## Business Analytics (BANA)

### Courses

**BANA 200. Foundations of Business Analytics. 2 Units.**
Provides overview of the field of business analytics, and the theory and practice underpinnings of the three MSBA curricular tracks: Data Analytics, Marketing Analytics, and Operations Analytics. Provides students with a working knowledge of the R programming language.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 201A. Statistics for Data Science. 4 Units.**
Methods of statistical inference, emphasizing applications to administrative and management decision problems. Topics include classical estimation and hypothesis testing, regression, correlation, analysis of variance, decision analysis, and forecasting.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 201B. Management Science for Analytics. 4 Units.**
An introduction to computer-based models for decision making. Topics include optimization (linear programming, integer programming, network flow models) and computer simulation. Uses spreadsheets extensively, including Excel built-in and add-in packages.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 204A. Microeconomics for Business Analytics. 4 Units.**
Provides basic tools for analyzing economic decisions of consumers and firms. Topics include demand and supply analysis, production and cost theory, perfect competition, monopoly, market failures, and introductory game theory.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 205. Foundations of Marketing. 4 Units.**
Introduction to the field of marketing. Objectives include developing familiarity with fundamental concepts, theories, and techniques in marketing, and acquainting students with the type of decisions made by marketing managers, including customer targeting, product, pricing, distribution, promotion, and research.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 211. MSBA ProSeminar.**
Provides students in the Merage School Master of Science in Business Analytics program with information and practical skills for success in the MSBA program and for business career planning.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 212. Data and Programming for Analytics. 4 Units.**
Challenges and teaches students how to handle data, from initial data acquisition to final data analysis. Provides students with a working knowledge of the Python programming language.

Prerequisite: Basic familiarity with programming is recommended.

Restriction: Graduate students only. Business Analytics Majors only.

**BANA 257. Marketing on the Internet for Business Analytics. 4 Units.**
Examines the impact of the Internet on traditional methods of doing marketing, and explores its existing and future uses. Discusses how to capitalize on and increase the Internet's utility as a tool that can increase marketing effectiveness, efficiency, and competitiveness.

Restriction: Graduate students only.

**BANA 271. Marketing Analytics. 4 Units.**
Introduces students to quantitative marketing analytics methods and teaches them how to apply the methods to business problems of interest. Topics include: resource allocation and ROI, marketing mix analytics, customer analytics, market segmentation and targeting, advertising, promotions, and digital marketing.

Restriction: Graduate students only.
BANA 273. Machine Learning for Analytics. 4 Units.
Introduces methods to mine data repositories for business intelligence to facilitate analytical decision-making. Topics include clustering for market segmentation, association rules to discover relationships between different purchase decisions, and Naive-Bayes classification techniques for decision making using decision-trees.

Restriction: Graduate students only. Business Analytics Majors only.

BANA 277. Customer and Social Analytics. 4 Units.
Examines how business managers can leverage Web 2.0 and social media analytics to create value for their organizations and customers. Topics include digital and social strategies; Web and search analytics; display and mobile advertising; social networks and influence; social media.

Restriction: Graduate students only.

BANA 288. Predictive Analytics. 4 Units.
Deals with predicting entities (forecasting) and predicting membership of known groups (classification). Blends methodologies of forecasting and data mining, focusing on multiple regression, logistic regression, neural nets, ARIMA, discriminate analysis, and k-nearest neighbors, and applying these methods to managerial problems/decision-making.

Restriction: Graduate students only.

BANA 290. Special Topics in Business Analytics. 4 Units.
Studies in selected areas of business analytics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

BANA 295. Big Data Management Systems. 4 Units.
Provides an introductory-level overview to the emerging technologies in database systems. Students gain critical insight into big data challenges, the choices of different systems and technologies available, relative advantages/disadvantages, and unique aspects of different systems.

Restriction: Graduate students only.

BANA 298A. Business Analytics Capstone Prep.
Prep course for the required capstone project. Students apply the knowledge and methods acquired through the program's coursework to an applied business analytics problem. Requirements include project selection, submission of project plan, and data collection/analysis.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only. Business Analytics Majors only.

BANA 298B. Business Analytics Capstone Project. 4 Units.
Continuation of the capstone project. Students apply the knowledge and methods acquired through the coursework in the program to an applied business analytics problem. Work includes data analysis, completed research paper, and final presentation.

Prerequisite: BANA 298A

Restriction: Graduate students only. Business Analytics Majors only.

BANA 299. Individual Study. 1-4 Units.
Individual study under the direction of a selected faculty member.

Repeatability: May be repeated for credit unlimited times.