

COMPUTER SCIENCE, M.S.

The M.S. in Computer Science requires 30 credit hours with at least 24 credits in computer science (CSC) courses. Three options for the capstone experience are offered: comprehensive examination, project, or thesis. Optional concentrations in Data Science and Big Data and in Healthcare and Artificial Intelligence are available for Computer Science M.S. students.

For information regarding deadlines and requirements for admission, please see <https://grs.uncg.edu/programs/>.

Degree Program Requirements

Required: 30 credit hours

Code	Title	Credit Hours
Core Courses (9 credits)		
CSC 654	Algorithm Analysis and Design	3
Select one course (3 credits) from the following:		3
CSC 652	Theory of Computation	
CSC 656	Foundations of Computer Science	
Select one course (3 credits) from the following:		3
CSC 640	Software Engineering	
CSC 662	Principles of Operating Systems	
CSC 671	Advanced Database Systems	
CSC 677	Principles of Computer Networks	
Track Courses (12 credits)		
Select four courses (12 credits) from one of the following tracks:		12
<i>Foundation and Algorithms Track</i>		
CSC 639	Introduction to Compiler Design	
CSC 652	Theory of Computation	
CSC 656	Foundations of Computer Science	
CSC 685	Modern Cryptography	
STA 631	Introduction to Probability	
STA 651	Mathematical Statistics	
<i>Data Science and Big Data Track</i>		
CSC 605	Data Science *	
CSC 607	Network Analysis	
CSC 610	Big Data and Machine Learning *	
CSC 616	Digital Image Processing	
CSC 625	Bioinformatics	
CSC 629	Artificial Intelligence	
CSC 671	Advanced Database Systems *	
CSC 672	Database System Architecture	
CSC 677	Principles of Computer Networks	
STA 631	Introduction to Probability	
STA 651	Mathematical Statistics	
<i>Systems and Networks Track</i>		
CSC 607	Network Analysis	
CSC 629	Artificial Intelligence	
CSC 640	Software Engineering	
CSC 642	Human-Computer Interface Development	
CSC 661	Principles of Computer Architecture	

CSC 662	Principles of Operating Systems	
CSC 671	Advanced Database Systems	
CSC 677	Principles of Computer Networks	
CSC 678	Principles of Wireless Networks	
CSC 681	Principles of Computer Security	
Electives (3-6 credits)		
Select 3-6 credits of electives from other 600- or 700-level CSC courses **		3-6
Capstone Experience (0-6 credits)		
Select one of the following options:		0-6
<i>Thesis (6 credits)</i>		
CSC 699	Thesis	
<i>Project (3-6 credits)</i>		
CSC 698	Project in Computer Science	
<i>Comprehensive Examination (0 credits)</i>		
Complete a written examination on the program of study		
Total Credit Hours		30

* *Students in the Data Science and Big Data Concentration must take CSC 605, CSC 610, and CSC 671 as part of their concentration requirements.*

** *With the prior approval of the Graduate Program Director. A number of selected courses from other departments are also available; interested students should contact the Graduate Program Director.*

Thesis, Project, or Comprehensive Examination (Capstone Experience)

Each candidate may elect to prepare a thesis, prepare a project, or pass a comprehensive examination on the program of course work.

Thesis

The candidate may prepare a thesis based on the investigation of a topic in computer science. A thesis director will be appointed by the Department Head after consultation with the student and the Graduate Program Director. The writing of a thesis requires the scholarly exposition and documentation of a substantial problem. In some cases, this may lead to a new solution to the problem and to original results. While writing the thesis, candidates may include up to 6 credits of CSC 699 Thesis in the required 30 credits for the program. An oral examination on the thesis is required.

Project

The candidate may prepare a project (theoretical or programmed) based on a topic in computer science. The project may be work-related. A project director will be appointed by the Department Head after consultation with the student and the Graduate Program Director. The preparation of a project requires a description of the problem and documentation of any software products or description of theoretical solutions. While preparing the project, candidates may include 3 to 6 credits of CSC 698 Project in Computer Science in the required 30 credits for the program. An oral examination on the project is required.

