

DEPARTMENT OF COMPUTER INFORMATION SYSTEMS AND QUANTITATIVE METHODS

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The mission of the Department of Computer Information Systems and Quantitative Methods (CISQM) degree is to provide relevant educational opportunities to students wishing to pursue professional careers related to information systems, technology and data analytics. The department strives to create an environment for preparing individuals for a lifetime of learning and growth by producing graduates who understand the concepts and uses of information systems and are capable of applying these concepts to business and government.

The computer information systems curriculum provides a strong foundation in the concepts and applications of information systems and technology in organizations. It gives CISQM majors the opportunity to study enterprise design, business intelligence, data analytics, database development, network and security administration, programming languages, and the integration of hardware and software systems with management practices. Students completing the prescribed program of study earn the Bachelor of Business Administration degree with a major in Computer Information Systems. CISQM also offers a concentration in Business Analytics, which will prepare the students for the emerging world of Big Data and how to effectively analyze business situations for optimal decision making.

CISQM graduates pursue careers as IT integrators, global enterprise system architects, database administrators, network administrators, information security analysts, business systems analysts, application developers, digital-business solution developers, and information systems managers. Graduates work for technology companies, high-tech startup companies, government agencies, accounting firms, oil companies, financial and insurance institutions, retail firms, manufacturing corporation, and consulting companies where they are succeeding at the highest levels.

Bachelor of Business Administration (B.B.A.)

- Major in Computer Information Systems (<http://mycatalog.txstate.edu/undergraduate/mccoy-business-administration/computer-information-systems-quantitative-methods/computer-information-systems-bba>)
- Major in Computer Information Systems (Business Analytics Concentration) (<http://mycatalog.txstate.edu/undergraduate/mccoy-business-administration/computer-information-systems-quantitative-methods/computer-information-systems-bba/cis-business-analytics>)

Certificate

- Computer Information Systems

Subjects in this department include: CIS (p. 1), QMST (p. 3)

Courses in Computer Information Systems (CIS)

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.
Grade Mode: Standard Letter

CIS 2324. Visual Programming I.

An introduction to application program development to include 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.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

TCCN: BCIS 2316

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. Does not count for CIS advanced elective credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
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. Prerequisite: CIS 3382 and CIS 3374. Corequisite: CIS 3382 and CIS 3374.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 3350. Information Security Assurance: Principles and Practices.

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.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

CIS 3360. Web Applications Design and Development.

The course focuses on designing effective Web applications to support the e-business strategy of a company. It covers e-business models, business solution delivery strategy, web required architectures, and development and deployment of multi-tiered applications. Prerequisite: CIS 3325.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
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).

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Writing Intensive

Grade Mode: Standard Letter

CIS 3375. Enterprise Computing Skills using COBOL.

Basic features of the COBOL language. Emphasis is on structured program development and mainframe file processing. Topics include JCL (Job Control Language), the sort feature, and subprograms. Prerequisite: CIS 2324.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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. Prerequisites: CIS 1323, MATH 1329 or equivalent, and QMST 2333.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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 and QMST 2333.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4318. Enterprise System Development and Application Security.

Advanced use of information technology in the design and implementation of business applications to support electronic commerce. Concepts, methodology, and toolsets for designing, implementing, and management of applications in Business-to-Business paradigm. Prerequisites: CIS 3325.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4319. Mobile Application Development for Windows.

This course introduces the concepts, methodology, and toolset for designing business applications. Students will learn the MVC development framework and .Net programming environment for Windows to create interactive business applications. Prerequisite: CIS 3325 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4320. Mobile Application Development for Apple-iOS.

This course introduces the concepts, methodologies, and toolset for designing business applications for mobile devices such as iPhone and iPad. Students will learn the MVC development framework and programming environment for Apple-iOS to create interactive business applications. Prerequisite: CIS 3325.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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 3325 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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. Prerequisites: CIS 3325.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4348. Fundamentals of Data Communications.

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. Students will analyze and design data communication networks for various business situations.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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. Corequisite: QMST 3339.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4350. Information Systems Security.

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.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

CIS 4358. Network 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. Prerequisite: CIS 4348 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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. Prerequisites: CIS 3325.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

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: Consent of instructor and department chair.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

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. Prerequisite: Specified by employer with consent of instructor and department chair. Repeatable once with different emphasis for credit.

3 Credit Hours. 0 Lecture Contact Hours. 15 Lab Contact Hours.

Grade Mode: Credit/No Credit

Courses in Quantitative Methods (QMST)**QMST 2333. Business Statistics.**

This introductory course covers descriptive and inferential statistical techniques for business and economic decision making. Topics include measures of central tendency and dispersion, probability distributions, sampling distributions, confidence intervals, hypothesis testing, simple linear regression, and correlation analysis. Prerequisites: CIS 1323; MATH 1329 or equivalent.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 3334. Statistical Modeling.

Students will learn to apply a broad range of statistical analysis techniques using statistical software in business decision-making. Topics include applied modeling techniques, such as regression modeling, time-series modeling and analysis of variance; non-parametric methods; quality control; and simulation. Prerequisite: QMST 2333 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 3339. Data Mining and Visualization.

This course introduces data mining concepts and practical skills for applying data mining techniques to solve business problems. It emphasizes data visualization and data analysis algorithms (e.g., prediction, classification, clustering), systematic evaluation and model assessment for big data sets. Prerequisites: QMST 2333 or equivalent; Overall GPA of 2.0 required.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 3341. Big Data Analysis.

This is an introductory course in statistical programming. The objective of this course is to use programming tools and statistical methods to analyze large data sets. Topics covered are graphs used for statistical analysis, statistical modeling, visualization techniques, simulation, and optimization. Prerequisite: QMST 2333 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 4314. Optimization.

This course introduces the theory, algorithms and applications of optimization methods that are used in analyzing and solving business decision problems. The fundamental methods to be discussed include linear programming, integer programming and network optimization. This course also builds the base for decision making models with uncertainty. Prerequisite: QMST 3339 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 4320. Data Analytics.

This course will introduce various techniques available to extract useful information from massive datasets. The course will emphasize advanced analytical theory and methods such as: clustering, association rules, regression, classification and In-Database analytics. The course will also techniques used for data preparation, discovery, and model building.

Prerequisite: QMST 3341 with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

QMST 4373A. Applied Time Series.

This course will teach the fundamentals of time series methods to be applied on real-life data. The course focuses on application, however the methodology behind the models will also be discussed. Students will learn how to pick the appropriate method for the time series of interest.

Prerequisites: Consent of instructor and department chair.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter

QMST 4373C. Topics in Data Analytics.

This course covers the process of transforming big data into information for making decisions. The topics include introduction to data science, analytics and advanced data mining algorithms, and challenges related to analyzing business data. Students will learn how to use software and conduct data analysis.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing|Topics

Grade Mode: Standard Letter