Computer Science (MS)

The Master of Science (MS) degree program prepares students for ever-expanding career opportunities. Possibilities range from the development of time-critical software for aerospace applications to the design of graphics and animation software, and implementation and testing of next-generation internet protocols.

Program's Admission Requirements

Please visit the program's website (https://scds.uoregon.edu/cs/apply/graduate-admissions/).

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Core Knowledge Breadth: Demonstrate a working knowledge of fundamental theories, research findings, and methodological approaches within Computer Science (Foundations, Systems, Data Science).
- Core Knowledge Depth: Demonstrate a deep working knowledge of advanced theories, research findings, and methodological approaches within one of the Computer Science areas of Foundations, Systems, and Data Science.
- Software Engineering: Demonstrate a working knowledge of software engineering and development techniques and related hands-on skills.
- Thesis Option Additional Outcome - Scientific Inquiry: Achieve a fluency in the scientific literature and the ability to pursue compelling questions within a primary field of research, and (for empirical research studies) achieve proficiency in relevant experimental design, methodology, and data analysis/statistical methods.
- Thesis Option Additional Outcome - Scientific Communication: Demonstrate effective written scientific communication skills.

Master of Science in Computer Science Requirements

Code	Title	Credits
Breadth Requirement: 12 credits total [1]		**12**
CS 621	Algorithms and Complexity	
CS 670	Data Science	
And one of the following:		
CS 630	Distributed Systems	
CS 631	Advanced Parallel Computing	
Depth Requirement: Choose one, 12 credits total [1]		**12**
Each Depth requires three courses, at least one at 600-level		
Foundations Depth		
CS 513	Advanced Data Structures	
CS 520	Automata Theory	
CS 543	User Interfaces	
CS 545	Modeling and Simulation	
CS 561	Introduction to Compilers	
CS 624		
Data Science Depth		
CS 543	User Interfaces	
CS 551	Database Processing	
CS 553	Data Mining	
CS 571	Introduction to Artificial Intelligence	
CS 572	Machine Learning	
CS 573	Probabilistic Methods for Artificial Intelligence	
CS 600 level course		
Systems Depth		
CS 531	Introduction to Parallel Computing	
CS 532	Introduction to Networks	
CS 533	Computer and Network Security	
CS 534	Computer and Network Security II	
CS 541	Introduction to Computer Graphics	
CS 561	Introduction to Compilers	
CS 630	Distributed Systems	
CS 631	Advanced Parallel Computing	
CS 632	Computer Networks	
CS 633	Advanced Network Security	
Writing Requirement		**2**
CS 640	Writing in Computer Research	
Elective Options: 28 credits total [4]		**28**
Up to twelve credits in courses outside department in area closely related to professional goals may be used [5]		
Thesis Option [6]		
CS 503	Thesis	
Maximum of 16 units (total) from CS 503 (thesis), CS 601 (research) and CS 609 (final project). Also, there must be between 9 and 12 units of CS 503.		
CS 5XX and CS 6XX: Minimum of 8 graded credits, maximum of 11 P/NP credits		
Non-Thesis Option		
CS 609	Terminal Project	
CS 5XX and CS 6XX: Minimum of 18 graded credits, maximum of 10 P/NP credits		
DRP Option [8]		
CS 601	Research: [Topic]	
Maximum of 16 units (total) from CS 503 (thesis), CS 601 (research) and CS 609 (final project).		
Completion of the directed research project (DRP) milestone in the CS PhD program and approval from the DRP committee that the project meets the standards of an MS thesis.		
Total Credits		**54**

1. A grade of B- or better is required
2. Cannot duplicate Depth course used
3. Cannot duplicate Breadth course used
4. A grade of C or better is required in graded elective credits
5. Courses must be approved by petition to the CS GEC; options include courses in linguistics, mathematics, physics, and psychology.
6. Cannot include CS 609 Final Project
7. CS 609 Final Project requirements: 8-12 credits; graded or P/NP
8. No credit of CS 503 (Thesis) or CS 609 (Final Project) may count toward the elective credit requirements

Grade Requirements

The 24 credits in the breadth courses and the depth courses must be passed with grades of B– or better. Graded elective courses must be

passed with grades of C or better. A 3.00 GPA must be maintained for courses taken in the program.

Master's Thesis

The research option requires a written thesis and 9 to 12 credits in Thesis (CS 503). Thesis research is supervised by a faculty advisor; this advisor and other faculty members constitute the thesis committee. The master's thesis is expected to be scholarly and to demonstrate mastery of the practices of computer science. This option is recommended for students who plan subsequent PhD research.

Master's Project

The project option requires a minimum of 9 credits, and as many as 12, in Final Project Terminal Project (CS 609).

Under the supervision of a faculty member, the project may entail a group effort involving several master's degree students.

Computer Science Accelerated Master's Program

Computer Science undergraduate majors at the UO have the opportunity to graduate with B.S. and M.S. Computer Science degrees in a five-year program.

