School of Management and Information Systems

- Business and Management Systems

- Information Science and Technology

Business and Management Systems

Bachelor of Science

Business and Management Systems is an undergraduate degree that emphasizes the role of technology in business. It is based on broad foundational core courses common for all undergraduates in the school. Students in Business and Management Systems are preparing for careers in the expanding fields of business administration and management information systems. Professionals in these fields analyze organizational needs to provide technology-enabled management and operations.

Today's business environments have a critical need for professionals who have an understanding of information technologies; who feel comfortable in an electronic environment; and who are able to synthesize, analyze, and learn from vast amounts of information. These individuals are needed to realize technology's great potential to support business processes, decision-making, and communication.

As a business and management systems major, you will take courses that are rigorous and oriented toward building the foundation necessary for lifetime learning. Studying at Missouri's technological university, you will benefit from the world-class computer environment and your association with excellent students from around the country and the world. Students in the program are strongly encouraged to do summer internships or co-ops with companies before they graduate. There are many rich opportunities and students benefit greatly in terms of their education and the edge they have seeking full-time employment once they graduate.

Faculty

Associate Professor:
Ray Kluczny (Director), Ph.D., Arizona State University
Assistant Professor:
Christian End, Ph.D., Xaviar University
Instructor:
Stephanie Fitch, M.A., University of Texas at Austin
Other Faculty:
Course work is interdisciplinary with core courses being taught by faculty from Information Science and Technology, Psychology, Economics, and Engineering Management.

Bachelor of Science
Business and Management Systems

FRESHMAN YEAR

First Semester	Credit
BUS 10 Freshman Introduction[1]	1
English 20 Exposition & Argumentation	3
Math 4 College Algebra	3
Biology 110, 231, 235, or 251	3
IST 51 Visual Basic	3
Laboratory w/ Living or Physical Science Course	1
	14

Second Semester	
BUS 11 Freshman Introduction[1]	1
Psych 50 General Psychology	3
Survey of Calculus	3
History	3
IST 151-Java	3
Econ 121 Microeconomics	3
	16

SOPHOMORE YEAR

First Semester	Credit
BUS 110 Mgt & Org Behavior	3
Speech 85 Princ of Speech	3
Stat 211 Stat Tools for Decision Making	3
IST 141 Info Systems	3
English 75, 80, 102, 105, 106, or 110 Lit	3
	15

Second Semester	
BUS 120 Essentials of Accounting	3
Econ 121 Macroeconomics	3
Chemistry, Geol, Ge Eng, or Physics	3
Art 80, 85; Music 50; Theater 90	3
IST 211 Web Design	3
	15

JUNIOR YEAR

First Semester	Credit
English 60 Writ & Res or English 65 Tech Writ	3
BUS 230 Business Law	3
BUS 240 Basic Marketing	3
BUS 250 Basic Finance	3
Econ 211 Intro to Econ Stat	3
	15

Second Semester	
Speech 181 Communication Theory	3
Political Science 90 American Government	3
BUS 260 Business Operations	3
BUS 270 Human Resources	3
Elective (Emphasis Area)	3
	15

SENIOR YEAR

First Semester	Credit
English 260 Practicum in Technical Writing	3
Culture, Sociology, Religion[2]	3
BUS 280 Strategic Management	3
Elective (Emphasis Area)	6
	15

Second Semester:	
BUS 397 Capstone Seminar in Bus & Mgt Sys[1]	3
Free Electives	12
	15

[1]Writing Intensive Course
[2]Economics 220; English 195, 215, 224, 230, 233, 244, 345, 350; Foreign Language Beyond Second Semester; History 340, 355; Philosophy 25, 35, 75, 212, 340, 355; Any Political Science; Psychology 270, 380; Any Sociology; Speech 235

Emphasis Areas

Choose 3 courses within one of the emphasis areas.

