

# Information Technology and Systems

[ITSS 3300](#) Information Technology for Business (3 semester credit hours) Examines key business processes in organizations and how information systems support the execution and management of these processes. The course focuses on using information technology and information systems to support decision-making, thus blending technical and managerial topics. Students will be exposed to principles of information technology and information systems and work directly with a variety of information systems tools and techniques such as Excel, Tableau, and relational database management systems. (3-0) S

[ITSS 3311](#) Introduction to Programming (3 semester credit hours) This course introduces students to the fundamental concepts of programming. Students will also be introduced to the object-oriented paradigm. Topics include data types, control structures, objects, classes, iterations, functions, and arrays as they relate to developing business applications. In this course students will learn the mechanics of running, testing, and debugging programs. (Same as [OPRE 3311](#)) (3-0) Y

[ITSS 3312](#) Object-Oriented Programming (3 semester credit hours) This course focuses on business application development using an object-oriented programming language. Topics include the fundamentals of programming for web-based systems, and object-oriented programming concepts. Prerequisites: [ITSS 3311](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2333](#) or [MATH 2418](#) or [OPRE 3333](#)). (Same as [OPRE 3312](#)) (3-0) Y

[ITSS 3370](#) Managing Sustainable Operations (3 semester credit hours) Sustainable Operations involves proper management of related environmental, social, and economic impacts in constructing and maintaining effective and efficient global operations or supply chains. Sustainable Operations encourages governance practices of lifecycles of goods and services that reduce waste and ensures long-term maintainability and economic value of environmental and social well-being of all stakeholders' interest in creating and delivering products and services. This course aims to provide students with an understanding of present-day issues and policies related to establishing a sustainable, competitive advantage through efficient use of resources and collaboration with external business partners. The course uses a product lifecycle approach to understand sustainable issues in supply chains and potential solutions. Prerequisite: At least Sophomore level standing. (Same as [OPRE 3370](#)) (3-0) S

[ITSS 3390](#) Web Design and Development for Business Applications (3 semester credit hours) This course introduces students to fundamental concepts and techniques of designing and developing a responsive and user-friendly website. The topics include HTML, CSS, JavaScript, domain registration, web hosting management, FTP, WordPress, content management system (CMS) platform, blog, search engine optimization (SEO), and web analytics. Students acquire knowledge through hands-on experience with web design tools, techniques, and methods in a realistic and collaborative class setting while working towards designing the core components of a dynamic and functional website. (3-0) S

[ITSS 4090](#) Information Technology and Systems Internship (0 semester credit hours) This course is designed to further develop a student's knowledge of information systems through appropriate developmental work experiences in a true organizational setting. Students are required to identify and submit specific business learning objectives (goals) at the beginning of the semester. Student performance is evaluated by the work supervisor. Credit/No Credit only. May be repeated if internships differ. Department consent required. (0-0) S

[ITSS 4300](#) Database Fundamentals (3 semester credit hours) Introduces the basic concepts for the design and development of relational databases and database management. Topics include entity-relationship data model, logical database design, data administration, Structured Query Language, and database management issues, such as concurrency control, data security, and integrity. A database management system software package is used to implement working database systems. Prerequisites: [ITSS 3300](#) and [ITSS 3311](#) and ([MATH 1325](#) or [MATH 2413](#) or [MATH 2417](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)). (3-0) Y

[ITSS 4301](#) Database Systems (3 semester credit hours) This course introduces the basic concepts of relational databases. The emphasis is on relational database structure and the use of relational databases for query retrievals and report generation. Structured Query Language (SQL) will be covered extensively. Applications of databases for accounting, finance, marketing, and other areas of business will be discussed. [ACCT 4301](#) or [ITSS 4301](#) may not be used to satisfy BS INTS degree requirements. Prerequisites: ([ACCT 2301](#) with a minimum grade of C) and ([ACCT 2302](#) with a minimum grade of C) and [ITSS 3300](#) and ([MATH 1325](#) or [MATH 2413](#) or [MATH 2417](#)). (Same as [ACCT 4301](#)) (3-0) Y

[ITSS 4312](#) Mobile Web Application Development (3 semester credit hours) Provides an introduction to mobile web application development. A mobile web application is developed using a combination of CSS, HTML5, JavaScript, and PHP. Emphasis is given to hands on application of course material through the development of a web application prototype under conditions simulating a business environment. Prerequisite: [ITSS 3312](#) or [ITSS 4381](#). (3-0) Y

