COMPUTER SCIENCE, MS

The MS in Computer Science program is a rigorous graduate program designed to meet the needs of any student wishing to gain advanced understanding of the principles and practices needed to harness the power of computing to help society and the world. The program can be a stepping stone on the way to further studies and the pursuit of advanced research, such as can be obtained by pursuing the PhD. Or the program can provide a pathway to professional advancement through greater technical knowledge and intellectual maturity.

Tracks

The Master of Science in Computer Science (MSCS) degree offers a regular track and a professional track. The regular track is designed to prepare students for PhD research in Computer Science. The professional track is designed to prepare students, possibly with undergraduate majors other than computer science, for success in their industrial careers. Students in the professional track are not eligible for financial aid from Computer Science department.

- MSCS Regular Track
- The Professional Track

Requirements

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines/) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines/).

Credits and Courses

MSCS Regular Track

An applicant must meet Graduate School requirements to be considered for admission. Additionally, the applicants must meet either of the following program requirements:

- Undergraduate major in Computer Science.
- Satisfactory completion of two programming courses (such as COMPSCI 250 and COMPSCI 251); at least 6 additional credits of coursework in CS; and one course in calculus (such as MATH 211 or MATH 231).

Applicants must also submit a reason statement explaining reasons for graduate study, specific interests, and background.

Applicants without sufficient Computer Science background are encouraged to apply to the professional track. Applicants not admitted to the regular track may be offered admission to the professional track instead. Applicants may be admitted with specific program-defined course deficiencies provided that the deficiencies amount to no more than two courses. The student is expected to satisfy deficiency requirements within three enrolled semesters. The deficiencies are monitored by the Graduate School and the individual graduate program unit. No course credits earned in making up deficiencies may be counted as program credits required for the degree.

The student must have taken five Computer Science courses (specified below) or their equivalents prior to completion of the MS Program. Appropriate courses taken by a student in another program that are considered equivalent to the courses below can be used to satisfy this requirement with the approval of the Department. The five courses are:

Code	Title	Credits
COMPSCI 317	Discrete Information Structures	4
COMPSCI 351	Data Structures and Algorithms	4
COMPSCI 458	Computer Architecture	3
COMPSCI 535	Algorithm Design and Analysis	3
COMPSCI 537	Introduction to Operating Systems	3
Total Credits		**17**

All students must submit an approved Undergraduate Requirements Assessment (which explains how the requirement will be met) prior to registering for any courses.

The students in the regular track must write a thesis or complete a capstone project.

Thesis Option

The minimum credit requirement is 30, comprising:

Code	Title	Credits
EAS 701	Effective Academic Writing	1
EAS 702	Preparing Future Engineering Faculty & Professionals	2
Select 15 additional credits of 700 or higher level courses, including 9 credits of courses listed in the Qualifying Examination Day 2 Syllabus [1]		15
Select 6 credits of additional courses that carry graduate credit [1]		6
Take 6 credits:		6
COMPSCI 990	Masters Thesis	
Total Credits		**30**

[1] Excluding COMPSCI 990.

All courses must be approved in the Program of Study, which must not include any more than one credit of COMPSCI 870. The student must not register for more than 4 credits of COMPSCI 990 in any one semester. The student must write an acceptable thesis under the supervision of a faculty advisor and pass a final comprehensive examination, which will normally focus on the thesis. Once a student begins a thesis under the supervision of an advisor, the graduate program director must approve any change to a new thesis advisor.

Capstone Option

The minimum credit requirement is 31, comprising:

Code	Title	Credits
EAS 701	Effective Academic Writing	1
COMPSCI 995	Master's Capstone Project	3
Select 18 additional credits of 700 or higher level courses, including 9 credits of courses listed in the Qualifying Examination Day 2 Syllabus		18
Select 9 credits of additional courses that carry graduate credit		9
Total Credits		**31**

The student must complete a capstone project under the supervision of a faculty advisor and pass COMPSCI 995 with a grade of B or better. COMPSCI 700 may be used as a substitute for EAS 701, but may not otherwise be used to meet credit requirements. EAS 702 may not be used to meet credit requirements. No more than one credit in COMPSCI 870 can be used to satisfy program requirements.

