CIS 1323. Introduction to Microcomputer Applications.
This course develops advanced information technology skills, focusing on office productivity software. Primary emphasis is placed on spreadsheet, database, and presentation software. Advanced techniques are presented for use in data analysis and decision-making. Students will be expected to demonstrate mastery of these techniques in a hands-on environment.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter
TCCN: BCIS 1305

CIS 3305. Visual Programming I.
This course provides an introduction to application program development including requirement analysis, design, implementation, and testing. A blend of structured and object-oriented concepts is used to form solutions to business problems using a visual programming language. Prerequisite: CIS 1323 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3317. E-Business.
Explores the constantly changing world of e-Business from an international perspective. This course will emphasize e-Business challenges and opportunities in the worldwide marketplace, while focusing on global issues of management, implementation, and integration of IT resources. (MULT) Prerequisite: A minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin|Multicultural Content
Grade Mode: Standard Letter

CIS 3325. Visual Programming II.
An advanced visual programming course covering topics related to the design and implementation of user interface, business logic and data access in a tiered architecture. The emphasis is on techniques that take advantage of a development framework through the use of forms, classes, and objects. Corequisite: CIS 3374 and CIS 3382 both with grades of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3350. Information Systems Security.
This course examines the concepts of information systems and network availability, integrity, and confidentiality in order to develop effective security controls, processes, practices, and procedures. Topics include methodologies, models, architectures, access control systems, ethics, and legal implications of IT security. Prerequisite: A minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3360. Web Design and Development.
This course focuses on the design, creation, and maintenance of websites. It covers fundamental technologies for structuring and presenting content on the web and development framework for creating mobile-first web pages. Prerequisite: A minimum 2.0 Overall GPA. Corequisite: CIS 3374 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3374. System Analysis and Design.
The analysis and general design phases of the system development life cycle are reviewed. Emphasis on techniques and tools for determining systems requirements that lead to the development of logical design models using structured and object-oriented methodologies. (WI) Prerequisite: A minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin|Writing Intensive
Grade Mode: Standard Letter

CIS 3380. Enterprise Information Technology and Business Intelligence.
Students will extend their ability to effectively use integrated software applications to identify and provide access to various information sources. The course will focus on applying information and Internet Technologies that span normal business functions for the development and implementation of solutions to managerial problems. Prerequisite: CIS 1323 and [QMST 2333 or MATH 2328] and [MATH 1329 or MATH 2331 or MATH 2471] all with grades of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3382. Computer Data Base Systems.
Concepts and methodology of planning, design, development, and management of the computerized data base. The emphasis is on logical database design and a study of relational implementation. A relational DBMS with a relational query language is used for the development of a business application system. Prerequisite: CIS 2324 or CIS 3305 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3389. Programming for Data Processing.
This course emphasizes the development of data processing software. Topics include designing applications for analyzing and manipulating numerical and textual data from external data sources. Sequence and collections structures, object serializations, design techniques, and reporting will be examined. Prerequisite: [CIS 2324 or CIS 3305] and [QMST 2333 or MATH 2328] both with grades of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 3390. Agile Project Management.
An introduction to project management body of knowledge as applied to Information Technology projects with emphasis on Agile Methodologies. The management of scope, costs, schedules, quality, risks, program management, system methodologies, material procurement, human, and international issues will be examined. Prerequisite: CIS 3374 and [CIS 2324 or CIS 3305] with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4318. Enterprise System Development and Application Security.
Advanced use of object-oriented programming in the development of business applications. Concepts, methodology, and toolsets for designing, implementing, and testing applications in object-oriented paradigm. Prerequisite: CIS 3374 with a grade of "D" or better and a minimum 2.0 Overall GPA. Corequisite: CIS 3382 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4321. Mobile Application Development for Android.
This course introduces the concepts, methodology, and toolset for designing business applications for mobile devices. Students will learn the MVC development framework and Java programming environment for Android to create interactive business applications. Prerequisite: CIS 3374 with a grade of "D" or better and a minimum 2.0 Overall GPA. Corequisite: CIS 3382 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4322. Computer System Development and Design.
A course that integrates systems development with analysis, design, project management, and the systems development life cycle. Object-oriented methods and UML models will be used to develop a project for a client. Students will select methodology, platform, and development technology based on client requirements. Prerequisite: CIS 3325 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4332. Enterprise Resource Planning Systems.
The use of advanced information technology for integrating business functions in an enterprise through distributed databases is emphasized. Methodology and tools for the selection and implementation of Enterprise Resource Planning (ERP) systems are discussed. Students will use available ERP software to create, track and communicate enterprise information. Prerequisite: CIS 3380 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4348. Data Communications and Network Architecture.
A course oriented to the technical concepts of data communications and network designs and how they relate to contemporary computer end-user environments. It incorporates the systems approach for understanding, designing, managing, securing, and implementing data communication networks. Special attention is paid to network protocols (TCP/IP) and the OSI model. Within this course students analyze and design data communications networks for business problems. Course contains labs which includes simulations of network systems providing hands-on experience with networking configurations, concepts, and hardware. Prerequisite: A minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4349. Advanced Database Management Systems.
This course introduces advanced concepts and database processes to support applications for Business Intelligence. Multi-dimensional modeling along with database, reporting, and analysis capabilities of a modern database environment will be used to design and develop stored procedures, views, user-defined functions, reports and multi-dimensional information cubes. Prerequisite: CIS 3382 with a grade of "D" or better and a minimum 2.0 Overall GPA. Corequisite: QMST 3339 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4350. Ethical Hacking.
This course focuses on the technology and managerial issues related to information systems security. Topics include: Attack methods, access control, authentication, firewalls, incident and disaster response, disaster recovery, security function management, and cryptography. Prerequisite: CIS 4348 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4358. Network and Cloud Administration.
This course provides students with an understanding of the responsibilities assigned to network administrators. Students will acquire a working knowledge of these responsibilities and skills using tools and technologies for administering enterprise networks via network operating systems commonly used in modern business enterprises. Students will also gain knowledge of cloud environments and the challenges created in both cloud and hybrid networking configurations. Prerequisite: CIS 4348 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4360. Developing Business Solutions for the Enterprise.
An introduction to the concepts, methodology, and toolsets for the architecture, design, implementation, and deployment of business solutions for the enterprise in a services-oriented computing environment. Topics include services-oriented architecture, "Software as a Service" framework, n-tier development of business and data services, and application security. Prerequisite: CIS 3325 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4373D. Artificial Intelligence in Business Operations.
This course explores the impact of artificial intelligence (AI) on modern businesses, and this course offers a clear introduction to AI concepts such as machine learning, natural language processing, and computer vision. Discover practical applications of AI in marketing, finance, and more through hands-on exercises and real-world examples. Gain the skills and knowledge needed to make informed decisions in an AI-driven business landscape. Prepare for the future by understanding how AI can transform various aspects of organizations. This course provides a foundational understanding of AI's role in shaping the business world.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

