BUDT - DECISION AND INFORMATION TECHNOLOGIES

BUDT700 Business Communication (1 Credit)
Consists of written and oral base-line assessments. Students will meet with Program administrators to receive feedback on these assessments and create an individualized development plan. Workshops and core course assignments, Smith-related activities and CMP assignments.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.
Credit Only Granted for: BUDT758A or BUDT700.
Formerly: BUDT758A.

BUDT702 Database Management Systems (2 Credits)
Introduction to the conceptual, logical and physical design of relational database systems and their use in business environments. Topics include information modeling and optimization via normalization; Structured Query Language (SQL); Data Warehousing.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT703 Database Management Systems (3 Credits)
Introduction to the conceptual, logical and physical design of relational database systems and their use in business environments. Topics include information modeling and optimization via normalization; Structured Query Language (SQL); Data Warehousing.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.
Credit Only Granted for: BUDT758Y OR BUDT703.
Formerly: BUDT758Y.

BUDT704 Data Processing and Analysis in Python (3 Credits)
An introduction to the Python programming language for the purpose of processing, analyzing, and visualizing data. In addition, students will be introduced to developing basic regression, optimization, and simulation models in Python, using highly popular packages. Course emphasis is on mastering basic Python functionality and developing intermediate to advanced skills in working with data, through instruction and active learning.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.
Credit Only Granted for: BUDT758X OR BUDT704.
Formerly: BUDT758X.

BUDT705 Data Visualization for Business (2 Credits)
An introduction to data visualization techniques. Data-driven decisions are increasingly embedded in business organizations, so professionals must be able to explore and communicate data with understandable and powerful visualizations.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

BUDT706 Social Media and Unstructured Data Analytics (2 Credits)
Firms operate in a world that is rapidly changing. Traditional product and service strategies are not sufficient when firms and consumers operate in a highly networked environment. Adoption of digital technologies is changing consumer behaviors and firms' competitive landscapes. Businesses need to craft strategies that leverage the vast amounts of data provided by the digital footprints of their customers. Predictive analytics, particularly social media and unstructured data analytics can provide clear, insightful, and actionable initiatives leveraging existing company data and data gathered from online channels and platforms. The course on social media and unstructured data analytics provides the conceptual understanding and analytical skills needed for businesses to succeed in today's rapidly changing environment. We will review concepts related to platforms, social media, network analytics and text analytics, and examine issues associated with business use of these technologies.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT721 Digital Transformation in Business (2 Credits)
Introduces students to the strategic role of digital transformation within businesses, and provides an overview for how major information technologies may be used to inform and transform the firm's strategic, operational, and tactical decisions. Topics discussed in the course include the strategic use of digital technologies to generate sustainable competitive value; the contributions of new forms of technology infrastructure; the evaluation of new technology investments and the resulting ROI; acquiring, managing and governing technological capabilities within the firm; understanding the role of enterprise systems and social technologies within the firm; and the management of disruptive technologies within and outside the firm.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.
Credit Only Granted for: BUDT758E or BUDT721.
Formerly: BUDT758E.

BUDT722 Managing Digital Business Markets (2 Credits)
The objective is to understand the strategic and tactical issues involved in managing digital businesses and markets. Also, some of the characteristics of digital businesses and markets that make them unique and understand how companies can best manage them will be examined.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.
Credit Only Granted for: BUDT758G or BUDT722.
Formerly: BUDT758G.

BUDT723 Business Process Analysis for IS (2 Credits)
Helps students gain a solid foundation in the concepts, processes, tools, and techniques needed in analyzing business processes and conducting information systems projects.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

BUDT724 Project Management in Dynamic Environments (2 Credits)
Addresses project management skills that are required by successful managers in increasingly competitive and faster-moving environments. Examines fundamental concepts of successful project management, and the technical and managerial issues, methods, and techniques.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

BUDT730 Data Models and Decisions (3 Credits)

Analytical modeling of business decisions; uncertainty, risk and expected utility; regression modeling to infer relationships among variables.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

Credit Only Granted for: BUSI758B, BUDT758Q or BUDT730.

Formerly: BUDT758Q.

BUDT731 Data, Models, and Decisions Using R (2 Credits)

Analytical modeling of business decisions; uncertainty, risk and expected utility; regression modeling to infer relationships among variables.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT732 Decision Analytics (3 Credits)

Analytical modeling for managerial decisions using a spreadsheet environment. Includes linear and nonlinear optimization models, decision making under uncertainty and simulation models.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

Credit Only Granted for: BMGT732, BUDT758P or BUDT732.

Formerly: BMGT732 and BUDT758P.

BUDT733 Data Mining and Predictive Analytics (2 Credits)

With vast quantities of data being generated, including new types of data such as web traffic, social network data, and reviews and comments on websites, "big data" and "analytics" are important topics. Data, when used correctly, can create a competitive edge for firms. Advances in computing hardware and algorithms have improved the quality of predictions and effectiveness of predictive business applications. Expertise in working with data, and deep knowledge of data mining/machine learning methods, is a sought-after skill. This course introduces key tools and techniques of data mining: classification, prediction, cluster analysis, and text mining. The methods covered are linear and logistic regression, k-nearest neighbors, naive Bayes, classification and regression trees, ensemble methods, neural networks, k-Means and hierarchical clustering, and association rules. The course will focus on business applications, with examples from Marketing, Finance, Healthcare, and Operations.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT738 Industry Seminar (0 Credits)

This experiential course will be offered in the Fall and Spring Semester of the first year to provide students exposure to career paths, real-world technology challenges faced by business and how these challenges are overcome. UMD Smith alumni will host weekly interactive learning discussions.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

Repeatable to: 0 credit.

