BUSINESS ANALYTICS (BYGB)

BYGB 7811. Finance Analytics Intership. (3 Credits)
Financial planning and analysis to consolidate disparate data sources.

BYGB 7943. Programming with Python. (3 Credits)
This introductory course covers the fundamentals of programming in Python. Through lectures, hands-on coding exercises and assignments, as well as a project, students will gain a solid understanding of Python syntax, data structures, control flow, functions, and essential packages used in business applications and data analysis.

BYGB 7967. Machine Learning for Business. (3 Credits)
Machine Learning, a branch of Artificial Intelligence, is concerned with constructing computer programs capable of learning from data. This course covers the core concepts, theory, algorithms, and business applications of machine learning. Topics include supervised learning (e.g., regression and classification), unsupervised learning (such as association rules models), and an introductory overview of Deep Learning. Students engage in hands-on model building exercises using machine learning libraries and software tools.

BYGB 7973. Data Management and SQL. (3 Credits)
This course covers the basics of database management including modeling and structured query language (SQL), a critical element of all IT organizations. Databases are the foundation for operational/transaction systems and for analytics and management decision-making. Topics include database analysis and data modeling, database design with entity-relationship and relational models, and SQL. Additional managerial topics include data administration, data warehousing and ETL, security and privacy, distributed and no-sql databases and the Internet database environment.

BYGB 7975. Data Visualization. (3 Credits)
This course introduces the concepts of business analytics and data visualization and the various related concepts and techniques including business intelligence, data analytics, data science, the scientific method, visualization, visual storytelling, and brief overviews of statistical and machine learning analytics. It explores the process, contents, and context of managerial decision making and looks at how business analytics can help in improving management decision-support effectiveness in the various functional areas of business such as marketing, finance, and manufacturing. Managers in general and not just IT individuals stand to gain from the discussion. We'll also discuss the managerial issues of data ethics, ownership, governance, standards, privacy, and security. Further, we'll discuss analytics in different industries (e.g., supply chain, health, customer, sustainability, etc.). Class members working individually and in teams will gain hands-on experience in implementing an analytics project. You're expected to apply primarily visualization, with additional statistical and machine learning models in the project.

BYGB 7977. Natural Language Processing and Applications. (3 Credits)
This course introduces the concepts of processing, analyzing, extracting, and generating insights from rich text data. You will explore a range of important topics in text analytics, including basic natural language processing techniques, sentiment analysis, text classification and clustering, information extraction, probabilistic topic models, social media analysis, and text visualization. The course combines lectures with case studies and student projects to offer a well-rounded learning experience. You will use Python throughout the course and become proficient in NLP packages such as NLTK.

BYGB 7978. Web Analytics. (3 Credits)
Web analytics is the science of accessing and analyzing the vast swaths of Internet data to create business value. Typical data types include content (user queries in search engines, discussion threads in online forums, chats in social media), linkage (webpage links and social network links), and website usage logs (clickthrough data). This course also covers two core components of web analytics in modern businesses. First, you build skills that extract and integrate data from online sources for actionable business insights. Second, you learn conceptual and hands-on approaches to analyzing web content, linkage, and usage, including how search engines work, how online marketing web works, and how to model and analyze population-scale networks. You will use Python throughout the course and become proficient in Google Analytics.
Attributes: BUAA, BUAN.

BYGB 7988. Business Performance Analytics. (3 Credits)
This course aims to develop a good understanding of knowledge required and techniques available to enable managers to measure and manage business performance and risk within their organization. The role of business analytics in enabling business performance and risk management is emphasized. The application of analytics to such concepts as balanced scorecard strategy maps, KPI, corporate metrics, risk analysis, corporate governance information communication and dissemination, compliance and regulation assessment and reporting and information assurance is the hallmark of this course. The social, ethical, and behavioral dimensions of the role of technology in analytics and performance management are discussed.
Attributes: BUAC, BUAN.

BYGB 7990. Cloud Computing for Analytics. (3 Credits)
Many of the world's biggest discoveries and decisions in science, technology, business, medicine, politics, and society are now being made based on analyzing massive data sets. Those typical datasets include millions of online customer reviews, social comments from Facebook, Twitter, and other popular social platforms, shopping transaction records, mobile messages, financial news, climate data, IoT data, and others. Today's organizations face the key challenge of analyzing massive data to gain key insight to make informed decisions. This course provides a broad and practical introduction to Big Data from three perspectives: (1) introduction to the Big Data problem, current challenges, trends, and applications; (2) technologies for Big Data management, Big Data technology and tools, special consideration made to the MapReduce paradigm and the Hadoop ecosystem; (3) algorithms for Big Data analysis, mining and learning algorithms that have been developed specifically to deal with large datasets. Technology is still evolving very rapidly. Therefore, there is a level of experimentation with new material that will take place during the semester.
Attributes: BUAA, BUAN.
Prerequisite: BYGB 7967.

BYGB 8999. Tutorial. (3 Credits)
Tutorial in Business Analytics.