

LSC Use Only  
Number \_\_\_\_\_  
Action \_\_\_\_\_  
Date \_\_\_\_\_



UWUCC USE Only  
Number 94-21  
Action App 4/18/95  
Date Senate App 5/2/95

CURRICULUM PROPOSAL COVER SHEET  
University-Wide Undergraduate Curriculum Committee

I. TITLE/AUTHOR OF PROPOSAL

Course/Program Title: MG 334 Quality Management  
Suggested 20 character course title: Quality Management  
Department: Department of Management  
Contact Person: Dr. Ramesh G. Soni

II. If a course is it being proposed for:

- Course Approval/Revision Only  
 Course Approval/Revision and Liberal Studies Approval  
 Liberal Studies Approval Only (course previously approved by Senate.)

III. APPROVALS

S. W. Osh  
Department Curriculum Committee  
S. W. Osh  
College Curriculum Committee

maichel  
Department Chairperson  
Robert C. Camp  
\* College Dean

\_\_\_\_\_  
Director of Liberal Studies  
(where applicable)

\_\_\_\_\_  
Provost (where applicable)

\* EACH COLLEGE DEAN MUST CONSULT WITH THE PROVOST BEFORE APPROVING CURRICULUM CHANGES. APPROVAL BY COLLEGE DEAN INDICATES THE PROPOSED CHANGE IS CONSISTENT WITH LONG RANGE PLANNING DOCUMENTS, ALL REQUESTS FOR RESOURCES IN THE PROPOSAL CAN BE MET, AND THE PROPOSAL HAS THE SUPPORT OF THE UNIVERSITY ADMINISTRATION.

III. TIMETABLE

Date Submitted:  
to LSC \_\_\_\_\_  
to UWUCC \_\_\_\_\_

Semester to be  
implemented:  
Fall 1994

Date to be  
published  
in Catalog  
Summer 1994

**V. DESCRIPTION OF CURRICULUM CHANGE**

**1. Catalog Description**

**MG 334 Quality Management**

**3 credits  
3 lecture hours  
0 lab hours  
(3c-01-3sh)**

**Prerequisites: MG 330**

**Corequisites: none**

**Emphasizes the philosophy that quality is an organization-wide phenomenon that influences every aspect of its operations. An overview of current quality management philosophies, and tools and techniques for managing quality in manufacturing and services.**

## COURSE SYLLABUS

### I. Catalog Description

#### MG 334 Quality Management

3 credits  
3 lecture hours  
0 lab hours  
(3c-01-3sh)

Prerequisites: MG 330

Corequisites: none

Emphasizes the philosophy that quality is an organization-wide phenomenon that influences every aspect of its operations. An overview of current quality management philosophies, and tools and techniques for managing quality in manufacturing and services.

### II. Course Objectives

1. To make students understand that quality is the key to survival and success in the 1990s and beyond, and that the emphasis on quality has profoundly changed the way we do business. The course is designed to prepare the students to tackle quality issues in an organization.
2. To present and discuss tools and techniques for managing quality, e.g. quality assurance teams, employee involvement teams, SQC and SPC, TQM, etc.
3. To expose students to the teachings of many world-renowned quality experts including Deming, Juran, Taguchi, Ishikawa and Crosby. Case studies of several leading companies' approaches to quality management are discussed.

### III. Detailed Course Outline

| Topics  | # of Hours |
|---|------------|
| Introduction to Quality Management  | 1 & 1/2    |
| Quality as a Competitive Strategy: Achieving Competitive Edge Through Quality | 3          |

|   |                                |
|---|--------------------------------|
| <b>The Economics of Quality Control: Prevention, Appraisal, Internal Failure, and External Failure</b>                    | 1 1/2                          |
| <b>Planning for Quality Assurance</b>   | 2                              |
| <b>Organizing for Quality</b>   | 2                              |
| <b>Employee Involvement Teams and Quality Assurance</b>   | 3                              |
| <b>Quality and Product Design: Simultaneous Engineering</b>   | 3                              |
| <b>Quality and Process Design: Drive for Continuous Improvement</b>   | 3                              |
| <b>The Quality Experts: The teachings and philosophies of Deming, Juran, Crosby, Ishikawa, etc.</b>                       | 3                              |
| <b>Customer Focus: Quality Function Deployment (QFD)</b>  | 2                              |
| <b>Statistical Tools for Quality Control: Pareto Charts, Histograms, Frequency distributions.</b>                         | 2                              |
| <b>Statistical Process Control: Attribute and variable quality control charts and their use for monitoring processes.</b> | 6                              |
| <b>Process Capability Analysis</b>  | 2                              |
| <b>Systems View of Quality: Total Quality Management</b>  | 2                              |
| <b>Awards and Certifications: The Malcolm Baldrige National Quality Award, the Deming Prize, and ISO 9000.</b>            | 2                              |
| <b>Class Presentations</b>  | 2                              |
| <b>Exams</b>  | 1+1+2 (2 mid-term and a final) |

#### IV. Evaluation Methods

| <b>Grading Method</b> | <b>Description</b>  | <b>Weight</b> |
|-----------------------|---|---------------|
| 2 Mid-terms and Final | Exams will comprise of one or more of the following: objective type questions, short answers, problems, essay, case analysis, computer test, etc. | 50%           |
| Cases, projects, etc. | May include computer projects, case analysis, problem formulation and analysis, etc.  | 20%           |

|                                    |  |     |
|------------------------------------|--|-----|
| Term Paper & Presentation          | The student will be required a develop a term paper (about 15 double-spaced typed pages) based on current readings of journals and business periodicals, business survey, and/or interviews. The student will make a class presentation. | 20% |
| Quizzes, Class Participation, etc. | About 5-10 short quizzes will be given throughout the semester.  | 10% |

Final grade will be determined based on the traditional standard. That is, for an A grade, weighted average must be 90% and above; for B, above 80%; and so on.

**V. Required Textbook(s), Supplemental Books and Readings:**

Evans J.E. and W. M. Lindsay, The Management and Control of Quality, West Publishing Co., 2nd edition, 1993.

Current articles and cases will be available at Kinko's.

**VI. Special Resource Requirements: None**

**VII. Bibliography**

Brocka, B and Brocka, M. S., Quality Management, Business One (Irwin Publishing Co), 1992.

Crosby, P. B., Quality is Free, McGraw-Hill, 1979.

Deming, W. E., Quality, Productivity, and Competitive Position, MIT, Center for Engineering Study, 1982.

Feigenbaum, A. V., Total Quality Control, 3rd ed., McGraw-Hill, 1983.

Freund, R. A., "Definitions and Basic Quality Concepts," Journal of Quality Technology, January, 1985.

Gitlow, H. S. and Gitlow, S. J., The Deming Guide to Quality and Competitive Position, Prentice Hall, 1987.

Ishikawa, K., "Quality and Standardization: Program for Economic Success," Quality Progress, Vol 17 (1), 1984, 16-20.

Juran, J.M. and Gryna, F. M., Jr., Quality Planning and Analysis, 2nd edition, McGraw-Hill, 1980.

