



Foundations of Analytics (all required)

Statistical Analysis for Business Decisions (BAN 611, 1.5 credits)

This course is an introduction to descriptive and inferential statistics for MBA students. The overall purpose is for students to develop skills in:

- Describing/summarizing sample data sets
- Using probability distributions
- Drawing conclusions about the properties of large groups when only sample information is available
- Investigating relationships among several properties based on a sample of those properties

Problem-Solving Methods and Tools (MIS 661A, 3 credits)

Overview of organizational decision-making. Problem-solving steps and algorithms. Introduction to programming. Introduction to specialized software for data analytics.

Business Analytics (BAN 791, 1.5 credits)

Role of business analytics in providing support for business decisions, particularly an overall framework for analyses involving mathematical models. Emphasis on optimization and descriptive modeling utilizing analysis techniques such as linear programming, integer and binary programming, and simulation modeling. Focus on application of such techniques to business decisions with cases. Use of spreadsheets to implement analytic models. **Prerequisite:** BAN 611 or MBA 511

Advanced Analytics (all required)

Introduction to Machine Learning (BAN 614, 3 credits)

Topics include programming in R, data manipulation, and exploratory data visualization; predictive modeling using regression, decision trees, naive bayes, and discriminant analysis; regularization and resampling methods; clustering and principal component analysis. **Prerequisites:** BAN 611 or MBA 511 and MIS 661A

Advanced Business Analytics (BAN 618, 3 credits)

Techniques for the solution and analysis of various business problems. Types of models: linear programming, integer linear programming, network models, utility theory with risk attitude, dynamic programming, Monte Carlo simulation, and decision tree. Problem-oriented case studies. Emphasis on business insights, implications, and analysis of the solution procedures. Use of modeling languages, such as Python, and commercial solvers.

Prerequisites: BAN 791 or MBA 791 and MIS 661A

Data Management for Analytics (MIS 664A, 3 credits)

Phases in creating relational database systems for collecting, storing and extracting data for business analysis, including use of the Structured Query Language (SQL). Data quality issues. Steps in creating and operating a data warehouse, including multidimensional modeling, extracting, transforming and loading data for business analysis.

Prerequisite: MIS 661A

Special Topics in Data Analytics (MIS 668A, 3 credits)

Selected advanced business intelligence and data analytics topics, e.g., big data, social network analysis, web (social media) analytics, text analytics, text scraping and others, as applied to business scenarios. Seminar-based or survey-based course. Project intensive. **Prerequisites:** MIS 661A, MIS 664A, MIS 667A

Organizational Problem-Solving (all required)

Business Analytics – Processes and Techniques (MBA 663A, 1.5 credits)

Survey of the main phases of the life cycle of analytics, including information requirements determination; data acquisition; analysis with descriptive, predictive and prescriptive models; visualization; analysis presentation; and delivery. Hands-on practice with creating visualization and dashboards, and with using data-mining tools to analyze data. **Prerequisite:** BAN 611 or MBA 511

Case Studies in Analytics (MBA 615B, 1.5 credits)

Selected cases illustrating the use of various analytics methods in descriptive, predictive and prescriptive analytics to solve specific business problems. **Prerequisite:** BAN 791 or MBA 791

Advanced Business Intelligence (MIS 667A, 3 credits)

The role of business intelligence in setting and achieving organizational goals. How business intelligence supports different types of organizational decision-making. Tools and analytical methods for acquiring business intelligence, including statistical methods, data mining, visualizations and programming for analytics. Methods and organizational structures for implementing business intelligence in own organization, including maturity assessments, roadmaps and business intelligence excellence centers. **Prerequisites:** MBA 663A (may be taken as a co-requisite), MIS 661A

Capstone Project in Analytics (BAN 710, 3 credits)

Application of business analytics knowledge and skills with actual firm, student teams, project planning and implementation, and reporting and presenting to firm's management. **Prerequisites:** BAN 614, BAN 618, MIS 667A

Electives – Business Foundations Track (6 credits required)

Introduction to Financial Accounting (MBA 500, 1.5 credits)

An introduction to the concepts and procedures underlying financial accounting and the use of financial statement and other financial accounting information for decision-making.

Introduction to Managerial Accounting (MBA 501, 1.5 credits)

This course introduces the concepts underlying the preparation and use of accounting data by managers as they plan, control and make decisions within the organization. **Prerequisite:** MBA 500

Principles of Operations Management (MBA 512, 1.5 credits)

An introduction to both traditional and modern manufacturing and service systems, including operating philosophies that drive these systems and the important tools and techniques used therein. **Prerequisite:** BAN 611 or MBA 511

Principles of Finance (MBA 520, 3 credits)

An overview of finance to include time value of money, risk and return, valuation concepts, financial statement analysis, capital budgeting, cost of capital and capital structure, and working capital management. **Prerequisite:** MBA 500

Principles of Marketing (MBA 530, 1.5 credits)

Fundamentals of marketing, including macro and micro concepts that affect marketing management. An introduction to marketing terminology, definitions, theories, concepts and practices. Emphasis on decision variables used by marketing managers, both at the domestic and global levels.

Principles of Organizational Behavior (MBA 570, 1.5 credits)

This course introduces management topics conceptualized at the organizational and subunit levels of analysis, with a primary focus on how organizations generate capacities for change in response to their environments. There is an emphasis on organizational design as a means of adaptation.

Electives – Analytics Applications Track (6 credits required)

Supply Chain Analytics (MBA 613, 3 credits)

The course will use analytical tools rooted in mathematics, statistics and predictive modeling to develop insights from transaction and transportation data that can lead to savings, efficiencies and competitive advantage. The course will help the student learn how to cut through supply chain complexity to deliver goods and services efficiently and responsively. Emphasis will be placed on effectively communicating the insight.

Project Management for Professionals (MBA 616, 3 credits)

Project-oriented work makes up the bulk of managerial activity in organizations, and, consequently, knowledge of project management principles is valued highly. This course offers a broad review of issues and approaches to contemporary professional project management useful for any MBA student and future manager.

Marketing Analytics (MBA 632, 3 credits)

This course introduces students to common statistical analytical procedures related to marketing decisions. With a focus on interpreting statistical output, students will work with common marketing analytics procedures to understand what insights data can provide into marketing strategy. Readings and cases demonstrate the relevance of analytics principles in real-world situations. **Prerequisite:** MBA 511