Business Administration

EMgt   313 - Managerial Decision Making
EMgt   317 - Compartive and Multi-National Mgt
EMgt   320 - Technical Entrepreneurship
EMgt   361 - Project Management
EMgt   375 - Total Quality Management
CSc   317 - Intellectual Property for Cmp Scientists
Foreign Language
Econ   320 - Money and Banking
Econ   321 - Finance
Econ   322 - International Trade
Econ   330 - Public Finance
Psych   212 - Industrial Psychology
Psych   372 - Group Dynamics
Psych   374 - Organizational Psychology

Management Information Systems

IST   223 - Database Management
IST   233 - Networks and Communications
IST   251 - Systems Analysis
IST   353 - Law and Ethics in E-Commerce

Business Courses

010 Introduction to Management & Information Systems I (Lect 1.0) This course presents an overview of information systems in a variety of business, management and information technology contexts. Discussion will center around examples from industry and the course will include speakers from the private sector who represent different MIS applications.

011 Introduction to Management & Information Systems II (Lect 1.0) As a continuation of BUS 010, this course presents an overview of information systems in a variety of business, management and information technology contexts. Discussion will center around examples from industry and the course will include speakers from the private sector who represent different MIS applications.

100 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

101 Special Topics (Variable) This is designed to give the department an opportunity to test a new course. Variable title.

110 Management and Organizational Behavior (Lect 3.0) The course provides coverage of classic and current management principles, as well as the study of the behavior of individuals and groups in an organizational setting. Topics include motivation, leadership, organizational design, and conflict resolution. Prerequisite: Psych 50.

120 Essentials of Accounting (Lect 3.0) This course is an introduction to accounting and its significant role in making sound business decisions. Emphasis is on what accounting information is, why it is important, and how it is used to make strategic economic decisions. Coverage includes financial and management accounting. Prerequisite: Math 4.

200 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

201 Special Topics (Variable) This is designed to give the department an opportunity to test a new course. Variable title.

230 Business Law (Lect 3.0) This course is an introduction to the nature and meaning of law and the legal environment of business. Topics include the legal process, sources of law, and institutions. Prerequisites: Bus 110 and Econ 121.

240 Basic Marketing (Lect 3.0) The course examines the distribution, product, price, and promotion policies that underlie the activities of marketing institutions and the managerial, economic, and societal implications of such policies. Prerequisites: Bus 110 and Econ 122.

250 Business Finance (Lect 3.0) This course studies the need for funds in business and the techniques of analysis used to determine how effectively these funds are invested within the firm. Topics include the institutions, instruments, and markets concerned with raising funds. Prerequisites: Bus 120, Econ 111, and Econ 122.

260 Business Operations (Lect 3.0) This course examines the concepts, processes, and institutions that are fundamental to an understanding of business operations within organizations. Emphasis is on the management and organization of manufacturing and service operations and the application of quantitative methods to the solution of strategic, tactical and operational problems Prerequisites: Bus 120, Mathematics Survey of Calculus, and Econ 121.

270 Human Resource Management (Lect 3.0) The course examines employee selection, performance appraisal, training and development, compensation, legal issues, and labor relations. Prerequisite: Bus 110.

280 Strategic Management (Lect 3.0) Study of the formulation and implementation of corporative, business and functional strategies designed to achieve organizational objectives. Case studies and research reports may be used extensively. (It is preferred that this course be taken during the student's senior year.) Prerequisites: Bus 240 and 250.

300 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

301 Special Topics (Variable) This is designed to give the department an opportunity to test a new course. Variable title.

390 Undergraduate Research (Variable) Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six credit hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

397 Capstone Seminar in Business & Management Systems (Lect 3.0) Course will cover issues and problems relating to application and integration of business and management systems skills. Group projects will require work as a member of a team, creative problem-solving and application of business systems principles to real and simulated problems. Prerequisite: Senior Standing as Business and Management Systems major.

