Master of Computer Science, M.C.S.

The Master of Computer Science (M.C.S.) is a course-based, nonresearch program for students who wish to enhance their careers with advanced knowledge of computer science. Current and prospective graduate students should consult the Computer Science Graduate Handbook, available from the department’s office and its website. The handbook provides detailed information about specific degree requirements, such as required courses, examinations, and dissertation requirements.

Requirements

The Master of Computer Science (M.C.S.) requires a minimum of 32 s.h. of graduate credit, including at least 24 s.h. earned at the University of Iowa. Basic M.C.S. requirements are as follows. Consult the Computer Science Graduate Handbook for detailed information about M.C.S. requirements and graduate study policies.

Foundations

One of these:
- CS:4330 Theory of Computation 3
- CS:5340 Limits of Computation 3
- CS:5350 Design and Analysis of Algorithms 3

Systems

One of these:
- CS:5610 High Performance Computer Architecture 3
- CS:5620 Distributed Systems and Algorithms 3
- CS:5810 Formal Methods in Software Engineering 3
- CS:5850 Programming Language Foundations 3

Colloquium

Students must earn at least 2 s.h. in this course:
- CS:6000 Research Seminar: Colloquium Series (must enroll at least twice for 1 s.h. each) 2

Electives

Computer science, reading and project, and non-computer science courses approved by advisor 24

Electives

Students complete eight additional courses, totaling at least 24 s.h., composed of computer science graduate courses, reading and project courses, and non-computer science graduate courses approved by their advisor. Of those eight courses, at least six must be computer science graduate courses (18 s.h.) numbered 4000 or above, which may not include CS:5990 Individualized Research or Programming Project, CS:6000 Research Seminar: Colloquium Series, CS:6990 Readings for Research, and CS:7990 Research for Dissertation.

The remaining two elective courses (at least 6 s.h.) may include technical or quantitative graduate courses outside of computer science, with the advisor’s approval. Students also may include up to 3 s.h. earned in independent study courses (CS:5990 Individualized Research or Programming Project or CS:6990 Readings for Research).

Software Engineering Subprogram

The Department of Computer Science, with the Department of Electrical and Computer Engineering, offers a M.C.S. subprogram in software engineering. Students receive a software engineering subprogram designation on their transcript after they complete CS:5800 Fundamentals of Software Engineering, CS:5810 Formal Methods in Software Engineering, CS:5820 Software Engineering Languages and Tools, and CS:5830 Software Engineering Project, and earn their M.C.S. degree. Students should meet with the academic services coordinator to file the appropriate paperwork when they apply for degree, if they did not originally declare their intent to complete the software engineering subprogram.

Admission

Admission decisions are based on prior academic performance, letters of reference, and the applicant’s statement about background and purpose. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College.

Career Advancement

M.C.S. students pursue software design and development careers in the technology sector, including UIX, mobile, and web development. Recent graduates hold positions at technology giants such as Microsoft, Google, Yahoo, or Intel, while others have taken positions in internationally established organizations whose primary business lies in the consulting, financial, health care, insurance, or media/entertainment sectors. A few M.C.S. students enter the start-up market or pursue additional graduate education leading to the Ph.D. at the University of Iowa or elsewhere.