[ITSS 4320](#) Introduction to Healthcare Information Systems (3 semester credit hours) The course explores analytic tools common to the healthcare industry and demonstrates how data is compiled, analyzed, and reported to meet federal Meaningful Use standards. The course also deals with issues surrounding the selection, implementation, and use of electronic medical records (EMR) and provides opportunities to work hands-on with EMR software. Prerequisites: [HMGT 3301](#) and [ITSS 3300](#). (Same as [HMGT 4321](#)) (3-0) Y

[ITSS 4330](#) Systems Analysis and Design (3 semester credit hours) Examines various systems development methodologies with an emphasis on object oriented systems development methods. Students will be exposed to various concepts in systems analysis and design, project management, and information gathering techniques. Hands-on projects focusing on UML to design and develop projects will be an integral part of the course. Prerequisites: ([ITSS 3312](#) or [BUAN 4381](#) or [ITSS 4381](#)) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2333](#) or [MATH 2418](#) or [OPRE 3333](#)). (3-0) Y

[ITSS 4340](#) Enterprise Resource Planning (3 semester credit hours) This course is designed to

provide students with an understanding of and practical experience in the use of enterprise resource planning systems in modern business. Currently, the course uses SAP. The topics covered in the course include integrated business processes related to procurement, sales, finance, production planning, and production execution. Students get hands-on transaction experience with SAP ERP modules on both ECC6.0 and S4/ Hana platforms. Prerequisites: [ITSS 3300](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)). (3-0) Y

[ITSS 4342](#) Accounting Information Systems and Financial Reporting (3 semester credit hours) This course emphasizes the integral role of information technology in a transparent financial reporting process. Using a cycles approach, the course introduces internal controls, transaction flow, and documentation techniques. Students will use computerized accounting software to complete a comprehensive financial accounting project that demonstrates the critical interrelationship between financial accounting and accounting systems. Prerequisites: [ACCT 3312](#) and ([ACCT 3331](#) with a minimum grade of C). Prerequisite or Corequisite: [ACCT 3332](#). (Same as [ACCT 4342](#)) (3-0) S

[ITSS 4343](#) Integrated SCM Information Systems (3 semester credit hours) This course focuses on the concept of an integrated supply chain management system and digital supply chain using SAP's S/4 HANA Enterprise Resource Planning System and the new user interface SAP Fiori using case studies and hands-on experience with SAP modules. Students will: 1) learn the elements of an ERP application, 2) understand the concepts of end-to-end supply chain management, 3) define the basic master data needed to create a supply chain plan, 4) forecast demand using several statistical methods, 5) plan inventories using MRP and re-order point techniques, 6) execute the supply chain plan through the production process, and 7) view the completed inventories after production. The emerging trends including Artificial Intelligence and Blockchain Solutions in supply chain systems will also be discussed. Prerequisite: [ITSS 3300](#). (Same as [OPRE 4320](#)) (3-0) Y

[ITSS 4344](#) CRM using Salesforce (3 semester credit hours) This course is designed to provide students with an understanding of the theory and practice of Customer Relationship Management (CRM) in the modern enterprise and discusses the principles, functions, products, and services of CRM. Classroom assignments and projects will use Salesforce - a leading cloud-based CRM solution and Customer Experience Platform. The course will help develop an understanding of CRM business functions like Sales, Service, and Marketing along with real-life case studies from CRM implementations for Fortune 500 Clients. Students will get extensive hands-on practical experience with the Salesforce platform. Prerequisite: [ITSS 3300](#). (3-0) S

[ITSS 4351](#) Foundations of Business Intelligence (3 semester credit hours) Students are introduced to foundational business intelligence (BI) concepts and explore the theory and practice of data warehouses for enterprises. BI concepts including data mart schemas, ETL, OLAP, cubes, and reporting will be covered. The course will also examine the components of an enterprise data warehouse, extract, cleanse, consolidate, and transform heterogeneous data into a single enterprise data warehouse, and run queries using a data warehouse. Prerequisites: [ITSS 3300](#) and ([ITSS 4300](#) or [BUAN 4320](#)) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)). (Same as [BUAN 4351](#)) (3-0) Y

[ITSS 4352](#) Introduction to Web Analytics (3 semester credit hours) Introduces technologies and tools used to realize the full potential of websites. The course focuses on the collection and use of web data such as web traffic and visitor information to design websites that will enable firms to acquire, convert, and retain customers. Online advertising such as paid search and web analytics tools will also be included. Prerequisites: [ITSS 3300](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)). (Same as [BUAN 4352](#)) (3-0) S

