Data Science, MS

Khoury College of Computer Sciences and the Department of Electrical and Computer Engineering jointly offer an interdisciplinary Master of Science in Data Science. This program is designed to give students a comprehensive framework for reasoning about data. Students engage in extensive coursework intended to develop depth in data collection, storage, retrieval, manipulation, visualization, modeling, and interpretation. Students are also able to choose elective courses from a variety of offerings in Khoury, the College of Engineering, and throughout the campus to explore areas that generate data or specialized data science applications. Successful program graduates are well positioned to attain data scientist and data engineer positions in a fast-growing field or to progress into doctoral degrees in related disciplines.

During the admissions process, applicants take a pretest to determine if the Master of Science in Data Science or Master of Science in Data Science (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-align/)— (p.)Align (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-align/) fits better with their current skill level. In addition, prospective applicants work with recruitment and enrollment coaching teams to select the appropriate program before applying.

Program Requirements

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

Complete all courses and requirements listed below unless otherwise indicated.

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

Core Requirements

A cumulative GPA of 3.000 or higher is required in the following core courses.

Code	Title	Hours
Complete 20 semester hours from the following:		
Data Management and Processing		
DS 5110	Introduction to Data Management and Processing	4
Algorithms		
Complete 4 semester hours from the following:		4
CS 5800	Algorithms	
EECE 7205	Fundamentals of Computer Engineering	
Machine Learning and Data Mining		
DS 5220	Supervised Machine Learning and Learning Theory	4
DS 5230	Unsupervised Machine Learning and Data Mining	4
Presentation and Visualization		
DS 5500	Data Science Capstone	4

Electives

Code	Title	Hours
Complete 12 semester hours from the following: [1]		12
Khoury College of Computer Sciences		
CS 5100	Foundations of Artificial Intelligence	
CS 5180	Reinforcement Learning and Sequential Decision Making	
CS 5200	Database Management Systems	
CS 5330	Pattern Recognition and Computer Vision	
CS 5340	Computer/Human Interaction	
CS 5610	Web Development	
CS 6120	Natural Language Processing	
CS 6200	Information Retrieval	

CS 6240	Large-Scale Parallel Data Processing
CS 6350	Empirical Research Methods
CS 6620	Fundamentals of Cloud Computing
CS 6650	Building Scalable Distributed Systems
CS 7140	Advanced Machine Learning
CS 7150	Deep Learning
CS 7180	Special Topics in Artificial Intelligence
CS 7200	Statistical Methods for Computer Science
CS 7250	Information Visualization: Theory and Applications
CS 7280	Special Topics in Database Management
CS 7290	Special Topics in Data Science
DS 5983	Topics in Data Science
DS 7990	Thesis
DS 7995	Project
College of Engineering	
CIVE 7100	Time Series and Geospatial Data Sciences
EECE 5612	Statistical Inference: An Introduction for Engineers and Data Analysts
EECE 5639	Computer Vision
EECE 5640	High-Performance Computing
EECE 5645	Parallel Processing for Data Analytics
EECE 7337	Information Theory
EECE 7370	Advanced Computer Vision
EECE 7397	Advanced Machine Learning
IE 6700	Data Management for Analytics
IE 7280	Statistical Methods in Engineering
College of Social Sciences and Humanities	
ECON 5140	Applied Econometrics
PPUA 5261	Dynamic Modeling for Environmental Decision Making
PPUA 5262	Big Data for Cities
PPUA 5263	Geographic Information Systems for Urban and Regional Policy
PPUA 5266	Urban Theory and Science
PPUA 7237	Advanced Spatial Analysis of Urban Systems
College of Science	
ENVR 5563	Advanced Spatial Analysis
PHYS 5116	Network Science 1
PHYS 7305	Statistical Physics
PHYS 7321	Computational Physics
Bouvé College of Health Sciences	
PHTH 5202	Introduction to Epidemiology
PHTH 5210	Biostatistics in Public Health
PHTH 6224	Social Epidemiology
College of Arts, Media and Design	
GSND 5110	Game Design and Analysis
GSND 6350	Data-Driven Player Modeling

Program Credit/GPA Requirements

32 total semester hours required
Minimum 3.000 GPA required

[1] Students taking electives worth less than 4 semester hours (i.e., Bouvé courses) should enroll for an accompanying data science project course in the same semester to bring the cumulative semester hours to 4. In order to earn this additional credit, students are expected to work with faculty to design an additional project in line with the curricular aims of their chosen elective and the data science core learning outcomes.