Comprehensive Examination

A candidate may elect to pass a written comprehensive examination on the program of study. Please consult with the Graduate Program Director for information concerning the comprehensive examination.

Data Science and Big Data Concentration

Code	Title	Credit Hours
Core Courses (12 credits)		
CSC 605	Data Science	3
CSC 610	Big Data and Machine Learning	3
CSC 654	Algorithm Analysis and Design	3
CSC 671	Advanced Database Systems	3
Elective Courses (3 credits)		
Select one course (3 credits) from the following:		3
CSC 607	Network Analysis	
CSC 616	Digital Image Processing	
CSC 617	Deep Learning in Computer Vision	
CSC 625	Bioinformatics	
CSC 629	Artificial Intelligence	
CSC 674	Principles of Data Mining	
STA 635	Theory of Linear Regression	
STA 661	Advanced Statistics in the Behavioral and Biological Sciences I	
STA 682	Theory of Time Series	
Total Credit Hours		15

Healthcare and Artificial Intelligence Concentration

Code	Title	Credit Hours
Core Courses (9 credits)		
CSC 630	Fundamentals of Health Informatics	3
or IAH 630	Fundamentals of Health Informatics	
CSC 631	Artificial Intelligence in Healthcare *	3
or IAH 631	Artificial Intelligence in Health Care	
CSC 632	Ethics and Intellectual Property for Informatics and Analytics	3
or IAL 632	Ethics and Intellectual Property for Informatics and Analytics	
Elective Courses (6 credits)		
<i>Computer Science Courses (3 credits)</i>		
Select one course (3 credits) from the following:		3
CSC 605	Data Science	
CSC 607	Network Analysis	
CSC 610	Big Data and Machine Learning	
CSC 616	Digital Image Processing	
CSC 617	Deep Learning in Computer Vision	
CSC 626	Advanced Bioinformatics	
CSC 629	Artificial Intelligence	
CSC 642	Human-Computer Interface Development	
CSC 671	Advanced Database Systems	
CSC 674	Principles of Data Mining	
CSC 681	Principles of Computer Security	
CSC 687	Network Security	
<i>Health and Human Sciences or Nursing Courses (3 credits)</i>		
Select one course (3 credits) from the following:		3
HEA 601	Foundations of Public Health	
HEA 602	Epidemiology Methods	

HEA 604	Quantitative Methods
HEA 607	Determinants of Health
HHS 746	Applied Longitudinal Analysis
KIN 601	Applying Research to Professional Practice
KIN 723	Statistical Methods for Kinesiology
KIN 735	Program Evaluation and Evidence-Based Practice in Physical Activity Programs
NTR 773	Nutrition Research Methodology
NUR 701	Statistical Applications for Nursing Research
NUR 702	Statistical Applications for Nursing Research II
NUR 704	Quantitative Research in Nursing
NUR 715	Research Methods in Nursing

Total Credit Hours **15**

* A grade of B+ or higher is required for CSC 631 or IAH 631 to qualify for the concentration.

Accelerated B.S. to M.S. in Computer Science

Application and Admission

Qualified UNC Greensboro undergraduate students who are pursuing the Bachelor of Science (B.S.) in Computer Science may apply for admission to the Accelerated Master's Program (AMP). A cumulative undergraduate GPA of at least 3.5 based on at least 30 credits earned at UNC Greensboro is required. Applicants must have completed at least 60 credits and may not apply for admission to the AMP before the first semester of the junior year. Applicants will not be required to take the GRE. All applicants must complete the Accelerated Master's Program information along with their application for admission to the graduate degree program.

Courses

Admitted students may apply the following 12 credits of graduate-level course work toward completion of both the undergraduate and graduate degree, provided that they earn a grade of B (3.0) or better in the course and fulfill graduate-level requirements:

Code	Title	Credit Hours
CSC 652	Theory of Computation	3
CSC 654	Algorithm Analysis and Design	3
CSC 662	Principles of Operating Systems	3
CSC 677	Principles of Computer Networks	3

Please consult with an advisor to determine how the course taken at the graduate level will meet requirements in the bachelor's degree program. All degree requirements for the M.S. in Computer Science remain the same.