

BSAN - BUSINESS ANALYTICS (BSAN)

BSAN 7001 Intro Data Analytics - Bus Int (3 Credits)

Business decision-making should, when possible, rely on data and the conclusions that can be drawn from that data. This course is an introduction to business data analytics; it covers descriptive statistics, data visualization, probability basics, and relationships between two or more variables. One focus is on learning and contrasting traditional statistical approaches (inference) and “big data” approaches. Much of the course will entail the use of Excel, as spreadsheet software is arguably the most commonly available and most frequently used tool for analyzing business data. We will equally be using R – a popular, open-source, statistical package.

BSAN 7011 Exploratory Analytic-Visualztn (3 Credits)

In the initial stages of a data analysis project, analysts must often deal with large and unfamiliar data sets. By asking good questions and finding answers in the data, they arrive at useful insights – and this captures the core of exploratory data analysis (EDA). EDA often serves as a precursor to the process of building predictive models. Equally often, EDA yields significant insights that prove to be very useful in themselves. This course covers the art and science of EDA. Through numerous examples, the course will develop participants’ ability to formulate interesting and important questions. Answering these questions generally involves significant slicing, dicing, aggregating and reshaping of the data; this course will equip participants with the requisite skills. EDA relies heavily on data visualization and the course will equip participants with the skills to generate, and effectively present, evocative graphs that tell stories. The course will equip participants with a framework to enable them to ask the right questions and with the skills to explore and find answers.

BSAN 7021 Predictive Analytics (3 Credits)

In most business situations, being able to determine, with reasonable accuracy, the value of some unknown can be beneficial. For example, it would be useful for a company to know if a prospective customer would default on payments (classification), or to know the number of units of a product that it might be able to sell during the next quarter at a given store (regression). Quite often, even seemingly inaccurate estimates of such unknowns can lead to large monetary gains for a company if the new knowledge can lead to a discernable difference in performance. This is the domain of predictive modeling – using historical data to determine the value of an unknown. The course covers both classification and regression techniques. The course will equip participants with the ability to identify situations that could benefit from predictive models, to identify the data requirements and work with others to obtain the data, to manipulate the data into a form usable for predictive analysis, and to build, evaluate, present and deploy the models.

Prerequisites: BSAN 7001 with a minimum grade of D

BSAN 7031 Databases and SQL (3 Credits)

Relational database technology revealed the power of a simple data model coupled with the nonprocedural Structured Query Language (SQL) that enabled data independence and unleashed the power of computing applications. Despite the growing importance of other data models, like schema-free and distributed-data models, the relational data model still reigns supreme in many application domains. The overwhelming majority of business data is still stored in relational databases, and any business analyst needs to understand how to extract data from them. This course provides thorough coverage of SQL. The course also covers data warehousing concepts, as analysts will need to design data warehouses for end users to perform their data analysis. Another important topic in the course is database design. While business analysts might not design databases for mission critical processes, they might be called upon to design departmental databases. This will require an understanding of database design diagrams. With this in mind, the course also covers the use of Entity Relationship Models for database design.

BSAN 7041 Business Process - Data Model (3 Credits)

In order to support business effectively, analysts need to understand business processes. This course will cover business processes by examining their corresponding data models, as analysts will mostly be looking at business from a data-oriented lens. The course covers data models for products, orders, shipments, work effort, invoicing, accounting, budgeting and human resources management. The course will also look at several star-schema for different functional areas.

BSAN 7045 Project Management (3 Credits)

BSAN 7046 Deep Learning (3 Credits)

Prerequisites: BSAN 7021 with a minimum grade of D

BSAN 7051 Big Data Analytics (3 Credits)

Unstructured data abounds in today’s environment. These arise in the form of tweets, Facebook and Instagram posts, photographs, videos, speech recordings and the like. IT tools have made impressive progress in being able to analyze and extract meaning from this sort of unstructured data. This course will help students understand the key technologies used in storing, processing and analyzing these forms of unstructured, big data. Students will use R, Python, Cassandra, Spark and Tensor Flow. Students will learn how to conceive of big data applications and design scalable systems.

Prerequisites: BSAN 7001 with a minimum grade of D and BSAN 7011 with a minimum grade of D and BSAN 7021 with a minimum grade of D

BSAN 9000 Capstone Project (3 Credits)

All students will complete a rigorous, semester-long Capstone project that will rely on and integrate the knowledge gained over the duration of the program. The Capstone experience will give students an immersive experience where they will take charge of a project and see it through from start to end. During the individual courses, students learn everything in a carefully scaffolded and structured environment. In contrast, in this course, students will face a more unstructured, realistic scenario, similar to those that data analysts encounter in their work. This unstructured environment will help students integrate their structured learnings and mature in the process. Their learning is also enhanced because of the sense of ownership that they feel in doing projects of their choice. Students will be expected to come up with their own projects (with some guidance) and then to execute the entire process. Project teams will identify a problem of significance and use the techniques learned in the MS in Business Analytics to suggest solutions. Students will go through several iterations of work within each phase, based on discussions with the instructors.

Prerequisites: BSAN 7001 with a minimum grade of D and BSAN 7011 with a minimum grade of D and BSAN 7021 with a minimum grade of D and BSAN 7031 with a minimum grade of D