

# Business Analytics

---

From the NJIT Martin Tuchman School of Management, the Graduate Certificate in Business Analytics will enable business-oriented students to strengthen their data analytics skills. A business analyst is a key function of any business planning to develop itself using performance and data insights. By combining statistics and computing, a business analyst will be able to build models to drive decision making.

## Who would be suited to take this program?

Students aspiring to strengthen their analytical competencies with regards to computer-based investigative modelling in the business world.

## What will I learn?

- **Information Systems Principles** – The management of information processing resources, including: role of information processing, estimates of personnel resources and budgets, integration of corporate and MIS plans, organizational alternatives for MIS departments and support staffs, management of computer operations, equipment and general software acquisitions, intermediate and long-range MIS plans, integration of personal computers, minicomputers, and mainframes, and security and controls.
- **Decision Support Systems for Managers** - Decision support systems to support management decision making in a real world environment. Establishing and measuring decision support systems success criteria, software tools, model management, elements of artificial intelligence, and statistics. Justification, design, and use of decision support systems.
- **Applied Statistics- Data visualization and use of statistical software. Descriptive statistics, summary measures for quantitative and qualitative data, data displays. Modeling random behavior: elementary probability and some simple probability distribution models. Normal distribution. Computational statistical inference: confidence intervals and tests for means, variances, and proportions. Linear regression analysis and inference. Control charts for statistical quality control. Introduction to design of experiments and ANOVA, simple factorial design and their analysis.**
- **Decision Analysis**- Introduction to the methodology of decision analysis using computer based techniques and systems analysis. Introduces concepts of modeling, probability, and choice. Addresses the philosophy and detailed methods involved in decision analysis. Methods are applied to address routine and special business decisions.
- **Data Mining and Analysis** - Introduction to data mining with an emphasis on large scale databases as a source of knowledge generation and competitive advantage. Specific topics include: framing research questions; data modeling; inferential data mining techniques; and evaluation and deployment of data mining systems.
- **Data Driven Financial Modeling** – Financial modeling driven by financial data is of critical importance to asset allocation, pricing, trading strategies, and risk management. By introducing basic and current financial modeling techniques, this course equips students with new analytic and modeling tools (e.g., spreadsheet modeling) to tackle rapidly changing and dynamic financial markets. In particular, this course delivers modeling frameworks such as regression analysis, forecasting, Monte-Carlo simulation and optimization; and it illustrates how to apply these frameworks in financial contexts such as portfolio management, term-structure estimation, capital budgeting, risk measurement, risk analysis in discounted cash flow models, and pricing of European, American, exotic, and real options.
- **Managing Supply and Value Chains** – the flow of products, information and revenue across supply and value chains in organizations. Special emphasis is placed on emerging e-business models and their effects on supply and value chains, and customer relationship management.
- **Global Project Management** - Key elements of project management frameworks with a particular focus on global projects, which include people from various organizations working in different countries across the world, both face-to-face and virtually. Such projects vary in complexity based on the number of organizations, locations, cultures, languages and time-zones involved.

## Why study Business Analytics at NJIT?

NJIT's Martin Tuchman School of Management is highly unique among the country's polytechnic universities with its technological flare among business savvy experts. Due to this, for example, IBM has hosted accredited instruction at the school's premises in Data Science Workshops at the NJIT MTSM since 2017 to this day. The MTSM MS in Management is a STEM-eligible Master's degree program, a vital nod in today's age of businesses driven by technology and analytics. In addition, NJIT's MS in Data Science from the Ying Wu College of Computing has become one of the most popular programs at the school, into which a student may transition into by starting in this program.

## Into what industries might holders of this program find employment?

- Business Analytics
- Management
- **Data Analytics**
- Business Consultant

## Prerequisites

Applicants should have a bachelor's degree from an accredited institution with some undergraduate background in a related field, such as business or MIS. Depending on the electives chosen, higher levels of math or computing may be warranted.

#### Related Degree Programs

All courses in this program are related to the NJIT MS in Management or MBA, and partially toward the MS in Data Science.

Faculty Advisors: Zhipeng (Alan) Yan and Dantong Yu

#### What are the Required and Elective Courses?

Code	Title	Credits
<b>Required Courses</b>		
MIS 645 or IS 677	Information Systems Principles Information System Principles	3
MIS 648	Decision Support Systems for Managers	3
<b>Electives</b>		
MATH 661	Applied Statistics	3
MGMT 630	Decision Analysis	3
MGMT 635 or CS 634	Data Mining and Analysis Data Mining	3
FIN 616	Data Driven Financial Modeling	3
MGMT 660	Managing Supply and Value Chains	3
MGMT 641 or EM 636	Global Project Management Project Management	3