Mitra, A., Fundamentals of Quality Control and Improvement, Macmillan Publishing Co., 1993.

Schonberger, R. J., Building a Chain of Customers, The Free Press, New York, 1990.

Schuler, R. S. and Harris, D.L., Managing Quality: The Primer for Middle Managers, Addison-Wesley, 1992.

Stratton, A. D., An Approach to Quality Improvement that Works, ASQC Quality Press, Milwaukee, Wisconsin, 1991.

Wachniak, R., "World Class Quality: An American Response to the Challenge," Quest for Quality: Managing the Total System, M. Sepehri (Ed.), Institute of Industrial Engineers, 1987.

## **COURSE ANALYSIS QUESTIONNAIRE**

### **A**    DETAILS OF THE COURSE

- A1.** This course will be offered as an elective to Management and other majors the Eberly College of Business.
- A2.** This course does not require changes in the content of other existing courses or programs in the Department of Management.
- A3.** This course will follow the traditional style of offering by the department; lectures, cases, computer assignments, class discussion, etc. will be used as the main method of teaching.
- A4.** Yes, this course has been offered as a special topic course in the Spring semester of 1992 and is scheduled to be offered in the Fall semester of 1993. Sixteen students registered for this course in the Spring semester of 1992. Overall, they felt that it was a valuable course.
- A5.** This course is not intended to be a dual level course.
- A6.** This course is not to be taken for variable credit.
- A7.** The following are a few accredited business schools that offer the same or similar course:
  - Western Kentucky University
  - Illinois State University
  - Louisiana State University
  - Case Western Reserve University
  - The University of Akron
  - The University of North Carolina at Chapel Hill

Photocopies of appropriate course descriptions and/or course syllabi are attached as an appendix.

- A8.** The American Assembly of Collegiate School of Business (AACSB) recommends, but does not require, this course in its accreditation standards.

### **B.**    INTERDISCIPLINARY IMPLICATIONS

- B1.** This course will be taught by one instructor.
- B2.** No additional or corollary courses will be needed, now or later.
- B3.** The content of this course does not overlap with that of courses offered by other

departments.

**B4.** Yes.

**C.** IMPLEMENTATION

**C1.** No new faculty resources are required. Current faculty complement is sufficient to cover the instruction of this course based on anticipated departmental enrollment patterns in the near future.

No other new resources are needed to teach the course. Current library, equipment and space allocations are adequate to offer this course.

**C2.** No.

**C3.** This course will be offered once a year.

**C4.** One section of the course will be offered at a time.

**C5.** About 30 students will be accommodated in this course.

**C6.** No.

**C7.** This course will be a curriculum requirement for the Industrial Management concentration. The course will neither affect the numbers of free electives nor will it necessitate an increase in the 124-credit program.

**D.** MISCELLANEOUS

Quality is the key to survival and success in the 1990s and beyond. The emphasis on quality has profoundly changed the way we do business. Most companies, whether in service or manufacturing sector, are preparing themselves for the global competition by adopting the quality culture. This course is designed to prepare the students to tackle quality issues in an organization. It is imperative that we do offer this class to students in the College of Business, so that they are better prepared to deal with today's rapidly changing world of business.



**APPENDIX: INSTITUTIONS OFFERING SIMILAR COURSES**

Western Kentucky University  
Illinois State University  
Louisiana State University  
Case Western Reserve University  
The University of Akron  
The University of North Carolina at Chapel Hill

(Catalog Description/Course Syllabi are attached)

*In order to save time and paper, I did not copy  
14 pages of catalog descriptions/course syllabi  
included with the proposal. They are available in  
352 Sutton for review or to make copies. Marcia*

94-21

PROFESSIONAL electives\*\* - 8 hours; approved ARTS AND SCIENCES electives\* - 7-9 hours.

\*300- and 400-level course in AFAM, ANTH, ART, ASTR, BIOL, CHEM, CS, DANC, ENG, FOREIGN LANGUAGES, GEOG, GEOL, GOVT, HIST, JOUR, MATH, MUS, PHIL, PHYS, PSY, RELS, SCOM, SOCL, and THEA are approved as ARTS AND SCIENCES electives.

\*\*300- and 400-level courses in ACCT, ECON, FIN, CIS, MGT, and MKT are approved as PROFESSIONAL electives.

### HUMAN RESOURCE/PERSONNEL MANAGEMENT OPTION

FRESHMAN AND SOPHOMORE YEARS (67 hours): See College introductory section, Typical Program of Study.

JUNIOR YEAR (30 hours): CIS 461-3 hours; ENG 300 (A)-3 hours; FIN 330-3 hours; CIS 343-3 hours; MGT 300, 310, 311, 313, 314-15 hours; MKT 320-3 hours.

SENIOR YEAR (31 hours): Three courses selected from the following: MGT 411, 414, 416, 473-9 hours; MGT 417, 418-6 hours; approved 400-level MGT elective-3 hours; ECON 305-3 hours; approved PROFESSIONAL electives\*\* - 3 hours; approved ARTS AND SCIENCES electives\* - 7-9 hours.

\*300- and 400-level course in AFAM, ANTH, ART, ASTR, BIOL, CHEM, CS, DANC, ENG, FOREIGN LANGUAGES, GEOG, GEOL, GOVT, HIST, JOUR, MATH, MUS, PHIL, PHYS, PSY, RELS, SCOM, SOCL, and THEA are approved as ARTS AND SCIENCES electives.

\*\*300- and 400-level courses in ACCT, ECON, FIN, CIS, MGT, and MKT are approved as PROFESSIONAL electives.

Students enrolling in upper division College of Business classes must meet certain eligibility requirements including 60 earned hours and must be approved to take upper division classes. At least one week prior to the day of registration, students who desire to major in the College and who have not been admitted to the College, students who desire to minor in the college, and other students whose programs require upper division classes in the College must apply to enroll in upper division classes. Applications are available in the Office of the Dean of the College of Business, the Departmental Office in the College of Business, and in the University Advising Center. Students who enroll in upper division business classes and who do not meet eligibility requirements will be removed from those classes.

### COURSES OF INSTRUCTION

#### MANAGEMENT (MGT)

300 Legal Environment of Business. 3 hours.

Prerequisite: Junior standing.

An introduction to the American public law system; use of law to achieve economic and social goals; legal responsibilities of the business manager. (fall, spring, summer)

301 Business Law. 3 hours.

Prerequisite: Junior standing.

A basic course in commercial law covering contracts, property, creditor rights, torts and other bases for liability and the Uniform Commercial Code. (on demand)

302 Advanced Business Law. 3 hours.

Prerequisite: MGT 300.

Designed to prepare accounting majors for the legal portion of the C.P.A. exam. Contracts, U.C.C., sales, debtor-creditor relationships, security regulation, property, estates, and trusts. (on demand)

310 Organization and Management. 3 hours.

Prerequisite: Junior standing.

