Masters Program: Business Analytics vs Data Science

Paco

[Course 1: Foundations of Data Science Using Python](https://www.stern.nyu.edu/programs-admissions/full-time-mba/academics/areas-interest/business-analytics)

[Course 2: Production Workflows for Data Science](https://www.oreilly.com/blended-courses/ds-series/course2-ny.html)

[Course 3: Leadership and Mentoring in Data Science](https://www.oreilly.com/blended-courses/ds-series/course3-ny.html)

Berkeley

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| [Business Analytics](https://fishercenter.wpengine.com/education/courseoverview/) | [Data Science - online](https://datascience.berkeley.edu/) |
| Marketing Analytics  Big Data and Better Decisions  Decision Models  Descriptive & Predictive Data Mining  Data Science & Data Strategy | Python for Data Science  Research Design and Application for Data and Analysis  Statistics for Data Science  Fundamentals of Data Engineering  Applied Machine Learning  \*\*\* Advanced Courses \*\*\*  Experiments and Causal Inference  Behind the Data: Humans and Values  Deep Learning in the Cloud and at the Edge  Statistical Methods for Discrete Response, Time Series, and Panel Data  Machine Learning at Scale  Natural Language Processing with Deep Learning  Data Visualization  Capstone |

Carnegie Mellon

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| [Business Analytics](https://www.cmu.edu/tepper/programs/mba/curriculum/tracks/business-analytics.html) | [Data Science](https://mcds.cs.cmu.edu/learn-us) |
| ***DESCRIPTIVE (must choose at least two courses)***  Modern Data Management Mini 3 Required  Big Data Mini 1 Elective  Marketing Research Mini 3 Elective  PREDICTIVE (must choose at least two courses)  Data Mining Mini 4 Required  Statistical Applications in Management Mini 4 Elective  Business Forecasting with Time Series Models Mini 4 Elective  The Art and Science of Prediction Mini 4 Elective  Marketing Analytics Mini 2 Elective  ***PRESCRIPTIVE (must choose at least two courses)***  Applications of Operations Research Mini 1 Required  Operations Research Implementations Mini 3 Elective  Optimization Methods in Finance Mini 3 Elective  Optimization for Interactive Marketing Mini 2 Elective  Optimization Models for Operations Mini 2 Elective  Demand Management and Price Optimization Mini 1 Elective  ***APPLICATIONS (must choose at least one course)***  Technology Strategy Mini 4 Elective  Strategic IT Mini 1 Elective  Interactive Marketing Mini 4 Elective  Digital Marketing and Social Media Strategy Mini 3 Elective  Business Networks Mini 2 Elective  FinTech Mini 4 Elective  ***INTEGRATIVE - CAPSTONE***  Business Analytics Project Required | ***\*\*\* Required***  Cloud Computing  Machine Learning  Interactive Data Science  Data Science Seminar  ***\*\*\* Track \*\*\* Systems Concentration***  Operating Systems Implementation  Parallel Computer Architecture & Programming  Distributed Systems  Computer Networks  Database Systems  Advanced and Distributed Operating Systems  Advanced Cloud Computing  Advanced Databases  Advanced Storage Systems  Mobile and Pervasive Computing  Statistical Machine Learning  Intermediate Statistics  Convex Optimization  ***\*\*\* Track \*\*\* Analytics Concentration***  ***\*\*\* Choose one course in Machine Learning/Statistics:***  Conversational Machine Learning  Introduction to Machine Learning (PhD)  Deep Reinforcement Learning & Control  Probabilistic Graphical Models  Advanced Intro to Machine Learning  Convex Optimization  Machine Learning with Big Data Sets  Machine Learning for Text Mining  Language and Statistics  Computational Semantics for NLP  Machine Learning for Text Mining  Neural Networks for NLP  Machine Learning for Signal Processing  Language and Statistics  Structured Prediction  Advanced Multimedia Machine Learning  Intro to Deep Learning  ***\*\*\* Choose one course in Software Systems:***  Search Engines  Neural Networks for NLP  Large-Scale Multimedia Analysis  Advanced Multimedia Machine Learning  Design & Engineering of Intelligent Information Systems  Intelligent Systems Project  Question Answering  \*\*\* Choose one course with a focus on Big Data:  Machine Learning with Big Data Sets  Machine Learning with Big Data Sets  Large-Scale Multimedia Analysis  ***\*\*\* Track \*\*\* Human-Centered Data Science*** (HCDS) Concentration  ***\*\*\* Choose one course in Behavioral Research Methods:***  Applied Research Methods  Applied Econometrics I & II  ***\*\*\* Choose two courses in HCI Methods:***  Social Web  E-Learning Design Principles and Methods  Applied Gadgets, Sensors & Activity Recognition  Usable Privacy and Security  Tools for On-Line Learning  Rapid Prototyping of Computer Systems  Designing Human Centered Systems  Crowd Programming  Learning Analytics & Educational Data Science  Special Topics in HCI: Sensemaking  Design of Large-Scale Peer Learning Systems  Learning With Peers at Massive Scale  Mobile Health  ***Capstone Project*** |

