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

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

Description

The option in Analytics is intended for students interested in either heading into industry immediately upon graduation, or pursuing graduate work in a professionally oriented program at UNH. The option in Analytics places its emphasis on applications of data science in industry.

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. 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), (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, completing all of the 21 required courses in the major as listed below, including the capstone course, the internship preparedness course, and an internship. 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).

Code	Title	Credits
Mathematics		
MATH 425	Calculus I	4
MATH 426	Calculus II	4
MATH 645	Linear Algebra for Applications	4
MATH 739	Applied Regression Analysis	4
Computing		
COMP 424	Applied Computing 1: Foundations of Programming	4
COMP 430	Systems Fundamentals	4
COMP 520	Database Design and Development	4
COMP 525	Data Structures Fundamentals	4
COMP 570	Statistics in Computing and Engineering	4
COMP 625	Data Structures and Algorithms	4
Business		
BUS 400	Introduction to Business	4
BUS 453	Leadership for Managers	4
BUS 620	Organizational Behavior	4
Analytics & DATA Courses		
DATA 557	Introduction to Data Science and Analytics	4
or CS 457	Introduction to Data Science and Analytics	
DATA 674	Predictive and Prescriptive Analytics I	4
DATA 675	Predictive and Prescriptive Analytics II	4
DATA 757	Mining Massive Datasets	4
or COMP 721	Big Data for Data Engineers	
Project and Professional Practice		
DATA 690	Internship Experience	1-4
DATA 790	Capstone Project	4
or CS 791	Senior Project I	
or CS 792	Senior Project II	
Other		
ENGL 502	Professional and Technical Writing	4
UMST 582	Internship and Career Planning Seminar	1
Total Credits		**78-81**

Degree Plan

Sample Course Sequence

First Year

Fall		**Credits**
COMP 424 or CS 415	Applied Computing 1: Foundations of Programming or Introduction to Computer Science I	4
ENGL 401	First-Year Writing	4
MATH 425	Calculus I	4
Discovery Course		4
	Credits	**16**
Spring		
BUS A [1]		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
MATH 426	Calculus II	4
	Credits	**16**

Second Year

Fall		
COMP 625 or CS 515	Data Structures and Algorithms or Data Structures and Introduction to Algorithms	4
MATH 645	Linear Algebra for Applications	4
Discovery Course		4
Elective [2]		4
	Credits	**16**

Spring		
COMP 430	Systems Fundamentals	4
COMP 520 or IT 505	Database Design and Development or Integrative Programming	4
COMP 570 or MATH 539 or MATH 644	Statistics in Computing and Engineering or Introduction to Statistical Analysis or Statistics for Engineers and Scientists	4
Discovery Course		4
	Credits	**16**
Third Year		
Fall		
BUS B [1]		4
DATA 674	Predictive and Prescriptive Analytics I	4
MATH 739	Applied Regression Analysis	4
Discovery Course		4
	Credits	**16**
Spring		
DATA 675 or COMP 721	Predictive and Prescriptive Analytics II or Big Data for Data Engineers	4
ENGL 502	Professional and Technical Writing	4
UMST 582	Internship and Career Planning Seminar	1
Discovery Course		4
Discovery Course		4
	Credits	**17**
Fourth Year		
Fall		
BUS C [1]		4
DATA 757	Mining Massive Datasets	4
Discovery Course		4
Elective		4
	Credits	**16**
Spring		
DATA 790 or CS 791 or CS 792	Capstone Project or Senior Project I or Senior Project II	4
Discovery Course		4
Elective		4
Elective		4
	Credits	**16**
	Total Credits	**129**

[1] In consultation with your advisor, select: Introduction to Business, Organizational Behavior, or Organizational Leadership.

[2] MATH 531 Mathematical Proof strongly encouraged

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.