BUSINESS ANALYTICS (BAN)

BAN 610. Statistical Foundations for Applied AI And Business Analytics.   **3 Credits.**
This course covers fundamental concepts in data analysis, statistical reasoning, and their connection to applied artificial intelligence in business settings. Students learn to organize, visualize, and summarize data, measure variability, and work with key concepts such as probability distributions, sampling, confidence intervals, hypothesis testing, regression, and correlation. Experimental design, analysis of variance, and statistical inference are also covered. Throughout the course, students gain hands-on experience with analytics platforms and utilize statistical methods supported by AI-driven tools for decision-making. Students will interpret results, communicate insights, and apply a range of techniques and AI-supported approaches to guide business decisions.
Prerequisites: None
Offered: Every year, All

BAN 615. Predictive Business Analytics.   **3 Credits.**
The course introduces the techniques of predictive modeling and analytics in a data-rich business environment. It covers the process of formulating business objectives, data selection, preparation and partition to successfully design, build, evaluate and implement predictive models for a variety of practical business applications (such as marketing, customer retention, delinquency and collection analytics, fraud detection and insurance). Predictive models such as classification and decision trees, neural networks, regressions, pattern discovery analysis and other techniques are studied.
Prerequisites: Take BAN 610.
Offered: Every year, Fall and Spring

BAN 621. Data Management.   **3 Credits.**
This course covers both operational and analytical databases, bridging the gap between day-to-day data management and strategic data analysis. Students will design, implement, and manage databases that support business operations, as well as how to extract and analyze data for decision-making purposes. Students will engage in hands-on learning to complete a real-world project using contemporary data management tools and techniques.
Prerequisites: None
Offered: Every year, Fall and Spring

BAN 628. Data Mining for Competitive Advantage.   **3 Credits.**
This course focuses on the application of common data mining techniques. Students focus on developing business solutions by applying techniques such as market basket analysis, association rules, cluster analysis and time series.
Prerequisites: None
Offered: Every year, Fall

BAN 629. Text Analytics.   **3 Credits.**
This course builds upon previously introduced data mining methods, focusing specifically on techniques for text extraction and mining. Topics include efficient text indexing; document clustering and classification; information retrieval models; enhancement of structured data; scenario detection techniques; and using textual data in predictive models.
Prerequisites: None
Offered: As needed

BAN 650. Data Visualization for Managers.   **3 Credits.**
This course provides an introduction as well as hands-on experience to the field of data visualization. Students learn basic visualization design and evaluation principles to create meaningful displays of quantitative and qualitative data. They learn techniques for visualizing multivariate, temporal, text-based, geospatial, hierarchical and network/graph-based data. Students cannot receive credit for both BAN 650 and PMBA 626.
Prerequisites: None
Offered: Every year, Fall and Spring

BAN 660. Optimization.   **3 Credits.**
This course focuses on developing computational methods to solve various business optimization problems. Students will formulate and solve a variety of optimization problems including linear, integer, mixed-integer, and non-linear. The course also covers understanding decision making under uncertainty
Prerequisites: None
Offered: As needed

BAN 661. Web Analytics and Web Intelligence.   **3 Credits.**
This course focuses on the analysis of a variety of web metrics including tracking, traffic and visitor behavior, tactics and strategies to successfully market on the Web to make data-driven decisions. Business analytics tools and techniques are utilized to extract and analyze web-scale data to guide strategic decision making. Topics address solutions for measurably higher leads, sales, brand recognition, customer satisfaction or lower service costs.
Prerequisites: Take BAN 610.
Offered: As needed

BAN 663. Business Data Analytics with R.   **3 Credits.**
Students learn to program and use R for effective data analysis. Reading data, accessing R packages, writing functions, debugging, profiling code and organizing and commenting code also are covered. Working examples of topics in statistical data analysis are provided. The course also addresses installation and configuration of software as necessary for a statistical programming environment.
Prerequisites: None
Offered: As needed

