Prerequisites:
IT Security and Risk Management. These topics are addressed both in applications, and policies and procedures with respect to enterprise management, system administration, critical security principles, and tools. 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 350 (MGT 350) Project Management 3 Credits**
Key processes and tenets of project management including planning, execution, and data analytics. 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 developing requirements, designing, and implementing systems. 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 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.

**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.
Repeat Status: Course may be repeated.
Prerequisites: BIS 311

BIS 396 1-3 Credits
Repeat Status: Course may be repeated.

BIS 411 Storytelling in Business Analytics 1.5 Credit
Focuses on training students to visualize business data and communicate implications from business data through visualization and storytelling. Covers techniques and algorithms for creating effective visualizations of complex business data. Students will implement data analysis and visualization through hands-on programming and visualization tools. Enhances students’ business communications related to data. Students will translate data and analysis into narratives that provide context for their messages and make persuasive recommendations in written and oral formats.

BIS 412 Data Ethics and Security in Business 1.5 Credit
Focuses on the management of data security, the frameworks of business data ethics, and the integration of data ethics with data security management. Students will be introduced to critical security principles that enable them to plan, develop, and perform data security tasks. Addresses business ethics as it relates to a variety of data management issues.

BIS 415 Capstone Project 3 Credits
The capstone project course immerses students in projects on how business analytics skills can be applied ethically in an organization to create business value. Built on the foundational courses in business analytics, the capstone integrates classroom lectures with a combination of company visits and externship projects.

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 434 Decision Analytics for Managers 3 Credits
This course focuses on the key concepts and methods that relate to information management and business decision making, and how managers can create value and make better business decisions by turning information into competitive advantage. It also introduces fundamental concepts and analytic methods in business analytics. In addition, this course provides an overview of how modern information systems support business decision making as well as technology-enabled business models.
Prerequisites: (ECO 045 or BUEC ) and MGT 431
Can be taken Concurrently: MGT 431

BIS 456 Business Analytics for Decision Making 3 Credits
Provides students with a theoretical and practical understanding of core data analytics concepts and techniques, and develops hands-on experience in applying these techniques to practical real-world business problems using R software. As an applied course, the emphasis will be less on the inner working of each method and more on when and how to use each technique and how to interpret the results. Not available to students who have credit for BIS 348, 448, 352 or 452.
Prerequisites: MBA 440 or ECO 045 or ECO 427 or BUEC

BIS 458 Data Management for Managers 3 Credits
Covers fundamentals of database management, including database development, processing, logical and physical design, access, implementation and administration, and design and deployment of cloud services solutions. Students will gain extensive experience in developing data models, creating relational databases, formulating and executing complex queries, and understanding cloud services solutions in cloud resource costing, deployment management, network design, data storage, security, scalability and elasticity, cloud migration and hybrid architecture. Hands-on experiences such as such as Oracle Database and Amazon Web Services are included.