Business Information Systems

Business information systems serve as a conduit for business change and they are the heart of today’s business model. Our diverse faculty and contemporary curriculum are targeted at preparing our students to play a vital, value-added role in today’s rapidly changing business information environment.

Beyond understanding the key prerequisite technical skills, students will learn how businesses can leverage information technology and business information systems in conjunction with various management techniques in order to meet corporate tactical and strategic goals. By being introduced to the spectrum of today’s leading technologies, students will understand the business implications and opportunities addressed in today’s global economy.

The business information systems field is vibrant and exciting. There are a broad range of employment opportunities. Successful completion of the BIS program would invite students to pursue a wide range of career opportunities, including careers as a systems analyst/designer, information systems manager, information systems project manager, and information systems consultant.

The Business Information Systems major requires three (3) courses and three (3) electives beyond the core requirements of the College of Business and Economics. Students are required to take BIS 111, Introduction to Information Systems, as part of the business and economics core. Other courses are as follows:

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIS 311</td>
<td>Managing Information Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>BIS 324</td>
<td>Business Data Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 335</td>
<td>Application Development for Business</td>
<td>3</td>
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Elective Courses

Select three of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIS 333</td>
<td>Enterprise Security and Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 342</td>
<td>e-Business Enterprise Applications</td>
<td>3</td>
</tr>
<tr>
<td>BIS 344</td>
<td>Cloud Computing for Business</td>
<td>3</td>
</tr>
<tr>
<td>BIS 348</td>
<td>Predictive Analytics in Business</td>
<td>3</td>
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<tr>
<td>BIS 352</td>
<td>Advanced Topics in Business Analytics</td>
<td>3</td>
</tr>
<tr>
<td>BIS 372</td>
<td>Special Topics in Information Systems</td>
<td>3</td>
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<tr>
<td>ACCT 311</td>
<td>Accounting Information Systems</td>
<td></td>
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<tr>
<td>ENTP 304</td>
<td>Technology and Software Ventures</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 18

Courses

BIS 111 Introduction to Information Systems 3 Credits
This course examines the fundamental role of information systems in supporting and managing all business functions and enabling firms to compete effectively. Both technical and managerial aspects of information systems are introduced. The course integrates technical infrastructure, database concepts, management decision-making, and business process issues critical to the understanding of operational and strategic information systems. It introduces business applications that support accounting, finance, supply chain management, and marketing.

BIS 300 Apprentice Teaching 1-4 Credits
This course focuses on managing the requirements analysis and system design methodology and techniques for business information systems. Students learn current methods and techniques for system requirement analysis as well as system design, and apply them to real world projects. It covers cost benefit analysis and risk management of business systems development, JAD and structured walkthroughs, structured and object oriented methodologies, and software package evaluation. It emphasizes the factors for effective communication and integration with users and user systems and encourages interpersonal skill development with client users, team members, and others associated with development, operation, and maintenance of the system.

Prerequisites: ACCT 311 or CSB 311 or BIS 111

BIS 324 Business Data Management 3 Credits
This course covers the fundamentals of database management systems (DBMS), including database development, processing, logical and physical design, access, implementation and administration. Students will gain extensive experience in developing data models, creating relational databases, and formulating and executing complex queries. The focus in the course will be on analyzing the connections between data and business organizational information needs and decisions, and understanding the principles of managing organizational data. A project with hands-on experience with a large scale DB is included.

Prerequisites: BIS 111

BIS 333 Enterprise Security and Risk Management 3 Credits
This course explores the management of enterprise IT solutions. The focus is on the management of applications and infrastructure security. Students will be introduced to frameworks for infrastructure management, system administration, critical security principles that enable them to plan, develop, and perform security tasks. The course will address hardware, software, processes, communications, applications, and policies and procedures with respect to enterprise IT Security and Risk Management. These topics are addressed both within and beyond the organization, with attention paid to managing risk and security within audit and compliance standards.

Prerequisites: BIS 111
BIS 335 Application Development for Business 3 Credits
This course provides an introduction to planning, designing, developing and maintenance of high quality computer applications that solve business problems. Students will learn basic systems development and computer programming concepts by designing, coding, and testing in an object oriented computer language. Emphasis will be placed on learning introductory programming concepts, such as declaring variables, control statements, subroutines, functions, and arrays. Additionally, students will develop event-driven graphical user interfaces. Some previous experience with programming helpful but not required.
Prerequisites: BIS 111

BIS 342 (SCM 342) e-Business Enterprise Applications 3 Credits
Introduction to the implications of key information technologies used within and across businesses to conduct e-business. The course covers the functionality of various enterprise applications and their integration: customer relationship management, enterprise resource planning, supply chain management, supplier relationship management, data warehousing and mining, business intelligence, and product lifecycle management.
Prerequisites: BIS 111

BIS 344 Cloud Computing for Business 3 Credits
This course focuses on understanding risk assessment, security guidance, design and deployment of cloud services solutions. Students will demonstrate an understanding of high availability and business continuity, cloud resource costing, deployment management, network design, data storage, security, scalability and elasticity, cloud migration and hybrid architecture. The applied portion of the course gives students hands-on experience designing and deploying cloud environments and services on platforms such as Amazon Web Services.
Prerequisites: BIS 311

