

# BUSINESS INFORMATION TECH (BIT)

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## **BIT 2104 - Careers in Business Information Technology (1 credit)**

Career opportunities and job search strategies in the business information technology and operations fields with reference to the BIT courses that best help the student identify a career in his/her selected field. Includes career skills development and resume writing. Pass/Fail only.

## **BIT 2164 - Foundations of Contemporary Security Environments (3 credits)**

Introduction to multiple analytical perspectives on contemporary security environments, including political, legal, ethical, technical, environmental and historical and cultural perspectives relative to the conception, design and implementation of security solutions, practices, and policies. Emphasizes applying and analyzing the effectiveness of diverse procedures, tools and policies used in security and privacy solutions, decision-making, risk management and operational policy to mitigate local, national, international and global threats.

**Pathway Concept Area(s):** 3 Reasoning in Social Sciences, 5F Quant & Comp Think Found., 11 Intercultural&Global Aware.

**Cross-listed:** CS 2164, PSCI 2164

## **BIT 2404 - Multicultural Problem Solving and Analytics (3 credits)**

Study of how people and organizations in multiple cultures analyze, model and solve problems from a business perspective. Addresses ethical considerations in developing and solving problems. No statistics background is required. Sophomore standing.

**Pathway Concept Area(s):** 5F Quant & Comp Think Found., 11 Intercultural&Global Aware.

**Cross-listed:** MGT 2404

## **BIT 2405 - Introduction to Business Statistics, Analytics, and Modeling (3 credits)**

Introduction to basic statistical (inference) tools, analytics techniques, and modeling necessary in managerial decision-making. The decision-making aspect of the course, while utilizing quantitative/computational thinking, will emphasize ethical reasoning. Topics include, but are not limited to, descriptive statistics, elementary probability theory, sampling and sampling distributions, portfolio management, hypothesis testing, regression analysis, analysis of variance, big data, and data analytics.

**Prerequisite(s):** MATH 1524 or (MATH 1225 and MATH 1226)

**Pathway Concept Area(s):** 5F Quant & Comp Think Found., 10 Ethical Reasoning

## **BIT 2406 - Introduction to Business Statistics, Analytics, and Modeling (3 credits)**

Overview of analytic models and solution techniques in decision science. Discussion of descriptive and predictive analytics goals and methods. In addition to overview of mathematical modeling and solution techniques, discussions will include considerations of adapting analytics methods to various global and ethical business applications. Students should develop skills and appreciation of the use of data and analytics for problem solving.

**Prerequisite(s):** BIT 2405 or (STAT 3005 and STAT 3006) or STAT 3604 or (STAT 3615 and STAT 3616) or STAT 4604 or STAT 4714

**Pathway Concept Area(s):** 5A Quant & Comp Think Adv., 10 Ethical Reasoning

## **BIT 2954 - Business Study Abroad (1-19 credits)**

This course provides students with an international business experience. It is only offered as part of a program outside of the United States.

Students will learn from the structured educational experience developed by the faculty leader. This course is intended for students who want to develop information technology or operations management related free electives. Pre: Instructors consent and the completion of 24 semester hours with a minimum GPA of 3.0 or departmental consent.

## **BIT 3414 - Operations and Supply Chain Management (3 credits)**

Study of the process directly related to the creation and distribution of goods and services. Increasingly, these operations are taking place outside the boundaries of a traditional enterprise. This course teaches students how to analyze processes, ensure quality, create value, and manage the flow of information, products and services across a network of customers, enterprises and supply chain partners.

**Prerequisite(s):** BIT 2406 and ACIS 2116 and ECON 2006

## **BIT 3424 - Introduction to Business Analytics Modeling (3 credits)**

Introduction of modeling of problems encountered in business analytics. Statistical and optimization modeling, computer solution, and analysis of business problems. Uses spreadsheet and database software to facilitate the modeling and solution of these problems.

**Prerequisite(s):** BIT 2406

## **BIT 3434 - Advanced Modeling for Business Analytics (3 credits)**

Study of selected, advanced topics in decision modeling and business analytics. Emphasis on model formulation, solution techniques, interpretation of results and comprehensive approaches to problem-solving. Integer, multi-criteria, and non-linear programming as well as network analysis and heuristics. Includes case studies and use of Excel as the primary analytical tool.

