

# BUSINESS ANALYTICS (M.S.)

<https://paulcollege.unh.edu/program/ms/business-analytics>

## Description

The Master of Science in Business Analytics (MSBA), offered by the Peter T. Paul College of Business and Economics, prepares students for careers related to data analytics and quantitative decision making in modern organizations. Graduates from the MSBA program will be armed with skills in data storing/pre-processing/visualization, in building prediction/forecasting models, and in formulating/solving optimal business decision problems when faced with limited resources. The MSBA program places heavy emphasis on building both the theoretical fundamentals and the practical applications of business analytics supported by relevant and modern programming skills. In addition, the MSBA curriculum is designed to foster teamwork and presentation skills that will help students to seamlessly transition into relevant corporate roles.

The MSBA is a STEM-designated program and consists of required and elective coursework. Courses follow an 8-week-long term. The program can be completed in 9 months (taking three courses per term), or 12 months (taking two to three courses per term). The MSBA program requires that applicants possess an introductory level of exposure to Calculus and programming. General familiarity with basic concepts from Calculus I, Calculus II (e.g. functions, derivation, and integration), and Linear Algebra (basic matrix operations) as well as prior exposure to at least one programming language (C++, Python, R, Java, SQL, etc.) are highly desirable. Any students without Calculus, Linear Algebra, and programming fundamentals will have access to resources to acquire the relevant background prior to joining the program.

In addition, applicants are required to have a bachelor's degree and to submit a GMAT or GRE test score from within the last five years. The emphasis will be on the quantitative score for both tests, and waivers will be considered on a case-by-case basis. International students are also required to submit a TOEFL score (waivers will be considered on a case-by-case basis).

The field of Business Analytics has grown rapidly over the last few years due to technological advancements and the ease of access to data for decision making in organizations ranging from small to large. Every firm is interested in hiring and training individuals with analytical capabilities to sustain competitive advantage in the marketplace. A list of examples of careers in business analytics is as follows:

- Business Analytics & Optimization Consultant
- Business Case Modeling Analyst/Consultant
- Business Intelligence Analyst
- Decision Science Analyst
- Analyst & Planner (Six Sigma)
- Internal Quantitative Marketing Strategy Consultant
- Manager of Modeling and Analytics
- Pricing & Revenue Optimization Analyst
- Project Manager/Promotion Response Analytics
- Quantitative Analyst – Asset Allocation
- Quantitative Analyst – Insurance Risk
- Quantitative Marketing Solutions Director & Manager
- Quantitative Modeler

- Quantitative Research Analyst

## Requirements

The MSBA program requires students to take 12 courses (a total of **36 credit hours**), from which 10 are required core courses and 2 are electives. A listing of core courses is below. Full-time students take two or three courses per term.

Code	Title	Credits
<b>The Foundation</b>		
	Mathematics for Business Analytics (Online Module) <sup>1</sup>	0
<b>Core Courses</b>		
DS 801	Business Intelligence	3
DS 802	Probability and Simulation	3
DS 803	Fundamentals of Statistical Analysis	3
DS 804	Exploration and Communication of Data	3
DS 805	Statistical Learning	3
DS 806	Optimization Methods I	3
DS 807	Modeling Unstructured Data	3
DS 808	Optimization Methods II	3
DS 809	Time Series Analysis	3
DS 810	Big Data and AI: Strategy and Analytics (Capstone)	3
2 Approved Electives <sup>2</sup>		6
<b>Total Credits</b>		<b>36</b>

<sup>1</sup> The online module acts as a refresher for the mathematical background needed for the program and is designed to prepare students for the MSBA program.

<sup>2</sup> Below is a list of suggested elective courses from the MBA program. Other courses from other UNH graduate programs may be substituted with a petition.

Depending on the availability, students can take the below courses in a face-to-face format or in an online format.

Code	Title	Credits
<b>Approved Electives</b>		
ADMN 827	Hospitality Operations & Financial Metrics	
ADMN 829	Corporate Financial Strategy	
ADMN 830	Investments	
ADMN 834	Private Equity/Venture Capital	
ADMN 846	International Financial Management	
ADMN 852	Marketing Research	
ADMN 863	Marketing Analytics	
ADMN 864	New Product Development	
ADMN 898	Topics (Digital Marketing)	
ADMN 898	Topics (Applied Financial Modeling and Analytics)	
ADMN 898	Topics (Big Data in Finance)	
ADMN 898	Topics (Project Management)	
ADMN 912	Managing Yourself & Leading Others	
ADMN 919	Accounting/Financial Reporting, Budgeting, and Analysis	
ADMN 926	Leveraging Technology for Competitive Advantage	
ADMN 930	Financial Management/Raising and Investing Money	
ADMN 940	Managing Operations	
ADMN 960	Marketing/Building Customer Value	
ADMN 970	Economics of Competition	

## Accelerated Master's

The Accelerated Master of Science in Business Analytics (MSBA) option provides an opportunity for UNH undergraduate students to begin graduate study while completing a bachelor's degree—making you stand out among other job applicants with advanced skills and increasing your

earning potential. Qualified students can begin earning graduate credit during their undergraduate programs, allowing them to maximize their time on campus and return on their educational investment.

### **Eligibility**

- Current UNH undergraduate student with a GPA of 3.2 or higher.
- Apply **before** completing 90 undergraduate credits.
- Acceptance into the Accelerated Master's Program **before** taking 800-level courses.

### **Accelerated MSBA Requirements**

- Qualified students may complete up to 6 credits at the 800-level during their undergraduate studies, earning dual credit toward their B.S. and M.S. degrees.
- Once a qualified student matriculates into the MSBA program (after completing undergraduate degree), the student will take a minimum of 30 additional credits to complete the 36 credit MSBA program requirement.
- Students are required to earn a B- or better in graduate courses to earn credits toward their degree.

### **Approved Dual Credit Electives**

To earn graduate credits, students need to enroll in the 800-level sections of approved dual credit courses. The 800-level sections require additional work beyond the requirements for the undergraduate versions. The following is the list of approved dual credit courses for the accelerated path in the MSBA program:

Code	Title	Credits
DS 720	Topics in Decision Sciences II	4
DS 774	E-Business	4
DS 768	Forecasting Analytics	4

## **Student Learning Outcomes**

- Students will demonstrate knowledge of content areas of business analytics.
- Students will demonstrate the ability to solve complex business problems.
- Students will demonstrate effective oral communication behaviors.
- Students will demonstrate effective written communication behaviors.
- Students will demonstrate ability to cleanse, aggregate and visualize data.
- Students will demonstrate ability to apply statistical inference techniques to business and societal problems.
- Students will effectively develop and interpret optimization and simulation software output to inform business or policy decision making.