BCIS-BUSINESS COMPUTER SYSTEMS

BCIS 1110. Introduction to Information Systems
3 Credits (3)
Examination of information systems and their impact on commerce, education, and personal activities. Utilization of productivity tools for communications, data analysis, information management and decision-making.

Learning Outcomes

1. Describe the social impact of information literacy and systems in relation to commerce, education, and personal activities.
2. Explain how to use the information resources legally, safely, and responsibly in relation to ethical, security, and privacy issues.
3. Evaluate bias, accuracy and relevance of information and its sources.
4. Use productivity tools for communications, data analysis, information management and decision-making.
5. Describe and use current information systems and technologies

BCIS 321. Introduction to Software Development and Programming
3 Credits (3)
Computer algorithm development and programming logic in the context of business information systems using current programming environments. Includes program design, data types, data structures, control structures, arrays, and principles of object-oriented programming. May be repeated up to 3 credits.
Prerequisite: C- or better in BCIS 1110; and MATH 1215.

Learning Outcomes

1. Students are proficient in Python and knowledgeable on programming.
2. Students can use programming knowledge to work on business case studies involving data.

BCIS 338. Business Information Systems I
3 Credits (3)
This course covers the business and managerial applications/implications of management information systems (MIS) and an introduction to business analytics. In doing so, the course blends technical know-how with decision-making and systems integration. Additionally, this course provides you with working knowledge of productivity software (i.e., spreadsheet software).
Prerequisite: BCIS 1110 or consent of instructor.

Learning Outcomes

1. Students can explain how information systems and business analytics are used in business.
2. Students can construct intermediate and Advance levels of Excel spreadsheet application.
3. Students can construct intermediate-level O365 Cloud applications, Databases, and Collaborations.
4. Students can describe what business professionals need to know about computer hardware/Software/Security/Social Media and Business Intelligent.
5. Students can describe what business professionals need to know about and business processes and improvement.
6. Apply information systems viz. spreadsheet and analytics software, to solve business problems.

BCIS 350. Information Systems Analysis and Design
3 Credits (3)
An introduction to the analysis and design of secure information systems.
Prerequisite(s): Concurrently with BCIS 338 or consent of instructor.

BCIS 461. Business Analytics I
3 Credits (3)
This course provides an understanding of how organizations can utilize technology to successfully collect, organize, manipulate, use, and present data. The course blends the use of current technology with the managerial practices involving business analytics. The emphasis of the course will be on data management practices and the production of descriptive analytics. Crosslisted with: BCIS 561.
Prerequisite(s): BCIS 338 or consent of instructor.

BCIS 466. Business Analytics II
3 Credits (3)
This course provides an understanding of how organizations can build and test predictive models, utilizing business-related data to estimate model parameters. The emphasis of the course will be on utilizing data management systems to produce useful predictive analytics. Crosslisted with: BCIS 566.
Prerequisite(s): BCIS 461 or consent of the instructor.

BCIS 475. Database Management Systems
3 Credits (3)
Design, development, and use of database management systems in the business environment. Specifically, we will focus on both operational databases and analytical databases (Data Warehouse and Data Marts). Cross-listed with BCIS 575.
Prerequisite: BCIS 338 or consent of instructor.

Learning Outcomes

1. Describe fundamental database terminology and explain the primary features of database management systems.
2. Explain relational database concepts, such as primary key and referential integrity, normalization, and triggers.
3. Explain what a data model is.
4. Write SQL, the standard language of relational databases, at an advanced level.
5. Design a data model and code/implement it as a database solution using SQL.
6. Describe the fundamental concepts of Data Warehouses.
7. Design and build data warehouses.
8. Describe emergent database topics such as big data, data lakes, NoSQL.
9. Understand how a database can be used with Python programming language and MS Excel.

BCIS 480. Introduction to Cybersecurity: Exploring Computer, Network, and Data Security Principles
3 Credits (3)
This course introduces students to fundamental principles of cybersecurity and computer security. Through comprehensive exploration, students gain a deep understanding of diverse cybersecurity concepts spanning various domains. The curriculum covers essential aspects of computer security, including cryptography, authentication, access control, threat identification, counterattack strategies, and detection/prevention methods. These concepts are applied across application software, operating systems, networks, mobile apps, and databases. The course also covers securing network-based applications and network security fundamentals like TCP/IP, firewalls, intrusion

detection, and vulnerability management. Ultimately, students develop a robust foundation in cybersecurity and computer security, preparing them for the digital landscape. Cross-listed with BCIS 580. May be repeated up to 3 credits.
Prerequisite: BCIS 338 or consent of instructor.