An introduction to organization theory and organizational behavior. The course focuses on managing people and material resources to enhance organizational productivity and effectiveness. Attention is given to the managerial functions of planning, organizing, leading and controlling. (fall, spring, summer)

311 Human Resource Management. 3 hours.

Prerequisite: Completion of, or concurrent with, MGT 310.

Personnel recruitment, selection, development, appraisal, and compensation; manpower planning; labor-management relations; employment law; employee health and safety; the personnel specialist-line manager relationship. (fall, spring)

313 Quantitative Methods. 3 hours.

Prerequisite: ECON 206, CIS 241.

Quantitative methods teaches a logical approach to problem solving. The problem is viewed as the focal point of analysis, and appropriate quantitative models are applied to obtain a solution. Microcomputers and quantitative methods software are used to solve complex problems that are similar to those faced by business managers. (fall, spring, summer)

314 Production Management. 3 hours.

Prerequisite: MGT 313.

The management of the direct resources required to produce goods and services. Operations objectives are cascaded through the organization and are translated into measurable terms that become part of the operating goals for production-related departments and their managers. (fall, spring, summer)

403 International Business. 3 hours.

Prerequisite: MGT 310.

Fundamentals of international business particularly in planning, organizing, and control aspects of the multinational enterprise. Roles of government, culture, foreign currency, taxes, political risk, and legal formalities for small and large firms entering new markets are emphasized. (on demand)

410 Senior Seminar-Management. 3 hours.

Prerequisites: MGT 310 and senior standing.

A special topics course covering subjects of current interest in management. (Can be repeated for a total of 6-9 hours). (on demand)

411 Personnel Selection and Performance Appraisal. 3 hours.

Prerequisite: MGT 311 or PSY 370.

The study and development and utilization of various employee assessment methods. Specifically covers fair recruitment, hiring, and performance appraisal practices including application processes, interviews, assessment centers, and employee testing. (fall, on demand)

412 Entrepreneurship. 3 hours.

Prerequisite: MKT 320 and FIN 330.

A study of the entrepreneurial process. Topics include new business opportunities, market entry, access to resources, start-up steps, acquisition, franchising, and careers. Text, cases and hands-on business projects are used. (fall)

414 Compensation Administration. 3 hours.

Prerequisite: MGT 311.

An investigation of the concepts and practices affecting compensation decisions in organizations, with emphasis on job analysis and evaluation, external competitiveness, employee motivation, legal requirements, and benefit administration. (spring)

416 Management of Labor Relations. 3 hours.

Prerequisite: MGT 311.

Legal and social context of the labor-management relationship in union and non-union environments; formation, structure and functioning of labor unions; union elections; collective bargaining; contract administration; dispute settlement; impasse resolution; and union avoidance. (spring, on demand)

417 Organizational Behavior. 3 hours.

Prerequisite: MGT 310.

An advanced course designed to develop an understanding of managing behavior in organizations. (fall and spring)

418 Strategy and Policy. 3 hours.

Prerequisites: Senior standing and ACCT 201, CIS 348, FIN 330, MGT 310, MGT 314, MKT 320.

How to survive and prosper in the changing business environment: the development and application of contemporary competitive strategies at mid and upper managerial levels. Use cases and/or simulation to integrate materials from prerequisite courses. (fall, spring, summer)

419 Management of Organizational Conflict. 3 hours.

Prerequisite: Junior standing.

Designed to develop skills needed to manage intrapersonal, interpersonal, intragroup, and intergroup conflict in organizations. (on demand)

420 Manufacturing Planning and Control Systems. 3 hours.

Prerequisite: MGT 314.

Examines the role of computerized information and control systems in manufacturing. Manufacturing planning and control includes master scheduling, materials and capacity planning, activity control, and demand management. Manufacturing Planning and Control (MPC) systems incorporate Just-in-Time philosophy and practice. (on demand)

425 Managing Process Control. 3 hours.

Prerequisite: MGT 314.

Review of basic statistics, control charts, process capability, conformance, power and oc curves, tolerance intervals, robustness, training, implementation strategies, managing the SPC function, Deming philosophy. (fall)

473 Training in Business and Industry. 3 hours.

Prerequisites: MGT 311 or PSY 370 or permission of the instructor.

An introduction to theories, research and methods of training needs analysis, program design, implementation, and evaluation. (fall)

- 220 BUSINESS ORGANIZATION AND MANAGEMENT 3 F,S  
*ECO 101 and 102 req.*  
Organization theories and the role of managers as leaders. Planning and control systems, decision-making, and human considerations.
- 221 ORGANIZATIONAL BEHAVIOR AND ADMINISTRATION 3 F,S  
*MQM 220 req. Not for credit if had PSY 376.*  
Organization analysis focusing on motivation, perception, communication, coordination, and change. Administrative problems examined by theories of individual and group behavior.
- 226 ENTREPRENEURSHIP 3 S  
*MQM 220; FAL 240; MKT 230.*  
How to start a business, with emphasis on the assessment of business opportunities and on the development of operating plans.
- 227 PRODUCTION MANAGEMENT 3 F,S  
*MQM 100, 220 req.*  
Operations of production plants. Methods analysis and work measurement, inventory control, quality control, facilities layout, machines and maintenance.
- 298.01 PROFESSIONAL PRACTICE: INTERNSHIP/COOPERATIVE EDUCATION IN MANAGEMENT 1-6 F,S  
Internship experiences in general management, human resource management, production/operations management or management information systems, arranged through the dept coord.
- 298.02 PROFESSIONAL PRACTICE: INTERNSHIP/COOPERATIVE EDUCATION IN BUSINESS ADMINISTRATION 1-6 F,S  
Internship/cooperative education experiences for business administration majors related to students' career interests arranged through dept coord.
- 300 INTERMEDIATE BUSINESS STATISTICS 3 F,S  
*MQM 100, MAT 121 or equiv.*  
Techniques used in modern business analysis. Topics include multiple regression and analysis of variance for applications in management, marketing, finance, and accounting.
- 301 DECISION THEORY 3 F  
*MQM 100 req.*  
Behavioral and quantitative factors in business decision-making. Emphasis on quantitative methods of making decisions under conditions of uncertainty.
- 319 SEMINAR IN QUANTITATIVE METHODS 3 S  
*MQM 215, 227 and Sr stand req. May be repeated once if content different.*  
Specialized study of a selected topic in the field of quantitative methods for advanced students.
- 323 HUMAN RESOURCES MANAGEMENT 3 F,S  
*MQM 220 req.*  
Principles and procedures relating to human resources management, including staffing, appraisal, training, compensation, and other programs for business and other organizations.
- 324 INDUSTRIAL RELATIONS MANAGEMENT 3 F,S  
*MQM 220 and ECO 102 req.*  
Managing employment relations and work conditions. Emphasis on negotiating, administering labor agreements, and impact of collective bargaining on managerial practice.
- 325 MANAGERIAL PLANNING AND DECISION MAKING 3 F,S  
*MQM 220 plus 3 additional hrs of Management req. Bus maj only.*  
A consideration of managerial decision making in organizations. Specific emphasis on strategic, program, and operational level planning decisions, techniques, and systems.
- 326 SMALL BUSINESS MANAGEMENT 3 F,S  
*Sr or grad stand. Bus maj only.*  
Field program designed to familiarize the student with the problems of small business owners and/or operators. The student acquires firsthand knowledge and experience by dealing with on-going businesses.
- 327 OPERATIONS MANAGEMENT 3 S  
*MQM 227; MAT 121 req.*  
Advanced consideration of decision making tools applied to manufacturing and other operational areas. Case analyses place emphasis on production management problems.
- 333 PRODUCTION/INVENTORY CONTROL MANAGEMENT 3 S  
*MQM 227 req. Not for grad cr.*  
Management systems (structures, functions, interfaces), issues, and decision models in the Production Control/Inventory Control sub-function. Emphasizes both theory and actual practice in the field.
- 335 QUALITY CONTROL MANAGEMENT 3 F  
*MQM 227 req. Not for grad cr.*  
Management systems (structures, functions, interfaces), issues, and decision models in the Quality Control sub-function. Emphasizes management theory and actual practice in the field.
- 340 SEMINAR IN MANAGEMENT 3 F,S  
*MQM 220, 221, 227, ACC 166. May be repeated once if topic different. Not for grad cr.*  
Specialized study of a selected topic in the field of management for advanced students.
- 350 INTERNATIONAL MANAGEMENT 3 F,S  
*MQM 220; FAL 240; MKT 230. Not for grad cr.*  
Managerial decision making for planning, organizing, and controlling the functions, operations, and resources of multinational corporations.
- 353 HUMAN RESOURCE PLANNING AND DEVELOPMENT 3 F  
*MQM 323 req.*  
Human resource planning as the base for organizational human resource programs, and management of personnel development in organizations.
- 354 COMPENSATION MANAGEMENT 3 F,S  
*MQM 323 req.*  
Compensation subsystem as a vital component in establishing a workplace system that stimulates employee performance.

