

## Department of Management and Marketing

### Managerial Communication Courses

#### ACM 298 Intensive Critical Thinking and Writing for Managers

Open to College of Management students only. This course provides rigorous instruction in analytical reading, critical thinking, and business writing for management students. The course will be writing-intensive and will prepare students for the challenges of the College of Management's primary writing course, ACM 299. The course will also devote some attention to students' presentation skills.

*Prerequisites: ENGL 101 and 102, CM writing proficiency placement test.*

3 Lect Hrs, 3 Credits

#### ACM 299 Analysis and Communication for Managers

Offers instruction and practice in the writing of persuasive analytical prose. With its focus on managerial reasoning, the course emphasizes clarity and coherence in case analyses and project reports. It is required of all students in the College of Management.

*Prerequisites: ENGL 101 and ENGL 102 and a score of "Pass" on the College Writing Placement Test.*

3 Lect Hrs, 3 Credits

## DEPARTMENT OF MANAGEMENT SCIENCE AND INFORMATION SYSTEMS

### Faculty:

Jean-Pierre KUILBOER, Associate Professor and Chair; Professor Daniel Shimshak; Associate Professors Noushin Ashrafi, Oscar Gutierrez, Peter Ittig, Octavio Richetta, Janet Wagner; Assistant Professors Pratyush Bharati, David Heimann, Jeffrey Keisler, Sathasivam Mathiyalakan, Peng Xu, Wei Zhang; Lecturers Richard Anderson, Roger Blake, Frenck Waage

### The Department

The Department of Management Science and Information Systems offers concentrations in Management Information Systems and Operations Management Science. The department offers students both a strong background in theory and opportunities to learn state-of-the-art practical applications and techniques. Students seeking concentrations in other departments will find that MSIS courses will enhance their management skills and career prospects. All UMass Boston students are encouraged to take any MSIS courses for which they meet the prerequisites.

### Concentrations

#### Management Information Systems (MIS)

Information technology is transforming all aspects of business. Students who concentrate in Management Information Systems acquire the knowledge and skills needed to take a leading role in this innovative field. Among other topics, the curriculum covers the planning, design, and implementation of computer-based information, communication, and network systems.

As information technology has impacted virtually all aspects of business, students who complete the MIS concentration will not be limited in their career options. Graduates are in demand and have found employment in a variety of industries, including: health care, transportation, government, high-tech, financial services, and manufacturing.

#### Requirements (18 credits)

- MSIS 310: Client/Server Programming
- MSIS 411: Database Management
- MSIS 461: Systems Analysis and Design

And three of the following:

- MSIS 414: Computer Networks for Management
- MSIS 415: Object Oriented Programming for Business

- MSIS 422: Decision Support Systems and Groupware
- MSIS 425: Project Management
- MSIS 426: e-Business and e-Commerce Infrastructure
- MSIS 427: Knowledge Management: Competing in the Knowledge Economy
- MSIS 428: Information System Security
- MSIS 430: International Information Management
- MSIS 454: Supply Chain Management
- MSIS 480/MSIS 488/MGT 478 (Honors)

#### Operations Management Science (OMS)

The Operations Management concentration focuses on ways in which companies assess, manage, and improve their productivity and efficiency in order to maintain their competitive edge in both national and international markets. Students who concentrate in the Operations Management Science become highly skilled at using quantitative analysis and information technology within the managerial context.

Graduates of this concentration will be ready to begin careers in all types of organizations and in a variety of industries, including hi-tech, transportation, health care services, financial services, and others. Opportunities may include project management, systems development, quality management, decision support, operations management, and more.