[ITSS 4353](#) Business Analytics (3 semester credit hours) This course examines various data mining analytical techniques to extract business intelligence from firms' business data for various applications, including supervised and unsupervised learning analytic techniques, association, customer segmentation, classification, customer relationship management (CRM), personalization, online recommendation systems, and web mining. Students will also be exposed to various business intelligence software such as Python, R, XLMiner, SAS EnterpriseMiner, or SQL Server (depending on availability). Prerequisites: ([ITSS 3312](#) or [OPRE 3312](#) or [BUAN 4381](#) or [ITSS 4381](#)) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)) and [OPRE 3360](#). (Same as [BUAN 4353](#) and [OPRE 4353](#)) (3-0) T

[ITSS 4354](#) Advanced Big Data Analytics (3 semester credit hours) Advanced topics in supervised and unsupervised machine learning techniques using big data solutions such as Hive and Spark. Students explore the issues and challenges related to managing data within an organization. This course is designed to equip students with skills to address the business intelligence, data analysis, and data management needs of an organization. Students are introduced to machine learning techniques and big data technologies. Prerequisites: ([ITSS 3312](#) or [BUAN 4381](#) or [ITSS 4381](#)) and ([BUAN 4320](#) or [ITSS 4300](#)) and ([BUAN 4351](#) or [ITSS 4351](#)). (Same as [BUAN 4354](#)) (3-0) Y

[ITSS 4355](#) Data Visualization (3 semester credit hours) This course focuses on how to leverage new decision support technologies to improve organizational decision making. Students will explore various data visualization tools and review the foundational principles that guide their use. Prerequisites: ([ITSS 3312](#) or [BUAN 4381](#) or [ITSS 4381](#)) and ([BUAN 4320](#) or [ITSS 4300](#)) and ([BUAN 4351](#) or [ITSS 4351](#)). (Same as [BUAN 4355](#)) (3-0) Y

[ITSS 4356](#) Data Governance (3 semester credit hours) Students will learn the principles, goals, and business drivers of data governance. Topics include metadata, data quality, master and reference data management, and appropriate uses of data and ethics. Students will evaluate various implements of data governance in organizations. The course is structured around the Certified Data Management Professional (CDMP) exam. Prerequisite: [ITSS 3300](#). (3-0) S

[ITSS 4360](#) Network and Information Security (3 semester credit hours) With the advances in information technology, the security of information assets has become a keenly debated issue for organizations. While much focus has been paid to technical aspects of the problem, managing information security requires more than technology. Effective information security management demands a clear understanding of technical as well as socio-organizational aspects of the problem. The purpose of this course is to prepare business decision makers who recognize the threats and vulnerabilities present in current information systems and who know how to design and develop

secure systems. Prerequisites: [ITSS 3300](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2418](#) or [MATH 2333](#) or [OPRE 3333](#)). (3-0) Y

[ITSS 4361](#) Information Technology Cybersecurity (3 semester credit hours) Students will explore IT Security as applicable to the eight security domains. This course allows students to master cybersecurity concepts and topics including security and risk management (legal, regulatory compliance), asset security (data classification, ownership, data security, and privacy), security engineering (security architecture, design, and security models), telecommunication and network security (perimeter protection, network attacks, IDS, IPS, firewalls), identity and access management (authentication, authorization, identity as a service), security assessment and testing, security operations (business continuity, disaster recovery, incident management, vulnerability and patch management), and software development security. This course is designed to prepare an individual with major concepts and topics and their applications as preparation for the Security + exam and Certified Information Systems Security Professional (CISSP) exam. Prerequisite: [ITSS 4360](#). (3-0) Y

[ITSS 4362](#) Cybersecurity Governance (3 semester credit hours) Students will gain a better understanding of the importance of Cybersecurity Governance, Risk, and Compliance. This course will cover governance methodologies, audits relating to information security, internal and external information security policy, standards and baselines, as well as compliance driven by laws, rules and regulations. The course will also focus on developing an understanding of the vital role that Information and Cyber Security play in achieving and supporting the overall objectives of an organization. Prerequisite: [ITSS 4360](#). (3-0) S

[ITSS 4370](#) Information Technology Infrastructure (3 semester credit hours) Management of the information technology within an organization is a critical activity. Students will be introduced to key issues relating to managing IT resources and IT projects. Topics include IT infrastructure, IT investment, management of IT, and planning and management of projects related to IT infrastructure. Prerequisites: [ITSS 3300](#) and [ITSS 4330](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2333](#) or [MATH 2418](#) or [OPRE 3333](#)). (3-0) Y

