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# University of Wisconsin

## Prerequisites

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| --- | --- |
| [Business Analytics](https://wsb.wisc.edu/programs-degrees/masters/business-analytics/program-overview) | [Online MS Data Science](https://datasciencedegree.wisconsin.edu/data-science-program/data-science-courses/) |
| 1. Applicants must demonstrate knowledge of business fundamentals, completed or expected completion, by start of program. Coursework can be completed at any accredited university or college.  Applicants may fulfill this requirement in **one** of the following ways:     * Undergraduate degree with business major or minor    * A Certificate in Business    * A minimum 3.0 GPA in intermediate college coursework covering at least two of these business disciplines:      + Marketing      + Operations      + Finance      + Accounting      + Management    * General Business 310 or 311 at UW-Madison. Applicants may complete these courses online, starting in June, as a special student.    * ***At least one year of full-time work experience in one of the business disciplines mentioned above*** 2. Completion of one semester of business calculus or equivalent. | \*\*\* Prerequisites \*\*\*  Elementary statistics  Introduction to programming  Introduction to databases  ***Ideal candidates will have a background in math, statistics, analytics, computer science, or marketing, or three to five years of professional experience*** |

## Courses

|  |  |
| --- | --- |
| [Business Analytics](https://wsb.wisc.edu/programs-degrees/masters/business-analytics/program-overview) | [Online MS Data Science](https://datasciencedegree.wisconsin.edu/data-science-program/data-science-courses/) |
| GEN BUS 656 – Machine Learning for Business Analytics (3 credits)  GEN BUS 705 – Statistics and Programming for Business Analytics (3 credits)  GEN BUS 720 – Data Visualization for Business Analytics (1 credit)  GEN BUS 730 – Prescriptive Modeling and Optimization for Business Analytics (2 credits)  GEN BUS 740 – Experiments and Causal Methods for Business Insights (2 credits)  GEN BUS 760 – Data Technology for Business Analytics (3 credits)  GEN BUS 770 – Analytics Consulting Practicum (4 credits)  GEN BUS 840 – Current Topics–Business Analytics (2 credits)  OTM 752 – Project Management (1 credit)  Elective Courses:  ACCT 603 – Financial Analysis  ACT SCI 654 – Regression and Time Series for Actuaries  ACT SCI 655 – Health Analytics  GEN BUS 704 – Data to Decisions  MHR 617 – People Analytics  MKT 815 – Marketing Analytics  OIM 714 – Supply Chain Analytics  RMI 655 – Risk Financing  RMI 660 – Risk Analytics and Behavioral Science | DS 700: Foundations of Data Science  DS 705: Statistical Methods  DS 710: Programming for Data Science  DS 715: Data Warehousing  DS 730: Big Data: High-Performance Computing  (Prerequisite: DS 710)  DS 735: Communicating About Data  DS 740: Data Mining & Machine Learning  (Prerequisites: DS 705, DS 710)  DS 745: Visualization and Unstructured Data Analysis  (Prerequisites: DS 700, DS 705, DS 710, DS 740)  DS 760: Ethics of Data Science  (Prerequisites: DS 700 or DS 780)  DS 775: Prescriptive Analytics  (Prerequisite: DS 705)  DS 780: Data Science and Strategic Decision-Making  DS 785: Capstone |

## Career Goals

|  |  |
| --- | --- |
| [Business Analytics](https://wsb.wisc.edu/programs-degrees/masters/business-analytics/program-overview) | [Online MS Data Science](https://datasciencedegree.wisconsin.edu/data-science-program/data-science-courses/) |
| Analyst, Marketing and Business Analytics  Business Analyst/Specialist  Business Analyst, Digital  Business Strategy and Analytics Manager  Business Analytics Developer  Business Analytical Consultant  Insights and Analytics Associate  Operations Data Analyst  Senior Business Intelligence Analyst  Statistician-Business Analytics  Tableau Business Analyst/Tableau Visualization Analyst | Business intelligence analyst  Data modeler  Data or research analyst  Hadoop engineer  Data mining engineer  Data scientist  Data warehouse architect  Director of market intelligence |

## Business Analytics Outcomes

* The foundations semester starts with a statistics and programming boot camp, where students are introduced to R and Python. The core method classes include data management/SQL, data visualization, machine learning, experimental design, and prescriptive analytical modeling.
* The applications semester includes one analytics course elective (three credits) and six credits of experiential learning, including a consulting practicum for live corporate clients working on real business analysis challenges.

The master’s in business analytics curriculum includes the topics of:

* Data acquisition, analysis, and visualization
* Machine learning, experimental design, and optimization
* Descriptive, predictive, and prescriptive analytical approaches
* R/Python/SQL/Tableau

## Data Science Outcomes

#### Identify and assess the needs of an organization for a data science task.

You will be able to:

* Conduct a needs assessment.
* Frame tasks in the context of organizational goals.
* Communicate data science options and limitations that could meet organizational needs.

#### Collect and manage data to devise solutions to data science tasks.

You will be able to:

* Collect, clean, and prepare data.
* Evaluate data in terms of source, volume, frequency, and flow.

#### Select, apply, and evaluate models to devise solutions to data science tasks.

You will be able to:

* Identify and classify relevant variables for data science tasks.
* Choose and apply tools and methodologies to solve data science tasks.
* Assess the model used to solve data science tasks.

#### Interpret data science analysis outcomes.

You will be able to:

* Interpret data, extract meaningful information, and assess findings.
* Evaluate the limitations of data science findings.

#### Effectively communicate data science-related information effectively in various formats to appropriate audiences.

You will be able to:

* Write, format, disseminate, and orally communicate technical materials.
* Help non-technical professionals visualize, explore, and act on data science findings.
* Facilitate data-informed discussions through listening, questioning, and presenting.

#### Value and safeguard the ethical use of data in all aspects of their profession.

You will be able to:

* Identify and analyze social, legal, and ethical issues in data science.
* Interpret and apply a professional code of ethics relevant to the data science profession.
* Interpret the activities and choices of others within an ethical framework and determine an appropriate action based on standards of professional conduct.

#### Transform findings from data resources into actionable business strategies.

You will be able to:

* Integrate data science capabilities into the formation of a situation analysis.
* Explain how data assets can be used to develop competitive advantage.
* Identify and appraise the leadership and management skills required to direct a team of data science professionals toward meeting organizational goals.