Students with junior or senior status in the Computer Science major who have completed the 300-level required courses and CS 415 (with a grade of A- or better), and have a GPA of 3.50 or higher in computer science and a cumulative GPA of 3.50 or higher, or a GPA of 3.75 or higher in computer science and a cumulative GPA of 3.25 or higher may apply to the Accelerated Master's Program in Computer Science (AMP-CS). This application form is available in the department office.

Interested students should schedule an appointment with the CS Director of Undergraduate Studies before applying. Upon acceptance to AMP-CS, students may take graduate courses to fulfill major requirements that will also fulfill Master's degree requirements, according to UO AMP guidelines, for students admitted to the Computer Science Master's degree program.

AMP-CS students will work closely with undergraduate and graduate advisors to ensure that they are on track to graduate with both degrees. Students who do not maintain satisfactory progress or who choose not to continue to a master's degree can still graduate with a B.S. degree in Computer Science in four years.

Computer Science Early Start Master's Program

This program is open to students who earn a BS or BA degree in computer science at the University of Oregon and who want to enter the master's degree program.

If a UO undergraduate takes one or two 400-level electives that also are offered as 500-level courses, the student can petition the department to have 4 or 8 credits deducted from the total number of elective credits required for the master's degree. The student must earn an A– or better in the 400-level course and have an overall GPA of 3.50 in upper-division CS courses to participate in this Computer Science Early Start Master's program. Note that all admission procedures, as outlined in the Master's Degree Program section, are also applicable. Applications are available in the department office. This program may be combined with the Computer Science Accelerated Master's Program (described above).

Code	Title	Credits
Senior Year Graduate Level Courses		
CS 522	Software Methodology I [a]	4
Three graduate level courses [b, c]		12
Total Credits		**16**

Code	Title	Credits
Breadth Requirement [1]		**12**
CS 621	Algorithms and Complexity	
CS 670	Data Science	
And one of the following:		
CS 630	Distributed Systems [2]	
CS 631	Advanced Parallel Computing [3]	
Depth Requirement: Choose one [1]		**12**
Each Depth requires three courses, at least one at 600-level		
Foundations Depth		
CS 513	Advanced Data Structures	
CS 520	Automata Theory	
CS 543	User Interfaces	
CS 545	Modeling and Simulation	
CS 561	Introduction to Compilers	
CS 624		
Data Science Depth		
CS 543	User Interfaces	
CS 551	Database Processing	
CS 553	Data Mining	
CS 571	Introduction to Artificial Intelligence	
CS 572	Machine Learning	
CS 573	Probabilistic Methods for Artificial Intelligence	
CS 600 level course		
Systems Depth		
CS 531	Introduction to Parallel Computing	
CS 532	Introduction to Networks	
CS 533	Computer and Network Security	
CS 541	Introduction to Computer Graphics	
CS 561	Introduction to Compilers	
CS 630	Distributed Systems	
CS 631	Advanced Parallel Computing	
CS 632	Computer Networks	
CS 633	Advanced Network Security	
Writing Requirement		**2**
CS 640	Writing in Computer Research	
Elective Options: [4, 5, 6]		**12-28**
Thesis Option [7]		
CS 503	Thesis (9-12 credits P/N)	
Non-Thesis Option [8]		
CS 609	Terminal Project (Optional)	
Total Credits:		**54**

a CS 522 will fulfill an undergraduate major required course requirement (CIS 422) and a master's elective requirement.

b A maximum of 8 credits of 5/60x courses, with some exclusions, may, with prior approval, be used toward CS major undergraduate requirements and M.S. requirements. CS 503 and other CS 60x courses (e.g., CS 601, 609), when taken for a master's thesis or project (9-16 credits), must be taken as a graduate student.

c CS 500 and 600 level courses numbered 5/610 or higher and taken for a grade will meet undergraduate CS upper-division elective requirements when taken with a passing grade. CS 500 and 600 level courses numbered 5/610 or higher and taken for a grade and passed with a minimum grade of B will also meet graduate required or elective courses requirements.

1 A grade of B- or better is required

2 Cannot duplicate Depth course used

3 Cannot duplicate Breadth course used

4 A grade of C or better is required in graded elective credits

5 Up to 8 graded credits from CS Department Accelerated M.S. may be used. See CS website.

6 Up to twelve credits in courses outside department in area closely related to professional goals may be used. Courses must be approved by petition to the CS GEC; options include courses in linguistics, mathematics, physics, and psychology.

7 Cannot include CS 609 Final Project. Note that the Thesis Option requires at least 8 graded elective credits, which may include 500 and 600 level elective courses taken as an undergraduate.

8 Optional CS 609 Final Project requirements: 8-12 credits; graded or P/NP. Note that the Non-Thesis Option requires at least 18 graded elective credits, which may include 500 and 600 level elective courses taken as an undergraduate.

9 No credit of CS 503 (Thesis) or CS 609 (Final Project) may count toward the elective credit requirements. Note that the DRP Option requires at least 8 graded elective credits, which may include 500 and 600 level elective courses taken as an undergraduate.