

## BSAN - Business Analytics

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Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### **BSAN 675. Analytics Decision Modeling with Spreadsheets (3).**

Cross-listed as FIN 675. Introduces key principles of business analytics modeling: descriptive, predictive and prescriptive. Models covered in each area may differ from semester to semester. Students learn how to make decisions not based on intuition or “gut feel,” but on models and data. Course adopts a practical approach to the modeling of a wide variety of business problems in various functional areas. Models are built in Excel and add-ins to Excel, allowing students to gain advanced Excel skills, which will benefit them in their careers. For undergraduate credit only. Prerequisites: DS 350 and FIN 340 each with a grade of C or better; BADM 162, ECON 231, and ECON 232 or equivalents; junior standing; advanced standing; or instructor's consent.

### **BSAN 734. Introduction to Data Mining and Analytics (3).**

Introduces the theory, application and interpretation of basic analysis methods for analyzing existing datasets. Topics include data preprocessing, data exploration and visualization as well as specific methods for regression, classification, cluster analysis and association analysis. Focuses on learning the data mining tasks that each method addresses, the assumptions of each method, the inputs needed, the outputs, interpretation of results, and evaluation of the quality of the analysis. Uses Python to cover these different methods. Course is mainly targeted for graduate students. Students cannot receive credit for both BSAN 734 and IME 734.

### **BSAN 775. Perspectives on Business Analytics (3).**

Overview of the different perspectives of the field of analytics from math to computer science to business and more. Focuses on business analytics, starting with sources of big data, data collection and the ethical challenges associated with using data. Covers the various deterministic and prescriptive optimization models using scenarios from various business functions (operations/supply chain, finance, marketing, human resources, etc.). Students learn how to frame the problem, formulate it, solve it with Excel, then analyze and report the results. Course provides a good understanding of data analytics as applied to business, but also an appreciation for the importance of the field of data science. For graduate credit only. Prerequisite(s): familiarity with Excel and graduate student status.

### **BSAN 875. Advanced Business Analytics (3).**

Overview of analytical models, with a focus on probabilistic models where the decision to be made is based on uncertain events, or prior data does not exist (e.g. introducing new products to market). This introduces risk in business that needs to be measured and planned for. The models covered include decision trees, simulation, machine learning and artificial intelligence algorithms. Students learn how to use such models in business, and not how to program the code behind the algorithm. Students mainly use Excel, advanced add-ins to Excel (Palisade), and freely available open source algorithms coded in Python. Students also use advanced visualization software like PowerBI Desktop to prepare, connect, analyze and visualize data from multiple sources. Prior enrollment in BSAN 675/FIN 675 is recommended, but not required. Prerequisite(s): BSAN 775 or equivalent or instructor's approval is highly recommended; familiarity with Excel.

### **BSAN 885. Business Analytics Capstone (3).**

Provides an opportunity for students to work on a project that draws on the skills learned from descriptive, predictive and prescriptive analytics modeling to frame a business problem, work effectively with data, visualize data, and use statistical or optimization models to support

data-driven decision-making processes. Whenever possible, projects are based on a real business problem faced by organizations in the business community. The capstone project also furthers student skills in developing business insight from quantitative analysis, knowledge of functional areas in business or/and specific industries, managing a project from start to finish, communicating with stakeholders, and using storytelling to present the final project.