BAN 664. Health Care Analytics.   **3 Credits.**
This course provides a foundation on data analytics in health care and an understanding of the main concepts and issues. Contemporary tools and technologies are applied to develop an analytics solution to selected health care problems.
Prerequisites: None
Offered: As needed

BAN 665. Big Data and Hadoop.   **3 Credits.**
The concept, principles, issues and techniques for managing Big Data information management resources are covered. The course explores how Big Data fits into an organization's information management strategy. Focus is on the Hadoop platform, emphasizing how it is used to design and maintain Big Data to support analytics.
Prerequisites: None
Offered: As needed

BAN 667. Design and Analysis of Business Information Systems.   3 Credits.
This course considers systems-development methods, analysis and design techniques with a focus on object-oriented analysis and design. The application of systems analysis and design concepts using current tools, techniques and approaches is covered. Students engage in hands-on learning and work in teams to complete a real-world project using contemporary analysis and design methodologies and tools.
Prerequisites: None
Offered: As needed

BAN 668. Python Programming for Data Analysis.   3 Credits.
After briefly covering the basics of Python programming, the course will show how students can use Python for simple text analysis. The course will then delve deeper and cover topics such as acquiring and cleaning data, and analyze the data using various statistical analysis modules that are available for Python. Students will work on independent short Python programming projects, as well as data analysis projects using Python.
Prerequisites: None
Offered: Every year, Fall

BAN 669. Project Management.   3 Credits.
This course develops a foundation of concepts and solutions required for successful completion of a project. Topics include planning, scheduling, controlling, resource allocation and performance measurement.
Prerequisites: None
Offered: As needed

BAN 671. Fundamentals of Blockchain Technology.   3 Credits.
This course equips students with tools to integrate and utilize blockchain solutions in business ecosystems while assessing their business value. Private and public blockchain frameworks as well as interconnected devices are analyzed. Blockchain technologies and their ongoing technical challenges are covered. Students work to analyze what problem(s) blockchain technology address, how it solves them, and how to assess new blockchain protocols.
Prerequisites: None
Offered: Every year, Fall

BAN 672. Applied Business Analytics W Advance Exc.   3 Credits.
Advanced features in Excel are utilized to create business solutions. This includes working with financial, logical, and statistical functions, as well as Developer, macros, data management, and charts and graphs. Business Intelligence tools, such as Data Queries and Models, What If analysis and Power Pivot are featured. These techniques are applied to business problems and opportunities.
Prerequisites: None
Offered: As needed, Summer

BAN 673. AI and Analytics in Healthcare.   3 Credits.
This course provides an understanding of the concepts and issues for artificial intelligence (AI) and analytics within the health care industry. Contemporary tools and technologies are applied to develop AI and analytics solutions for health care problems.
Prerequisites: None

BAN 674. Generative AI Applications in Business.   3 Credits.
This course explores the practical use of generative AI tools in business environments. Students will engage with technologies such as ChatGPT, Claude, DALL-E, and others to understand their capabilities, applications, and limitations. The course emphasizes hands-on experience with generative AI to create content and improve existing workflows. By the end of the course, students will have hands-on experience with leading generative AI tools, understand their business applications, and critically analyze their limitations and ethical challenges.
Prerequisites: None
Offered: Every year, Fall

BAN 675. Special Topics.   3 Credits.
Prerequisites: None
Offered: As needed

BAN 688. Business Analytics Independent Study.   3 Credits.
Prerequisites: None
Offered: Every year, All

BAN 690. Business Analytics Capstone.   3 Credits.
The capstone course in the MSBA program is designed to enable students to directly utilize what has been learned in the tools and applications courses to analyze and offer solutions for a major business challenge. A definition of the problem, analysis of options and a comprehensive presentation of findings and solutions are required components of the course.
Prerequisites: Take BAN 610, BAN 615, BAN 621, BAN 650, BAN 668.
Offered: Every year, All