- 3902 Conceptual Foundations for Operations Research (3) Prereq: MATH 1021 or equivalent. Not open to undergraduate students in the College of Business Administration. Foundations for work in operations research; fundamentals of analysis, systems of linear equations, selected topics from matrix algebra.
- 3070 Independent Reading and Research in Quantitative Business Analysis (1-4) Prereq: senior standing. May be taken for a max. of 4 sem. hrs. of credit. Student is responsible for registering with a faculty member and selecting an area of reading and/or research.
- 3100 Data Organization and MIS Applications (3) Prereq: QBA 2100. Information storage and effective manipulation and processing of data structures with reference to business applications.
- 3110 Database Processing for Management (3) Prereq: QBA 3100. Structure and function of managerial databases; design options and implementation of database management systems in the firm; laboratory practice includes use of a particular software system.
- 3115 Operations/Production Management (3) Prereq: QBA 2001. Designing, operating, and controlling productive systems; product design, facility location and layout, inventory control, forecasting, material requirements planning, aggregate planning, scheduling, and quality control; emphasis on applications in manufacturing and service organizations.
- 3200 Advanced Business Programming (3) Prereq: CSC 2270. Computer programming methods for business systems using COBOL; advanced features of the language; emphasis on programming applications for large-scale business systems.
- 4000 Introduction to Statistical Theory (3) Prereq: proficiency in basic statistical methods and MATH 1552; or consent of instructor. Concepts of probability distribution and statistical inference; theoretical foundations for estimating and testing hypotheses about means, proportions, and variances; chi-square and F tests.
- 4010 Basic Forecasting Models (3) Prereq: QBA 3000 or equivalent. Single-equation multiple regression and time series modeling procedures for business and economic forecasting; using time series data in regression models; time series modeling, including classical decomposition procedures and exponential smoothing; use of computer programs for regression and time series modeling and forecasting.
- 4011 Sample Survey Methods (3) Prereq: QBA 3000 or equivalent. Designing sampling systems; alternative sample designs; problems of bias; techniques of inference from alternative designs; criteria for selecting optimal sampling plans; methods and applications of sample surveys.
- 4012 Applied Nonparametric Statistics (3) Prereq: QBA 3000 or equivalent. Applied nonparametric statistics including techniques for one-sample problems, comparison of two treatments, paired comparisons, randomized complete blocks, comparison of more than two treatments, tests of randomness and independence, and measures of correlation.
- 4013 Bayesian Probability and Statistical Methods (3) Prereq: QBA 3000 or equivalent. Assessment of subjective probability distributions; Bayesian estimation and inference; application of Bayesian techniques to business problems.
- 4020 Fundamentals of Operations Research (3) Prereq: QBA 3001. Continuation of QBA 2001; classical optimization, queuing, and extensions of linear programming including integer and mixed-integer algorithms; applications of operations research techniques to complex management systems; use of computer models.
- 4021 Foundations of Mathematical Programming (3) Prereq: credit or registration in QBA 4020. Theoretical foundations of linear programming in single and multiple objectives; classical nonlinear optimization of unconstrained and constrained functions; Kuhn-Tucker conditions and quadratic programming.
- 4031 Applied Linear Models (3) Prereq: QBA 3000 or equivalent. Development of a unified approach to estimation and hypothesis testing in linear statistical models; emphasis on appropriate specification and interpretation of models and statistical hypothesis; use of available computer routines and interpretation of results; unbalanced analysis of variance models, linear regression models, and analysis of covariance models.
- 4110 Database Administration (3) Prereq: QBA 3110 or equivalent. Information resources management; database management systems; data dictionary/directory systems; database control and protection; distributed databases; laboratory practice includes use of a particular software system.
- 4120 Business Data Communications (3) Prereq: QBA 2100 or equivalent. Telecommunications in business, including both voice and data communication, technical details (hardware, software, protocols, network configurations), network management, and security issues.
- 4125 Analysis and Design of Management Information Systems (3) Prereq: QBA 3110, 3200. See also MGT 4000. Design philosophies and techniques for the creation of information systems for management decision making; conceptual design of actual information systems.
- 4165 Operation of Service and Distribution Systems (3) Prereq: QBA 3115 or equivalent. The operations management function in service and distribution organizations; location, sizing and layout planning; economy of waiting lines; staffing, work force, capacity utilization; distribution system structure and operation; interfaces with other functional areas; emphasis on application of quantitative techniques.
- 4167 Operations Planning and Control (3) Prereq: QBA 3115 or equivalent. Planning and control of operations in manufacturing and service organizations; aggregate planning, master scheduling, requirements planning, and activity control; emphasis on developing skills through case studies and computer models.
- 4168 Management and Operation of Inventory Systems (3) Prereq: QBA 3115. Management and operation of independent demand inventory systems; short-term demand forecasting, fixed-order size systems, fixed-order interval systems, single-period order systems, and inventory control systems.
- 4200 Quality Assurance and Control (3) Prereq: QBA 2000 or equivalent. Credit will not be given for both this course and IE 4453. Principles of quality management; design and application of control charts and acceptance sampling plans for attributes and variables; methods for design quality; basic concepts of reliability.
- 4501 Management Systems Simulation I (3) Prereq: QBA 2001, CSC 1240 or 1248. Computer simulation; modeling on-going systems and using simulation for problem solving; theory of simulation; logic for queuing and inventory applications; simulation languages and SLAM, a network simulation language.