Columbia

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| [Business Analytics](https://msba.engineering.columbia.edu/) | [Data Science](https://datascience.columbia.edu/master-of-science-in-data-science) |
| Mathematics for Business Analytics (0-credit)  Optimization Models and Methods  Probability, Statistics and Simulation  Tools for Analytics  Data Analytics  Professional Development Leadership (0-credit)  Business Analytics  Analytics in Practice  ***Tracks \* Financial, Health Care, Marketing,Algorithms …***  ***\*\*\*\* Track - Financial Analytics***  Managerial Negotiations  Quantitative Pricing and Revenue Analytics  Computing for Business Research  Stochastic Models  Applications Programming for Financial Engineering  Machine Learning for Financial Engineering & Operations Research  Technology Innovation in Financial Services (1.5)  Deep Learning  Big Data in Finance  Pricing Strategies  Data Driven Dollars  Track - Marketing Analytics  Game-Theoretic Business Strategy  Demand and Supply Analytics  Sports Analytics  Managerial Negotiations  Computing for Business Research  Online Marketplaces  Game Theoretic Models of Operations  Designing Digital Operating Models  OR Methods in Marketing (1.5)  Dynamic Pricing and Revenue Management  Strategic Consumer Insights  ***\*\*\*\*Track - Marketing Research & Analytics***  Digital Marketing  Marketing Models  Developing QI: Responsive Decision Making Through Quantitative Intuition  New Product Development  Data Driven Dollars  Mathematical Models in Marketing  Marketing Analytics  ***\*\*\*\* Track - Healthcare Analytics***  Service Operations  Healthcare Investment and Entrepreneurship HCIT and Services  Digital Healthcare Startups  Managerial Negotiations  US Healthcare System  Production and Operations Management  Scheduling  Applied Systems Engineering  Systems Engineering Tools and Methods (OR)  Data Mining for Engineers  Operations Research in Public Policy  Healthcare Operations Management  Developing QI: Responsive Decision Making Through Quantitative Intuition  ***\*\*\*\* Track - Analytics Algorithms and Methodology***  Introduction to Databases  Analysis of Algorithms  Analytics for Business Research  Big Immersion Seminar - Big Data (1.5 pts)  Applied Statistics and Data Analytics  Managerial Negotiations  Computational Discrete Optimization  Machine Learning for Financial Engineering & Operations Research  Game Theoretic Models of Operations  Transportation Analytics and Logistics  Analytics on the Cloud  Data Mining for Engineers  Applied Multivariate Statistics  Experimental Design & Analysis for Behavioral Research  Bayesian Modeling & Computation | PROBABILITY AND STATISTICS FOR DATA SCIENCE  ALGORITHMS FOR DATA SCIENCE  STATISTICAL INFERENCE AND MODELING  COMPUTER SYSTEMS FOR DATA SCIENCE  MACHINE LEARNING FOR DATA SCIENCE  EXPLORATORY DATA ANALYSIS AND VISUALIZATION  DATA SCIENCE CAPSTONE AND ETHICS  ***\*\*\*\*One Data Science Elective (choose 1).***  Inference and Representation  Deep Learning  Natural Language Processing with Representation Learning  Natural Language Understanding and Computational Semantics  Optimization-based Data Analysis  Optimization and Computational Linear Algebra  Pre-approved Elective Information |

