BUSINESS ANALYTICS (BAN)

Business Analytics (BAN) Courses

BAN 1023. Introduction to Business Statistics. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in MAT 1053, or equivalents. This course is designed to introduce basic statistical and quantitative techniques for business. It examines analytical skills and statistical concepts important in business-oriented environments. Various statistical techniques will be presented to assist in solving problems encountered by organizations. Topics include, but are not limited to, descriptive statistics, measures of central tendency and dispersion, elementary probability theory, expected value, random variables, discrete and continuous distributions, sampling distributions, point and interval estimation, and hypothesis testing. Electronic spreadsheets will be utilized for analyzing and interpreting data. (Formerly MS 1023. Credit cannot be earned for both BAN 1023 and MS 1023. Formerly titled: "Business Statistics with Computer Applications I."). Course Fee: BISP $10; BTSI $15.41; DL01 $75; LRB1 $15.41.

BAN 3003. Visualization in Business Analytics. (3-0) 3 Credit Hours.
This course provides a comprehensive introduction and hands-on experience in data analytics, visualization, and storytelling. Students will have the opportunity to learn to articulate design principles and best practices for creating meaningful visual displays of data, prepare different types of data for visualization, develop and interpret a wide range of charts and graphs using software (e.g., Tableau), and effectively communicate data-driven business insights using visualizations. (Formerly MS 3003. Credit cannot be earned for both MS 3003 and BAN 3003.) This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3043. Statistical Methods for Business. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in MAT 1053 and one of the following: BAN 1023, STA 1053, or STA 3003, or equivalents. This course builds on the foundations learned in MS 1023. Statistical concepts include, but are not limited to, hypothesis testing concepts, goodness-of-fit tests, tests of independence, analysis of variance, correlation, linear and multiple regression, time series data analysis (forecasting), and index numbers. Electronic spreadsheets and statistical software will be utilized in analyzing and interpreting data and for hands-on assessment. (Formerly MS 3043. Credit cannot be earned for both MS 3043 and BAN 3043. Formerly titled: "Business Statistics with Computer Applications II.") This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3053. Business Modeling and Optimization. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in MAT 1053, and one of the following: BAN 1023, STA 1053, or STA 3003, or equivalents. This is an introductory course in management science that teaches students how to construct mathematical models representing real-world problems, utilizing optimization techniques to find optimal solutions, enabling data-driven decision making by analyzing various scenarios and constraints within a business context. The course emphasizes model building and solution interpretation. Topics include, but are not limited to, linear and integer programming, network distribution models, project scheduling, waiting line models, simulation, and Markov processes. Spreadsheet modelling will be utilized for practical applications and model building. (Formerly MS 3053. Credit cannot be earned for both MS 3053 and BAN 3053. Formerly titled: "Management Science and Operations Technology.") This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3073. Regression Models for Business Analytics. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in one of the following: BAN 1023, STA 1053, or STA 3003, or equivalent. This course introduces regression analysis with applications in business analytics. Topics include multiple linear regression, logistic regression, forecasting, model building and evaluation, and variable selection methods. Additional topics include diagnostics and validation of regression models, interpretation of analytical outcomes, and comparison of various regression approaches within business contexts. Students will apply statistical software to analyze real-world data sets and develop practical skills for data-driven decision making. (Formerly MS 3073. Credit cannot be earned for both MS 3073 and BAN 3073. Formerly titled: "Business Intelligence and Analytics.") This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3083. Data Management for Business Analytics. (3-0) 3 Credit Hours.
This course introduces essential programming concepts using R, SAS and SQL to efficiently manipulate and clean data for statistical analyses. Topics include reading raw data, restructuring and combining data files, formatting and re-coding variables, and displaying data using tables, charts, and plots. (Formerly MS 3083. Credit cannot be earned for both MS 3083 and BAN 3083.) This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3123. Fundamentals of Business Analytics. (3-0) 3 Credit Hours.
This course equips students with essential business analytics knowledge and skills. Students will learn how to use spreadsheets for data storage, processing, and analysis, leveraging its built-in functions and features like pivot tables and advanced formulas. The course also introduces artificial intelligence (AI) concepts and tools, demonstrating how algorithms can be applied to enhance data analysis. Additionally, students will master visualization techniques and conduct fundamental data analysis to create meaningful data-driven stories, using both spreadsheet and AI-powered tools to turn datasets into insightful, visually appealing reports. The course provides hands-on experience with real-world datasets and prepares business students to make data-driven decisions. This course has Differential Tuition. Course Fee: DL01 $75.