- 4502 Management Systems Simulation II (3) Prereq: QBA 3000 and 4501. Advanced computer simulation; design for using simulation models to solve managerial problems; discrete event simulation; validation of simulation models; variance reduction techniques; SLAM simulation language.
- 4511 Industrial Simulation (3) Prereq: QBA 4020. See IE 4511.
- 5010 Statistical Methods for Public Administration (3) Prereq: college algebra. 2 hrs. lecture; 2 hrs. lab. Open only to students in the M.P.A. program. Also offered as PADM 5010.
- 5014 Managerial Statistics (3) Prereq: QBA 3002 or equivalent; and knowledge of a programming language. Open only to students in the M.B.A. program. Statistical description and inference; data distributions, descriptive measures, index numbers, time series analysis; review and extension of probability theory; probability distributions; standard distributions, including normal, binomial, Poisson, and hypergeometric; sampling distributions; estimation of means, proportions, and totals; applications in management.
- 7300 Statistical Theory (3) Prereq: QBA 4000 or equivalent; and consent of instructor. Continuation of QBA 4000; theoretical basis for topics in statistical inference including tests of hypotheses, experimental design, regression analysis, general linear models, nonparametric statistics, sequential tests of hypotheses, and complex sample designs.
- 7009 Simulation of Stochastic Processes (3) Prereq: fundamental knowledge of computer programming, statistics, and operations research; and consent of instructor. Simulation models, methodologies, and languages; development of complex models; validation of results; completion of several large-scale projects involving extensive use of digital computer required.
- 7010 Decision Models for Public Administration (3) Prereq: QBA 5010. 2 hrs. lecture; 2 hrs. lab. Open only to students in the M.P.A. program. Also offered as POLI 7010 and PADM 7010.
- 7020 Theory of Stochastic Processes (3) Prereq: QBA 4000 or equivalent. Joint, marginal, and conditional probability distributions treated in detail; stochastic processes, including random walks, Markov processes, birth-death processes, stationary stochastic processes, and renewal processes; statistical inference based on stochastic processes.
- 7021 Sample Design and Analysis (3) Prereq: QBA 5014 or equivalent. Methodology of designing sampling systems; alternative sample designs; relative efficiency of sampling systems; problems of bias; techniques of estimation; criteria for selecting optimal sampling plans; emphasis on applications with theoretical foundations.
- 7022 Multivariate Data Analysis (3) Prereq: QBA 5014 or equivalent. Multivariate methods, including principal components, canonical correlation, factor analysis, discriminant analysis, classification procedures.
- 7024 Advanced Statistical Analysis for Research I (3) Prereq: proficiency in calculus, linear algebra, basic statistical methods, and computer programming. Methods of statistical inference; statistical estimation; testing hypotheses about single and multiple means and proportions; simple and multiple linear regression; design of simple random, stratified, and cluster samples; extensive use of statistical computer programs.
- 7025 Advanced Statistical Analysis for Research II (3) Prereq: QBA 7024 or equivalent. Continuation of QBA 7024; advanced regression analysis; experimental design and analysis of variance; nonparametric methods; multivariate techniques; extensive use of statistical computer programs.
- 7027 Advanced Forecasting Models (3) Prereq: QBA 5014 or equivalent. Advanced topics in forecasting; time-series analysis; emphasis on stochastic parameter models and autocorrelated error structures; univariate autoregressive integrated moving average (ARIMA) models; multivariate models and transfer functions; extensive use of computer programs.
- 7070 Seminar in Advanced Business Problems (3) May be taken twice for credit when topics vary. Special topics in statistics and quantitative methods.
- 7101 Introduction to Operations Research Methods (3) Prereq: proficiency in basic statistical methods, calculus, linear algebra, and computer programming. Nature of operations research; general decision models, classical optimization, linear programming, duality and sensitivity analysis, parametric programming, multiple objective programming, network analysis, and simulation; computer used to solve large-scale problems; emphasis on most widely used techniques.
- 7102 Survey of Operations Research: Deterministic Models (3) Prereq: QBA 4021. Integer and mixed-integer programming, extensions of classical optimization, quadratic programming, separable programming, and dynamic programming; applications of more advanced mathematical programming; techniques with some theory.
- 7103 Survey of Operations Research: Stochastic Methods (3) Prereq: QBA 7101 or 4021. Extensions of decision theory, game theory, dynamic programming, Markovian decision processes, reliability models, and queuing models; probabilistic methods in operations research.
- 7105 Digital Methods (3) Prereq: QBA 7102 and working knowledge of FORTRAN. Numerical problem solving in operations research and statistics; Monte Carlo methods, numerical solution of systems of equations, search techniques, and heuristics.
- 7106 Multiple Criteria Decision Making (3) Prereq: QBA 7103. Theory of the displaced ideal, linear multi-objective programming, goal programming, compromise programming, and multi-attribute utility measurement.
- 7107 Dynamic Programming (3) Prereq: QBA 7102. Theory and computational techniques of dynamic programming; single and multidimensional problems; relationship to classical optimization techniques.
- 7111 Theoretical Foundations of Operations Research (3) Prereq: QBA 7101 and 7102. Properties and theoretical foundations for operations research methods.
- 7268 Operations Management (3) Prereq: QBA 5014 and 7101. Also offered as MGT 7000. Major problems and decision processes of operations management: design, resource allocation, activity planning, systems control, process and facility planning, quality control, scheduling, production and inventory control, and planning and control of aggregate output.
- 7272 Operations Strategy (3) Prereq: QBA 7268. Capabilities, characteristics, and configuration of facilities, process/technologies, aggregate capacity, vertical integration, operations infrastructure, organizational structure, and jobs; case analyses drawn from service and manufacturing industries.
- 7275 Advanced Operations Management (3) Prereq: QBA 7268. Topics such as material requirements planning, inventory control, scheduling, facilities location and layout,