CIS 4373I. Cyber-Warfare: Actors, Techniques, and Impact.
This course is designed to cover all aspects of historical cyberwarfare incidents (those including nation-state actors). This will touch on the political and/or social actors for each occurrence covered, the timeline of events leading up to, and including the actual incursion or event, the technical explanation for what occurred, and the fallout and impact of the event. Prerequisite: A minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Dif Tui- Science & Engineering|Topics
Grade Mode: Standard Letter

CIS 4373L. Legacy Systems: Application, Development, and Support.
This course aims to highlight the ongoing requirement for developers specializing in legacy application support. It focuses on their role in developing, maintaining, supporting, and migrating mission-critical legacy applications within modern, high-volume transactional organizations. The main aspects covered in the course are: Key Language Proficiency and Development Processes and Insights from Industry Experts: Students will gain proficiency in essential legacy application languages and processes. This will enable them to effectively develop, modify, test, and troubleshoot legacy mission-critical applications. Practical assignments will provide hands-on experience in these areas. Featured guest speakers from IT Legacy organizations will be scheduled. Prerequisite: CIS 2324 or CIS 3305 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

CIS 4373M. Applied Artificial Intelligence: Development and Application.
This course immerses students in Large Language Models and Generative Pre-trained Transformers (GPT). They will master both the theoretical foundations and practical aspects of development. Activities include building custom models, fine-tuning existing ones, and delving into advanced transformer architectures. The course covers real-world applications such as text generation, translation, and chatbots. Additionally, it addresses ethical considerations, bias detection, and model interpretability. Through applied projects, students acquire expertise relevant to AI-driven industries and research, positioning them to meet the demands of the rapidly changing business landscape. Prerequisite: CIS 2324 or CIS 3305 with a grade of "D" or better and a minimum 2.0 Overall GPA.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

CIS 4395. Independent Study in Computer Information Systems.
An in-depth study of a single topic or related problem solved through computer information systems research. May be repeated once for credit with a different emphasis. Prerequisite: Instructor approval.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Dif Tui- Business Admin
Grade Mode: Standard Letter

CIS 4399. Computer Information Systems Internship.
This one-semester course involves an internship in business information systems. Emphasis is on the application of computer information systems theory to business problems in the area of computer based management information systems. Repeatable once with different emphasis for credit. Prerequisite: Instructor approval.
3 Credit Hours. 0 Lecture Contact Hours. 15 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Dif Tui- Business Admin
Grade Mode: Credit/No Credit