Management Systems Courses

001 Introduction to Management Systems (Lect 1.0) Introduction to Management Systems as a profession. Orientation to campus facilities and services. Instruction and practice in basic study, test-taking, computer and collaborative learning skills. Prerequisite: Mg Sys Majors.

101 Special Topics (Variable) This course is designed to give the department an opportunity to test a new course. Variable title.

202 Cooperative Training in Management Systems (Variable) On-the-job experience gained through cooperative education with industry with credit arranged through departmental co-op advisor. Grade received depends on quality of reports submitted and work supervisor's evaluation. Prerequisite: Completed 30 hours toward degree.

302 Internship (Variable) Internship will involve students applying critical thinking skills and discipline specific knowledge in a work setting based on a project designed by the advisor and employee. Activities will vary depending on the student's background and the setting. Prerequisite: Completed 30 hours toward degree.

397 Capstone Seminar in Management Systems (Lect 3.0) Issues and problems relating to management and information technology will be presented. Group projects will require work as a member of a team, creative problem-solving and application of management systems principles to real and simulated problems. Prerequisite: Senior standing as management systems major.

Information Science and Technology

Bachelor of Science
Master of Science

Information Science and Technology offers a bachelors degree focused on today's cutting edge information technology. Students in Information Science and Technology study the latest technology in areas including networking, telecommunications, E-commerce, and integrated business systems. Professionals in this field administer, maintain, and support computer systems and networks.

Today's business environments have a critical need for professionals who have an understanding of information technologies based on a broad knowledge of management practices, economics, psychology, and the humanities. These individuals are needed to implement the technology to support business processes, managerial decision-making, and organizational communication.

As an information science and technology major, you will take courses that are rigorous and oriented toward building the foundation necessary for lifetime learning. Studying at Missouri's technological university, you will benefit from the world-class computer environment and your association with excellent students from around the country and the world. Students in the program are strongly encouraged to do summer internships or co-ops with companies before they graduate. There are many rich opportunities and students benefit greatly in terms of their education and the edge they have seeking full-time employment once they graduate.

Faculty
Associate Professor:
Richard Hall (Director), Ph.D., Texas Christian University
Instructor:
Stephanie Fitch, M.A., University of Texas at Austin
William Kehr, Ph.D., University of Missouri-Rolla
Other Faculty:
Course work is interdisciplinary with core courses being taught by faculty from Business and Management Systems, Psychology, Economics, and Engineering Management.

Bachelor of Science Information Science and Technology*

FRESHMAN YEAR

First Semester	Credit
BUS 10-Freshman Introduction[1]	1
English 20-Exposition & Argumentation	3
Math 4-College Algebra	3
Biology 110, 231, 235, or 251	3
IST 51-Visual Basic	3
Laboratory w/ Living or Physical Science Course	1
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Second Semester	
BUS 11-Freshman Introduction[1]	1
Psych 50-General Psychology	3
Survey of Calculus	3
History	3
IST 151-Java	3
Econ 121-Microeconomics	3
	16

SOPHOMORE YEAR

First Semester	Credit
BUS 110-Mgt & Organizational Behavior	3
Speech 85-Principles of Speech	3
Stat 211-Statistical Tools for Decision Making	3

IST 141-Information Systems 3
English 75, 80, 102, 105, 106, or 110 Literature . . . _3_
15

Second Semester
BUS 120-Essential of Accounting 3
Econ 121-Macroecon or 122-Microecon 3
Chem, Geol, Ge Eng, or Physics 3
Art 80, 85; Music 50; Theater 90 3
IST 211-Web Design . . . . _3_
15

JUNIOR YEAR
First Semester   Credit
English 60 or English 65 .3
IST 223-Database Mgt 3
IST 233-Networks and Communications 3
IST 243-Systems Analysis 3
Econ 211-Intro to Econ Statistics . . . . _3_
15

Second Semester
Speech 181-Communication Theory 3
Pol Sci 90-American Government 3
IST 221-Internet Concepts and Applications 3
IST 231-Computer Components and Operation 3
Elective (Emphasis Area) . . . . _3_
15

