## COURSES FOR INFORMATION SYSTEMS, STATISTICS AND MANAGEMENT SCIENCE

### Management Information Systems Courses

**MIS120 Business Programming I**  
Hours 3  
First computing class designed for students that will be majoring in Management Information Systems.  
Prerequisite(s): MATH 112 or MATH 115 or MATH 121 or MATH 125 or MATH 145 or MATH 126 or MATH 146

**MIS200 Fundamentals of Management Information Systems**  
Hours 3  
Business process coordination and decision making through the use of information technology will be explored, emphasizing IT use by organizations in increasingly global markets.  
Prerequisite(s): CS 102 or CS 100 or CS 104 or CS 150 with a grade of C- or higher; or UA Computer Science Placement Test Score of 380

**MIS220 Business Programming II**  
C  
Hours 3  
A second computing class designed for students that will be majoring in Management Information Systems.  
Prerequisite(s): CS 120 or MIS 120 or CS 150 or CBH 101 or CS 100

**MIS295 Business Analysis Project Management**  
Pages 3  
An introduction to the fundamental concepts of business-process analysis, team-based project management, and use of information technology resources to develop information systems. Emphasis is placed on creating business value in systems ranging from transactional processing to e-commerce.  
Prerequisite(s): CS 150 or CS 120 or MIS 120 or CS 100  
Prerequisite(s) with concurrency: CS 120 or CS 150 or MIS 120 or CBH 101

**MIS300 Applied Organizational Information Technologies**  
Hours 3  
Students learn the IS development process and how to leverage underlying organizational IT components. Provides non-technology major students with the essentials of how IS are developed and used. Emphasis is on databases, data networks, mobile computing, and decision support.  
Prerequisite(s): CS 102 or CS 120

**MIS320 Application & Information Architecture**  
Hours 3  
The study and application of software engineering, application patterns, and file structures. Students design, construct, and test software structures for effective information management.  
Prerequisite(s): MIS 295 ; CS 491 or CS 220 or MIS 220

**MIS330 Database Administration**  
Hours 3  
Logical data modeling, RDBMS, and their use in the business enterprise are presented. Topics include anomalies/normalization, database-connections performance, n-tier architecture, query operations, stored processes and integrity triggers, and Web applications.  
Prerequisite(s): MIS 295 and CS 120 or CS 150 or MIS 120 or CBH 101 or CS 100

**MIS340 Data Communication in a Global Environment**  
Hours 3  
Enabling international exchange of digital data to support business operations. Cultural, legal, security and operational requirements coupled with international standards evaluated in multiple network architectural configurations supporting transactional knowledge workers, e-business and e-commerce applications.  
Prerequisite(s): MIS 200 or MIS 295; and CS 120 or CS 150 or MIS 120 or CS 100 or CBH 101

**MIS430 Systems Analysis & Design I**  
Hours 3  
Intermediate-level skills in systems analysis and design techniques are presented. Emphasis is placed on systems development and delivery tools, methods, standards, and processes.  
Prerequisite(s): MIS 320 and MIS 330  
Prerequisite(s) with concurrency: MIS 450

**MIS431 Systems Analysis & Design II**  
Hours 3  
Advanced-level skills in systems analysis and design techniques are presented. Emphasis is placed on enterprise-level systems development, creation of tailored methodologies, creation of architectural standards, metrics, and business strategy alignment.  
Prerequisite(s): MIS 340 and MIS 430 and MIS 450  
Prerequisite(s) with concurrency: MIS 451

**MIS440 Decision Support Systems**  
Hours 3  
This course assesses information and process requirements to support business decisions in organizations. Students conceptualize, design, develop, and deliver model-based information systems designed to support effective managerial decision making.  
Prerequisite(s): MIS 200 or MIS 295

**MIS450 Systems Construction & Implementation I**  
Hours 3  
Leveraging software development skills from prior MIS and CS courses, students construct, test, and deploy IT-based business solutions.  
Prerequisite(s): MIS 320 and MIS 330  
Prerequisite(s) with concurrency: MIS 430
MIS451 Systems Construction & Implementation II
Hours 3
Development of advanced software engineering skills to develop, deploy, test, document, and assess large-scale IT-based business solutions. Conversion, migration, training, maintenance, and operations plans and budget are emphasized.
Prerequisite(s): MIS 340 and MIS 430 and MIS 450
Prerequisite(s) with concurrency: MIS 431

MIS491 Independent Study
Hours 1-3
No description available

MIS492 Internship
Hours 1-3
Students are selected through a competitive process for assignments in approved business or public-sector organizations. The internship is administered through the C&BA Office of Student Services. Students may earn degree credit for only one internship (492).

MIS497 Special Topics
Hours 1-3
Special topics in MIS.