#### Requirements (18 credits)

At least 3 of:

- MSIS 425: Project Management
- MSIS 450: Applied Operations Management: Domestic and Global
- MSIS 452: Quality Management
- MSIS 454: Supply Chain Management

At least 2 of:

- MSIS 422: Decision Support Systems and Groupware
- MSIS 455: Decision Analysis
- AF 363: Cost Accounting

With additional choices:

- MSIS 309: Databases and Programming for Managers
- MSIS 414: Computer Networks for Management
- MSIS 415: Object Oriented Programming for Business

# Department of Management Science and Information Systems

- MSIS 426: e-Business and e-Commerce Infrastructure
- MSIS 430: International Information Management
- MSIS 461: Systems Analysis and Design
- MSIS 480/MSIS 488/MGT 478 (Honors)

Note that although students are allowed and even encouraged to pursue more than one concentration, no more than two courses from the first concentration can be used towards the second.

## Courses

### **MSIS 105** **Introduction to Information Systems**

Introduces computers, information systems, and their use in society for students with minimal prior knowledge in this area. Topics include overviews of current information technology concepts and components, the Internet, and productivity software tools. The course offers an extensive hands-on component in the use of current technology. This course cannot be counted toward the management information systems or management science concentration in the College of Management.  
3 Lect Hrs, 3 Credits

### **MSIS 110** **Introduction to Computers and Information Systems**

Introduces systems thinking principles, computers, information systems, and their use in business decision making. Topics include management information systems concepts and components, issues involving information management, productivity software tools. The course offers an extensive hands-on component in the use of state-of-the-art technology.  
3 Lect Hrs, 3 Credits

### **MSIS 111** **Managerial Statistics**

Provides the student with the basic statistical techniques needed for business decision making in areas such as operations management, quality improvement, marketing research, finance, and general management. The course examines collection and presentation of data, frequency distributions, basic probability, statistical inference, and regression. Students use statistical software for data presentation and analysis.  
*Prerequisite:* MATH 129.  
*Corequisite:* MSIS 110.  
3 Lect Hrs, 3 Credits

### **MSIS 123** **Introduction to Information Security**

This course will present an overview of the threats to your information technology infrastructure and intellectual property, with an emphasis on the detection and prevention of intrusions or theft. The protection of services such as the World Wide Web, file sharing, and e-mail will be analyzed. The vulnerabilities and hardening of major operating systems such as Linux and Microsoft's Windows 2000 will be discussed. The course takes a holistic approach, discussing the technical but focusing on the need for proper training and procedures in the maintenance of an effective yet secure information technology infrastructure. While the material of the course is technical in nature, no systems administration or software development experience is assumed. A good familiarity with the use of the Internet and computers is required, and some knowledge of TCP/IP would be helpful.  
3 Lect Hrs, 3 Credits

### **MSIS 124** **Introduction to Visual Basic.NET**

This is an introductory course for Visual Basic.NET, an object-oriented, event-driven language that is a subset of the Visual Studio.NET environment. It is designed to provide the beginning Visual Basic programmer with the tools to create Visual Basic applications that conform to well-adopted Windows standards. In addition, it will introduce the students to object-oriented programming concepts, which are key to successful Windows and Web-based development efforts. While students are expected to have familiarity with basic Windows 95, Windows 98, or Windows 2000 concepts, little or no programming experience is required.  
3 Lect Hrs, 3 Credits

### **MSIS 212** **Managerial Decision Making**

Provides the student with knowledge of more advanced decision making tools building upon the skills developed in MSIS 110 and MSIS 111. The emphasis of this course is on using management information systems and quantitative analysis tools to improve the quality of managerial decision making. Topics include decision theory and analysis, optimization, simulation, and forecasting. Students use advanced functions in spreadsheet packages and decision support software for analysis of practically oriented problems in various management setting.  
*Prerequisites:* MSIS 110 and MSIS 111.  
3 Lect Hrs, 3 Credits

### **MSIS 224** **Advanced Visual Basic.NET**

This is an advanced course for Visual Basic.NET, an object-oriented, event-driven language that is a subset of the Visual Studio.NET environment. It is designed to provide programmers familiar with the basic concepts and functionality of Visual Basic.NET with the tools to create more robust application programs that would be applicable in many organizations today. Students must have taken an introductory Visual Basic.NET course or have practical experience with Visual Basic.Net in order to take this course.  
*Prerequisite:* MSIS 124.  
3 Lect Hrs, 3 Credits