SENIOR YEAR
First Semester   Credit
English 260-Practicum in Technical Writing 3
Culture, Sociology, Religion[2] 3
IST 241-E-Commerce 3
Elective (Emphasis Area) . . . . _6_
15

Second Semester
BUS 397-Capstone Seminar in IST[1] 3
Free Electives . . . . _12_
15

[1]Writing Intensive Course
[2]Culture, Sociology, Religion (any one of the following)
Philosophy 25, 35, 75, 212, 340, 355; English 195, 215, 224, 230, 233, 244, 345, 350; Psychology 270, 380; History 340, 355; Economics 220; Speech 235; Foreign Language Beyond Second Semester; Any Sociology; Any Political Science;

Electives

CPE   213 Digital Systems Design
CPE   311 Introduction to VLSI Design
CPE   313 Microprocessor Systems Design
CSC   303 Multimedia Systems
CSC   306 Software Engineering I
IST   251 Operating Systems Fundamentals
IST   321 Network Performance Design and Mgt
IST   336 Internet Computing
IST   338 Internet Imaging
IST   340 Web Administration
IST   342 E-Commerce Architecture
IST   353 Law and Ethics in E-Commerce
IST   354 Multimedia Development and Design
IST   355 Human Computer Interaction
IST   357 Economics of E-Commerce

Information Science and Technology Courses*

(Elective courses will initially be offered as experimental prior to their being assigned the permanent number shown in this catalogue)

010 Introduction to Management & Information Systems I (Lect 1.0) This course presents an overview of information systems in a variety of business, management and information technology contexts. Discussion will center around examples from industry and the course will include speakers from the private sector who represent different MIS applications. Prerequisite: Entrance Requirements.

011 Introduction to Management & Information Systems II (Lect 1.0) As a continuation of IST 010, this course presents an overview of information systems in a variety of business, management and information technology contexts. Discussion will center around examples from industry and the course will include speakers from the private sector who represent different MIS applications.

051 Algorithms and Programming (Visual Basic) (Lect 3.0) An introduction to algorithm design and analysis, programming, and use of the World Wide Web for information dissemination and retrieval. Additional topics include use of top-down design and subprograms to tackle complex problems and abstract data types. Interdisciplinary case studies involving both numerical and nonnumeric applications will be covered. Prerequisite: Entrance Requirements

100 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

101 Special Topics (Variable) This is designed to give the department an opportunity to test a new course. Variable title.

141 Information Systems (Lect 2.0 and Lab 1.0) This course surveys information/systems technology for the management of enterprise information as a resource. Topics include elements of system design life cycle, database concepts, and decision support. Managerial and technical dimensions of information systems are blended in a framework for IS systems. The implementation, operation, and maintenance of information systems are also discussed. Projects are required. Prerequisite: IST 151.

151 Introduction to Data Structures and Applications (JAVA) (Lect 2.0 and Lab 1.0) Programming concepts: functions, parameter passing, arrays, strings, classes, templates. Mathematical tools: sets, functions, and relations, O-notation, complexity of algorithms, proof by induction. Data structures and their representations: data abstraction, sequences, trees, binary search trees, associative structures. Algorithms: searching and sorting, iterative and

recursive algorithms. Methods of testing correctness and measuring performance. Prerequisite: IST 51.

200 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

201 Special Topics (Variable) This is designed to give the department an opportunity to test a new course. Variable title.

211 Web Design and Development (Lect 1.5 and Lab 1.5) In this course students learn design principles for effectively structuring information for the World Wide Web; how to use tools to deploy this information; and methods for assessing Web usability. The course is project based with an emphasis on the application of design and usability assessment within the context of student projects. Prerequisite: IST 151.

221 Internet Concepts and Applications (Lect 3.0) This course involves a study of the methods used to extract and deliver dynamic information on the World Wide Web. The course uses a hands-on approach in which students actively develop Web-based software systems. Additional topics include installation, configuration and management of Web servers. Prerequisite: IST 211.