Learning Outcomes

1. Describe the key security requirement of confidentiality, integrity, and availability.
2. Discuss the types of security threats and attacks that must be dealt with and give examples of the types of threats and attacks that apply to different categories of computer and network assets.
3. Explain the fundamental security design principles.
4. Define e-commerce, understand how e-commerce differs from e-business, identify the primary technological building blocks underlying e-commerce, and recognize major current themes in e-commerce.
5. Identify and describe the unique features of e-commerce technology and discuss their business significance.
6. Understand the scope of e-commerce crime and security problems, the key dimensions of e-commerce security, and the tension between security and other values.
7. Identify the key security threats in the e-commerce environment.
8. Describe how technology helps secure Internet communications channels and protect networks, servers, and clients.

BCIS 482. Management of Information Security
3 Credits (3)
Provides management overview of information security and thorough examination of administration of information security. Surveys field of information security including planning, policy and programs, protection and people relative to information security.
Prerequisite(s): BCIS 338 or consent of instructor.

BCIS 485. Enterprise Resource Planning
3 Credits (3)
This course covers concepts in enterprise resource planning (ERP). Topics include how ERP integrates business processes across functional areas—such as the procurement process and the sales order process—and how businesses use ERP information systems in day-to-day operations as well as for performance monitoring.. SAP software will be utilized in multiple hand-on examples of ERP software, serving as a real-world illustration of an ERP system.
Prerequisite: C- or better in BCIS 338 or BCIS 350 or ACCT 351.

Learning Outcomes

1. Explain business processes common to most businesses--order processing, inventory management, and procurement.
2. Distinguish between master and transactional data common to most organizations.
3. Describe the cash-to-cash cycle in a production environment.
4. Explain how a business process often spans different functional areas of the business: accounting, marketing, and material management.
5. Describe how enterprise systems, such as SAP, integrate business functional areas into one enterprise-wide information system.
6. Use critical thinking to make decisions.

BCIS 490. Selected Topics
1-3 Credits
Current topics in business systems analysis. Consent of Instructor required.

BCIS 498. Independent Study
1-3 Credits
Individual studies directed by consenting faculty with prior approval of the department head. May be repeated for a maximum of 3 credits.
Prerequisites: junior or above standing and consent of instructor.

BCIS 502. Business Information Systems
3 Credits (3)
Analysis of information systems as integral parts of business organizations, including the responsibility of management to understand their capabilities and uses in handling the organization s information flow and providing appropriate information for decision making.
Prerequisite: graduate students only.

BCIS 550. Information Systems Analysis and Design
3 Credits (3)
Information systems development methodologies and the system life cycle. Justifying and managing systems development projects. Not open to students who have taken BCIS 350. Students must be Graduate Students to enroll. May be repeated up to 3 credits.

Learning Outcomes

1. Describe foundations of systems development.
2. Explain systems development life cycle and key methodologies.
3. Depict how to conduct planning in systems development.
4. Determine and structure system requirements.
5. Apply principles and guidelines to design interfaces, forms and databases.
6. Understand the major issues in the systems implementation and maintenance.

BCIS 561. Business Analytics I
3 Credits (3)
This course provides an understanding of how organizations can utilize technology to successfully collect, organize, manipulate, use, and present data. The course blends the use of current technology with the managerial practices involving business analytics. The emphasis of the course will be on data management practices and the production of descriptive analytics. Not open to students who have taken BCIS 461. No S/U or audit option.
Prerequisite: BCIS 338.

Learning Outcomes

1. Identify the reasons for and the evolution of computerized support in managerial decision making.
2. Describe the business intelligence (BI) methodology and concepts.
3. Identify and explain various types of analytics.
4. Explain the nature of data in the context of BI and Business Analytics.
5. Describe statistical modeling and its relationship to business analytics.
6. Apply descriptive and inferential statistics techniques.
7. Explain the importance of data/information visualization and apply different types of visualization techniques.
8. Explain the basic concepts of data warehousing.
9. Explain data integration and the extraction, transformation, and load (ETL) processes. 1
10. Describe the essence of business performance management (BPM). 1
11. Describe balanced scorecard and Six Sigma as performance measurement systems. 1
12. Explain the objectives and benefits of data mining. 1
13. Learn the standardized data mining process. 1

14. Enhance your communication (presentation and report writing), creative thinking, problem-solving, and analytical skills.

BCIS 566. Business Analytics II
3 Credits (3)
This course provides an understanding of how organizations can build and test predictive models, utilizing business-related data to estimate model parameters. The emphasis of the course will be on utilizing data management systems to produce useful predictive analytics. Not open to students who have taken BCIS 466. No S/U or audit option.
Prerequisite: BCIS 561.
Learning Outcomes
1. Identify and explain various types of analytics.
2. Define data mining as an enabling technology for business analytics.
3. Learn the standardized data mining processes and the different methods and algorithms of data mining.
4. Build working knowledge of the existing data mining software tools.
5. Describe text analytics and understand the need for text mining.
6. Learn the process of carrying out a text mining project and the common methods for sentiment analysis.

