

INFORMATION SYSTEMS AND BUSINESS ANALYTICS

College of Business

Program Description

The College of Business (COB) offers a broad professional education in Business. The Bachelor of Science program offers students a choice of 9 concentrations by which they may focus their goals. Additionally, the COB's Business Honors program provides an alternative path to its most capable students to prepare them for management opportunities. All students must choose a concentration to complete their requirements for the baccalaureate degree. Students who are uncertain about which concentration to choose are encouraged to select the General Management concentration, as it is the most comprehensive. The structure of the General Management concentration also provides an overlap with the other concentrations, thus making changes in focus possible. Students who wish a more customized program may elect to complete the requirements for additional concentrations as well. For example, students may elect dual concentrations such as General Management and Management of Human Resources and Organizational Behavior. For information about program options, please visit our website at: Undergraduate Programs | Sacramento State (csus.edu) (<https://www.csus.edu/college/business-administration/undergraduate/>).

The College also offers Minors in Business Administration, Management of Human Resources and Organizational Behavior, Marketing, Real Estate and Land Use Affairs, and Risk Management and Insurance. A Minor in Business Administration is valuable to the student majoring in another area who wishes to supplement his/her knowledge with a business background.

Degree Programs

BS in Business Administration (Management Information Systems) (<https://catalog.csus.edu/colleges/business-administration/information-systems-and-business-analytics/bs-in-business-administration-management-information-systems/>)

Career Possibilities

Business Applications Programmer · Communications Analyst · Database Administrator · Database Specialist · Desktop Support · End-user Consultant · Information Systems Manager · Information Systems Specialist · Management Systems Consultant · Programmer/Analyst · Systems Analyst · Technical Writer · Technology Consultant · Web Developer

Contact Information

Office of the Dean

Tahoe Hall 1010
Email: cob@csus.edu
Phone: (916) 278-6578
College of Business Website (<https://www.csus.edu/college/business-administration/>)
Jean-Francois Coget, Dean
Mylah Nurse, Executive Assistant to the Dean
Eileen Aiello, Budget Analyst
Ale Reiher, Administrative Coordinator

Tim Richter, Director of Development

Office of the Associate Dean for Faculty Support

Tahoe Hall 2130
(916) 278-5577
Jaydeep Balakrishnan, Associate Dean
Angela Park-Girouard, Administrative Analyst
Jeannie Hansen, Faculty Personnel Analyst

Jordan Smith, AD Support Specialist

Office of the Associate Dean for Academic Programs

Tahoe Hall 2028
(916) 278-6463
Pingsheng Tong, Associate Dean
Shelly Bingel, Administrative Analyst
Maryam Sabet, Academic Programs Coordinator & Enrolment Specialist

Office of Student Engagement

Tahoe Hall 1030
(916) 278-BIZZ (2499)
Bonnie McDonald Beevers, Director
Maria Lindstrom, Coordinator Undergraduate Business Advising
Maggie Hansen, Coordinator Student Programs & Program Impact
Sanitta Coey, Administrative Analyst
Taylor Ainger, Administrative Support Coordinator
Stephanie Serrato Neumann, Academic Advisor
Ashley N. Torres, Academic Advisor
Patsy Jimenez, Integrated Academic Advisor

Undergraduate Business Advising Center

Tahoe Hall 1030
(916) 278-BIZZ (2499)
Website: <https://www.csus.edu/college/business-administration/undergraduate/> (<https://www.csus.edu/college/business-administration/undergraduate/>)
Email: cba-ugrad@csus.edu

Graduate Programs Office

Graduate Programs (<https://www.csus.edu/college/business-administration/graduate/>) (website)
(iMBA, EMA, MSBA, MSF, MSA, Graduate Career Services)

Tahoe Hall 1020

Maleeha Mir Khan, Executive Director of Graduate Programs
Serena Hoffman, Graduate Programs Advisor
Claire Goldsby, Graduate Programs Coordinator
Maryanne Ruperto, Graduate Programs Specialist

MBA Program Services (MPS)
(916) 278-3354

Contact the MBA Program Services (<https://www.csus.edu/college/business-administration/graduate/mba.html>)

Jeanie Williams, Graduate Coordinator & MBA Advisor

Sophie Mills Duncan, Graduate Recruitment & Admissions Coordinator

Mandy Mangels, Graduate Programs Specialist

Business Graduate Career Services

Tahoe Hall 2065
(916) 278-7142

DS 101. Introduction to Business Analytics. 3 Units

Prerequisite(s): MATH 24, STAT 1; must be a business pre-major, business major (any concentration), or business minor, and have at least sophomore standing

Term Typically Offered: Fall, Spring

Introductory course in business analytics that focuses on the application of analytics linking data to business decisions.