223 Database Management (Lect 3.0) The course introduces the concepts of database management systems. Issues in database architecture, design, administration, and implementation are covered. Prerequisite: IST 141.

231 Computer Components and Operation (Lect 3.0) Design-oriented introduction to computer components and operations. Standard codes; number systems; base conversions; computer arithmetic; boolean algebra; minimization and synthesis techniques for combinational and sequential logic; and related issues are covered. Prerequisite: IST 151.

233 Introduction to Computer Networks and Communications (Lect 2.0 and Lab 1.0) The course provides an introduction to current and evolving computer networks. It includes the construction, operation, and management of those networks as well as discussions of layered network organization, network protocols, switching, and local and wide area networks. The course provides hands-on experience with local area network hardware and software. Prerequisite: IST 151.

241 E-Commerce (Lect 3.0) Introduction to fundamental concepts of management and application to Information Technologies. This course examines the use of IT in business processes and the management issues of integrating IT into organization processes to gain a competitive advantage. Topics include: management; organizations and information systems; development life cycle; project management and systems engineering; process reengineering; and organization learning. Prerequisites: IST 141, IST 211.

243 Systems Analysis (Lect 3.0) The theory and practice of structured analysis are presented. Topics include: traditional vs. structured analysis methods, requirements analysis, user/analyst interaction, investigation of existing systems, human/machine interfaces, case tools, and workbenches. Prerequisite: IST 141.

300 Special Problems (Variable) Problems or readings on specific subjects or projects in the department. Consent of instructor required.

301 Special Topics (Variable) This course is designed to give the department an opportunity to test a new course. Variable title.

321 Network Performance Design and Management (Lect 3.0) This course provides analytical capabilities needed to effectively design, deploy, and manage computer networks and protocols. Prerequisite: IST 233.

336 Internet Computing (Lect 3.0) Recent trends in internet computing, software tools for E-commerce support, web site management, web databases, wireless internet issues, internet security issues. Prerequisite: Graduate standing.

342 E-Commerce Architecture (Lect 3.0) Course will cover the issues associated with computer architecture, as it relates specifically to e-commerce applications. Topics will include e-commerce systems and processes, specialized software, and databases. Prerequisite: IST 233.

351 Leadership in Technology-Based Organizations (Lect 3.0) The course focuses on the knowledge and skills necessary for the development and implementation of effective strategies for the management of technology-based organizations. This involves: developing a general management perspective on technology and innovation, examining the problems of new product development, identifying distinctive technological competencies, licensing and marketing technologies, assessing the organizational and industrial context of technology.

354 Multi-Media Development and Design (Lect 3.0) Students will learn current practices for development and design of interactive multimedia. The course covers tools for development of 2-D and 3-D graphics, video, audio, animation, and integrated multimedia environments. Prerequisites: IST 51, Cmp Sc 53 or Cmp Sc 73.

355 Human Computer Interaction (Lect 3.0) Fundamental theory and practice of the design, implementation, and evaluation of human - computer interfaces. Principles of design; methods for evaluating interfaces with or without user involvement; techniques for prototyping and implementing graphical user interfaces; relationship of interface design to effective human interaction with computers. Hands on experience in building applications through prototyping tools, windowbased systems, and toolkits. Prerequisite: Psych 50.

361 Information Systems Project Management (Lect 3.0) The course overviews general project management principles and then focuses on information system application development. Topics include requirements analysis, project scheduling, risk management, quality assurance, testing, and team coordination. Prerequisite: Senior or Graduate Standing.

390 Undergraduate Research (Variable) Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six credit hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

397 Capstone Seminar in Information Science and Technology (Lect 3.0) Course will cover issues and problems relating to application and integration of Information Science and Technology skills. Group projects will require work as a member of a team, creative problem-solving and application of IST principles to real and simulated problems. Prerequisite: Senior Standing as IST major.