

Official Program Outline



HERZING[®]
— UNIVERSITY —

MASTER OF SCIENCE IN BUSINESS ANALYTICS

PROGRAM DESCRIPTION

The Master of Science in Business Analytics program is designed to equip students with the skills and knowledge necessary to analyze and interpret complex data sets for making informed business decisions, while effectively communicating those insights to diverse stakeholders. It will equip students with a comprehensive skill set for navigating the dynamic intersection of business and data analytics. Through a rigorous curriculum, hands-on projects, and real-world applications, students will develop the expertise needed to harness the power of data in driving strategic business decisions. The impact of artificial intelligence (AI) on business efficiencies and effectiveness will be examined, and predictive analysis will be used to uncover patterns, forecast trends, ensure data security. This program encompasses the key areas of statistical analysis, programming proficiency, database management, data visualization, machine learning, business intelligence, and ethical considerations.

Coursework in this program provides a foundation for select industry certifications. These certifications enhance employment opportunities but are not a state specific requirement.

PROGRAM OUTCOMES

Upon completion of this program, the student should be able to:

1. Combine appropriate statistical methods and exploratory data analysis (EDA) techniques based on diverse business datasets to extract meaningful and actionable insights.
2. Use high level programming languages (such as SQL, Python, and R) to facilitate data-driven business solutions.
3. Design an appropriate database for cleansing, storing, and retrieving data efficiently based on business specifications.
4. Build artificial intelligence (AI) and machine learning algorithms and predictive modeling techniques to solve business problems.
5. Create business intelligence visualizations and reports to communicate analytical findings to diverse stakeholders and to contribute to informed decision-making.
6. Develop data governance policies and standards that incorporate ethical considerations, legal implications, and privacy challenges associated with data collection and usage.

PROGRAM CONTENT

A minimum of 34.00 semester credit hours is required for graduation.

REQUIRED COURSES

All courses, 34.00 semester credit hours, are required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
BU 509	Statistics for Business Decision-Making	None	4.00
BU 511	Times Series Analysis	None	3.00
BU 512	Data Management for Analysis	None	3.00
BU 513	Machine Learning	BU 512	3.00
BU 514	Text Analytics and NLP	BU 512	3.00
BU 676	Responsible Business Analytics	BU 512	3.00
BU 677	Sector Analytics	BU 514	3.00

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
BU 678	Communicating with Data Visualization	BU 512	3.00
BU 679	Advanced Applications in Business Analytics	BU 514	3.00
BU 683	Foundations of Business Analytics for Leaders	None	3.00
BU 696 or BU 698	MSBA Capstone or MSBA Internship	Final Semester	3.00

* Online students in some states may not be allowed to take this internship due to state restrictions.

Distribution of Contact Hours by Course				
Course Number	Lecture Hours	Internship Hours	Total Contact Hours	Credits
BU 509	60.00	0.00	60.00	4.00
BU 511	45.00	0.00	45.00	3.00
BU 512	45.00	0.00	45.00	3.00
BU 513	45.00	0.00	45.00	3.00
BU 514	45.00	0.00	45.00	3.00
BU 676	45.00	0.00	45.00	3.00
BU 677	45.00	0.00	45.00	3.00
BU 678	45.00	0.00	45.00	3.00
BU 679	45.00	0.00	45.00	3.00
BU 683	45.00	0.00	45.00	3.00
BU 696 (or BU 698*)	45.00	0.00	45.00	3.00
Totals with Capstone	510.00	0.00	510.00	34.00
*Totals with Internship BU 698 MSBA Internship: Contact Hours: 0/0/135/135	465.00	135.00	600.00	34.00

New Course Descriptions

BU 509 Statistics for Business Decision-Making

This course is an introduction to the concepts and procedures of statistical analysis. Statistical approaches for data summarization, analysis, and interpretation are covered. The primary focus is the practical use of statistics in real-world situations.

BU 511 Times Series Analysis

This course will provide students with the skill set of analyzing and forecasting future trends. Students will gain the skills needed to predict sales, marketing campaigns, financial trends, and other business data. Students will leverage industry-standard tools such as Python libraries and translate complex findings into actionable insights for business analysis.

BU 512 Data Management for Analysis

This course equips students with the skills to gather, store, organize, retrieve, and protect data for effective analysis and decision-making. The course focuses on the concepts, methods, and best practices of data management. Data modeling, database design, data normalization, database management systems (DBMS), data governance, data integration, data quality, and data security and the impact of artificial intelligence (AI) will be covered.

BU 513 Machine Learning

This course introduces the basic concepts and methods of artificial intelligence (AI) and machine learning. The fundamentals of several machine learning algorithms will be covered, along with applications. Assessment techniques for evaluating model performance as well as supervised learning (classification and regression) and unsupervised learning (clustering and dimensionality reduction) are covered.

BU 514 Text Analytics and NLP

This course will equip students with the foundational skills to transform unstructured text data into actionable business insights, opening doors to exciting career opportunities in various fields. This course will explore the core concepts of natural language processing (NLP), empowering students to uncover hidden meaning and unlock valuable information from diverse text sources. Students will gain the technical skills of NLP. In addition, cutting-edge applications will be explored for data-driven decision-making.

BU 683 Foundations of Business Analytics for Leaders

This course introduces students to the core concepts of business analytics. This includes how to collect and clean data as part of the analytics process. In addition, students explore how regression analysis, predictive modeling, and artificial intelligence (AI) tools are used to make informed business decisions.

BU 676 Responsible Business Analytics

This course will explore the critical intersection of artificial intelligence (AI), data privacy, privacy laws, and ethical considerations. The course will discuss ethical decision-making through responsible data practices. Students will explore the evolving landscape of AI development and its challenges, as well as opportunities to operate responsibly.

BU 677 Sector Analytics

This course explores the use of data-driven analytics for decision-making and risk management. Analytics in three critical business domains will be discussed (marketing, finance, and supply chain). Students will use analysis to optimize processes, make informed decisions, and achieve tangible results.

BU 678 Communicating with Data Visualization

This course covers fundamental design principles for effective communication through visualizations. Students will gain hands on experience developing charts and graphs. Students will use industry-standard software to create visualizations.

BU 679 Advanced Applications in Business Analytics

This course explores how advances in software and technology have revolutionized how businesses leverage data for deeper insights. Students explore cutting-edge topics like artificial intelligence (AI), predictive modeling with deep learning, forecasting with Facebook Prophet, and business process optimization, within the context of emerging trends in business analytics.

BU 696 MSBA Capstone

This course is an experiential learning course designed to provide students with real-world, practical experience in the business analytics field. It bridges academic theories and business practices, enabling students to apply their classroom knowledge to professional settings.

BU 698 MSBA Internship

The internship course is an opportunity for students to enhance their professional skills, network with industry professionals, and gain insights into the operational dynamics of business analytics.