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Computer Science, M.S.



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The Master of Science degree program in Computer Science is designed to prepare a person for a career in the computing field. Areas of emphasis in the program include: artificial intelligence; big data analytics; cloud and heterogeneous computing; computer graphics and virtual reality; computer systems and architectures; data mining and information retrieval; distributed and parallel computing; health and bioinformatics; machine learning; programming languages and software engineering; networks and mobile computing; and security.

Three tracks are offered in the program: coursework, project, and thesis. The program offers two delivery modes for the coursework track, allowing students to pursue the degree via either the traditional face-to-face semester format or the 100% online format with the majority of the courses offered as accelerated eight-week courses. The project and thesis track are offered only in the traditional face-to-face delivery mode. New students in the traditional, face-to-face semester mode of delivery may begin the program only in the terms that correspond with the start of a regular Fall, Spring, or Summer semester. New students pursuing the online mode of delivery may begin the program in any of the 5 eight-week terms, however they must be admitted prior to the start of the corresponding Fall, Spring, or Summer semester.

Admission and Prerequisites

In addition to the general admission requirements of the Graduate School, admission to the Master of Science degree program in Computer Science requires that the four-year, undergraduate bachelor's degree be in computer science, computer or electrical engineering, math, physics, or a related field of study.

Students admitted to the program are expected to have knowledge of certain undergraduate computer science topics, including computer architecture, programming languages, operating systems, and database management systems. Additionally, software design and data structures, assembly language programming, and discrete mathematics and logic design are regarded as prerequisites for admission to graduate study in computer science. Foundation work will be required of students who enter with an inadequate background in these areas and may require completion of CMPS 430G or CSCE 530, CMPS 450G or CSCE 550, CMPS 455G or CSCE 555, and CMPS 460G or CSCE 561 or CSCE 566. The 400G courses are offered only via traditional, face-to-face semester delivery and not via online delivery. If required, no more than 6 semester hours of 400G-level foundation coursework may be applied toward the degree.

Computer-related mathematics is also regarded as a prerequisite for admission. It is expected that those admitted will have completed, at minimum, two undergraduate courses in college-level differential and integral calculus as well as one course in applied statistics and probability.

Course Requirements

Students pursuing the MS degree program in Computer Science pursue one of three tracks:

- Coursework track: a student must complete 33 semester hours of graduate course work. (Note: All students pursuing the degree via online delivery are required to follow the coursework track.)
- Project track: a student must complete 33 semester hours of which 3 hours are special project credit CSCE 590.
- Thesis track: a student must complete 24 hours of course work and must earn 6 hours of thesis credit CSCE 599.

These degree requirements may increase up to 12 additional semester hours (foundation courses) depending on the undergraduate courses previously completed. If required, no more than 6 semester hours of 400G-level foundation coursework may be applied toward the degree. The 400G courses are

hours of 400G-level foundation coursework may be applied toward the degree. The 400G courses are offered only via traditional, face-to-face semester delivery and not via online delivery.

Foundation Courses

- CMPS 430G or CSCE 530
- CMPS 450G or CSCE 550
- CMPS 455G or CSCE 555
- CMPS 460G or CSCE 561 or CSCE 566

Coursework Track (33 Hours)

- CSCE 500 – Design and Analysis of Algorithms **3 Credit(s)**.
- 18 hours of additional 500-level lecture CSCE courses (NOTE: 500-level lecture classes include all 500-level classes listed in the catalog with the exception of CSCE 500, CSCE 590, CSCE 591, CSCE 595, and CSCE 599.)
- 12 hours of elective CSCE courses (excludes CSCE 590, CSCE 599, and CSCE 699). May include 6 hours of 400G-level CMPS foundation courses.

Project Track (33 Hours)

- CSCE 500 – Design and Analysis of Algorithms **3 Credit(s)**.
- 18 hours of additional 500-level lecture CSCE courses (NOTE: 500-level lecture classes include all 500-level classes listed in the catalog with the exception of CSCE 500, CSCE 590, CSCE 591, CSCE 595, and CSCE 599.)
- 9 hours of elective CSCE courses (excludes CSCE 590, CSCE 599, and CSCE 699). May include 6 hours of 400G-level CMPS foundation courses.
- CSCE 590 – Special Project **3 Credit(s)**.

Thesis Track (30 Hours)

- CSCE 500 – Design and Analysis of Algorithms **3 Credit(s)**.
- 15 hours of additional 500-level lecture CSCE courses (NOTE: 500-level lecture classes include all 500-level classes listed in the catalog with the exception of CSCE 500, CSCE 590, CSCE 591, CSCE 595, and CSCE 599.)
- 6 hours of elective CSCE courses (excludes CSCE 590, CSCE 599, and CSCE 699). May include 6 hours of 400G-level CMPS foundation courses.
- CSCE 599 – Thesis Research and Thesis **3 Credit(s)**.

Notes

All tracks must complete three semesters of graduate seminar CSCE 595 – Graduate Seminar, a one-hour current research and results seminar course. These courses are not applicable to the graduate degree requirements above.

Students must receive a grade of B or better in any course applicable toward the degree.

Six hours of 600-level CSCE courses (with the exception of CSCE 699) may be taken and applied toward the degree as elective coursework provided that all other requirements are met.

Six hours may, with the approval of the Graduate Coordinator, be taken in a related discipline other than computer science.

Students enrolled in the online Master of Science in Computer Science will only be allowed to enroll in the online sections of CSCE courses, while students in the traditional program will only be allowed to enroll in the traditional face-to-face sections of CSCE courses. In rare cases, exceptions to this rule will be granted by the Graduate Coordinator after review by the School of Computing and Informatics.

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