# Course Offerings

Case Western Reserve Univ. 1988-89

transportation planning, vehicle scheduling and routing, facility layout, assembly line balancing, forecasting, production scheduling, inventory management, manufacturing resource planning, purchasing, quality assurance, job shop scheduling and facilities maintenance. Computerized solution procedures for many of these subjects will be stressed, and students may use university computing facilities to solve sample problems. A solid technical background is required prior to enrolling in this course. Prerequisite: Consent of instructor. (Fall.)

**423. Operations Management - E.M.B.A. (2).** Participants study the processes by which goods and services are supplied, produced, and distributed in organizations with emphasis on systems for analyzing design and operational problems in the production/operations function. Open only to students in the Executive M.B.A. program. (Spring.)

**441. Systems Analysis in Hospitals and Outpatient Clinics (3).** See OPRE 441.  
**445. Decision Theory (3).** See OPRE 445.  
**450. Project Management (3).** See OPRE 450.

**452. Materials Management in the Health Care Services (3).** See OPRE 452.

**475. Logistics/Physical Distribution Management (3).** Effective management of the distribution of goods and services as they flow from plants/ports/vendors to customers is the focus of this course. Concepts and methods, some computerized, are presented that can lead to improved physical distribution customer service and/or to lower costs in a variety of manufacturing and service company settings. Key topics include transportation, inventories, warehousing, materials handling, order processing, packaging, pricing, customer service standards, and warehouse and retail location. Offered by Marketing as MKMR 475. A companion course to OPMT 476. Prerequisite: OPMT 405 or consent of instructor. (Fall.)

**476. Purchasing/Materials Management (3).** Effective management of the physical supply of goods and services to manufacturing and service companies is the focus of this course. The course is designed (1) to provide an overview of the management problems associated with acquiring and maintaining the flow of material supplies to a firm, and (2) to sharpen decision-making skills as related to materials supply within the broader scope of logistics and the firm as a whole. Topics include purchasing, inventory control, and supply scheduling. Offered by Marketing as MKMR 476. A companion course to OPMT 475. Prerequisite: OPMT 405 or consent of instructor. (Spring.)

**477. Production Planning and Inventory Control (3).** The production control system of a manufacturing organization provides the focus for the course. The primary subjects of forecasting, production scheduling, and manufacturing resource planning for dependent demand inventory management are emphasized via computer methods. Quantitative modeling and managerial analysis

for these production control problems are also thoroughly discussed. Prerequisite: OPMT 405 or consent of instructor. (Spring.)

**478. Operations Design and Quality Control (3).** The primary thrust of this course is statistical applications in manufacturing. The areas of acceptance sampling, process control, total quality control and an introduction to industrial research are included in the course. Methods engineering is introduced as an important underpinning of the quality control system. Prerequisite: OPMT 405 or consent of instructor. (Fall.)

**479. Computers in Operations Management (3).** The use of computerized quantitative models for the analysis and solution of operations management problems is the focus of this course. Students will gain hands-on experience with a wide variety of such models available on the University's computer system. Problems which may be addressed by such models are facilities maintenance, job shop scheduling, facilities layout, distribution planning, production and inventory management, facility capacity planning, assembly line balancing, project planning and scheduling, facility location, vehicle scheduling and routing, forecasting, quality control, production scheduling and lot sizing, and equipment investment and replacement. Prerequisite: OPMT 405 or consent of instructor. (Spring.)

**480. Operations Technologies and Strategy (3).** This course is divided into a review of operations technologies available to the operations manager and considerations of how to combine such technologies into an operations strategy to fulfill the needs of the market-place. Operations technologies include a review of topics such as computer-aided design (CAD), computer-aided manufacturing (CAM), automated order entry and inventory control, computer-aided product tracing systems, computer-aided truck dispatching, rating and routing, group technology, flexible manufacturing systems, automated transfer lines, automatic storage/automatic retrieval (AS/AR) systems, and robotics from an operations management (as opposed to engineering) perspective. The operations strategy part of the course focuses on analyzing the organization and developing policy so as to match operations technologies to the particular set of problems and opportunities in the marketplace. Prerequisite: OPMT 405 or consent of instructor. At least two advanced OPMT courses are recommended. (Fall.)

**601. Special Problems and Topics (credit as arranged).** This is a course of flexible design in which a student, with the agreement of an instructor in operations management, may pursue a special topic or problem. Prerequisite: Consent of instructor. (Every semester.)

**701. Dissertation (Ph.D.) (credit as arranged).** Open to Ph.D. candidates who are preparing dissertations in some field of operations management. Prerequisite: Consent of instructor. (Every semester.)

## Operations Research (OPRE)

### Undergraduate

**201. Introduction to Operations Research I (3).** Philosophy, concepts, methods, and techniques of operations research. Several of the classical problems and some contemporary case studies. Topics include linear programming, the transportation and assignment problems, integer programming, PERT/CPM, inventory models, simulation, and the use of analytical techniques in portfolio management. (Fall, spring.)

**202. Introduction to Operations Research II (3).** A continuation of OPRE 201. Topics include duality in linear programming, nonlinear programming, decision theory, network models, scheduling and sequencing techniques, and game problems. Prerequisite: OPRE 201 or consent. (Offered as needed.)

**300. Undergraduate Projects in Operations Research (1-6).** Individual operations research projects are carried out by qualified students. Prerequisite: Consent of department chairman. (Fall, spring.)

**341. Systems Analysis in Hospitals and Outpatient Clinics (3).** This course is divided into three parts: (1) introduction to the basic methods of systems analysis; (2) discussion of systems analysis actually used in describing, modifying, and designing systems and procedures in primary (including dental care), secondary, and acute health-care delivery institutions; (3) hands-on problem-solving experience in local hospitals and outpatient clinics. This course is intended for practicing or prospective health-care practitioners and/or administrators. The knowledge of mathematics is not presumed. Prerequisite: Consent of instructor. (Spring.)

**345. Decision Theory (3).** This course takes a unified approach to decision-making involving tangible and intangible criteria under certainty, risk, and uncertainty. Applications are drawn from governmental, industrial, social agency, and educational establishments as well as private life. Prerequisite: Consent of instructor. (Fall, Spring)

**348. Personal Investment Strategies (3).** An introduction to the world of personal investing. In the framework of personal investment objectives and alternatives, topics include: stocks, bonds, convertibles, warrants, options, and mutual funds. Discussions of contemporary factors driving stock and bond prices such as international currency and interest rate implications. Practical money management programs to meet different investment objectives and levels of wealth are explored. Offered by the Department of Banking & Finance as BAFI 356. Prerequisites: ACCT 102 or equivalent; BAFI 355 is recommended but not required. (Spring.)

### Graduate

**401. Survey of Operations Research Methods (3).** This course surveys important operations research methods that are not covered in the required courses of the M.S. program. It begins with a brief coverage of ele-