BCIS 575. Database Management Systems
3 Credits (3)
Design, development, and use of database management systems in the business environment. Not open to students who have taken BCIS 475.
Prerequisite: BCIS 350 or BCIS 550.
Learning Outcomes
1. Describe fundamental database terminology and explain the primary features of database management systems. (Cognitive Level: Understand)
2. Explain relational database concepts, such as primary key and referential integrity, normalization, and triggers. (Cognitive Level: Understand)
3. Explain what a data model is. (Cognitive Level: Understand)
4. Write SQL--the standard language of relational databases--at an advanced level. (Cognitive Level: Apply)
5. Design a data model and code/implement it as a database solution using SQL. (Cognitive Level: Create)
6. Describe the fundamental concepts of Data Warehouses. (Cognitive Level: Understand)
7. Design and build data warehouses. (Cognitive Level: Create)
8. Describe emergent database topics such as graph databases, big data, data lakes, NoSQL. (Cognitive Level: Understand)
9. Demonstrate how a database can be used with Python programming language and MSExcel. (Cognitive Level: Apply)

BCIS 580. Introduction to Cybersecurity: Exploring Computer, Network, and Data Security Principles
3 Credits (3)
This course introduces students to fundamental principles of cybersecurity and computer security. Through comprehensive exploration, students gain a deep understanding of diverse cybersecurity concepts spanning various domains. The curriculum covers essential aspects of computer security, including cryptography, authentication, access control, threat identification, counterattack strategies, and detection/prevention methods. These concepts are applied across application software, operating systems, networks, mobile apps, and databases. The course also covers securing network-based applications and network security fundamentals like TCP/IP, firewalls, intrusion detection, and vulnerability management. Ultimately, students develop a robust foundation in cybersecurity and computer security, preparing them for the digital landscape. Not open to students who have taken BCIS 480. No S/U or audit option. May be repeated up to 3 credits.
Prerequisite: BCIS 338 or equivalent or consent of instructor.
Learning Outcomes
1. Describe the key security requirement of confidentiality, integrity, and availability.
2. Discuss the types of security threats and attacks that must be dealt with and give examples of the types of threats and attacks that apply to different categories of computer and network assets.
3. Explain the fundamental security design principles.
4. Define e-commerce, understand how e-commerce differs from e-business, identify the primary technological building blocks underlying e-commerce, and recognize major current themes in e-commerce.
5. Identify and describe the unique features of e-commerce technology and discuss their business significance.
6. Understand the scope of e-commerce crime and security problems, the key dimensions of e-commerce security, and the tension between security and other values.
7. Identify the key security threats in the e-commerce environment.
8. Describe how technology helps secure Internet communications channels and protect networks, servers, and clients.

BCIS 582. Management of Information Security
3 Credits (3)
Provides management overview of information security and thorough examination of administration of information security. Surveys field of information security including planning, policy and programs, protection and people relative to information security. Not open to students who have taken BCIS 482.
Prerequisite: BCIS 338 or equivalent or consent of instructor.
Learning Outcomes
1. Explain the fundamental concepts of the management of information security within the context of organizations.
2. Describe commonly used information systems (IS) security standards and guidelines.
3. Create IS security management and policy as well as risk management plans.
4. Explain the behavioral aspects of IS security and discuss the development of security culture within organizations.
5. Explain the technical aspects of IS security, including issues related to cryptography and network security.
6. Describe and evaluate the regulatory aspects of information system security (primarily within the United States and European Union context).

BCIS 585. Enterprise Resource Planning & Business Processes
3 Credits (3)
Enterprise-wide information systems and their use in enterprise resource planning (ERP). This course will examine the many cross-functional business processes. Other topics include ERP implementation issues, change management, and business process re-engineering. Hands-on exercises use SAP Enterprise software. Not open to students who have taken BCIS 485. May be repeated up to 3 credits.
Prerequisite: C- or better in ACCT 351 or BCIS 502.
Learning Outcomes
1. Business processes common to most businesses, including order processing, procurement, inventory management, etc.

2. How a business process often spans different functional areas of the business: accounting, marketing, etc.
3. How enterprise systems, such as SAP, integrate business functional areas into one enterprise-wide information system.
4. Process modeling to depict the sequence of tasks completed in a business process.
5. Master data common to most businesses (e.g. customer, vendor, inventory, etc.).
6. The issues involved in implementing an ERP system.

BCIS 590. Special Topics
1-3 Credits (1-3)
Seminars in selected current topics in business computer systems. May be repeated up to 3 credits.
Prerequisite(s): Vary according to topic being offered.

BCIS 598. Independent Study
1-3 Credits
Individual studies directed by consenting faculty with prior approval of department head. A maximum of 3 credits may be earned.
Prerequisite: consent of instructor.