DS 102. Foundation and Tools for Business Analytics. 3 Units

Prerequisite(s): MATH 24, STAT 1; Business, Computer Science, and Mathematics are approved majors to enroll in the course.

Term Typically Offered: Fall, Spring, Summer

The purpose of this course is to introduce Python and R programming languages and other analytics software tools needed in various business analytics courses. Students will learn Python and R programming constructs and data structures. Students will use these analytics tools to retrieve data from various sources, pre-process data, and perform data analysis for business insights and data-driven solutions.

DS 105. Decision Analytics. 3 Units

Prerequisite(s): MATH 24, STAT 1

Term Typically Offered: Fall, Spring

Introduces students to decision models for the solution and analysis of business problems. Topics include mathematical programming, decision theory, analysis of waiting lines, simulation, and Markov processes.

DS 110. Data Mining for Business Analytics. 3 Units

Prerequisite(s): DS 101 or STAT 103 or ENGR 115 or equivalent. DS 102 or instructor consent. Business, Computer Science, and Mathematics are approved majors to enroll in the course.

Term Typically Offered: Fall, Spring

Data mining methods including data visualization, classification (logistic regression, discriminant analysis), tree-based methods, cluster analysis, principle components analysis, factor analysis, neural networks, classification and regression trees, and facilitated through software. Focus on applications in the business environment.

DS 115. Advanced Business Analytics. 3 Units

Prerequisite(s): DS 110.

Term Typically Offered: Fall, Spring

This course introduces students to more advanced topics in business analytics including Neural Networks, Deep Learning, Text Mining, Social Network Analytics, Computer Vision, and their applications in business.

MIS 1. Word Processing. 1 Unit

Term Typically Offered: Fall, Spring

The course teaches Microsoft Office Word that establishes a student's fundamental computer skills required to perform business related tasks. Topics include developing and refining a document; identifying and correcting errors; formatting, modifying and printing documents; working with pictures, graphics, tables and charts; creating reports, forms, references and mailings; securing content and sharing documents, exploring advanced document features and macros, etc.
Credit/No Credit

MIS 2. Spreadsheets. 1 Unit

Term Typically Offered: Fall, Spring

The course teaches Microsoft Office Excel that establishes a student's fundamental computer skills required to perform business related tasks. Topics include creating and formatting a worksheet; summarizing and analyzing data; using decision making tools; working with logical, statistical, database and financial functions, sharing data with other applications, etc.

Note: Not open to students receiving credit for CSC 6B.

Credit/No Credit

MIS 3. Presentation Graphics. 1 Unit

Term Typically Offered: Fall, Spring

The course teaches Microsoft Power Point that establishes a student's fundamental computer skills required to perform business related tasks. Topics include creating, refining and delivering presentations; working with graphics, tables and charts; inserting and enhancing pictures, shapes, sound and video; using templates, slide masters and text boxes, printing, securing and sharing presentations, etc.

Credit/No Credit

MIS 4. Database Applications. 3 Units

Term Typically Offered: Fall, Spring

Use of database management systems (DBMS) to provide students with fundamental information retrieval skills required to perform business related tasks. Topics include basic DBMS operations, working with tables, queries, forms, reports and data analysis.

Note: Students will be required to purchase an online learning application to facilitate skill development.

Credit/No Credit

MIS 10. Business Applications. 2 Units

Term Typically Offered: Fall, Spring

The course teaches the use of spreadsheets to establish a students' fundamental computer skills required to perform business related tasks. Topics include basic spreadsheet operations, working with charts and graphics, application of formulas and spreadsheet presentation formatting.

