

BU.300 (INFORMATION SYSTEMS)

Courses

BU.300.620. Managing Complex Projects. 2 Credits.

This course aims to equip you with effective techniques, methods, and practices for defining, scoping, and planning a project, and then managing it to successful completion. Special areas of emphasis in the course are driven by practical experiences with large and complex projects frequently being late, over budget, and failing to meet specifications. We will pay particular attention to understanding project complexity, risk, and uncertainty so that you are prepared to address these challenges to success. You will gain experience using a leading project management software package.

BU.300.700. Developing Internet Systems and Services. 2 Credits.

The subject of this course is the development of services that are delivered over the Internet: system feature specification, design, user interface, implementation, and the role of development environments. Increasingly the delivery of services and user access to them is driven by considerations of third-party development, user platform specifications, security, privacy, and performance. Much of the focus of contemporary development is on mobile apps, reflecting the changing modes of behavior and expectations of users for instant availability of highly special-purpose and location-aware applications. This course will consider these trends and their implications for design and development.

BU.330.705. Data Networks: Infrastructures & Emerging Technologies. 2 Credits.

This course covers technological advancements in telecommunications and emerging wireless mobile systems, with emphasis on their business application: how the nature of these advances are driving business models and amplifying the strengths of today's firms; how businesses can select, integrate, and apply telecom and emerging mobile systems and cloud services into their business processes to maximize their value creation value capture, and value delivery. Business applications and contents delivered by mobile systems in public and private sectors – such as in healthcare services (mHealth), in financial and banking industries (mCommerce), mobile money and credits in social entrepreneurship will be covered. Analysis and selection of the needed telecom and mobile technologies, necessary to support business applications and processes, are examined. This course enables the students to gain an in-depth understanding of different telecom network systems, their developments and international standards. Finally, managerial, business critical, and technical issues such as technology evaluation, cost vs. performance trade-offs analysis, requirements analysis and vendor selection as they are needed by today's commercial and public organizations are covered.

BU.330.710. Cybersecurity and Data Vulnerabilities. 2 Credits.

Cybersecurity Information vulnerabilities enable cyber attacks against organization's digital enterprise systems. In this course, we will introduce the notions and of enterprise systems and software weaknesses, vulnerabilities, and attacks; the corresponding real-world repositories; and the NIST Bugs Framework (BF). Then we will discuss the basic principles and the weaknesses related to information exposure, memory management, access control, random number generation, and the use of cryptography to achieve security services. You will learn about the involved processes and flows via the BF models and the related BF classes. Finally, you will learn to identify, analyze, and clearly and precisely describe real-world vulnerabilities.

Prerequisite(s): BU.350.620

BU.330.730. Cybersecurity. 2 Credits.

This course considers the contemporary cybersecurity threat landscape facing organizations. Students apply various risk frameworks to provide structure to the decision-making needed to invest in resources for security controls and countermeasures. Multiple strategies are explored, including policies, procedures, training, strategic alliances, technologies, and methodologies, especially drawing upon risk management and financial decision-making that are used in other sectors of an organization. Topics include qualitative and quantitative risk analysis, audits, metrics, vulnerability assessment, capital budgeting, return on security investment, legal and regulatory compliance, and security best practices. The course will prepare students to be successful in taking on leadership roles in assuring the security of an organization's operations.

BU.330.740. Large Scale Computing on the Cloud. 2 Credits.

Internet of Things (IoT) is connecting almost all the components together in every aspect of business and our daily life. As a result, huge amount of data is being generated. The term "big data" implies the large scale of data that cannot be stored on one single computer. The analyses of such large-scaled data usually require massively parallel software running on tens, hundreds, or even thousands of servers. Enterprise technology managers are often called upon to organize large-scaled data repositories, to manage and schedule resources between technology components, and to support decision making based on information that resides in distributed data sources. This course prepares students with fundamental concepts of distributed data systems and massive dataset mining algorithms. It equips students with advanced techniques to extract the value from the large-scaled data generated and collected in everyday business life. The course uses a hands-on, learning-by-doing approach to practice on AWS platform. Topics include: MapReduce model, distributed file system (HDFS), advanced MapReduce (Spark), distributed data warehouse and query language (Hive), distributed scripting language (Apache Pig), frequent itemset mining problem, text mining, and recommendation engine. 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.

BU.330.750. AI: Principles and Business Applications. 2 Credits.

This course covers the foundations of Artificial Intelligence (AI) technologies with emphasis on their business application. It will cover models of machine learning and pattern optimizations. This course will enable the student to gain a fundamental understanding of the foundations and applications of different AI technologies, analysis of the required AI algorithms and machine Learning technologies, necessary to support different business applications. It will require basic uses and applications of an AI tool's (IBM Watson, Python, or R,) however, it does include teaching software coding.

BU.330.760. Deep Learning with Unstructured Data. 2 Credits.

With the enterprises' usage of Information and Communication Technology (ICT), a huge amount of data is being generated every second. Much of this big data is unstructured and loosely connected. Enterprise technology managers are often called upon to support decision making based on information that resides in this unstructured data. Managers of technology need to be able to support such decision making by delivering analytical applications via enterprise wide APIs and secure corporate networks. The ability to organize large repositories of unstructured data and run analytical applications on them is key creating an effective information architecture for the modern corporation. This course prepares students to manage enterprise technology needs by acquiring advanced data analytics skills for driving business insights from large amounts of unstructured data using network analysis and deep learning. The technology function in corporation is increasingly called upon to involve both managers and analysts to support and participate in data driven decision making. Therefore, this course uses a hands-on, learning-by-doing approach. Topics include: organization of corporate data warehouses containing unstructured data, unstructured data distribution through enterprise APIs, graph theory, network evolution and block models, API-based visualization methods, graphical models, deep feedforward network, regularization, convolutional neural network, and recurrent neural network. Students will use Python packages such as NetworkX, graph-tool, TensorFlow, Theano and Keras. Students will also use Gephi, an open source software for exploring and manipulating networks. 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.

BU.330.770. Database Management. 2 Credits.

The emerging trend of organizations and business decision making is based on data-driven decision making. In fact, database systems are central to most organizations' information systems strategies. At any organizational level, users are expected to face frequent contact with and use of database systems. Therefore, skills in using such systems, which include understanding the capabilities and limitations of the systems, identifying whether to access data directly or through technical specialists and knowing how to retrieve and utilize the information effectively became essential in any industry vertical. Also, skills in designing new systems and related applications are distinct advantage and necessity today. The Relational Database Management System (RDBMS) is one type of database systems, which is widely used and is the primary focus of this course. Further, the course will provide students with an opportunity to apply the knowledge they learn from the lectures, homework assignments, SQL assignments, and a database implementation project.

BU.330.780. Data Science and Business Intelligence. 2 Credits.

This course introduces a set of fundamental principles and a framework that guide extracting business insights from data to generate competitive advantage. We will discuss how the ubiquity and massiveness of digital data and the application of business intelligence have changed competitive landscapes. The business intelligence techniques that will be covered in this course include data visualization, online social network and sentiment analysis (for user-generated content), and predictive analytics (e.g. classification and clustering), which are widely used in the real world. The topics and cases discussed in this course cover a wide range of fields, including marketing, finance, healthcare, and more. This course is not a statistics or computer programming course. The emphasis will be on applications and interpretations of the results from business intelligence techniques for making business decisions. Students will apply these techniques in hands-on exercises as we analyze strategic concepts, which will allow students to deepen their understanding of the fundamentals and the applicability of business intelligence.

Prerequisite(s): BU.510.650

BU.330.790. Applied IS Architecture. 2 Credits.

This course provides students with an integration over prior learning and an application of IS principles and practices in a challenging setting of a significant case or real organization. Within this project-based context, students investigate contemporary information systems and technology architectures that constitute operational and productivity platforms for modern enterprises.

Prerequisite(s): BU.330.705

BU.350.620. Information Systems. 2 Credits.

This course addresses how markets, market mechanisms, and channels of product and service delivery are impacted and often transformed by information and communication technologies. Students will learn how technology, brought together with people and processes into systems, contributes to leveraging the creation of business value. The course considers different elements of the information architecture of the corporation and its impact on the nature of the work and the structure of the corporation.

BU.350.710. IT and Global Sourcing Strategy. 2 Credits.

This course covers information technology developments and global-sourcing strategies. Specifically, it includes two interrelated topics. First, it covers strategic planning models in which it examines business and corporate strategies which require students to assume the role of a general manager or chief technology officer (CTO) where they have to cope with tremendous complexity, uncertainty, and inadequate information to make strategic decisions. Second, this course covers how advances in telecommunication technology along with the process of global collaboration and value creation enable the creation and delivery of new products and services. The course also explores various country evaluations and risk analyses techniques, and the opportunities and threats that business organizations face as a result of these business and technological trends. Finally, this course examines various global-sourcing and collaborations strategies, the role of standardization in global supply chains integration, and how technology influences new forms of value creation such as public-private partnerships and hybrid entrepreneurial forms in developing economies and how their businesses can develop capabilities, capacities, and competencies required to participate in global collaboration and value creation networks.

Prerequisite(s): BU.350.620

BU.360.701. Competitive Intelligence. 2 Credits.

Competitive Intelligence (CI), as defined by the Society of Competitive Intelligence Professionals (SCIP), is a systematic and ethical program for gathering, analyzing, and managing external information that can affect an organization's plans, decisions, and operations. Students learn to apply the CI process and CI-related methodologies, techniques, and tools to better analyze an organization's current and future competitive position. Students apply analytical and socio-technical techniques to improve organizational decision making as related to CI, and should understand the issues related to the collection, analysis, and management of external information.