ANALYTICS MAJOR (B.S.)

https://ceps.unh.edu/computer-science/program/bs/analytics

Description

The BS 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 program places its emphasis on applications of data science in business and industry.

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 degree program includes earning a minimum of 128 credits, meeting the requirements of the University's Discovery Program, completing 24 required courses in the major as listed below, including the capstone courses.

In all major courses, a minimum grade of C- must be earned. 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 Program requirements).

Code	Title	Credits
Required Courses		
Mathematics		
MATH 425	Calculus I	4
MATH 426	Calculus II	4
MATH 539	Introduction to Statistical Analysis	4
or MATH 644	Statistics for Engineers and Scientists	
MATH 645	Linear Algebra for Applications	4
or MATH 545	Introduction to Linear Algebra	
MATH 739	Applied Regression Analysis	4
Computer Science		
CS 400	Introduction to Computing	2
CS 415	Introduction to Computer Science I	4
or CS 410P	Introduction to Scientific Programming/Python	
CS 416	Introduction to Computer Science II	4
CS 457	Introduction to Data Science and Analytics	4
CS 515	Data Structures and Introduction to Algorithms	4
IT 505	Integrative Programming	4
IT 520	Foundations of Information Technology	4
or CS 520	Computer Organization and System-Level Programming	
Business		
ADMN 400	Introduction to Business	4
MGT 535	Organizational Behavior	4
ECON 402	Principles of Economics (Micro)	4
English		
ENGL 502	Professional and Technical Writing	4
Analytics		
CS 674 & CS 675	Fundamentals of Statistical Learning I and Fundamentals of Statistical Learning II	8
or CS 674 & CS 750	Fundamentals of Statistical Learning I and Machine Learning	
or MATH 738 & CS 750	Data Mining and Predictive Analytics and Machine Learning	
IT 630	Data Science and Big Data Analytics	4
or CS 775	Database Systems	
Capstone		
CS 791 & CS 792	Senior Project I and Senior Project II	4
or CS 799	Thesis	
Electives		
Select three (3) CS or MATH 600- or 700-level elective courses [1]		12
Total Credits		**90**

[1] Students may choose a 600- or 700-level elective in another discipline with approval from advisor.

Degree Plan

Sample Degree Plan

This sample degree plan serves as a general guide; students collaborate with their academic advisor to develop a personalized degree plan to meet their academic goals and program requirements.

First Year

Fall		Credits
CS 400	Introduction to Computing	2
CS 415	Introduction to Computer Science I	4
CS 457	Introduction to Data Science and Analytics	4
MATH 425	Calculus I	4
ENGL 401	First-Year Writing	4
	Credits	**18**
Spring		
CS 416	Introduction to Computer Science II	4
MATH 426	Calculus II	4
ADMN 400	Introduction to Business	4
Discovery Course		4
	Credits	**16**

Second Year

Fall		
CS 515	Data Structures and Introduction to Algorithms	4
IT 520 or CS 520	Foundations of Information Technology or Computer Organization and System-Level Programming	4
MATH 645 or MATH 545	Linear Algebra for Applications or Introduction to Linear Algebra	4
Discovery Lab		4
	Credits	**16**

Spring

MATH 539 or MATH 644	Introduction to Statistical Analysis or Statistics for Engineers and Scientists	4
ENGL 502	Professional and Technical Writing	4
ECON 402	Principles of Economics (Micro)	4
Discovery Course		4
	Credits	**16**

Third Year

Fall

CS 674	Fundamentals of Statistical Learning I	4
IT 505	Integrative Programming	4
MGT 535	Organizational Behavior	4
Discovery Course		4
	Credits	**16**

Spring

CS 675	Fundamentals of Statistical Learning II	4
600- or 700-level Elective I		4
600- or 700-level Elective II		4
Discovery Course		4
	Credits	**16**

Fourth Year

Fall

CS 791	Senior Project I	2
MATH 739	Applied Regression Analysis	4
IT 630	Data Science and Big Data Analytics	4
Discovery Course		4
General Elective		4
	Credits	**18**

Spring

CS 792	Senior Project II	2
600- or 700-level Elective III		4
General Elective		4
Discovery Course		4
	Credits	**14**
	Total Credits	**130**

Student Learning Outcomes

Program 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.