The Professional Track

An applicant must meet Graduate School requirements to be considered for admission. We expect that students admitted to the professional track will have knowledge of computer programming to the extent of COMPSCI 250 and COMPSCI 251. Applicants can demonstrate this knowledge via academic coursework or online courses. Applicants can also explain in their Statement of Purpose if they gained this knowledge via work experience. All admitted students are assigned a placement level concerning their knowledge of computer programming. The students may be required to take COMPSCI 250 and/or COMPSCI 251 (or equivalents) based on their placement level.

The student must demonstrate knowledge equivalent to the following four Computer Science courses prior to completion of the MS Program:

Code	Title	Credits
COMPSCI 317	Discrete Information Structures	4
COMPSCI 351	Data Structures and Algorithms	4
COMPSCI 535	Algorithm Design and Analysis	3
COMPSCI 537	Introduction to Operating Systems	3
or COMPSCI 431	Programming Languages Concepts	
Total Credits		**14**

This requirement can be met in one of the following ways:

- A grade of "C-" or better in these courses or equivalent CompSt courses.
- Passing the sufficiency exams offered by the department.
- Prior academic coursework approved by the academic advisor (not available for COMPSCI 351).

Graduate credits earned while taking these courses as a graduate student may be used to meet the credit requirements of the program. All students must submit an approved Undergraduate Requirements Assessment (which explains how the requirement will be met) prior to registering for any courses.

The minimum credit requirement is 31 graduate credits, comprising:

Code	Title	Credits
EAS 701	Effective Academic Writing	1
Select at least 15 credits of 700-level (or higher) CompSci courses, including at least 3 credits from courses designated integrative		15
Select up to 9 graduate credits of courses from a pre-approved list of non-CompSci courses considered useful for professionals in CompSci-related industries		9
Select the remaining credits from graduate-level or U/G-level CompSci courses		6
Total Credits		**31**

Up to 12 credits of prior graduate-level course work (including up to 6 credits of prior graduate-level Computer Science courses) can be used to meet the credit requirements. COMPSCI 700 may be used as a substitute for EAS 701, but may not otherwise be used to meet credit requirements. EAS 702 may not be used to meet credit requirements. No more than one credit in COMPSCI 870 may be used to meet the requirements. All courses must be approved in the Program of Study. Any non-CompSci courses must be approved prior to registration.

Industrial Internship

With faculty advisor's approval, one credit per semester of COMPSCI 999 may be satisfied with a supervised industrial internship for a maximum of three credits.

Additional Requirements

Major Professor as Advisor

The student is assigned an initial faculty advisor at the time of admission. The student selects a faculty member as a thesis or capstone advisor, respectively, as they follow the regular or professional track, after consultation with that faculty member. Any change in faculty advisor requires the documented permission of the new faculty member and the Department. An initial Program of Study with student, advisor and Department approval should be completed prior to the completion of 9 credits in the program. The final Program of Study must be approved by the thesis or capstone advisor, as appropriate.

Switching between Tracks

A student in the regular track may switch to the professional track at any time. However, such a student will no longer be eligible for research/teaching/project assistantships or any other financial aid from the Computer Science department. A student switching to the professional track may need to take the equivalent of COMPSCI 351. A student admitted under the professional track may switch to the regular track after completing at least 9 credits of 700-level CompSci courses or COMPST 751 with at least 3.5 cumulative GPA. Note that not all courses acceptable under the professional track may be acceptable under the regular track.

Financial Aid

Students enrolled in the professional track are not eligible for financial aid from the Computer Science department including research assistantships, teaching assistantships, project assistantships, fellowships and/or tuition waivers. However, such students are still eligible for financial aid available elsewhere on the campus.

Time Limit

All students must complete the degree requirements within five years of initial enrollment.

Computer Science MS Learning Outcomes

Students graduating from the Computer Science, MS program will be able to:

- Demonstrate knowledge of advanced technical material in computer science.

Additionally, students doing a master's thesis will:

- Demonstrate the ability to do research in computer science.