- 633 MANAGEMENT OF DEPOSITORY FINANCIAL INSTITUTIONS 3 credits  
Prerequisite: 602. Policy determination, administrative decision making in banks, savings and loans using computer simulation games.
- 645 INVESTMENT ANALYSIS 3 credits  
Prerequisite: 602 or permission of instructor. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities.
- 647 OPTIONS, FUTURES AND SPECULATIVE MARKETS 3 credits  
Prerequisites: 645, 6500:601. A study of the applications and practice in options, futures and other speculative markets.
- 649 PORTFOLIO MANAGEMENT 3 credits  
Prerequisite: 645 or permission of instructor. Advanced techniques used by sophisticated individuals, professional managers of large portfolios.
- 650 ADMINISTERING COSTS AND PRICES 3 credits  
Prerequisite: 3250:600 or equivalent. Provides an understanding of managerial economics. Short- and long-run decisions of firm analyzed. Analysis includes impact of costs and prices on business profitability.
- 655 GOVERNMENT AND BUSINESS 3 credits  
Prerequisites: 3250:600 and 6500:600. Public policy with regard to business institutions and issues are considered from an economic, legal, ethical, political framework.
- 674 FINANCIAL MANAGEMENT AND POLICY 3 credits  
Prerequisite: 602 or equivalent. Working capital management, controlling inventory, investments, administering costs and funds, managing investment in plant and equipment, administering business income and forecasting for financial management.
- 675 MANAGEMENT OF FINANCIAL STRUCTURE 3 credits  
Prerequisite: 674. Emphasizes determination of volume and composition of sources of funds. Primary attention directed to cost of capital for specific sources of financing.
- 678 CAPITAL BUDGETING 3 credits  
Prerequisite: 674. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems.
- 681 INTERNATIONAL BUSINESS FINANCE 3 credits  
Prerequisite: 602 or equivalent. Financial policies and practices of companies involved in multinational operations. Considers management of working capital and permanent assets, return on investment and capital budgeting for the global firm.
- 690 SELECTED TOPICS IN FINANCE 3 credits  
(May be repeated for a total of six credits) Prerequisite: 674. Provides study of contemporary issues and areas not covered in current finance graduate courses.
- 692 COLLOQUIUM IN BUSINESS 3 credits  
Prerequisite: permission of graduate director. Study of business administration through a seminar of several lecturers in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty and graduate students. May be repeated, but will not satisfy degree requirements. (Credit/no credit.)
- 697 INDEPENDENT STUDY IN FINANCE 1-3 credits  
(May be repeated for a total of three credits) Focus on special topics of study and research in finance on an independent basis.
- 698 INDEPENDENT STUDY: BUSINESS LAW 1-3 credits  
Focus on special topics of study and research in the legal aspects of business administration.
- 699 SEMINAR IN FINANCE 3 credits  
(Must be repeated for a total of six credits) Prerequisites: 674 and a total of 15 Phase II graduate credits. Program of independent research in finance area of student's choice, requiring submission of a finished research report.

# MANAGEMENT 6500:

- 301 MANAGEMENT: PRINCIPLES AND CONCEPTS 3 credits  
Prerequisites: Three credits in behavioral science, economics, mathematics. Theory, practice in management of human, other economic resources, with extensive coverage of operations systems.
- 302 INTRODUCTION TO ORGANIZATIONAL BEHAVIOR 3 credits  
Prerequisites: 301 and two courses in psychology, sociology. Investigation of applications of behavioral and social sciences as they relate to individual, group behavior in organizations.
- 321 QUANTITATIVE BUSINESS ANALYSIS I 3 credits  
Prerequisite: completion of collegiate mathematics requirement. Statistical analysis of business data including coverage of probability theory, probability distributions, sampling, estimation, hypothesis testing.
- 322 QUANTITATIVE BUSINESS ANALYSIS II 3 credits  
Prerequisite: 321. Statistical analysis of business data including analysis of variance, regression and correlation, time series, index numbers, distribution-free statistics, Bayesian decision making.
- 323 COMPUTER APPLICATIONS FOR BUSINESS 3 credits  
Prerequisite: 3460:126; 2440:130; 2440:266; or permission of instructor. Introduces analysis and design of information systems. Provides hands-on experience with microcomputer applications such as spreadsheets, graphics and database management using integrated spreadsheet software.
- 324 DATA MANAGEMENT FOR INFORMATION SYSTEMS 3 credits  
Prerequisites: upper-college standing and proficiency in the BASIC programming language or approval of instructor. Developing business application systems using BASIC and database management systems software, including sequential and random files, finding and arranging records, and database management systems applications.
- 325 ANALYSIS AND DESIGN OF INFORMATION SYSTEMS 3 credits  
Prerequisite: 323. An introduction to computer-based information systems with special emphasis on analysis design, implementation and maintenance. (Cannot be taken in lieu of 6200:454.)
- 331 PRODUCTION AND SYSTEMS MANAGEMENT 3 credits  
Prerequisite: 301; corequisite: 321. Emphasis on design, analysis of operating systems, utilizing scientific decision-making methodology. Case exercises, project.

- 332 PRODUCTION AND OPERATIONS MANAGEMENT 3 credits  
Prerequisites: 323, 331; corequisite: 322. Introduces use of models for production scheduling, materials management, quality control, distribution and project management. Includes linear programming, PERT, simulation. Cases, exercises, problems, computer analysis.
- 341 PERSONNEL MANAGEMENT 3 credits  
Prerequisites: two courses in psychology, sociology and 301. Principles, policies, practices in administering functions of recruiting, selecting, training, compensating, appraising human resources of organizations.
- 342 LABOR RELATIONS 3 credits  
Prerequisite: 341. Analysis of management, union and employee objectives, attitudes and strategy, as they affect conduct of business and economy. Stress placed on group assigned readings and reports.
- 407 SMALL BUSINESS MANAGEMENT 3 credits  
Prerequisite: senior standing. Focuses on problems of organizing and operating a small business. Case studies and field experiences.
- 408/508 ENTREPRENEURSHIP 3 credits  
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Examines the behavior and environment for entrepreneurship. Focuses on classic and contemporary entrepreneurs and the importance of personal values and strategies. Case studies. Field projects.
- 410/510 SELECTED TOPICS IN ENTREPRENEURSHIP 1-3 credits  
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Facilitates comparative international study of entrepreneurship, introduction of entrepreneurship to large organizations, or application of student's entrepreneurial skills. Six hour limit.
- 412/512 DEVELOPMENT OF MANAGEMENT THOUGHT 3 credits  
Prerequisites: upper-college or graduate standing and 301, or 600 or equivalent. Review of development of managerial theories from 5000 B.C. to present with consideration of their application to present organizational settings.
- 421 OPERATIONS RESEARCH 3 credits  
Examines the use of operations research techniques in managerial decision-making processes; constrained linear optimization, non-linear optimization, network analysis, queuing theory, simulation.
- 425 DECISION SUPPORT SYSTEMS 3 credits  
Prerequisite: 324. May not be taken in place of 6200:454. Introduction to decision support systems design including applications in various functional areas. Projects may use BASIC, electronic spreadsheets, database and/or decision support system software.
- 433 BUSINESS OPERATIONAL PLANNING 3 credits  
Prerequisites: 322, 332. Application of quantitative techniques for planning overall operations of firm. Emphasis given to external-internal factors, which influence short- and long-run economic success of firm.
- 434 PRODUCTION PLANNING AND CONTROL 3 credits  
Prerequisites: 322, 332. Forecasting, materials management, production planning, scheduling, control. Integrates previous courses, provides overall framework including use of computer and quantitative methods. Cases and a project in an operating organization.
- 435 QUALITY CONTROL 3 credits  
Prerequisite: 322. Emphasis on statistical techniques essential to controlling product quality for both measurement and attribute data. Includes control chart methods and acceptance sampling plans.
- 436 ADVANCED QUALITY CONTROL APPLICATIONS 3 credits  
Prerequisites: 322 and 435. Applications of advanced topics including exponential and custom charts, experimental design, evolutionary operations (EVOPS), planned experimentation (PLEX) and management of the quality function.
- 437 SPECIAL TOPICS IN QUALITY MANAGEMENT 3 credits  
Prerequisites: 435 and permission of instructor. Exploration of advanced topics of interest both to the student and professor. Many special applications, case studies, outside speakers, projects in conjunction with local industries.
- 438 PRODUCT QUALITY DESIGN TECHNIQUES 3 credits  
Prerequisites: 322 and 435. Describes the techniques of designing quality into a product. It includes determining customer needs, Taguchi methods of quality loss functions and experimental design, reliability and service.
- 442 COMPENSATION MANAGEMENT 3 credits  
Prerequisite: 341. Focus on the design, implementation and evaluation of employee compensation and benefits programs.
- 443 ADVANCED PERSONNEL MANAGEMENT 3 credits  
Prerequisite: 341. Advanced study of current issues and problems in field of personnel. Emphasis given to current literature and research. Activities may include projects, library research, case studies.
- 455/555 MANAGEMENT OF ARBITRATION: COMMERCIAL, INTERNATIONAL AND HUMAN RESOURCES 3 credits  
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. A comprehensive study of managerial strategies for commercial, international and human resource arbitration. Graduate requirement: research paper.
- 457 INTERNATIONAL MANAGEMENT 3 credits  
Prerequisites: upper-college standing and 301 or equivalent. Management practices and techniques of international business organizations. Focus on structure and processes of resource allocation, design and technology, and the impact of culture.
- 458 SELECTED TOPICS IN MANAGERIAL ARBITRATION, MEDIATION AND CONCILIATION 1-3 credits  
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Study of the various methods and mechanisms by which management can understand and deal with internal and external conflict. Six hour limit.
- 459 SELECTED TOPICS IN INTERNATIONAL MANAGEMENT 1-3 credits  
Prerequisites: upper-college standing; 301 or equivalent; and 457; or permission of instructor. Selected topics in international management focus on historical or contemporary managerial, production and organizational issues. Includes international simulation game. Six hour limit.
- 471/571 MANAGEMENT PROBLEMS 3 credits  
(Student who has earned credit in 471 is ineligible to register for or earn credit in 472, 473.) Prerequisites: 332 or 342 or 443 and senior standing. Student applies modern management principles, practices, theory to an actual problem in industry.
- 472 MANAGEMENT PROBLEMS — PRODUCTION 3 credits  
(Student who has earned credit in 472 is ineligible to register for or earn credit in 471, 3.) Prerequisites: 332 and senior standing. Student applies modern management principles, practices and theory to an actual production problem in industry.