BIS 348 Predictive Analytics in Business 3 Credits
The course covers theories and practices in predictive analytics in business. Students will have hands-on experience on analyzing business data for business intelligence and improved business decision making. Includes: key theories, concepts, and models of predictive analytics; and data mining tools to formulate and solve business problems. The course uses data analytics software and real data. Topics include prediction, forecasting, classification, clustering, data-visualization and data reduction techniques. Credits will not be given for both BIS 348 and BIS 448.
Prerequisites: BIS 111 and (ECO 045 or MATH 012 or MATH 231)

BIS 350 (MG 350) Project Management 3 Credits
Key processes and tenets of project management including scope, time, cost, quality, human resources, communications, risk, procurement, and integration management. Both technical and behavioral aspects of project management are applied within the context of either IS management, HR management, Supply Chain Process Management, Small Business Management. Topics include: expectations management, change management and consulting engagement management. Introduces both software project monitoring tools and project team collaboration techniques and tools. Must have completion of all other courses in either BIS or Management major.
Prerequisites: BIS 335 and BIS 324

BIS 352 Advanced Topics in Business Analytics 3 Credits
This course covers advanced analytic methods for understanding and solving business problems. The emphasis is on understanding and applying a wide range of modern techniques to specific decision-making situations. Using the programming language R, the course covers advanced topics such as machine learning, text mining, and social network analysis. Upon completion, students will have valuable practical analytic skills to handle large datasets and make business decisions. Credits will not be given for both BIS 352 and BIS 452.
Prerequisites: BIS 111 and (ECO 045 or MATH 012 or MATH 231)

BIS 360 Business Information Systems Practicum 3 Credits
The business information systems practicum provides an opportunity for students to work on an intensive consulting engagement with a business. Students work with client firms on individual or team projects, which focus on information systems activities such as developing requirements, designing, and implementing systems. Students complete written reports and make formal presentations to clients. May not be taken concurrently with MGT 311. Cannot be used to satisfy BIS major or minor requirements.

BIS 371 Directed Readings 1-3 Credits
Readings and research information systems; designed for superior students who have special interest in some topic(s) not covered by the regularly scheduled courses. Written term paper(s) required. Must have preparation in information systems acceptable to program coordinator.
Repeat Status: Course may be repeated.

BIS 372 Special Topics in Information Systems 1-3 Credits
Special problems and issues in information systems for which no regularly scheduled course work exists. When offered as group study, coverage varies according to interests of the instructor and students. Must have preparation in information systems acceptable to program coordinator.
Repeat Status: Course may be repeated.

BIS 373 Business Information Systems Internship 1-3 Credits
Based on a student's work experience, a sponsoring faculty member shall direct readings, projects, and other assignments-including a "capstone report." It should be noted that the work experience (at least 80 hours per credit), by itself, is not the basis for academic credit. The faculty directed activity must be provided concurrent with the work. Course registration and related arrangements, including designating a sponsoring faculty member, must be made in advance of the work engagement. This course must be taken Pass/Fail, cannot be used to satisfy BIS major or minor requirements. Declaration of a BIS major or minor, junior standing, and consent of department required.
Prerequisites: BIS 311

BIS 388 (FIN 388) FinTech Capstone 3 Credits
This course combines experiential learning via a semester long hands-on project with a series of lectures on relevant topics. Students will learn how to apply the information technologies and financial concepts they learned in the other courses to issues in the creation, distribution, servicing, or operations of financial products and services. These issues may include cybersecurity, payment processing, algorithmic trading, credit scoring, blockchain, cryptocurrency, artificial intelligence, machine learning, peer-to-peer lending, online banking, and mobile banking.
Prerequisites: (CSE 012 or CSE 017) and BIS 352 and (BIS 348 or CSE 347 or ISE 364 or ISE 365) and (BIS 324 or CSE 241 or ISE 224) and FIN 330

BIS 423 Management Information Systems 2 Credits
This course examines the role of information systems (IS) and information technology (IT) in the organization. The focus of the course is the organizational uses of IS and IT to compete effectively. Both technical and managerial aspects of information systems are explored. The course includes technical infrastructure, management decision-making, trends and innovations in IS, and business process issues critical to the understanding of operational and strategic information systems.

BIS 448 Predictive Analytics in Business 3 Credits
The course covers theories and practices in predictive analytics in business. Students will have hands-on experience on analyzing business data for business intelligence and improved business decision making. Included: key theories, concepts, and models of predictive analytics; and data mining tools to formulate and solve business problems. The course uses data analytics software and real data. Topics include prediction, forecasting, classification, clustering, data-visualization and data reduction techniques. Credits will not be given for both BIS 348 and BIS 448.
BIS 452 Advanced Topics in Business Analytics 3 Credits
This course covers advanced analytic methods for understanding and solving business problems. The emphasis is on understanding and applying a wide range of modern techniques to specific decision-making situations. Using the programming language R, the course covers advanced topics such as machine learning, text mining, and social network analysis. Upon completion, students will have valuable practical analytical skills to handle large datasets and make business decisions. Credits will not be given for both BIS 352 and BIS 452.

Prerequisites: BUEC or ECO 045