BAN 3313. Statistical Modeling for Business Analytics. (3-0) 3 Credit Hours.
Prerequisite: A grade of C- or better in BAN 3083, or approval of the instructor. This course focuses on the application of multivariate statistical techniques in problem-solving situations within business disciplines. Techniques covered include discriminant analysis, factor analysis, principal component analysis, cluster analysis, multidimensional scaling, and market basket analysis. Students use computer software (e.g., SAS and/or R) to conduct their analyses. (Formerly MS 3313. Credit cannot be earned for both MS 3313 and BAN 3313. Formerly titled "Business Applications of Statistics.") This course has Differential Tuition. Course Fee: DL01 $75.

BAN 4203. Business Analytics Applications. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in BAN 4373 or the equivalent, or approval of the instructor. This course presents an overview of business analytics applications, including its purpose, benefits and challenges, important analytic processes, and methodologies to perform business analytics in a data driven environment. Students will be introduced to a wide spectrum of relevant business analytics applications encountered in different functional areas. Scope of learning incorporates but not limited to hands-on experience, case-based study, and guest lectures from data analytics experts and managers. (Formerly MS 4203. Credit cannot be earned for both MS 4203 and BAN 4203.) This course has Differential Tuition. Course Fee: DL01 $75.

BAN 4213. Analytics for Healthcare Operations Management. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in ISC 1403 or ISC 1413, and one of the following: STA 1053, BAN 1023, or STA 3003, or their equivalents. This course provides students with the opportunity to apply analytics and operations management tools across a broad range of healthcare settings: critical, management, and support processes in the medical and public healthcare systems. (Formerly MS 4213. Credit cannot be earned for both MS 4213 and BAN 4213.) This course has Differential Tuition. Course Fee: DL01 $75.

BAN 4373. Data Mining for Business Analytics. (3-0) 3 Credit Hours.
Prerequisite: A grade of "C-" or better in BAN 3073 and BAN 3083, or their equivalents, or approval of the instructor. This course provides an introduction to machine learning algorithms with applications. Topics include supervised and unsupervised learning methods, resampling methods, model selection, generalized additive model, classification and regression tree methods, k-nearest neighbors, bagging and random forest, support vector machines, social network analysis, and text mining. (Formerly MS 4373. Credit cannot be earned for both MS 4373 and BAN 4373. Formerly titled "Knowledge Discovery for Business Analytics.") This course has Differential Tuition. Course Fee: DL01 $75.

BAN 4383. Predictive Operational Analytics. (3-0) 3 Credit Hours.
This course introduces modern and practical methods for operations planning and decision making. Short-term forecasting of demand, personnel requirements, costs and revenues, raw material needs, and desired inventory levels are some of the topics included. Other topics covered include technological and environmental forecasting, decomposition methods, time series, and monitoring (automatic procedures such as tracking signals). (Formerly MS 4383. Credit cannot be earned for both MS 4383 and BAN 4383. Formerly titled Applied Forecasting in Operations.) This course has Differential Tuition.

BAN 4393. Actuarial Science Examination Preparation. (3-0) 3 Credit Hours.
Prerequisite: STA 3513. An organized course offering specialized study for Actuarial Science Examination. Topics covered include General Probability, Random Variables and Probability Distributions, Multivariate Distributions, and Stochastic Processes. (Same as STA 4963. Credit cannot be earned for both STA 4963 and BAN 4393.) This course has Differential Tuition. Course Fee: DL01 $75.

BAN 4913. Independent Study in Business Analytics. (0-0) 3 Credit Hours.
Prerequisite: For business majors: A 3.0 Carlos Alvarez College of Business grade point average, permission in writing from the instructor, the Department Chair, and the Dean of the Carlos Alvarez College of Business (see academic advisor for required forms and additional requirements). Independent reading, research, discussion, and/or writing under the direction of a faculty member. This course may be repeated for credit, but no more than 6 semester credit hours of independent study, regardless of discipline, will apply to a bachelor's degree. This course has Differential Tuition.

BAN 4933. Internship in Business Analytics. (0-0) 3 Credit Hours.
Prerequisite: A 2.5 university grade point average and approval in writing from the instructor, the Department Chair, and the Associate/Assistant Dean of Undergraduate Studies in the Carlos Alvarez College of Business (see academic advisor for required forms and additional requirements). Supervised full- or part-time work experience in business analytics. Offers opportunities for applying business analytics in private businesses or public agencies. A written report is required. May be repeated for credit, but no more than 6 semester credit hours will apply to a bachelor's degree. Generally offered: Summer. This course has Differential Tuition.

BAN 4953. Special Topics in Business Analytics. (0-0) 3 Credit Hours.
Prerequisite: BAN 3073 and BAN 3083 or equivalents. This course explores current and relative topics related to business analytics not covered elsewhere in the Business Analytics program. Special Topics may be repeated for credit when the topics vary, but not more than six semester credit hours will apply towards the support course requirements. This course has Differential Tuition.