters until completion of the project by registering for the appropriate zero-credit course (course number followed by "Y"). Students who have not maintained continuous registration for thesis or other final projects will be required to register for all intervening fall and spring semesters prior to graduation.