Note: Students will be required to purchase an online learning application to facilitate skill development.

MIS 15. Introduction to Business Programming. 3 Units

Term Typically Offered: Fall, Spring

Introduction to object oriented programming language. Topics include use of simple data structures and data types, arrays, strings, input-output functions, file processing, and flow control.

MIS 101. Computer Information Systems for Management. 3 Units
Term Typically Offered: Fall, Spring

Explores the application of computers to the organizational environment with a management perspective. Topics may include transaction processing systems, management reporting, decision support systems, strategic planning, security, controls and acquisition of hardware, software and services. The interface between the information systems professional and the manager will be defined. Case studies and use of appropriate software packages may be included.

MIS 120. Advanced Object-Oriented Business Programming. 3 Units
Prerequisite(s): MIS 15.
Term Typically Offered: Fall, Spring

Advanced course in programming principles using an Object Oriented (OO) programming language. Topics will focus on object-oriented (OO) programming including the design and development of OO applications, object classes, inheritance, polymorphism and encapsulation, and graphical user interface (GUI) application development including contrasting event-driven and procedural programming. Assignments will focus on problem-solving in a business context.

MIS 122. Object-Oriented Programming for Business in Java. 3 Units
Prerequisite(s): MIS 15 or CSC 15.
Term Typically Offered: Fall, Spring

Advanced course in programming principles using an Object Oriented (OO) programming language. Topics will focus on object-oriented (OO) programming including the design and development of OO applications, object classes, inheritance, polymorphism and encapsulation, and graphical user interface (GUI) application development including contrasting event-driven and procedural programming.

MIS 124. Web Development for Business Applications. 3 Units
Prerequisite(s): MIS 120.
Term Typically Offered: Fall, Spring

Examines the technologies and principles of modern Web development in the creation of Web-based business applications. Emphasis will be given to client-side and server-side technologies and include the topics of basic Web technologies, forms, database access, frameworks, and Web services. Topics are accompanied by design principles, tools, and techniques for Web application development.

MIS 125. Mobile Business Application Development. 3 Units
Prerequisite(s): MIS 15
Term Typically Offered: Fall, Spring

Provides an introduction to the art and practice of mobile business application development on the Android or iOS platform. Topics will include, but are not limited to, business opportunities, challenges, and cost presented by mobile devices, user-driven design, personas, screen layouts, and use case diagramming. Students will design and build a variety of business applications throughout the course to reinforce learning and to develop real world competency.

MIS 140. Business Data Communication. 3 Units
Prerequisite(s): Business majors only
Term Typically Offered: Fall, Spring

Examines the basic terminology, hardware/software components, and issues with the establishment, configuration, and management of data communication networks in and across organizations. Topics include wired and wireless local area networks, wide area networks, the internet, and cloud infrastructure.

MIS 150. Database Systems for Business. 3 Units
Term Typically Offered: Fall, Spring

Involves the study of generalized database management systems. The study will include logical data base models and physical base models based primarily on the relational and object-relational models. The student will create and manipulate a database utilizing an established database management system. The importance of data administration and other database related topics such as independence, integrity, privacy, query, backup, and recovery will be covered.

MIS 151. End-User Database Application Development for Business. 3 Units
Prerequisite(s): MIS 1, MIS 2, MIS 3 or approved equivalent.
Term Typically Offered: Fall, Spring

Introduction to end-user database application development in the business environment. Topics will focus on issues in the development of business database applications and include database concepts, organization, storage and retrieval of data, query and analysis with interactive software tools, informative and performance management reporting.

Note: Not open to MIS students.

MIS 160. Systems Development Life Cycle. 3 Units
Prerequisite(s): MIS 101 and MGMT 102
Term Typically Offered: Fall, Spring

Analyze, design, and develop business information systems to solve information needs of businesses and organizations. Topics include various systems analysis and design techniques, tools and methods for building new and/or integrated information systems.