Georgia Tech

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| [Business Analytics](http://catalog.gatech.edu/programs/analytics-ms/) | [Data Science](https://analytics.gatech.edu/) |
| Mathematics for Business Analytics (0-credit)  Optimization Models and Methods  Probability, Statistics and Simulation  Tools for Analytics  Data Analytics  Professional Development Leadership (0-credit)  Business Analytics  Analytics in Practice  ***Tracks \* Financial, Health Care, Marketing,Algorithms …***  ***\*\*\*\* Track - Financial Analytics***  Managerial Negotiations  Quantitative Pricing and Revenue Analytics  Computing for Business Research  Stochastic Models  Applications Programming for Financial Engineering  Machine Learning for Financial Engineering & Operations Research  Technology Innovation in Financial Services (1.5)  Deep Learning  Big Data in Finance  Pricing Strategies  Data Driven Dollars  Track - Marketing Analytics  Game-Theoretic Business Strategy  Demand and Supply Analytics  Sports Analytics  Managerial Negotiations  Computing for Business Research  Online Marketplaces  Game Theoretic Models of Operations  Designing Digital Operating Models  OR Methods in Marketing (1.5)  Dynamic Pricing and Revenue Management  Strategic Consumer Insights  ***\*\*\*\*Track - Marketing Research & Analytics***  Digital Marketing  Marketing Models  Developing QI: Responsive Decision Making Through Quantitative Intuition  New Product Development  Data Driven Dollars  Mathematical Models in Marketing  Marketing Analytics  ***\*\*\*\* Track - Healthcare Analytics***  Service Operations  Healthcare Investment and Entrepreneurship HCIT and Services  Digital Healthcare Startups  Managerial Negotiations  US Healthcare System  Production and Operations Management  Scheduling  Applied Systems Engineering  Systems Engineering Tools and Methods (OR)  Data Mining for Engineers  Operations Research in Public Policy  Healthcare Operations Management  Developing QI: Responsive Decision Making Through Quantitative Intuition  ***\*\*\*\* Track - Analytics Algorithms and Methodology***  Introduction to Databases  Analysis of Algorithms  Analytics for Business Research  Big Immersion Seminar - Big Data (1.5 pts)  Applied Statistics and Data Analytics  Managerial Negotiations  Computational Discrete Optimization  Machine Learning for Financial Engineering & Operations Research  Game Theoretic Models of Operations  Transportation Analytics and Logistics  Analytics on the Cloud  Data Mining for Engineers  Applied Multivariate Statistics  Experimental Design & Analysis for Behavioral Research  Bayesian Modeling & Computation | PROBABILITY AND STATISTICS FOR DATA SCIENCE  ALGORITHMS FOR DATA SCIENCE  STATISTICAL INFERENCE AND MODELING  COMPUTER SYSTEMS FOR DATA SCIENCE  MACHINE LEARNING FOR DATA SCIENCE  EXPLORATORY DATA ANALYSIS AND VISUALIZATION  DATA SCIENCE CAPSTONE AND ETHICS  \*\*\*\*One Data Science Elective (choose 1).  Inference and Representation  Deep Learning  Natural Language Processing with Representation Learning  Natural Language Understanding and Computational Semantics  Optimization-based Data Analysis  Optimization and Computational Linear Algebra  Pre-approved Elective Information |

Harvard

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| [Business Analytics](https://analytics.hbs.edu/) | [Data Science](https://www.seas.harvard.edu/programs/graduate/applied-computation/master-of-science-in-data-science) |
| Digital Strategy and Innovation  Foundations of Quantitative Analysis  Leadership, Innovation, and Change  In-Person Immersion at Harvard Business School Campus in Boston  Operations and Supply Chain Management  Programming and Data Science Systems  Leadership and People Analytics  Data-Driven Marketing  Data Science Pipeline and Critical Thinking  In-Person Immersion at Harvard Business School Campus in Boston | Data Science I  Data Science II  Advanced Scientific Computing: Stochastic Methods for Data Analysis, Inference, and Optimization  Systems Development for Computational Science  Critical Thinking in Data Science  \*\*\* Electives \*\*\*  Quantitative Finance  Time Series & Prediction  Linear Models  Design of Experiments  Generalized Linear Models  Probability I  Statistical Inference  Probability II  Statistical Inference II  Bayesian Data Analysis  Sequential Decision Making |
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MIT

