Faculty

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Specialties: graph theory and graph algorithms, combinatorial, discrete, and computational geometry, discrete mathematics, number theory

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Specialties: high performance parallel and distributed systems, high-speed data communication systems

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Specialties: artificial intelligence, linguistic geometry, software engineering

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How do I learn more?
For applications, advising appointments, and other administrative information about graduate programs contact:
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Is this program for me?
The Master of Science in Computer Science degree prepares students for creative work in computer science including the areas of software and computer engineering, the interrelationship of hardware and software, and the theory and practice of good software design methodologies. Areas of research in the department include the following:

- algorithms
- artificial intelligence
- computational biology
- computer architecture
- computer graphics
- computer networks
- computer security
- human–computer interaction
- linguistic geometry
- machine learning
- operating systems
- parallel and distributed processing
- simulation
The Department of Computer Science and Engineering offers two graduate degrees: the Master of Science degree in Computer Science, and a Ph.D. in Computer Science and Information Systems. A joint program with the UC Denver Business School.

The department is dedicated to the pursuit of scholarly excellence in both research and teaching, as well as an ethical and compassionate academic environment in which to sustain it. Students will find the department maintains modern research laboratories in the areas of parallel and distributed systems, graphics, distributed computing and networking. For a more detailed description of the Department of Computer Science and Engineering, degree programs, faculty and their research interests, and much more, visit the departmental website at engineering.ucdenver.edu/cs.

The Master of Science degree in Computer Science

Applicants should hold a bachelor’s degree from an institution comparable to the University of Colorado. They need to have sufficient programming experience and mathematical maturity to understand advanced courses. Qualified applicants holding a degree outside Computer Science, Computer Engineering or equivalent fields may need to take additional undergraduate courses before starting the graduate program. Admission decisions are based on prior academic performance, letters of recommendation, and English proficiency if applicable, as well as the applicant’s written statement of purpose.

Additional requirements include:
(1) University-level Calculus I and Calculus II (equivalent to two semesters); and
(2) at least one math course beyond Calculus, such as Advanced Calculus, Differential Equations, Linear Algebra, Probability, Statistics, or Combinatorial Analysis.

Students lacking some of these requirements, whose background is otherwise satisfactory, might be admitted with the understanding that the certain undergraduate courses have to be completed after admission.

Required GPA

Applicants should have a grade point average (GPA) of at least 3.0.

English Proficiency

International Students must take TOEFL. English Proficiency exam and score a minimum of 525 in a paper based test, 197 in a computer based test (CBT) or 71 in an internet based test (IBT).

Students can also satisfy the English language requirement by scoring 6.0 or higher in an IELTS test.

Transfer Credit

A maximum of 9 semester hours of graduate coursework may be transferred into the program, based on department approval.

General MS Degree Requirements

In addition to basic University of Colorado requirements, the Department of Computer Science and Engineering requires master’s degree candidates to complete an approved program of study consisting of 30 semester hours of graduate-level courses, while maintaining a minimum 3.0 GPA.

Students must submit an approved Plan of Study to the department during the first semester of their enrollment. An academic advisor will consult with each student to develop a plan of study. Students may choose either Plan I, the thesis option, or Plan II, the MS Project option.

Plan I — Thesis

- Students take 24 hours of graduate coursework, plus 6 hours of thesis work.
- Students write and defend a thesis.
- Students are required to complete at least 33 hours of CS Independent Study.

Plan II — MS Project

- Students take 27 hours of graduate coursework.
- Students are required to complete at least 3 credit hours of CS Independent Study.
- For detailed program description, please contact the Department of Computer Science and Engineering at 303-556-4314.

Graduate Courses in Computer Science

Master’s of Science students will take graduate computer science (CSCI) courses in three categories: Category A (“core”), Category B (“breadth”), and Category C (“other”).

Only courses passed with at least a B are counted toward satisfying the mandatory requirement of at least three courses in the “core” category and at least three courses in the “breadth” category.

Category A (“core”)

CSCI 544: Theory of Automata
CSCI 545: Algorithms
CSCI 558: CSCI 7582
Artificial Intelligence

Category B (“breadth”)

CSCI 559: Advanced Computer Architecture
CSCI 5573: Operating Systems (Prerequisite: CSCI 3412 & CSCI 3415)
CSCI 5574: Operating Systems (Prerequisite: CSCI 3433 or CSCI 5573)

Note: Students may take and apply only one of CSCI 5573 or CSCI 5574/7574 toward satisfying Category A. The second operating systems course may be applied to courses for Category B. Courses taken in Category A in exams of the required three, may be counted in Categories B and C.

Category C (“other”)

Take at least three additional graduate-level CSCI courses, taught by regular full-time CSE faculty members. The courses available vary from semester to semester.

Note: Courses taught by other than regular full-time CSE faculty are explicitly excluded from Categories A and B but may fall into Category C.

Remaining courses may be any other graduate courses consistent with departmental, College of Engineering, and Graduate School rules. Examples include, but are not limited to, CSCI 695x Thesis, CSCI 6840 Independent Study, CSCI 5728 Software Engineering, CSCI 5559 Databases, and appropriate graduate Mathematics courses.

For further details, and for all course listings, please refer to the Computer Science Graduate Program Handbook found online at engineering.ucdenver.edu/cs.

The PhD CIS Program

The Computer Science and Information Systems (CIS) PhD at UC Denver is an interdisciplinary program designed to support innovative and interdisciplinary computing research across all disciplines impacting engineering, sciences, business and health. The program covers a broad spectrum of core fundamentals as well as applied aspects including those of interdisciplinary nature. Students in the program are involved in research on real-world technological problems of the modern society. For more information and application please visit engineering.ucdenver.edu/CSSPPhD.

The program is run jointly by the Computer Science and Engineering Department of the College of Engineering and Applied Science and Information Systems program of the School of Business.

What are your PhD admission requirements?

Prospective students are encouraged to apply through the CSE Department. Visit the department’s website or the website of the doctoral program for details of the application process.

PhD Program Component

Preliminary Exam:

Each student must select and pass an exam in three subject areas out of a total of four possible areas:
- Algorithms
- Architecture
- Computational Theory
- Operating Systems

Comprehensive Exam:

Students will submit a paper to fulfill the comprehensive exam requirement. The paper should describe an area of research including literature review, problem definition, and possible methodologies/models to study a significant problem in computer science or information systems.

Dissertation Proposal:

As the first phase of the dissertation, a student submits a proposal that will be evaluated by the doctoral committee. A proposal should be ready for review at least one semester before the expected completion date of degree.

Dissertation:

Following completion of the approval of the dissertation proposal, a student submits a dissertation. The dissertation is defended before the doctoral committee in a public meeting.

General PhD Degree Requirements

Hours needed are 30 hours of CSIS courses + 30 hours of dissertation work. The coursework provides exposure to advanced CSIS areas, as well as a solid research methodology background and breadth in other areas of CSIS. You may transfer a maximum of 15 hours to satisfy course. UCD students attending either CS or IS for their masters degree and continuing to CSIS PhD program may transfer up to 21 credit hours based on the recommendation of their PhD advisor. Transfers of credit hours are subject to approval by the program’s directors.