BUSINESS ANALYTICS

Business Analytics majors study the quantitative and data analytic methods required for informed decision making in an organizational setting. The students learn to analyze business data for problem solving and strategic decision making. The curriculum seeks to provide hands-on experience with business intelligence foundations, data analysis, database modeling, predictive modeling, data warehousing, as well as data mining for business decisions. Students attain a working knowledge of data mining tools and are able to professionally communicate analysis results.

Programs

Bachelor

- Business Analytics / Bachelor of Science (https://catalog.lewisu.edu/undergraduate/business/business-analytics/business-analytics-bachelor-science/)

Minor

- Business Analytics / Minor (https://catalog.lewisu.edu/undergraduate/business/business-analytics/business-analytics-minor/)

Courses

BSAN 14900 - Introduction to Business Statistics (3)
This course introduces students to the fundamental tools of statistical and quantitative reasoning used in business decision-making, with early emphasis on interpreting and critiquing AI-assisted analytical outputs. Topics include data exploration, descriptive measures, probability concepts, sampling, estimation, hypothesis testing, and an introduction to correlation and regression. The course focuses on interpretation and managerial relevance rather than complex computation. Students work with spreadsheets and selected AI-supported tools to analyze data, compare alternative interpretations, and visualize patterns. By developing comfort with data, uncertainty, and basic quantitative methods, students build the foundation needed for later analytics coursework and strengthen essential skills in data literacy, critical thinking, and evidence-based decision making.

BSAN 20000 - Accounting and Business Information Systems (3)
Students are introduced to computers and computerized information systems, computer hardware and its uses and interactions; software, software packages and programming languages; the basics of analyzing, and designing business information systems; data communications and networking, distributed data processing and access to the Internet and hands-on uses of microcomputers for spreadsheet and database business applications using the latest, most popular software.

BSAN 23000 - Introduction to Business Analytics (3)
This course introduces fundamentals of business analytics. Students are exposed to the basic concepts and modern tools related to explanatory and predictive models for decision making in a business context. Data collection, transformation, filtering, and basic analysis methods are discussed. Legal and ethical aspects concerning privacy and confidentiality in the current regulatory environment are reviewed. This course does not require students to have prior familiarity with the business analytics related concepts and tools.

BSAN 23100 - Introduction to Business Analytics for Accountants (3)
This course provides fundamentals of data analytics for accountants. Students are exposed to the basic concepts and various analytics tools to analyze and process information for accounting decision making. Data extraction, transformation, filtering, basic analysis methods, and data visualization are discussed. Legal and ethical aspects concerning privacy and confidentiality in the current regulatory environment are reviewed. This course does not require students to have prior familiarity with the data analytics related concepts and tools.
Prerequisite: ACCT 12100

BSAN 30000 - Generative AI for Business Innovation (3)
This course provides a practical, technology-focused introduction to Generative Artificial Intelligence (AI) and its applications in business. Students use real-world tools such as OpenAI's ChatGPT, Google Gemini, and Microsoft Copilot to explore how AI can enhance analysis, automation, and decision-making across business functions. The course emphasizes hands-on experimentation rather than programming: students design effective prompts, interpret AI-generated outputs for data and text, and build no-code, AI-assisted processes that support real organizational tasks. Topics include generative AI fundamentals, prompt engineering and grounding, reliability and bias testing, process mapping with human-in-the-loop controls, and simple ROI and risk analysis. In the final applied project, teams design an AI-enabled business solution (e.g., customer-insight assistant, forecasting advisor, or reporting automation blueprint) and evaluate its business value, limitations, and responsible-use requirements. Prerequisites: Sophomore standing. Completion of one of the following—Principles of Management, Principles of Marketing, or Business Analytics/Statistics (basic Excel fluency).
Prerequisite: BSAD 20000 or MKTG 20000 or BSAN 14900
Class Restrictions: May not be in the following Class: First Year.

BSAN 31000 - Business Data Visualization (3)
Visualization techniques for business data are discussed in detail. Practical data visualization techniques for several improved decision-making and problem-solving scenarios will be discussed. The students will learn how to transform complex categorical data to equivalent easy-to-use visual representation. Current tools and development environments will be discussed.
Prerequisite: BSAN 20000 (may be taken concurrently)

BSAN 33000 - Database Management Systems (3)
Database concepts and design are covered, as well as database administration, relational and object oriented database systems and models, Internet database access and use of database software.

BSAN 33400 - Business Intelligence (3)
Business Intelligence curse offers an in-depth understanding of the modern tools and techniques for improved business decision making by utilizing the knowledge assets of an enterprise. Specifically classification, clustering, segmentation, decision support systems, search algorithms, data mining, factor and discriminate analysis and optimization concepts for both structured and unstructured data are discussed. Students will learn to use and design data analysis based solutions to real life business information problems.

BSAN 34500 - Data Mining Tools (3)
This course is a hands-on study of the current data mining applications used for making business decisions. Using data from finance, operations, economics and other disciplines, students will learn various data mining techniques including decision trees, rule based reasoning, neural networks, and cluster analysis.

BSAN 35000 - Decision Science (3)
This course covers the development and utilization of quantitative models for business decisions (linear programming, decision theory, PERT/CPM, queuing theory, simulation, forecasting and inventory control). Business problems are analyzed and solved using the aforementioned methods.
Prerequisite: BSAN 20000 and (MATH 20200 or MATH 17000)

BSAN 41500 - Business Process Automation (3)
Decision making and problem solving techniques for business data processing scenarios are discussed. Students learn the current data acquisition, filtering, processing, and query methods for strategic business decisions. Automated solutions for increased business efficiency in the form of macros, scripts, and similar other techniques are explained.
Prerequisite: BSAN 20000

BSAN 43000 - Business Data Warehousing (3)
Foundations of business data warehousing concepts and their implementations in various business settings are reviewed. Business data warehouse development methodology and data warehouse planning stages are discussed. Identification of business requirements, feasibility analysis, and development of logical data warehouse models will be discussed. The students will learn the development of the data architecture as well as the implementation and administration of the data warehouse.
Prerequisite: BSAN 33000

BSAN 45500 - Web Analytics (3)
Web Analytics is the measurement, collection, analysis and reporting of detailed statistics about visits to a web site. Internet Analytics provides important information in order to optimize and improve the web site usability and performance. This course discusses a number of analytics techniques such as log files, cookies, web bugs, and paper tagging. It also covers the key performance indicators, website metrics. Additionally, it demonstrates how to setup and use some of the leading web analytics tools available such as Google Analytics and Visistats. These tools will help you track your Twitter, Facebook, and other social media marketing (SMM) technologies and determine if your SMM is working.

BSAN 49700 - Business Analytics Capstone (3)
This hands-on course requires students to demonstrate proficiency in different aspects of business analytics with a semester project. The students are expected to employ the skills presented throughout the curriculum in an organized manner to solve realistic business data management problems. Mastery of skills for the student's identified concentration is expected.
Prerequisite: BSAN 31000 (may be taken concurrently) and BSAN 33000 (may be taken concurrently)