

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

Description

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

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.

Program Objectives

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied mathematics and statistics, communication skills, and business savvy. Graduates of the bachelor of science in analytics and data science program are expected to have:

- An understanding of the role of data in guiding decision-making in industry
- An understanding of how data is generated, stored, and accessed
- An understanding of data security
- An understanding of the ethical use of data
- An understanding of structured vs. unstructured data
- An understanding of the methods, statistical and other, used to derive actionable information from data
- Experience with multiple programming languages
- Experience with multiple statistical and data analysis software programs
- The ability to communicate detailed, technical information to a variety of audiences clearly and concisely, without the use of jargon
- The ability to work effectively, both as an individual or as a member of a team
- The ability to successfully lead a team
- The ability to adapt to a dynamic, rapidly changing work environment
- Completed projects and other work experiences on a larger scale than is typical in a bachelor's degree program.

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.

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.

Program Requirements

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 738	Data Mining and Predictive Analytics	4
MATH 755	Probability with Applications	4
MATH 756	Principles of Statistical Inference	4
DATA 790	Capstone Project	4
Computing		
COMP 424	Applied Computing 1: Foundations of Programming	4
COMP 525	Data Structures Fundamentals	4
COMP 625	Data Structures and Algorithms	4
CS 659	Introduction to the Theory of Computation	4
COMP 740	Machine Learning Applications and Tools	4
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

For additional information about the Analytics and Data Science: Data Science Option, contact Mihaela Sabin, program coordinator, at Mihaela.Sabin@unh.edu (mihaela.sabin@unh.edu) or contact the [UNH Manchester Office of Admissions](https://unh.edu/office-of-admissions) (unhm.admissions@unh.edu) at (603) 641-4150.