

Computer Science

Degree: Master of Science
Department: Computer Science
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College: Arts and Sciences

The Computer Science Department offers two graduate specializations: Computer Science (CS) and Software Engineering (SE). The CS specialization provides instruction in applied and theoretical computer science topics such as networks and communication devices, theory of computation, analysis of algorithms, programming languages, and operating systems. The SE specialization concentrates on software engineering concepts such as specification, design, and verification and validation. Both specializations prepare the student for either employment or doctoral level research work. Numerous local and regional companies and governmental agencies employ computer science students in cooperative education programs (co-op).

The Department annually awards several scholarships, fellowships, and out-of-state tuition waivers to new and returning students. The department also has limited opportunities for teaching/research assistantships and graders for new and returning students. Contact the department chairperson for information.

In addition to general University requirements, students seeking the M.S. in Computer Science must meet the requirements listed below.

Course descriptions are listed alphabetically by prefix in the back of this *Catalog*.

ADMISSION REQUIREMENTS

Applicants must hold an undergraduate degree from an accredited institution and have achieved a minimum GPA of 3.0 on a 4.0 scale. Applicants for either specialization should hold a degree in computer or information science or a related technical field. Candidates with undergraduate degrees in other disciplines may also be considered for admission, especially if they have significant work experience related to one of the graduate programs.

Applicants must provide a completed University application, GRE scores that are not more than 5 years old, three letters of recommendation, and a letter of intent stating the goals of the applicant. Applicants are required to achieve a minimum score of 500 on both the verbal and quantitative sections of the GRE and an aggregate score of at least 1100. International applicants must also satisfy the University TOEFL requirement (see the International Student admission section of the *Catalog*).

Completed applications for admission for the fall semester are due by the preceding March 1; spring semester by October 1. Applications for academic year financial aid are due by the preceding March 1. The department does not ordinarily admit new students in the summer term.

Non-degree students may be given a tentative degree plan by the graduate director. Upon admission to the program, students may petition the department chairperson to count up to 12 semester hours of graduate level course work taken while enrolled as a non-degree student towards their graduate degree.

Graduate students develop a degree plan with the graduate director before or during their first semester of graduate work. All students must complete University

requirements and a planned degree program with a 3.0 cumulative grade point average and a minimum grade of “C” in all core courses. Students electing to write a thesis for either specialization take 24 semester hours of graduate courses, 6 semester hours of thesis, and must pass an oral examination concerning the contents of their thesis. Students electing the project specialization must take: for the CS specialization, 33 semester hours of course work and a 3 semester hour project course; or for the SE specialization, 30 semester hours of course work and a 6 semester hour project course.

4000-6000 level courses (CAP, CDA, CEN, CIS, COP and COT) are acceptable electives. Project courses in the non-program specialization of a student are not acceptable electives. Up to 6 semester hours of 4000-6000 level electives that further the objectives of an individual program may also be chosen from the offerings of other departments with the approval of the graduate director and the chairperson of the Computer Science Department.

COMPUTER SCIENCE SPECIALIZATION

FOUNDATIONAL PROFICIENCIES

CDA	3100	Microprocessor Systems	3
CEN	3031	Introduction to Software Engineering	3
CEN	4516	Computer Networks	3
COP	4020	Programming Languages	3
COP	4600	Operating Systems	3
COP	4601	Software Systems	3
COT	4400	Analysis of Algorithms	3
COT	4420	Theory of Computation	3

The graduate director will construct an initial degree plan and recommend an appropriate sequencing of prerequisites, or additional courses, if needed.

DEGREE REQUIREMENTS

Computer Science Core:

CDA	6158	Advanced Computer Architecture	3
CEN	6064	Software Design	3
CEN	6520	Advanced Computer Networks	3
COP	6025	Advanced Programming Languages	3
COP	6611	Advanced Computer Operating Systems	3

Computer Science Specialization:

CAP	5600	Introduction to Artificial Intelligence	3
COT	6415	Computation & Complexity	3

Approved electives (chosen in consultation with advisor)

With thesis option	3
With project option	12

Choose one:

CIS 6971 Thesis 6
Course offered 1-6 sh per semester

COT 6931 Computer Science Project 3

SOFTWARE ENGINEERING SPECIALIZATION

FOUNDATIONAL PROFICIENCIES

CDA 3100 Microprocessor Systems 3

CEN 3031 Introduction to Software Engineering 3

CEN 4516 Computer Networks 3

COP 4020 Programming Languages 3

COP 4600 Operating Systems 3

COP 4601 Software Systems 3

COP 4710 Database Systems 3

The graduate director will construct an initial degree plan and recommend an appropriate sequencing of prerequisites, or additional courses, if needed.

DEGREE REQUIREMENTS

Computer Science Core:

CDA 6158 Advanced Computer Architecture 3

CEN 6064 Software Design 3

CEN 6520 Advanced Computer Networks 3

COP 6025 Advanced Programming Languages 3

COP 6611 Advanced Computer
Operating Systems 3

Software Engineering Specialization:

CEN 6070 Software Testing & Verification 3

CEN 6075 Software Specification
& Implementation 3

Approved electives (chosen in consultation with advisor)

With thesis option 3

With project option 9

Choose one:

CEN 6015 Software Engineering Project 6
(3 sh taken for 2 semesters)

CIS 6971 Thesis 6
Course offered 1-6 sh per semester