CIS 5199B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 5299B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 5318. Information Technology in the Digital Economy.
Provides an understanding of the issues involved in the strategic management of the information assets of organizations. Examines the issues and challenges that users face within the Information Technology (IT) management arena as part of a firm's business and IT strategy. Focus is on managerial rather than technical issues. Prerequisite: B A 5351 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5355. Database Management Systems.
Explores the concepts, principles, issues and techniques for managing corporate data resources using database management systems. The course includes techniques for analysis, design and development of database systems, creating and using logical data models, database query languages, and procedures for evaluating database management software. Students will use a relational database management system to develop a management information system.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5356. Business Telecommunications.
Explores the technology that is revolutionizing the manner in which business and government conduct their operations and the effects new developments in communication media have on computing systems. This course reflects the current state-of-the-art in data communication networking.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5357. Computing for Data Analytics.
This course focuses on fundamentals of programming. Students will learn to design and implement applications, and programmatically handle a variety of data management functionalities.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5358. Agile Project Management For Business Professionals.
An in-depth study of the project management body of knowledge as applied to Information Technology with emphasis on Agile methodologies and the processes of managing scope, costs, schedules, quality and risks. Includes program management, system planning and design methodologies, material & capacity requirements, human, cultural, & international issues and their impact on the organization.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5360. E-Commerce: Strategies, Technologies, and Applications.
This course is designed to familiarize students with current and emerging e-commerce technologies. Topics include Internet technology for business advantage, reinventing the future of business through e-commerce, business opportunities in e-commerce, and social, political, global, and ethical issues associated with ecommerce.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5364. Data Warehousing.
Familiarizes students with current and emerging data warehousing technologies that play a strategic role in business organizations. Topics include data warehouse development life cycle, data warehouse navigation, data quality, and performance issues. Prerequisites: CIS 5355 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5367. Machine Learning.
This course focuses on deriving actionable knowledge from data using algorithms and industry standard tools. It covers the complete process, key technologies, core machine learning algorithms, and programming used for business intelligence. Prerequisite: CIS 5357 and QMST 5336 both with grades of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5368. Information Security.
This course covers the analysis, design, development, implementation, and maintenance of information security systems in communication networks. Topics include legal, ethical, professional, and personnel issues; concepts, theories, and processes of risk management, technology; cryptography theory and practice; and physical and hardware security.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5369. Independent Study in Computer Information Systems.
This course focuses on individual in-depth research. Students, in consultation with a faculty member, choose a selected area of study in CIS and work independently on a specialized project. Course may be repeated with approval of department chair. Prerequisite: Instructor approval.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

CIS 5370. Enterprise Resource Planning and Business Intelligence.
The use of information technology in integrating enterprises for operational control and business intelligence is examined via Enterprise Resource Planning (ERP) applications in customer relationships management, accounting, finance, purchasing, production control, sales, marketing, and human resource management. Emphasizes managerial issues surrounding the need, selection, and implementation of ERP systems.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5371. Accounting Information Systems and Controls.
A study of accounting information systems and controls as well as their role in the current technology-intensive business environment. Emphasis is placed on contemporary technology and applications; information technology and business information systems assessments; design of internal controls to satisfy regulation and policy requirements; control concepts, theories, and processes; information systems auditing; systems development life cycle; and information structure, data transfer and transaction cycles. Prerequisite: ACC 3313 or ACC 5361 either with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5378. Information Security Policies and Compliance.
This course focuses on the technology and managerial issues related to information policies, regulations, and compliance that assure confidentiality, integrity, and availability of data and computer systems. Topics include information security policy, regulations, laws, standards, framework, compliance, and governance. Prerequisite: CIS 5368 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 5390C. Statistical Computing.
This course covers programming and statistical computing concepts. Programming concepts include data manipulation, data structures, control structures, functions, basic algorithms, and matrix manipulations. Statistical computing topics include numerical linear algebra, Monte Carlo methods, and numerical optimization.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

CIS 5390D. Introduction to Design Thinking.
This course provides an overview and hands on introduction to Design Thinking and the human centered design process. Topics include and introduction, defining the problem, ideation and concept generation, prototyping and testing and refining and launching.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

CIS 5395. Internship in Computer Information Systems.
This course provides students with opportunities for experiential learning by working on a computer information systems project. It enables integration of professional and academic experience through internship with an external employer. Prerequisite: Instructor approval.
3 Credit Hours. 1 Lecture Contact Hour. 20 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 5399A. Thesis.
This course represents a student's initial thesis enrollment. No thesis credit is awarded until the student has completed the thesis in Data Analytics and Information Systems. Graded on a credit (CR), progress (PR), no-credit (F) basis.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit

CIS 5399B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 5599B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 5999B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

CIS 7355. Database Management Systems.
This course explores the concepts, principles, issues and techniques for managing data resources using database management systems. It includes techniques for analysis, design, and development of database systems, creating and using logical data models, database query languages, and procedures for evaluating management software. Students will develop a management information system.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter