Computer Science, MSCS

Northeastern University's Master of Science in Computer Science is designed to prepare students for a variety of careers in computer science. The program combines both computing and important application domains—enabling you to increase your broad-based knowledge in the field while allowing you to delve deeper in specific areas through elective courses.

Master of Science in Computer Science—Align students come from a wide variety of backgrounds, with undergraduate majors including math, biology, history, engineering, and classics. The program begins with a two-semester introductory sequence, which provides the foundational knowledge for students from non-technical backgrounds to succeed. Students have an opportunity to acquire both the knowledge needed to transition into a new career and the practical skills to build the next great app.

Standard Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Students should refer to the course numbering table for graduate course leveling (http://catalog.northeastern.edu/graduate/academic-policies-procedures/records-transcripts/).

Core Requirements

Code	Title	Hours
Programming		
CS 5010	Programming Design Paradigm	4
Algorithms		
CS 5800	Algorithms	4

Breadth Areas

Code	Title	Hours
Complete three courses from two of the three following breadth areas:		12
Systems and Software		
CS 5400	Principles of Programming Language	
CS 5500	Foundations of Software Engineering	
CS 5520	Mobile Application Development	
CS 5600	Computer Systems	
CS 5610	Web Development	
CS 5700	Fundamentals of Computer Networking	
CS 6410	Compilers	
CS 6510	Advanced Software Development	
CS 6650	Building Scalable Distributed Systems	
CS 6710	Wireless Network	
Theory and Security		
CS 6760	Privacy, Security, and Usability	
CS 7805	Complexity Theory	
CY 5770	Software Vulnerabilities and Security	
CY 6740	Network Security	
CY 6750	Cryptography and Communications Security	
Artificial Intelligence and Data Science		
CS 5100	Foundations of Artificial Intelligence	
CS 5150	Game Artificial Intelligence	
CS 5200	Database Management Systems	
CS 5330	Pattern Recognition and Computer Vision	
CS 6120	Natural Language Processing	
CS 6140	Machine Learning	
CS 6200	Information Retrieval	
CS 6220	Data Mining Techniques	
CS 6240	Large-Scale Parallel Data Processing	
CS 7140	Advanced Machine Learning	

Electives

Code	Title	Hours
Complete 12 semester hours from the following:		12
CS 5100 to CS 7880		
CS 5097	Mixed Reality	
CS 8674	Master's Project	
CS 8982	Readings	
CS 7990	Thesis	
CY 5010	Foundations of Information Assurance	
CY 5130	Computer System Security	
CY 6120	Software Security Practices	
DS 5110	Introduction to Data Management and Processing	
DS 5230	Unsupervised Machine Learning and Data Mining	

Program Credit/GPA Requirements

32 total semester hours required
Minimum 3.000 GPA required

Align Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Align Bridge Coursework

Students are required to take all bridge courses unless otherwise determined by the program.

A grade of B or higher is required in each course.

Code	Title	Hours
Fundamentals		
CS 5001 and CS 5003	Intensive Foundations of Computer Science and Recitation for CS 5001	4
Discrete Structures		
CS 5002	Discrete Structures	4
Object-Oriented Design		
CS 5004 and CS 5005	Object-Oriented Design and Recitation for CS 5004	4
Additional ALIGN courses		
CS 5008 and CS 5009	Data Structures, Algorithms, and Their Applications within Computer Systems and Recitation for CS 5008	4

Core Requirements

Code	Title	Hours
Algorithms		
CS 5800	Algorithms	4

Breadth Areas

Code	Title	Hours
Select three courses from two of the three following breadth areas:		12
Systems and Software		
CS 5400	Principles of Programming Language	
CS 5500	Foundations of Software Engineering	
CS 5520	Mobile Application Development	
CS 5600	Computer Systems	
CS 5610	Web Development	
CS 5700	Fundamentals of Computer Networking	
CS 6410	Compilers	
CS 6510	Advanced Software Development	
CS 6650	Building Scalable Distributed Systems	

CS 6710	Wireless Network
Theory and Security	
CS 6760	Privacy, Security, and Usability
CS 7805	Complexity Theory
CY 5770	Software Vulnerabilities and Security
CY 6740	Network Security
CY 6750	Cryptography and Communications Security
Artificial Intelligence and Data Science	
CS 5100	Foundations of Artificial Intelligence
CS 5150	Game Artificial Intelligence
CS 5200	Database Management Systems
CS 5330	Pattern Recognition and Computer Vision
CS 6120	Natural Language Processing
CS 6140	Machine Learning
CS 6200	Information Retrieval
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Program Credit/GPA Requirements

36-44 total semester hours required
Minimum 3.000 GPA required