Operations Management Courses

OM300 Intro Operations Management
Hours 3
This course is an introduction to the field of operations management and addresses the design and management of the activities and resources that a firm uses to produce and deliver its products or services. Topics include operations strategy, product and process design, total quality management, statistical quality control, supply chain management, location analysis, forecasting, inventory management, operations planning, and lean/JIT business processes. Students are limited to three attempts for this course, excluding withdrawals.
Prerequisite(s): ST 260

OM305 Information Technology for Operations Management
C
Hours 3
Introduction to the components of management information systems and applications of computer-based systems to business decisions. Open only to OM majors or by permission of the instructor. Computing proficiency is required for a passing grade in this course.
Prerequisite(s): Lower division C&BA requirements

OM310 Introduction to Management Science
Hours 3
Concepts of management science and their application to decision making. Topics include linear programming, transportation models, integer programming, dynamic programming, queuing theory, decision theory, and network models.
Prerequisite(s): OM 300 and OM 385 or OM 305

OM321 Prod Planning & Contr
Hours 3
The planning and control of production and service systems. Attention is given to forecasting, operations planning, scheduling, materials management, and operations control.
Prerequisite(s): OM 300

OM375 Statistical Quality Control
Hours 3
Statistical methods useful in control of quality of manufactured products. Topics include Shewhart and cumulative sum control charts; process capability analysis; and acceptance sampling procedures by attributes and variables. Emphasis is on understanding, design, implementation, and interpretation of these techniques.
Prerequisite(s): ST 260

OM417 Logistics Management
Hours 3
Logistics deals with the planning and control of material flows and related information in organizations. This course covers logistics systems planning, organization, and control of these activities with a special emphasis on quantitative aspects of the decisions.
Prerequisite(s): OM 300 and OM 321 or OM 310

OM420 Computer Simulation
C
Hours 3
The use of simulation as a tool to understand and improve the performance of complex systems and processes. Students will learn the details of a specific simulation language. Applications to production processes and operational activities. Computing proficiency is required for a passing grade in this course.
Prerequisite(s): ST 260 and OM 385 or OM 305

OM422 Production Scheduling Problems
Computer Science
Hours 3
A broad investigation into a variety of scheduling activities in a variety of environments. Topics include scheduling as applied to projects, job-shops, assembly lines, parallel machine systems, workforce, and transportation.
Prerequisite(s): OM 321

OM423 Inventory Management
Hours 3
Control techniques for the large multi-item inventories frequently associated with manufacturing supply and wholesale-retail operations. The limitations and usefulness of models in actual practice.
Prerequisite(s): OM 321

OM427 Purchasing and Sourcing
Hours 3
Course covers fundamental purchasing systems applications, supplier relations and evaluation, strategic planning in purchasing, purchasing techniques, value analysis and cost analysis.
Prerequisite(s): OM 300
OM450 Process Management & Improvement
Hours 3
An analytical study of strategies, tactics, and techniques for designing, evaluating and analyzing, controlling and improving processes. Emphasis is on topics such as Design for Flexibility, Lean, Six Sigma, Constraint Management will all be included along with process application of OM analytical tools such as simulation, queuing analysis, and value stream mapping.
Prerequisite(s): OM 321

OM487 Capstone Project Seminar
Hours 3
Course addresses the design, operation, and continuous improvement of business operations that deliver products and services. Students will work in teams on an operations oriented project with a local company. The student teams will provide periodic reports and presentations on their project work.
Prerequisite(s): OM 300 and instructor permission

OM492 Internship In Operations Management
Hours 1-3
Students are selected through a competitive process for assignments in approved business or public sector organizations.

OM497 Special Topics
Hours 1-3
No description available

Statistics Courses

ST260 Statistical Data Analysis
C
Hours 3
Introduction to the use of basic statistical concepts in business applications. Topics include extensive graphing; descriptive statistics; measures of central tendency and variation; regression, including transformations for curvature; sampling techniques; designs; conditional probability; random variables; probability distributions; sampling distributions; confidence intervals; and statistical inference. Computer software applications are utilized extensively. Emphasis throughout the course is on interpretation. Computing proficiency is required for a passing grade in this course. Students are limited to three attempts for this course, excluding withdrawals.
Prerequisite(s): MATH 112 or MATH 115 or MATH 121 or MATH 125 or MATH 126 or MATH 145 or MATH 146; and CS 102 or CS 150 or CS 100 or CS 120 or MIS 120 or CS 104 or GES 131 or GES 145 or UA Computer Placement Test Score of 380; minimum grade of C- required in any qualifying prerequisite

Computer Science

ST450 Statistical Methods in Research I
Hours 3
Development of fundamental concepts of organizing, exploring, and summarizing data; probability; common probability distributions; sampling and sampling distributions; estimation and hypothesis testing for means, proportions, and variances using parametric and nonparametric procedures; power analysis; goodness of fit; contingency tables. Statistical software packages are used extensively to facilitate valid analysis and interpretation of results. Emphasis is on methods and on selecting proper statistical techniques for analyzing real situations.
Prerequisite(s): ST 450 or GES 255

ST451 Statistical Methods in Research II
Hours 3
Analysis of variance and design of experiments, including randomization, replication, and blocking; multiple comparisons; correlation; simple and multiple regression techniques, including variable selection, detection of outliers, and model diagnostics. Statistical software packages are used extensively to facilitate valid analysis and interpretation of results. Emphasis is on appropriate analysis of data in real situations.
Prerequisite(s): ST 450 or GES 255

ST452 Applied Regression Analysis
Hours 3
Data analysis using multiple linear regression, including residual plots, transformations, hypothesis tests, outlier diagnostics, analysis of covariance, variable selection techniques and co-linearity. Logistic regression uses similarly discussed for dealing with binary valued independent variables.
Prerequisite(s): ST 260

ST454 Mathematical Statistics I
Hours 3
Distributions of random variables, moments of random variables, probability distributions, joint distributions, and change of variable techniques.
Prerequisite(s): MATH 227 or MATH 247

ST455 Mathematical Statistics II
Hours 3
Theory of order statistics, point estimation, interval estimation, and hypothesis testing.
Prerequisite(s): ST 454

ST497 Special Topics
Hours 1-3
No description available

Computer Science