

# COMPUTER SCIENCE (M.S.)

<https://ceps.unh.edu/computer-science/program/ms/computer-science>

## Description

The M.S. program is designed to help students increase the breadth and depth of their computer science knowledge, strengthen their software development skills, and build their research skills. Professionally-oriented students often complete industry internships, and the program has an outstanding job placement record for its graduates. Research-oriented students complete an M.S. thesis under the guidance of a faculty mentor, which usually leads to publication and provides clear evidence of the developed research skills useful for obtaining a leadership position in industry or to go on to do a Ph.D. Applications are welcomed from students whose undergraduate degree is not in computer science. In this case, a well-defined set of undergraduate prerequisites must be completed as part of the M.S. program of study.

## Requirements

The M.S. program has three options: thesis, project, and exam.

### M.S. Thesis Option

Code	Title	Credits
CS 900	Graduate Seminar	1
Select eight CS graduate courses of at least 3 credits each <sup>1</sup>		24
CS 899	Master's Thesis <sup>2</sup>	6
<b>Total Credits</b>		<b>31</b>

- <sup>1</sup> The courses must satisfy the following requirements:
- Two courses must be implementation intensive (see list below)
  - All students must take CS 845 Formal Specification and Verification of Software Systems or CS 858 Algorithms
  - At least two courses must be above 900
  - At most one can be CS 998 Independent Study
  - Students must take courses taught by a minimum of five different faculty

- <sup>2</sup> The student must complete a thesis under the supervision of a thesis adviser and a thesis committee of at least three members.

### M.S. Project Option

Code	Title	Credits
CS 900	Graduate Seminar	1
Select ten CS graduate courses of at least 3 credits each <sup>1</sup>		30
CS 898	Master's Project <sup>2</sup>	3
<b>Total Credits</b>		<b>34</b>

- <sup>1</sup> The courses must satisfy the following requirements:
- Two courses must be implementation intensive (see list below)
  - All students must take CS 845 Formal Specification and Verification of Software Systems or CS 858 Algorithms
  - At least three courses must be above 900
  - At most one can be CS 998 Independent Study
  - Students must take courses taught by a minimum of five different faculty

- <sup>2</sup> The student must complete a project under the supervision of a faculty adviser.

### M.S. Exam Option

Code	Title	Credits
CS 900	Graduate Seminar	1
Select ten CS graduate courses of at least 3 credits each <sup>1</sup>		30
Comprehensive exam that includes four different examination topics (see list below) <sup>2</sup>		
<b>Total Credits</b>		<b>31</b>

- <sup>1</sup> The courses must satisfy the following requirements:
- Two courses must be implementation intensive (see list below)
  - All students must take CS 845 Formal Specification and Verification of Software Systems or CS 858 Algorithms
  - At least three courses must be above 900
  - At most one can be CS 998 Independent Study
  - Students must take courses taught by a minimum of five different faculty
- <sup>2</sup> One topic must be from the Theory topic area. The other three should be selected from three different topic areas (which can include a second theory topic). The topic areas are as follows: a) Theory: Formal Specification and Verification; Algorithms, b) Distributed Systems, c) Artificial Intelligence, d) Computer Graphics, e) Computer Networks, f) Information Retrieval, g) Machine Learning, h) Computer Security, i) Robotics, j) Parallel and Distributed Programming, k) Cloud computing.

Code	Title	Credits
<b>Implementation Intensive Courses</b>		
CS 812	Compiler Design	4
CS 820	Systems Programming	4
CS 830	Introduction to Artificial Intelligence	4
CS 835	Introduction to Parallel and Distributed Programming	4
CS 852	Foundations of Neural Networks	4
CS 853	Information Retrieval and Generation Systems	4
CS 870	Computer Graphics	4
CS 881	Data Science for Knowledge Graphs and Text	4

## Accelerated Master's

This graduate program is approved to be taken on an accelerated basis in articulation with certain undergraduate degree programs.

General Accelerated Master's policy, note that some programs have additional requirements (e.g. higher grade expectations) compared to the policy.

Please see the [Graduate School website](#) and contact the department directly for more information.

## Student Learning Outcomes

### Program Learning Outcomes

#### Graduates of the UNH M.S. CS program will have an ability to:

- Apply computer science theory to increase the breadth and depth of their computer science knowledge.
- Utilize advance software development skills.

- Carry out guided computer science research.
- Obtain an advanced position in industry or continue onto a PhD program.