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| [Business Analytics](https://mitsloan.mit.edu/master-of-business-analytics) | [Data Science](https://www.dataversity.net/data-science-education-massachusetts-institute-technology/) |
| Analytics Edge  Optimization Methods  Machine Learning Under a Modern Optimization Lens  Analytics Lab  From Analytics to Action  Analytics Software Tools in R, Python, SQL and Julia  Analytics Capstone Project  Communicating with Data  ***\*\*\* Electives \*\*\****  \*\*\* Statistics and Machine Learning  \*\* Machine Learning  Statistical Learning Theory and Applications  Statistical Consulting  Statistical Theory and Data Mining  Machine Learning Under a Modern Optimization Lens  Real Analysis  Theory of Probability  Eigenvalues of Random Matrices  Statistics for Applications  Introduction to Stochastic Processes  Topics in Statistics  ***\*\* Operations Management***  Manufacturing Systems Analysis  Introduction to Operations Management  Operations Management  Supply Chain Planning  Inventory Theory and Supply Chains  Revenue Management and Pricing  ***\*\* Optimization \*\*\****  Dynamic Programming and Stochastic Control  Introduction to Mathematical Programming  Nonlinear Optimization  Convex Analysis and Optimization  Algebraic Techniques and Semidefinite Optimization  Seminar in Systems, Communications, and Control Research  Advanced Algorithms  Integer Programming and Combinatorial Optimization  Network Optimization  Robust Modeling, Optimization, and Computation  Special Seminar in Operations Research  Combinatorial Analysis  Combinatorial Theory  ***\*\* Economics and Finance \*\*\****  Statistical Methods in Econometrics  Econometrics  Introduction to Financial Economics  Advanced Financial Economics I  Advanced Financial Economics III  Foundations of Development Policy  Applied Macro- and International Economics  Analytics of Finance  Applied Quantitative Finance  ***\*\*\* Transportation Systems \*\*\****  Demand Modeling  Computer Algorithms in Systems Engineering  Air Transportation Operations Research  Logistics Systems  Air Traffic Control  Planning and Design of Airport Systems  ***\*\*\* Applied Operations Research \*\*\****  Logistical and Transportation Planning Methods  The Analytical Edge  Management Services: Concepts, Design, and Delivery  Multidisciplinary System Design Optimization  ***\*\*\* Probabilistic Modeling \*\*\****  Advanced Topics in Mechanical Engineering  Discrete Stochastic Processes  Advanced Stochastic Processes  Applied Probability  Fundamentals of Probability (previously offered as 6.975)  Special Seminar in Applied Probability and Stochastic Processes  Probability and Random Variables | Does not seem to have MS Data Science |

New York University

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| [Business Analytics](https://www.stern.nyu.edu/programs-admissions/full-time-mba/academics/areas-interest/business-analytics) | [Data Science](https://cds.nyu.edu/) |
| Data Mining for Business Analytics  Data Visualization  Decision Models  Econometrics  Forecasting Time Series Data  Introduction to Stochastic Processes  Risk Management Systems  Trading Strategies and Systems  Regression and Multivariate Data Analysis  Research for Customer Insights | Introduction to Data Science  Probability and Statistics for Data Science  Machine Learning and Computational Statistics  Big Data  Capstone Project  One Data Science Elective  Inference and Representation  Deep Learning  Natural Language Processing with Representation Learning  Natural Language Understanding and Computational Semantics  Optimization-based Data Analysis  Optimization and Computational Linear Algebra |

Northwestern

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| Business Analytics | [Data Science](https://www.mccormick.northwestern.edu/analytics/) |
| Business Analytics I  Business Analytics II  Marketing Research  MKTG 450  \*\*\* COMPETITIVE ADVANTAGE  Analytics for Strategy  Retail Analytics  Sports and People Analytics  People Analytics and Strategy  Digital Marketing Analytics  Customer Analytics  Human and Machine Intelligence  Social Dynamics & Network Analytics  Health Analytics  \*\* DEEP DIVE  Visualization for Persuasion  Data Exploration  \*\*\*Technology for Analytics  Programming for Analytics  \*\*\*EXPERIENTIAL  Analytical Consulting Lab  Data Analytics Decisions | INDUSTRY PRACTICUM (MSIA 489)  EVERYTHING STARTS WITH DATA (MSIA 400)  INTRODUCTION TO DATABASES & INFORMATION RETRIEVAL (MSIA 413)  PREDICTIVE ANALYTICS I (MSIA 401)  INTRODUCTION TO JAVA & PYTHON PROGRAMMING (MSIA 422)  INDUSTRY PRACTICUM (MSIA 489)  ANALYTICAL CONSULTING PROJECT LEADERSHIP (MSIA 410)  DATA VISUALIZATION (MSIA 411)  DATA MINING (MSIA 421)  PREDICTIVE ANALYTICS II (MSIA 420)  INDUSTRY PRACTICUM (MSIA 489)  ANALYTICS VALUE CHAIN (MSIA 423)  ANALYTICS FOR BIG DATA (MSIA 431)With emphasis on Hadoop, unstructured data concepts (key-value), MapReduce technology, and analytics for big data.  INTRODUCTION TO DATA MANAGEMENT FOR BUSINESS INTELLIGENCE (MSIA 430)  DEEP LEARNING (MSIA 432)  INTERNSHIP  CAPSTONE DESIGN PROJECT (MSIA 499)  BUSINESS VALUE FROM ANALYTICS IN THE DIGITAL AGE (MSIA 412)  TEXT ANALYTICS (MSIA 414)  ELECTIVE |