[ITSS 4371](#) Cloud Computing with AWS (3 semester credit hours) This course introduces cloud computing concepts, technologies, architecture and applications. Students will learn how to evaluate cloud computing requirements and solution options. Through hands-on exercises, students will learn how to use cloud infrastructure and the fundamental technologies. Prerequisite: [ITSS 3300](#). (3-0) S

[ITSS 4380](#) Advanced Database Management (3 semester credit hours) To provide the student with an in-depth knowledge of advanced topics relating to database administration, database design, and database manipulation. Students will learn advanced SQL techniques including PL/SQL. Students will also explore NoSQL database topics. At the end of the course, student will be able to effectively write advanced SQL and NoSQL queries and perform advanced database processing using triggers and stored procedures. Prerequisite: [ITSS 4300](#). (3-0) S

[ITSS 4381](#) Object Oriented Programming with Python (3 semester credit hours) Students will learn basic concepts of Object-Oriented Programming (OOP) and implement the ideas using Python, a

scripting language. The classes will consist of lectures interwoven with hands-on coding that reinforces the language constructs as well as using functions from basic libraries. The students are required to bring in laptops to the class so that they can practice coding as a follow through during the lectures. The lectures will provide opportunities for the students to collaborate and learn (paired programming). Prerequisites: [ITSS 3311](#) and ([MATH 1326](#) or [MATH 2414](#) or [MATH 2419](#) or [OPRE 3340](#)) and ([CS 2305](#) or [MATH 2333](#) or [MATH 2418](#) or [OPRE 3333](#)). (Same as [BUAN 4381](#)) (3-0) S

[ITSS 4382](#) Applied Artificial Intelligence/Machine Learning (3 semester credit hours) This course provides a broad and detailed introduction to machine learning, data mining, and statistical pattern recognition. In this class, students will learn about the most effective machine learning techniques, and gain practice applying them to analyze business data. Regular course lectures will be used to deliver the main concepts and methods related to machine learning and AI. A number of in-class, hands-on exercises will be created to help students understand how to apply those techniques to solve some real-world business problems. Prerequisite: [ITSS 3312](#) or [BUAN 4381](#) or [ITSS 4381](#). (Same as [BUAN 4382](#)) (3-0) S

[ITSS 4383](#) Advanced Applied Artificial Intelligence/Machine Learning (3 semester credit hours) This course builds on the Applied Artificial Intelligence/Machine Learning course and covers more advanced topics, like deep learning and reinforcement learning. The course will emphasize the application of these methods to business problems. Prerequisites: ([ITSS 3312](#) or [BUAN 4381](#) or [ITSS 4381](#)) and ([BUAN 4382](#) or [ITSS 4382](#)). (Same as [BUAN 4383](#)) (3-0) S

[ITSS 4395](#) Capstone Senior Project - Information Systems (3 semester credit hours) This course is intended to complement theory and to provide an in-depth, hands-on experience in all aspects of a real business project. Students will work in teams as consultants on projects of interest to industry and will be involved in specifying the problem and its solution, designing and analyzing the solution, and developing recommended solutions. The deliverables will include reports that document these steps as well as a final project report, including the challenges faced by the team. Teams will also make presentations. Student groups will apply management information technology and information systems principles and techniques which may include the analysis, design, and/or testing of information systems. They will also analyze organizational impacts associated with acquiring, designing, developing, and delivering information systems solutions. Prerequisites: Junior or Senior standing and [ITSS 4330](#) and [ITSS 4351](#). Prerequisite or Corequisite: [BCOM 4300](#). (3-0) S

[ITSS 4V81](#) Individual Study in ITSS (1-3 semester credit hours) Credit/No Credit only. May be repeated for credit as topics vary (9 semester credit hours maximum). Instructor consent required. ([1-3]-0) R

[ITSS 4V90](#) ITSS Internship (1-3 semester credit hours) This course is designed to further develop a student's knowledge of information systems through appropriate developmental work experiences in a true organizational setting. Students are required to identify and submit specific business learning objectives (goals) at the beginning of the semester. At the end of the semester students must prepare an oral presentation, reflecting on the knowledge gained in the work

experience. Student performance is evaluated by the work supervisor. Credit/No Credit only. May be repeated for credit (3 semester credit hours maximum). Instructor consent required. ([1-3]-0) S

[ITSS 4V95](#) Seminar Series in Information Systems (1-3 semester credit hours) Discussion of selected topics and theories in information systems. May be repeated for credit as topics vary (9 semester credit hours maximum). Instructor consent required. ([1-3]-0) P