MIS 161. Information Systems Practicum. 3 Units
Prerequisite(s): MIS 15, MIS 150, MIS 160, and Business major or minor.
Term Typically Offered: Fall, Spring

This course provides a comprehensive integration of MIS coursework through the completion of an information systems project. Topics include information systems development life cycle, project management, application development, database management, and security.

MIS 163. Business Process Engineering and ERP Configuration. 3 Units
Term Typically Offered: Fall, Spring

This course focuses on identifying and understanding business requirements, modeling business processes that incorporate the business requirements, and configuring the processes for their implementation in an enterprise resource planning (ERP) system. Students will gain insights to implementation issues and propose alternative solutions to overcome them. A project team environment further develops individual student's communication and team skills.

MIS 170. Information Systems Security. 3 Units
Prerequisite(s): MIS 140
Term Typically Offered: Fall, Spring

This course provides a comprehensive study of IT security principles and of information systems. Emphasis will be placed on understanding the framework of IT security in enterprise IT infrastructure. Topics include information security concepts, security risks and vulnerabilities, common attacking techniques, technical and administrative countermeasures for modern enterprise IT infrastructure, such as encryption, authentication, access control, security policies and standards, and IT risk management and audit.

MIS 171. Enterprise Resource Planning Systems.**3 Units****Prerequisite(s):** MIS 101**Term Typically Offered:** Fall, Spring

Foundation, business functions, processes, data requirements, development, and management of ERP systems for sales, marketing, accounting, finance, production, supply chain and customer relationship management. Emphasis on re-engineering, integration, standardization, and methodologies of ERP systems.

MIS 173. Microcomputers for Managers.**3 Units****Term Typically Offered:** Fall, Spring

For students who want to have more than the minimum required personal computer literacy knowledge. The topics covered are: hardware, system software, utility software, spreadsheet modeling, the Internet, and presentation graphics.

Note: Not open to MIS students.**MIS 181. Machine Learning Applications in Business.****3 Units****Prerequisite(s):** DS 101 and MIS 150**Term Typically Offered:** Fall, Spring

Applies modern machine learning applications in business to data analysis and problem solving. Topics are presented in the context of decision support and may include knowledge representation, neural networks, genetic algorithms, rule induction, fuzzy logic, case-based reasoning and intelligent agents.

MIS 182. Topics In MIS.**3 Units****Prerequisite(s):** MIS 150, MIS 160.**Term Typically Offered:** Fall, Spring

Current topics will be presented regarding the technical, managerial, and organization considerations affecting computer-based information systems. Topics may include programming languages and techniques, emerging technologies, and MIS development and implementation issues. Readings, topical research, case presentations, and/or projects will be required.

MIS 183. Business Intelligence Applications.**3 Units****Prerequisite(s):** Business major and minor**Term Typically Offered:** Fall, Spring

Advanced information technologies that extract non-trivial, actionable, and novel knowledge from data to achieve strategic goals of organizations. Emphasis on multidimensional data modeling, online analytic processing, data warehouse, and data mining.

MIS 191. Culminating Experience.**1 Unit****Prerequisite(s):** Completion of all coursework in minor.**Term Typically Offered:** Fall, Spring

Students demonstrate their knowledge and apply their skill sets from the minor to a working project, and conduct an executive-level, management-oriented presentation.

Note: Students must be in their final semester of the minor's program.

Credit/No Credit

MIS 194. Cooperative Education Experience in Management Information Systems.**6 - 12 Units****Prerequisite(s):** MIS 160, minimum Sacramento State overall GPA of 2.75.**Term Typically Offered:** Fall, Spring

In-depth supervised work experience in management information systems for the purpose of exposing the student to comprehensive MIS experience in business, governmental, or service agencies. Open to all upper division students, subject to permission of the MIS Area. Petitions can be obtained from the Student Affairs Office, Tahoe 2065.
Credit/No Credit

MIS 195. Internship in Management Information Systems.**3 - 6 Units****Prerequisite(s):** MIS 160, minimum Sacramento State overall GPA of 2.75.**Term Typically Offered:** Fall, Spring

Supervised work experience in management information systems for the purpose of increasing student understanding of the nature and scope of the operations of business, governmental, or service agencies. Supervision is provided by the faculty and the cooperating agencies. Open to upper division students, subject to permission of the MIS Area. Petitions can be obtained from the Student Affairs Office, Tahoe 2065.
Note: Open to declared business administration majors only.

