

# Master of Computer Science, MCS

## Requirements

The Master of Computer Science (MCS) requires a minimum of 32 s.h. of graduate credit, including at least 24 s.h. earned at the University of Iowa. Students must maintain a UI cumulative grade-point average of at least 2.75. Consult the Computer Science Graduate Handbook for detailed information about MCS requirements and graduate study policies.

The Master of Computer Science requires the following coursework.

## Theory

Course #	Title	Hours
One of these:		
CS:4330	Theory of Computation	3
CS:4350	Logic in Computer Science	3
CS:4980	Topics in Computer Science II (if topic is approved by the director of graduate studies)	3
CS:5340	Limits of Computation	3
CS:5350	Design and Analysis of Algorithms	3
CS:5360	Randomized Algorithms	3
CS:5370	Computational Geometry	3
CS:5850	Programming Language Foundations	3
CS:5860	Lambda Calculus and Applications	3

## Algorithms

Course #	Title	Hours
This course:		
CS:4310	Design and Implementation of Algorithms	3

## Colloquium

Students are graded on a satisfactory/unsatisfactory (S/U) basis. They must attend at least 80% of scheduled talks to earn a satisfactory grade in the course.

Course #	Title	Hours
This course:		
CS:6000	Research Seminar: Colloquium Series (taken twice for 1 s.h. each)	2

## Electives

Students complete their remaining 24 s.h. (eight additional courses) with a combination of computer science graduate courses, research and project courses, and non-computer science graduate courses approved by their advisor. The choice of electives must satisfy the following constraints.

- At least six courses (18 s.h.) must be classroom-based computer science graduate courses numbered 4300 or above, excluding CS:5110 Introduction to Informatics,

CS:5990 Individualized Research or Programming Project, CS:6000 Research Seminar: Colloquium Series, CS:6990 Readings for Research, and CS:7990 Research for Dissertation.

- At most, one offering of CS:5990 Individualized Research or Programming Project may be taken. This course is an excellent option for students interested in exploring an area in computer science beyond that provided by computer science classroom-based courses. Students interested in pursuing a PhD usually benefit from taking CS:5990.
- At most, two technical courses (approved by the advisor) that are not computer science graduate courses may be taken. For students who want to take courses outside the department, those in mathematics, statistics, electrical engineering, industrial engineering, and management sciences are some popular options. Students may also include one computer science course taken during their first year in the MCS program from these: CS:3620 Operating Systems, CS:3640 Introduction to Networks and Their Applications, or CS:3820 Programming Language Concepts.

## Software Engineering Subprogram

The Department of Computer Science, with the Department of Electrical and Computer Engineering, offers an MCS 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 MCS degree. Students should meet with the academic services coordinator to file the appropriate paperwork when they apply for the degree if they did not originally declare their intent to complete the software engineering subprogram.