### **MSIS 230** **Relational Databases**

This course provides a thorough review of basic relational database concepts and how to apply these concepts to a variety of application problems. The course focuses on the use and properties of relational database management systems. Topics covered include DBMS architecture levels, data modeling, data definition and manipulation capabilities of Structured Query Language programming, and programming techniques for accessing relational databases.  
*Prerequisite:* MSIS-IT 124.

### **MSIS 290** **Information Systems Development and Management**

This course is designed to offer a comprehensive understanding of systems development and management in organizations by examining currently used techniques and system development methodologies. A range of life-cycle models are considered, including prototyping, evolutionary development, and object-oriented approaches. The aim is to present a balanced overview of the process of analyzing user requirements, designing and developing computerized information systems to meet these requirements, and managing the information resource function. The course introduces students to the pitfalls of systems development and implementation in organizations, with the aim of developing the student's critical thinking skills.  
3 Lect Hrs, 3 Credits

### **MSIS 301** **Operations Management**

Introduces the student to the concepts and techniques used by organizations to support their fundamental task of producing goods and services. This course includes a balanced view of the manufacture of tangi-

# Department of Management Science and Information Systems

ble goods and the production of less-tangible services. Topics covered include product and process strategy, quality management, production planning for manufacturing and for service organizations, and inventory management. The course also includes an examination of the interactions of operations management, quantitative decision making techniques, and information technology. Students use management science techniques and software to examine a wide variety of operations management problems.

*Prerequisites: MSIS 110, MSIS 111, and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 309**

### **Databases and Programming for Managers**

Any information system consists of three layers; the user interface, the problem application, and the database. This course covers user interfaces and databases and provides a concise and applied guide to accessing relational databases with visually oriented programming languages. Students in this course will learn the principles of database design and construction and build functional user interfaces for database access. The course emphasizes the practical application of database and business programming by offering hands-on training in the use of state-of-the-art technology.

*Prerequisites: MSIS 110 and 60 credits.*

## **MSIS 310**

### **Client/Server Programming**

Introduces students to graphical/visual programming concepts using current programming languages and Microsoft Windows Environment. The course will expose the students to both procedural and event-driven programming; it will also introduce component-based client/server implementation.

*Prerequisite: MSIS 110 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 411**

### **Database Management**

Presents the logical concepts of database systems, the possible physical configurations, and the nature of database management software. Data analysis techniques and supporting modeling tools are reviewed and applied in individual and group projects. Discusses data as an organizational resource in the context of total quality management. Oracle is used extensively in a client/server environment. Topics include data analysis, database models, database management systems, CASE tools for data modeling, data manipulation particularly through SQL, storage allocation,

and transaction design. The relevance of data as a resource and its relationship to other components of the organization are reviewed.

*Prerequisites: MSIS 310 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 414**

### **Computer Networks for Management**

Familiarizes students with the rapidly evolving technology in the areas of data, video, and voice communication. The course studies managerial issues relating to the use and management of advanced communication technology. Students learn how to exploit the technology for business purposes such as producing innovative services, improving quality, reducing cost, and providing real-time customer service. The relevance of Internet use in business applications is demonstrated. HTML is used to illustrate the development of Internet applications. The course helps develop an ability to manage such new technologies as ISDN, advanced intelligent networks, multimedia, fiber optics, and virtual networks towards goals such as growth and portability.

*Prerequisites: MSIS 110 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 415**

### **Object Oriented Programming for Business**

Introduces students to the concept of object oriented programming (OOP), a relatively new method of software design and implementation. OOP and procedural programming are different from the viewpoint of design. The course covers several such major concepts in OOP as abstract data type, class, object, encapsulation, inheritance and polymorphism. Comparisons between programming approaches are made, but emphasis is given to the practical application of OOP to current business programming problems. Java is used to illustrate the concepts covered in class.