**Prerequisite(s):** BIT 2406

## **BIT 3444 - Advanced Business Computing and Applications (3 credits)**

Study of selected advanced topics in business computing. Construction of business applications using an advanced application development environment such as Visual Studio.net. Coverage of computer terminology, HTML, and Internet applications. The course builds computer literacy and strong programming skills. Junior standing required.

**Prerequisite(s):** BIT 3424 and (CS 1054 or CS 1064 or CS 1114)

## **BIT 3454 - Business Process Improvement (3 credits)**

Examines the technical aspects of business process improvement focusing on improvement strategies, quality control, data analysis and mining, and maturity models. Emphasizes analytical techniques for business process design, control, and improvement.

**Prerequisite(s):** BIT 3414

## **BIT 3464 - Enterprise Planning and Control Systems (3 credits)**

The study of the design, analysis and implementation of enterprise-wide resource planning and control systems. The course examines decision support models for production planning, master scheduling, inventory control, shop floor control and related topics in planning and control. The course emphasizes the application of information technologies such as ERP, MRPII, CIM to operations planning and control.

**Prerequisite(s):** BIT 3414

**BIT 3514 - Systems Analysis (3 credits)**

Study of the current technologies for designing and developing computer-based business systems. Topics will include process, structural, behavioral, and conceptual data modeling methodologies such as Uniform Modeling Language (UML) and important design-related issues such as data flows and system capabilities. Design issues will be explored through class projects. This course duplicates BIT 4524.

**Prerequisite(s):** CS 1054 or CS 1064 or CS 1114

**BIT 3524 - Database Management and Design (3 credits)**

Study of the design of databases and data structures for supporting business applications. Basic database structure and design, structured query language, database management systems, integration of backend database servers, data warehousing and mining, on-line analytical processing, and database application, security, and management. This course duplicates BIT 4514.

**Prerequisite(s):** BIT 3514 or (BIT 3424 and BIT 4524)

**BIT 3554 - Networks, Telecommunications and Security (3 credits)**

Provides an introduction to computer networks and data communications in business. Topics include mechanisms for reliable data transfer, network topologies and technologies, and a comprehensive treatment of inter-networking. Additional topics include packet switching, and cloud, edge, and advanced networking. Security issues related to using computer networks are discussed, along with network design issues, and methodologies for network applications. Duplicates BIT 4554.

**Prerequisite(s):** BIT 2164 or CS 2164 or PSCI 2164 or BIT 3424 or ACIS 3504

**Cross-listed:** ACIS 3554

**BIT 3954 - Study Abroad (1-19 credits)****BIT 4164 - Future of Security: Integrative Solutions for Complex Security Systems (3 credits)**

Identification and analysis of complex, real-world security problems and threats to people, organizations, and nations across multiple domains, roles and future scenarios. Crisis communication, decision making tools, ethical principles and problem-solving methods to respond, assess options, plan, scope, and communicate before, during and after conflicts, disasters and attacks. Use of an experiential learning facility, and participation in a reality-based team simulation of cascading security and disaster events.

**Prerequisite(s):** PSCI 2164 or BIT 2164 or CS 2164

**Pathway Concept Area(s):** 1A Discourse Advanced, 10 Ethical Reasoning

**Cross-listed:** CS 4164, PSCI 4164

**BIT 4424 - Business Information Visualization and Analytics (3 credits)**

Basic perception and design principles and techniques for information visualization, with an emphasis on the application of visualization software for data exploration and the development of analytical skills for business. Includes hands-on exposure to information visualization and statistical software.

**Prerequisite(s):** BIT 2406

**BIT 4434 - Computer Simulation in Business (3 credits)**

In-depth study of the application of computer simulation techniques to business decision making and process improvement. The theory of computer simulation and statistical analysis of results are included. Attention is focused on using simulation software stressing application to specific problems.

**Prerequisite(s):** BIT 3414

**BIT 4444 - Web-Based Decision Support Systems (3 credits)**

Study of current technologies for designing and constructing interactive, Internet-based systems for supporting business decisions. Topics may include the operation of the Internet, server-side programming, client-side programming, server-side scripting, XML, XHTML, database integration, COM, CGI, and others. Design issues will be explored through a class project.