Credit/No Credit

MIS 199. Special Problems in Management Information Systems.**1 - 3 Units****Term Typically Offered:** Fall, Spring

Individual projects or directed reading for students qualified to carry on independent work.

Note: Admission requires approval of the instructor and the Associate Dean. Petitions may be obtained from the Undergraduate Business Advising Center, Tahoe 1030.

Credit/No Credit

MIS 210. Information Systems I.**3 Units****Term Typically Offered:** Fall, Spring

Introduction to business information systems planning and systems development methodologies. Various methodologies are explored and information systems development project planning is emphasized.

MIS 211. Information Systems II.**3 Units****Term Typically Offered:** Fall, Spring

Introduction to basic and object-oriented programming concepts, data structures for information representation, and database management systems.

MIS 232. Management Science.**3 Units****Term Typically Offered:** Fall, Spring

Introduction to deterministic and stochastic models in operations research. Topics that may be included are: mathematical programming, inventory theory, analysis of waiting lines, Markov processes, game theory, decision theory and simulation. Various computer programs such as LINDO are used to assist in solution and analysis of management problems.

Note: Not open to students with credit for MIS 132.

MIS 240. Communications Technologies for Business. 3 Units
Prerequisite(s): Graduate MIS status or instructor permission.
Term Typically Offered: Fall, Spring

Focuses on the concepts, technology, applications, and management of data and voice communication with an emphasis on building, supporting, securing, and administering the requirements of network infrastructure and architecture to support businesses.

Note: May be taken twice for credit.

MIS 250. Data Management. 3 Units
Prerequisite(s): Graduate MIS status or instructor permission, and MIS 15 or equivalent.
Term Typically Offered: Fall, Spring

Focuses on database concepts, design and implementation in business. Topics include database design techniques, such as extended entity-relationship and unified modeling language, logical and physical data models for objection-relational database, object oriented database and relational databases, database implementation and administration issues, and the discussion of distributed database, web database, and database security.

Note: May be taken twice for credit.

MIS 251. Strategic Applications of Information Resources. 3 Units
Prerequisite(s): MSBA/MIS students: MIS 210 and 211, or their equivalents. MBA students: MBA 260 and instructor permission.
Term Typically Offered: Fall, Spring

Discussion of the techniques and methodologies to utilize information resource to improve an organization's strategic performance measures. Topics include data warehouse, data mining, online analytical transaction processing, and multidimensional database.

MIS 260. Systems Design. 3 Units
Prerequisite(s): Graduate MIS status or instructor permission.
Term Typically Offered: Fall, Spring

Involves the study of various methods used to analyze and design a computer-based information systems and emphasizes object-oriented systems development (OOSD) techniques.

Note: May be taken twice for credit.

MIS 261. Information Technology Integration for the Enterprise. 3 Units
Prerequisite(s): MSBA/MIS students: MIS 260 or MIS 270; MBA students: MBA 260 or permission of instructor.
Term Typically Offered: Fall, Spring

IT presents many new opportunities at the enterprise level for the design and implementation of integrated organizational structures and business processes that better align the business to meeting its market demands and allow it to pursue new strategic relationships with other organizations. Enterprise IT primarily involves enterprise resource planning (ERP), supply chain management (SCM), knowledge management (KM), and customer relationship management (CRM) to support and coordinate business activities.

Note: May be taken twice for credit.

MIS 262. Business Project Management. 3 Units
Prerequisite(s): MSBA/MIS students: MIS 260; MBA students: MBA 260 or instructor permission.
Term Typically Offered: Fall, Spring

Examines various aspects of IT project management, including project selection involving feasibility, complexity, scalability and impact comparisons, project portfolio to direct the right resources to the right projects to sure their timely completion, risk assessment, key performance measures, and others.

Note: May be taken twice for credit.

