ANALYTICS AND DATA SCIENCE MAJOR: DATA SCIENCE OPTION (B.S.) MANCHESTER

https://manchester.unh.edu/program/bs/analytics-data-science-major-data-science-option

Description

Beginning in the 2025-2026 academic year, the Analytics and Data Science: Data Science Option major will no longer be accepting new students. Current Analytics and Data Science: Data Science Option students will continue to have access to the same high-quality education and resources until they graduate.

The option in Data Science is intended for students interested in pursuing advanced degrees and conducting original research in data science. The option in data science places its emphasis on a rigorous introduction to the theoretical mathematical and computational underpinnings of modern data science.

During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

For additional information, contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Requirements

Degree Requirements

Minimum Credit Requirement: 128 credits

Minimum Residency Requirement: 32 credits must be taken at UNH

Minimum GPA: 2.0 required for conferral*

Core Curriculum Required: Discovery & Writing Program Requirements

Foreign Language Requirement: No

All Major, Option and Elective Requirements as indicated.
**Major GPA requirements as indicated.*

Major Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University's Discovery program, and completing all of the 18 required courses in the major as listed below. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major requirements (not counting those courses used to satisfy Discovery requirements).

Students who enroll in the Data Science Option may need to take some required courses on the Durham campus.

Code	Title	Credits
Mathematics		
MATH 425	Calculus I	4
MATH 426	Calculus II	4
MATH 528	Multidimensional Calculus	4
MATH 531	Mathematical Proof	4
COMP 570	Statistics in Computing and Engineering	4
MATH 645	Linear Algebra for Applications	4
MATH 755	Probability with Applications	4
MATH 756	Principles of Statistical Inference	4
Computing		
COMP 424	Applied Computing 1: Foundations of Programming	4
or CS 415	Introduction to Computer Science I	
COMP 525	Data Structures Fundamentals	4
or CS 416	Introduction to Computer Science II	
COMP 625	Data Structures and Algorithms	4
or CS 515	Data Structures and Introduction to Algorithms	
CS 420	Foundations of Programming for Digital Systems	4
CS 659	Introduction to the Theory of Computation	4
COMP 740 & MATH 738	Machine Learning Applications and Tools and Data Mining and Predictive Analytics	8
or COMP 740 & DATA 674	Machine Learning Applications and Tools and Predictive and Prescriptive Analytics I	
or DATA 674 & DATA 675	Predictive and Prescriptive Analytics I and Predictive and Prescriptive Analytics II	
CS 758	Algorithms	4
COMP 720	Database Systems and Technologies	4
Analytics & Data Science		
DATA 557	Introduction to Data Science and Analytics	4
English		
ENGL 502	Professional and Technical Writing	4
Analytics Course Capstone		
Select from the following:		4
DATA 790	Capstone Project	
or CS 791 & CS 792	Senior Project I and Senior Project II	
or CS 799	Thesis	
Select Approved Minor [1]		
Total Credits		**80**

[1] Select an approved minor in consultation with the minor supervisor. Must be in a discipline to which Analytics and Data Science can be applied (examples include: Economics, Applied Mathematics) for the Data Science Option.

Degree Plan

This degree plan is a sample and does not reflect the impact of transfer credit or current course offerings. UNH Manchester undergraduate students will develop individual academic plans with their professional advisor during the first year at UNH.

Sample Course Sequence

First Year

Fall		**Credits**
MATH 425	Calculus I	4
COMP 424 or CS 415	Applied Computing 1: Foundations of Programming or Introduction to Computer Science I	4
ENGL 401	First-Year Writing	4
Discovery Course		4
	Credits	**16**

Spring		
MATH 426	Calculus II	4
COMP 525 or CS 416	Data Structures Fundamentals or Introduction to Computer Science II	4
DATA 557 or CS 457	Introduction to Data Science and Analytics or Introduction to Data Science and Analytics	4
CS 420	Foundations of Programming for Digital Systems	4
	Credits	**16**
Second Year		
Fall		
MATH 645	Linear Algebra for Applications	4
MATH 531	Mathematical Proof	4
COMP 625 or CS 515	Data Structures and Algorithms or Data Structures and Introduction to Algorithms	4
ENGL 502	Professional and Technical Writing	4
	Credits	**16**
Spring		
COMP 570 or MATH 644	Statistics in Computing and Engineering or Statistics for Engineers and Scientists	4
CS 659	Introduction to the Theory of Computation	4
MATH 528	Multidimensional Calculus	4
Discovery Course		4
	Credits	**16**
Third Year		
Fall		
MATH 755	Probability with Applications	4
MATH 738	Data Mining and Predictive Analytics [1]	4
Minor Course		4
Discovery Course		4
	Credits	**16**
Spring		
MATH 756	Principles of Statistical Inference	4
CS 750	Machine Learning [1]	4
CS 755	Computer Vision	4
Discovery Course		4
	Credits	**16**
Fourth Year		
Fall		
CS 758	Algorithms	4
DATA 790	Capstone Project	4
Minor Course		
Discovery Course		
	Credits	**8**
Spring		
Minor Course		4
Minor Course		4
Minor Course		4
Discovery Course		4
	Credits	**16**
	Total Credits	**120**

[1] Either MATH 738 and CS 750, or DATA 674 and DATA 675, or DATA 674 and CS 750.

Student Learning Outcomes

Analytics and Data Science focuses on the extraction of meaning from data through the application of computer science, mathematics and business domain knowledge. Within a few years of obtaining a bachelor's degree in Analytics and Data Science, our alumni will have:

Program Learning Outcomes

- Engaged in successful career areas of analytics and data science and will already have, or be pursuing, advanced degrees in Analytics, Data Science, Computer Science, Mathematics or related fields
- Applied the full range of core Data Science concepts and techniques to fill the analytics needs of an organization
- Communicated effectively with diverse stakeholders as well as functioned appropriately in a team environment
- Navigated the complex interconnections between data, computing technology, and the goals and constraints of the organization served
- Understood the pervasive and changing role of data in global society, and participated responsibly as both an Analytics and Data Science professional and citizen