Business Analytics

Chairperson: James M. McGibany, Ph.D.
Department of Economics website (http://business.marquette.edu/departments/economics/)

The curriculum provides students an operational knowledge of data preparation, including understanding the business problem, understanding which data to collect, and how to clean and prepare data that is frequently messy and unstructured to make it ready for analysis. Students also learn a variety of descriptive, prescriptive and predictive analytic techniques, data visualization techniques, basic machine-learning and artificial intelligence practices, and the methods to effectively communicate insights derived from analysis to senior management. The major concludes with an integrated, cross functional applied industry-based project, with students working in teams on a large real-world data set. Requiring a double major, students also obtain another major in a functional business field such as accounting, economics, innovation and entrepreneurship, finance, information systems, human resources management, marketing, real estate or supply chain management.

Business Analytics

Students majoring in Business Analytics must pair this major with another primary major in the college.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Upper Division Business Electives (courses completed in primary major)</td>
<td>15</td>
</tr>
<tr>
<td>BUAN 3065</td>
<td>Business Analytics 1: Data Definition, Preparation, Descriptive Analytics</td>
<td>3</td>
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<tr>
<td>BUAN 3066</td>
<td>Business Analytics 2: Predictive and Prescriptive Modeling</td>
<td>3</td>
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<tr>
<td>BUAN 4060</td>
<td>Business Analytics: Unstructured Data Analysis</td>
<td>3</td>
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<tr>
<td>BUAN 4061</td>
<td>Advanced Business Analytics</td>
<td>3</td>
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<tr>
<td>BUAN 4160</td>
<td>Integrative Business Analytics</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Total Credit Hours:</strong></td>
<td><strong>30</strong></td>
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Note: Student must earn a C or better in BUAD 1560 Introduction to Statistics and Business Analytics to enroll in BUAN 3065 Business Analytics 1: Data Definition, Preparation, Descriptive Analytics.

Courses

BUAN 3065. Business Analytics 1: Data Definition, Preparation, Descriptive Analytics. 3 cr. hrs.
Overview of where business analytics fits into current corporate decision-making support; intro to the three major aspects of business analytics (descriptive, predictive and prescriptive). Emphasis begins with analytics' use in addressing business problems and opportunities (applications) rather than programming and statistical underpinnings. The review of statistics, Excel and the scientific method are incorporated to analytic thinking for decision-making. Concentrates on data issues (such as data preparation, transformation and cleaning) as well as descriptive and visual analytics. Introduces students to the leading data visualization software packages used in business organizations and apply them using a variety of business, economic and government data sets. Prereq: Enrolled in the College of Business Administration; grade of C or better in BUAD 1560.

BUAN 3066. Business Analytics 2: Predictive and Prescriptive Modeling. 3 cr. hrs.
Addresses the most valuable predictive and descriptive modeling methodologies and how they address sales & marketing, supply chain, finance, accounting and HR business problems/opportunities – classification, regression, behavioral, value and optimization modeling; demand and adoption forecast models; and market basket analysis (association and sequence). Also focusses on developing an understanding which analytical tool can be used for which purpose, and the limitations and benefits of each. Hypotheses testing, sampling issues, analysis rules and best practices for analysis are also explored. Prereq: Enrolled in College of Business Administration; BUAN 3065.

BUAN 3986. Internship Work Period. 0 cr. hrs.
SNC/UNC grade assessment. Prereq: BUAN 3065; cons. of prog. dir. and cons. of Business Career Center.

BUAN 4060. Business Analytics: Unstructured Data Analysis. 3 cr. hrs.
Addresses the unstructured data management skills needed for modern data analysis including those salient to big data and real-time data environments. Introduces unstructured data, including both well-formatted data (XML, JSON etc.) and free flowing information. Learn about software and databases as well as methods for identification, acquisition, extraction, validation/cleansing, representation and analysis of data for organizational use. Learn how to store and manipulate unstructured data, how to mine text and how to manipulate and analyze unstructured data to enable better decision-making. Briefly introduces data visualization tools as a way to communicate effectively insights gained from analyzing unstructured data. Prereq: BUAN 3065 and BUAN 3066.

BUAN 4061. Advanced Business Analytics. 3 cr. hrs.
Takes insights derived from the analytics and focusses on how to communicate these actionable insights to executives for decision-making purposes. Includes presentation and storytelling skills, and the ability to communicate to both technical and managerial audiences. Students also need to be able to measure the outcomes based on the decisions that were made with the data-storytelling. Looks to develop good listening and team building and other communication skills. Prereq: BUAN 3065 and BUAN 3066.
BUAN 4160. Integrative Business Analytics. 3 cr. hrs.
A team-based course that gives students the opportunity to further apply the content learned in prior courses to a company-specific set of business problems/opportunities. Combines course work with a student-team practicum with a local area company that provides a real business problem/opportunity and a real-life/messy data set. Depending on the number of companies involved and the size of the class, there can be multiple companies or a single company involved. For the latter, the project is set up as a competition for the best-fitting solution. Prereq: Three of the following: BUAN 3065, BUAN 3066, BUAN 4060 or BUAN 4061.

BUAN 4986. Business Analytics Internship - Grading Period. 3 cr. hrs.

BUAN 4989. Business Analytics Internship Work and Grading Period. 3 cr. hrs.