MIS 270. Information Technology Operations. 3 Units
Prerequisite(s): Graduate MIS status or instructor permission.
Term Typically Offered: Fall, Spring

Examines the management of information technology as a vital resource to an organization. IT can enable businesses to seize opportunities, gain competitive advantages and establish close relationships with other businesses and their customers. Thus, the business must effectively and efficiently manage and secure its IT resources.

Note: May be taken twice for credit.

MIS 272. Strategic Information Technology Planning. 3 Units
Prerequisite(s): MSBA/MIS students: MIS 270; MBA students: MBA 260 or instructor permission.
Term Typically Offered: Fall, Spring

Strategic IT planning defines the direction a business chooses for its IT resources. It encompasses a vision, mission, strategy, and objectives that closely align to the business' vision, mission, strategy, and objectives. Planning involves examining how IT will support the achievement of the business' goals and objectives, and how IT can open new opportunities to create new business goals.

Note: May be taken twice for credit.

MIS 279. Information Technology Leadership. 3 Units
Prerequisite(s): MSBA/MIS students: MIS 261 or MIS 262, MIS 272; MBA students: MBA 260 and instructor permission.
Term Typically Offered: Fall, Spring

Leadership plays an important role in determining a business' success with IT. It requires recognizing and leveraging the business' competencies and core values, and championing initiatives and projects that work in the best interest of the business and create value. Because IT opens opportunities and enables the organization, IT leadership extends to both market (external) and organizational (internal) environments.

Note: May be taken twice for credit.

MIS 280. Decision and Knowledge-Based Systems. 3 Units
Prerequisite(s): MIS 211 or equivalent.
Term Typically Offered: Fall, Spring

Organizational use of information generated from transaction processing systems, management information systems, and decision support systems. The uses of information by managers for planning, control, and decision-making purposes will be discussed. The types of information systems implemented in various kinds of organizations will be covered.

MIS 281. Topics in the Management of Information Systems. 3 Units

Prerequisite(s): Open to non-MSBA/MIS majors with credit in MBA 260 or equivalent; and to those who have completed MSBA/MIS Program Prerequisites.

Term Typically Offered: Fall, Spring

Current topics will be presented regarding the managerial, behavioral, and organizational considerations affecting computer-based information systems. Includes topics such as project selection and justification techniques, system controls, security and privacy issues, strategic planning, and use/data processing department relations. Readings, topical research, and case presentations will be required.

MIS 295. Internship in Management Information Systems. 3 Units

Prerequisite(s): Completion of two of the following: MIS 240, MIS 250, MIS 260, or MIS 270; minimum Sacramento State GPA of 3.0.

Term Typically Offered: Fall, Spring

Supervised work experience in management information systems for the purpose of increasing and enhancing student understanding of the nature and scope of the organization's operations of business, governmental, or service agencies. Supervision is provided by the faculty and the cooperating agencies.

Note: Open to second year MBA and MSBA/MIS students. Petitions to be obtained from Tahoe Hall 1037.

Credit/No Credit

MIS 299. Special Problems in Management Information Systems.

1 - 3 Units

Prerequisite(s): Classified graduate status.

Term Typically Offered: Fall, Spring

Individual projects or directed reading for students qualified to carry on independent work.

Note: Admission requires approval of faculty member under whom the individual work is to be conducted in addition to the approval of the Graduate Programs Office. Petitions to be obtained from Tahoe Hall 1035.

Credit/No Credit

MIS 500A. Thesis.

1 - 3 Units

Prerequisite(s): Advanced to candidacy. Completion of MBA 244.

Term Typically Offered: Fall, Spring

Completion of a thesis approved for the Master's degree.

MIS 500B. Project.

1 - 3 Units

Prerequisite(s): Advanced to candidacy. Completion of MBA 244.

Term Typically Offered: Fall, Spring

Completion of a project approved for the Master's degree.

MIS 500C. Comprehensive Examination.

1 - 3 Units

Prerequisite(s): Advanced to candidacy; for comprehensive examination for MBA only (MGMT 500C, 1 unit), completion of program requirements (ACCY 240, MBA 230, MBA 240, MBA 241, MBA 270, MBA 280; for comprehensive examination for MSBA/MIS Degree, student must be in final semester of program.

Term Typically Offered: Fall, Spring

For MSBA/MIS.