*Prerequisites: MSIS 310 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 416**

### **Object Oriented Information Systems**

Provides a review of systems development principles with an object orientation as they relate to the analysis and design of database applications, knowledge base systems, and object-oriented programming. The course critically evaluates alternative approaches to information systems development and highlights the integrative nature of object oriented principles. The JAVA programming language is used extensively to

illustrate the characteristic properties of current object oriented programming techniques such as encapsulation, inheritance, and polymorphism.

*Prerequisites: MSIS 415 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 422**

### **Decision Support Systems and Groupware**

Introduces students to the use of decision support systems (DSS) when confronted with structured, semi-structured, and ill-structured problems. The course presents DSS components, supporting technologies, and design methodologies. It also emphasizes the fundamental concepts and terminologies in the fields of decision support systems, group decision support systems, and executive information systems.

Windows-based tools are used to demonstrate the interaction between quantitative methods, such as simulation, and computer technology to solve business problems and answer "what-if" type questions. Students will also explore the use of powerful groupware tools that support computer-mediated team work.

*Prerequisites: MSIS 110, MSIS 111, and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 425**

### **Project Management**

Covers techniques and managerial concepts of project management. This course prepares students to manage either complex physical projects or complex software development projects. Topics presented in this course include project life cycles, economic analysis of projects, work breakdown structure, cost estimation, and the scheduling, staffing, directing, and controlling of projects. The course also covers the use of management science techniques and computer software for project management.

*Prerequisites: MSIS 110 and 60 credits.*

3 Lect Hrs, 3 Credits

## **MSIS 426**

### **e-Business and e-Commerce Infrastructure**

e-Business and e-Commerce are essential parts of doing business today. Electronic Business is the use of computer-mediated networks for any process conducted by an organization (for-profit or otherwise). Electronic Commerce refers to e-Business processes that involve the transfer of ownership or rights for goods or services. Through lectures, case analyses and lab exercises, students will experience the technologies allowing alignment of Web with business priorities. Topics include develop-

## Department of Management Science and Information Systems

ment of e-Commerce Web sites, implemented through packaged solutions or their creation, using markup languages such as HTML and XML, scripting languages, database, security, and online payment technologies.

*Prerequisites:* MSIS 110.

2 Lect Hrs, 1 Lab Hr, 3 Credits

### **MSIS 427**

#### **Knowledge Management: Competing in the Knowledge Economy**

Knowledge is increasingly becoming the most important asset in many organizations. The discipline of Knowledge Management involves developing processes to generate value using intellectual assets. This course introduces students to the concepts and practice of Knowledge Management, including the use of current knowledge management technologies. The focus of the course will be on the issues that concern the design and use of knowledge management systems, including technological, organizational, and political aspects.

*Prerequisites:* MSIS 110 and 60 credits.

### **MSIS 428**

#### **Information System Security**

This course provides a broad overview of the threats to the security of information systems, the responsibilities and basic tools to ensure information security, and the levels of training and expertise needed in organizations to reach and maintain a state of acceptable security. Students will learn and understand the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features.

*Prerequisites:* MSIS 110 and 60 credits.

### **MSIS 430**

#### **International Information Management**

The course gives students an understanding of the international information and software industry in the context of international production of goods and services. The course discusses the historical background and evolution of the international software industry and then analyzes the information and software industry, markets, and users. It will enable students to analyze the international organization of software focusing on the creation, sourcing, consumption and regulation of software systems. The course

provides conceptual frameworks and practical experiences for understanding the complexity in managing in and with the new international software industry.

*Prerequisites:* MSIS 110 and 60 credits.

### **MSIS 450**

#### **Applied Operations Management: Domestic and Global**

Focuses on production and manufacturing issues for both services and manufacturing, and includes in-depth discussions of aggregate planning, inventory control and manufacturing systems. The course also covers the problems and possibilities that come from global operations.