**Prerequisite(s):** BIT 3444

**BIT 4454 - Business Analysis Seminar in IT (3 credits)**

Comprehensive treatment of Decision Support Systems (DSS) as managerial tools, particularly in an e-commerce environment. Emphasis is at the builder and user level. A primary emphasis is on problem solving through the integration of various quantitative techniques as well as on IT concepts. The course includes a comprehensive project using state-of-the-art software.

**Prerequisite(s):** BIT 3434 and BIT 4444 and (BIT 4514 or BIT 3524)

**BIT 4464 - Advanced Supply Chain Management (3 credits)**

Advanced study of efficient methods for streamlining the production and delivery of products and services across functions, enterprises and global boundaries. Topics include the facilities, functions, technologies, and activities involved in creating and delivering products and services, especially in a digital marketplace. Designing and managing a network of suppliers across enterprises is discussed, along with the information systems, risk management and planning issues involved.

**Prerequisite(s):** BIT 3414

**BIT 4474 - Global Operations and Information Technology (3 credits)**

This course includes concepts and issues critical in the globalization of business operations and information technology. Topics covered include the organization of global operations, cultural and national comparisons, planning global operations, facilities location, product development, technology transfer, global communication links, transborder data flow, international information systems, and other emerging operations and information technology issues.

**Prerequisite(s):** BIT 3414

**BIT 4484 - Project Management (3 credits)**

Study of efficient methods for planning and controlling projects. Topics include project management and scheduling tools, project quality assurance, risk and cost control, resource constrained scheduling, definition and requirements analysis, task integration, and managing alliances. The application of information technology to project management and control is emphasized throughout the course.

**Prerequisite(s):** BIT 3414

**BIT 4544 - Advanced Methods in Business Analytics (3 credits)**

Study of key methods in business analytics and their role in decision making in the business context. Emphasizes data systems and methods for extracting knowledge from these systems. Business intelligence, data mining and data classification, text mining and web mining, data warehousing, geographic information systems, artificial intelligence, heuristics, and semantics and ontologies.

**Prerequisite(s):** BIT 3444 or ACIS 2504

**BIT 4604 - Data Governance, Privacy and Ethics (3 credits)**

Examination of data analytics and automated decision making issues, across multiple technology contexts, through the lens of the humanities and ethics. Privacy, autonomy, data ownership, equality, and accountability. Decision making and exploration of questions of data ethics and data fairness throughout the data life cycle.

**Prerequisite(s):** BIT 2405 or CMDA 2014 or CS 1114 or CS 1054 or CS 1064

**Pathway Concept Area(s):** 2 Critical Thinking Humanities, 10 Ethical Reasoning

**BIT 4614 - Information Security (3 credits)**

Study of policies, procedures, and technologies for enhancing the security of information. Topics include physical security, communications security, emissions security, computer security, and network security. The core security goals of confidentiality, integrity, and availability are emphasized throughout the course.

**Prerequisite(s):** BIT 3424 or BIT 2164 or CS 2164 or PSCI 2164

**BIT 4624 - Cybersecurity Analytics for Business (3 credits)**

Application of advanced analytics to cybersecurity in a business setting. Categorization of cyber threats and solutions. Data mining, visualization and machine learning applied to large data sets for anomaly detection, threat prediction, and incident response analysis. Investigation of adversarial machine learning. Selection of appropriate analytics techniques and security platforms. Consideration of business and ethical issues.

**Prerequisite(s):** BIT 4614 or CS 4264

**BIT 4854 - Analytics in Action (3 credits)**

Problem-solving framework and analytic techniques for solving messy, unstructured, high-impact, real-world organizational/societal problems within an interdisciplinary, intercultural, experiential learning context. Definition of problem scope, objectives, need for change, ethical concerns, and diversity and inclusion issues; identification of stakeholders and their values; evaluation of decision tradeoffs; problem decomposition and hypothesis formulation; project planning and administration; data versus user requirements, ethical and inclusive decision making, data collection, preparation, and analysis; team roles and management; professional communication of insights, policy and action recommendations.

**Prerequisite(s):** CMDA 2014 and BDS 2005

**Pathway Concept Area(s):** 1A Discourse Advanced, 11 Intercultural&Global Aware.

**Cross-listed:** MGT 4854

**BIT 4954 - Study Abroad (1-19 credits)****BIT 4964 - Field Study (1-19 credits)****BIT 4974 - Independent Study (1-19 credits)****BIT 4984 - Special Study (1-19 credits)****BIT 4994 - Undergraduate Research (1-19 credits)**