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

https://ceps.unh.edu/computer-science/program/bs/analytics-datascience-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 such as the Master of Science in Analytics at UNH. The option in Analytics places its emphasis on applications of data science in business and industry.

Program Objectives

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:

- 1. 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
- 2. Applied the full range of core Data Science concepts and techniques to fill the analytics needs of an organization
- 3. Communicated effectively with diverse stakeholders as well as functioned appropriately in a team environment
- 4. 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

For additional information about the Analytics and Data Science: Analytics Option, contact <u>Matt Magnusson</u> (<u>matthew.magnusson@unh.edu</u>), program co-director (Durham campus),

or <u>Jeremiah Johnson</u> (jeremiah.johnson@unh.edu), program co-director (Manchester campus), at (603) 641-4127.

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 24 required courses in the major as listed below, including the capstone course, the internship preparedness course, and a three-credit 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).

MathematicsMATH 425Calculus IMATH 426Calculus IIMATH 644Statistics for Engineers and Scieor COMP 570Statistics in Computing and Engor COMP 570Statistics in Computing and Engor MATH 539Introduction to Statistical AnalysMATH 645Linear Algebra for Applicationsor MATH 545Introduction to Linear AlgebraMATH 739Applied Regression AnalysisComputer ScienceIntroduction to Computer ScienciCS 400Introduction to Computer Sciencior COMP 424Applied Computing 1: FoundationCS 415Introduction to Computer Sciencior COMP 425Data Structures FundamentalsCS 457Introduction to Data Science and or COMP 625CS 515Data Structures and AlgorithmsT 505Integrative Programming or COMP 620T 520Computer Architecture or COMP 620or COMP 420Systems FundamentalsT 520Computer Organization and Syst or COMP 430T 520Computer Organization and Syst or COMP 430T 520Computer Organization and Syst or COMP 430T 6use in Introduction to Business1 Course in Organizational E-avior1 Course in Organizational E-avior	eering 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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DATA #757 Mining Massive Datasets	alytics II cs I cs
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or CS 791 Senior Project I & CS 792 and Senior Project II	alytics II cs I 1-4 4
or CS 799 Thesis	alytics II cs I 1-4 4
Select three electives ²	alytics II cs I

¹ Or another suitable 700-level data science or data engineering course chosen in consultation with the program coordinator.

² Must be 600 or 700-level and approved by advisor.

Student Learning Outcomes

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- · Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply theory, techniques, and tools throughout the data analysis lifecycle and employ the resulting knowledge to satisfy stakeholders' needs.