BUDT740 Management of Information Systems (3 Credits)

To work together effectively for an organization's success, both business managers and IS managers must understand how to both manage and utilize information systems. This course explores management issues and opportunities of the IS function within organizations. Topics include e-business, protection of intellectual property and personal information, software development, IS operations, systems availability and business continuity, IS for multinational organizations, shadow IS organizations, business partnerships and alliances, and mergers, acquisitions, and divestitures.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

Credit Only Granted for: BUDT758J or BUDT740.

Formerly: BUDT758J.

BUDT741 Digital Health (2 Credits)

Healthcare is perhaps the latest industry to use technology to innovate and automate its business processes. The focus of the course is to provide a deep understanding to the current and emerging technologies in the healthcare industry. The course will also discuss the vagaries of healthcare data and the analytics techniques that are specific to the healthcare industry.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

Credit Only Granted for: BUDT758M or BUDT741.

Formerly: BUDT758M.

BUDT742 Machine Learning & Blockchain for FinTech (2 Credits)

Machine Learning is rapidly changing the financial services industries and Blockchain is poised to make fundamental changes to how the financial sector is structured and organized. The focus of the course is to provide a deep understanding for the current machine learning and emerging Blockchain technologies in the financial services industry.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith.

Credit Only Granted for: BUDT758I or BUDT742.

Formerly: BUDT758I.

BUDT748 Industry Practicum (3 Credits)

This capstone course will provide students an opportunity to work on a real-world project where they will work with a company to use technology to solve a business problem.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT751 Harnessing AI for Business (2 Credits)

Artificial Intelligence (AI) is penetrating our daily routines deeply and is revolutionizing almost every aspect of business. Firms are increasingly using technologies such as natural language processing, neural networks, and deep learning to generate deep insights. At the same time, AI algorithms are challenged by issues of bias, ethics, and transparency. This course aims to equip students with the essential knowledge of the current wave of AI. It uses a hands-on, learning-by-doing approach to understanding the concepts behind AI, the strategic drivers of these technologies and the value propositions that they provide to industries. The focus is on creating awareness of the technologies, allowing some level of familiarity with them through assignments, and enabling some strategic thinking around the use of these in business.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT753 Blockchain Technologies and Business Applications (2 Credits)

Creates a strong business and technical foundation for Blockchain, starting with an in-depth discussion of the business inefficiencies that the Blockchain technology has the potential to address. This is followed by reviewing the computer science fundamentals related to cryptology, distributed computing, and peer-to-peer architectures that Blockchain systems rely on. The course then provides a comprehensive understanding of Bitcoin including its limitations, and the work that has been done to date to address these limitations. Alternate Blockchain implementations such as Ethereum and Hyperledger are discussed with a focus on smart contracts. The course will also cover potential business applications in Finance, Healthcare, Supply Chain, and Arts/Media/Entertainment. Students will be exposed to current research problems and research efforts in progress.

Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT754 IoT Applications for Business (2 Credits)
The IoT is enabling the digitization and internet connectivity of most physical things. The focus of this course is to provide students an in-depth understanding of the technology components of the IoT architecture, infrastructure, data and analytics so that they are equipped to develop business applications using IoT that deliver business outcomes.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT756 Causal Inference & A/B Testing (2 Credits)
Organizations and policymakers in government constantly grapple with such causal questions. For example, firms want to know how does a price change affect the sales of a product, or how to design websites and platforms that increase consumer engagement and lead generation; political parties want to know what on social media sites can boost their political influence, and governments want to know whether allowing parents to pay for private schools using publicly funded vouchers make the education system more effective. In particular, platforms such as Netflix, Airbnb, eBay, Groupon, Booking.com, Uber, Amazon, etc. make extensive and continuous use of A/B tests and have a dedicated team of data scientists and IT-personnel to implement, monitor and analyze such tests. Banks and Insurance companies constitute another important sector where the use of A/B testing is ubiquitous.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT757 Cybersecurity (2 Credits)
Distributed technologies and the ability of business to capture increasing amounts of sensitive data have increases the stakes and risks for information security. The focus of this course will be to help students understand cybersecurity frameworks, analytic techniques and enterprise risk management.
Restriction: Must be in Business and Management (Master's) program; or permission of BMGT-Robert H Smith School of Business.

BUDT758 Special Topics in Decision, Operations and Information Technologies (1-4 Credits)
Selected advanced topics in the various fields of graduate study in decision, operations and information technologies.
Restriction: Permission of BMGT-Robert H. Smith School of Business.
Repeatable to: 9 credits if content differs.
Formerly: BMGT798.

BUDT759 Independent Study in Decision and Information Technologies (1-6 Credits)
Independent study for masters students in decision and information technologies.
Repeatable to: 6 credits if content differs.
Formerly: BMGT708.

BUDT775 Pricing and Revenue Management (2 Credits)
Specialized course on pricing and revenue management (PRM) that provides students with tools and principles, drawn from several disciplines (Operations, Microeconomics, Decision Modeling, Statistics, Marketing, IS) to make effective pricing decisions. Topics covered include economics of pricing, strategy and tactics of PRM, pricing optimization, differentiated pricing, dynamic pricing, mark-down pricing, legal and ethical issues in models/methods used in making effective PRM decisions and managerial or organizational factors that hold the key to success in execution of PRM.
Prerequisite: BUSI630.
Restriction: Must be in a major in BMGT-Robert H. Smith School of Business; or permission of BMGT-Robert H. Smith School of Business.
Credit Only Granted for: BUDT758D or BUDT775.
Formerly: BUDT758D.