*Prerequisites:* MSIS 212, MSIS 301 and 60 credits.

3 Lect Hrs, 3 Credits

### **MSIS 452**

#### **Quality Management**

Examines approaches for planning and managing for quality within any organization, and the necessary tools for the analysis of quality problems. The course uses a total quality management framework; topics include statistical quality control concepts and tools, design and implementation of enterprise-wide quality programs, quality assurance for both manufacturing and service organizations, the economics of quality control, continuous process improvement, and employee-customer involvement.

*Prerequisites:* MSIS 110, MSIS 111 and 60 credits.

3 Lect Hrs, 3 Credits

### **MSIS 454**

#### **Supply Chain Management**

This course teaches the leading-edge tools and techniques that enable the management of an organization to create sustainable profitable growth by managing the entire supply chain. A supply chain consists of suppliers, manufacturing centers, warehouses, distribution centers, and retail outlets. Supply chain management involves the full synchronization of market demand with flows of materials, information, other resources, and finished products through the entire system of raw materials to retail. The goal of supply chain management is to ensure that merchandise is produced and distributed at the right quantities, to the right locations, at the right time, satisfying service-level requirements while minimizing system-wide costs. Use is made of mathematical and information systems modeling techniques for supply chain management.

*Prerequisites:* MSIS 212 and MSIS 301.

3 Lect Hrs, 3 Credits

### **MSIS 455**

#### **Decision Analysis**

In this course, students will learn to make better decisions and help others to make better decisions across the range of business functions. This interactive course covers a range of qualitative and quantitative techniques that together ensure a decision quality process. These include tools for: defining the right decision context, classifying the relevant issues, identifying and clarifying what is known and not known, investigating the potential impact of uncertainty and how to handle it, generating alternatives, valuing potential outcomes, and committing to action. These techniques are applied in different organizational settings and to a variety of types of business problems.

*Prerequisites:* MSIS 212 and 60 credits.

### **MSIS 461**

#### **Systems Analysis and Design**

Introduces recent approaches to the analysis and design of computer information systems, including the hands-on use of computer aided software engineering (CASE) tools. The changing role of the systems analyst in both operations and systems applications in today's organizations is examined. The course critically analyzes systems development methodologies, including life cycle models and prototyping; reviews user-led developments and current approaches which facilitate user-developer collaboration; discusses effective diagramming and notational techniques now available to define and document functional requirements and operational business processes; and examines current methods used to test and evaluate the accuracy, completeness, and usability of documented requirements and convert them into efficient systems design or re-engineering processes. Topics include CASE tools, module and transaction design, human-computer interfaces, and system configuration. This course includes practical experience in analyzing and designing an organizational application. It discusses the concept of quality as applied to information systems and business process redesign as well as the role of information systems in managing quality within an organization.

*Prerequisites:* MSIS 110 and 60 credits.

3 Lect Hrs, 3 Credits

# Department of Management Science and Information Systems

**MSIS 478****Special Topics in Management Science and Information Systems**

Addresses a specific topic in management science and information systems. Special topics courses are offered as one-time supplements to the department's curriculum. Descriptions of special topics courses are available during advance registration.

*Prerequisites: Permission of instructor and 60 credits.*

3 Lect Hrs, 3 Credits

**MSIS 480****Management Science and Information Systems Internship**

Provides students with opportunities for full- or part-time work experience in a management science and information systems setting. On-site supervisors and faculty sponsors provide guidance and supervision for each intern.

*Prerequisites: 75 credits, of which 21 must be in management core; one concentration course; and minimum 2.5 GPA.*

3 Credits

**MSIS 488****Independent Study**

A student-initiated research project on a management sciences topic, supervised by a member of the management sciences faculty. The course is open to a limited number of students each semester.

*Prerequisites: Permission of instructor and 60 credits.*

3 Credits, Hrs by arrangement