

MASTER OF SCIENCE IN COMPUTATIONAL SCIENCE AND ENGINEERING

The Master of Science in Computational Science and Engineering (CSE) Program is an interdisciplinary program offered by the College of Computing, the College of Engineering, and the College of Sciences. The CSE program addresses the body of knowledge, skills, and practices associated with the study of computer-based models of natural phenomena and engineered systems. Students will be required to obtain a breadth of knowledge across a set of core areas in the CSE discipline, depth of knowledge in a specific computational specialization (e.g., numerical computing), and knowledge to apply computational techniques in a domain of application. Students will be expected to integrate principles from mathematics, computer science, and engineering to be able to create significant computational artifacts (e.g., software).

Code	Title	Credit Hours
Core Curriculum		
Select four of the following:		12
CSE/MATH 6643	Numerical Linear Algebra	
CSE 6140	Computational Science and Engineering Algorithms	
CSE 6730	Modeling and Simulation: Foundations and Implementation	
CSE/ISYE 6740	Computational Data Analysis: Learning, Mining, and Computation	
CSE 6220	High Performance Computing	
Minor		
Select a specialization minor that includes one applications area. ¹		6
Select at least six hours of non-CS/CSE courses.		6
Course or Thesis Option		
Select one of the following: ²		6
	Course Option	
	Thesis	
Total Credit Hours		30

¹ A specialization minor is required consisting of twelve hours of coursework relevant to the CSE discipline that includes one applications area; this must include at least six hours of courses that do not carry the CS/CSE course designation.

² Students must either complete 6 additional hours of approved coursework (course option) or an MS thesis (thesis option) that is defended to the student's thesis committee who is responsible for overseeing the student's research. Students must acquire the approval of their proposed program of study in their first semester of enrollment in the CSE program from both the student's home unit coordinator and the CSE program director.

Shared Credit Agreement with Master of Science in Quantitative and Computational Finance and Master of Science in Computational Science and Engineering

The Master of Science in Quantitative and Computational Finance (MSQCF) and Master of Computational Science and Engineering (MSCSE)* Shared Credit Agreement allows for students admitted through the agreement to double-count 12 credits between both degree programs, for a total of 54 credits to earn both degrees. The double-counting will take place between the QCF Targeted/Free electives and the CSE home unit Application Specialization electives. The two QCF targeted electives will count as two of the CSE Application Specialization electives and the remaining two Application Specialization electives will count as two of the QCF free electives.

After completion of one semester of the program to which they have been admitted, students with a 3.5 GPA or above are eligible to apply through an internal application process to be evaluated for admission to the other program. (Special consideration may also be given to students admitted to both programs for their first term.) There is no penalty for not completing either degree should a student wish to drop the added major at a later point.

*Note: Industrial and Systems Engineering (ISYE) and Computational and Science Engineering (CSE) are the only home units of the MSCSE degree that are participating in the Shared Credit Agreement. The other home units are not participating at this time.