- 473 MANAGEMENT PROBLEMS — PERSONNEL** 3 credits  
 (Student who has earned credit in 473 is ineligible to register for or earn credit in 471, 2.) Prerequisites: 342 or 443 and senior standing. Student applies modern management principles, practices and theory to an actual personnel problem in industry.
- 480/580 INTRODUCTION TO HEALTH-CARE MANAGEMENT** 3 credits  
 Prerequisites: upper-college or graduate standing (Students who are required to take 301 or 600 or have completed 301 or 600 or equivalent are ineligible to take this course for credit). Introductory course for health professionals providing in-depth study of management and principles and concepts as applied to particular health-care organizations and health-care delivery system. Topics covered include (a) physical health-care management, (b) human resource management including motivation, leadership, supervision, communication practices, work group dynamics with emphasis on managing health-care professionals and resources of health-care organization, and (c) principles and techniques of decision making, planning, organizing and controlling in health-care setting. For those registered for graduate credit, a major research paper is required.
- 482/582 HEALTH SERVICES OPERATIONS MANAGEMENT** 3 credits  
 Prerequisites: upper-college standing and 301 or 480 and 322 and 323 or equivalents or graduate standing and 580 or 600 or equivalent and 601 or 602 or equivalents or permission of instructor. (Students who have completed 331 are ineligible to take this course for credit). Application of production and operations management concepts and techniques in health services organizations.
- 485/585 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION** 1-3 credits  
 Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues as related to health-care organizations and health-care systems. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required.
- 496 BUSINESS POLICY** 4 credits  
 Prerequisites: senior standing (97 credits) and 301; 6200:202; 6400:371; 6600:300; and corequisites: 322; 6200:355; or 6500:322; and 6400:320 or 321, 322. Integrate the core business disciplines (accounting, economics, finance, management, marketing) through the use of case analyses. Student evaluates objective and strategy formulation from an administrative viewpoint.
- 491 WORKSHOP IN MANAGEMENT** 1-3 credits  
 (May be repeated with permission of instructor or department) Group studies of special topics in management. May not be used to meet undergraduate major requirements in management. May be used for elective credits only.
- 495 INTERNSHIP IN MANAGEMENT** 1-3 credits  
 Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports, term papers required as appropriate.
- 497 HONORS PROJECT** 1-3 credits  
 (May be repeated for a total of six credits) Prerequisite: senior standing in Honors Program. Individual senior honors thesis or creative project relevant to management approved and supervised by member of the department faculty.
- 499 INDEPENDENT STUDY: MANAGEMENT** 1-3 credits  
 Prerequisites: senior standing and permission of department head. Provides a means for individualized study in management from which student can derive significant value.
- 554 INDUSTRIAL RELATIONS** 3 credits  
 Prerequisite: 500. Study of rights and duties of management in dealing with labor and economic consequences of union and management policies and practices.
- 655 COMPENSATION ADMINISTRATION AND EMPLOYEE BENEFITS** 3 credits  
 Prerequisite: 600. A comprehensive approach toward the identification and resolution of pay and benefit problems facing business organizations in their internal and external labor markets.
- 656 MANAGEMENT OF INTERNATIONAL OPERATIONS** 3 credits  
 Prerequisite: 652 or equivalent. Deals with institutional environment of international business; parameters of international business system which hold the system together and which individual business people cannot materially alter.
- 657 THE LEADERSHIP ROLE IN ORGANIZATIONS** 3 credits  
 Prerequisite: 652. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods for leaders evaluated. Individual and small group field study assignments.
- 658 STRATEGIC HUMAN RESOURCES MANAGEMENT** 3 credits  
 Prerequisites: 600, 652, 654. The formulation, design and implementation of strategic human resource practices and systems for business organizations. Emphasis is on competitive cost advantages and productivity gains.
- 659 OPERATIONS AND STRATEGIC PLANNING** 3 credits  
 Prerequisites: 600, 601, 602 or equivalent. Long-range and short-term planning in organizations and linkage between the two. Planning models are presented of business and nonprofit organizations.
- 660 EMPLOYMENT DISCRIMINATION** 3 credits  
 Prerequisite: 652 or equivalent. An overview of discrimination procedures and prohibitions, affirmative action requirements, employee and employer disclosure and their application in human resources management.
- 662 QUANTITATIVE METHODS — OPERATIONS MANAGEMENT** 3 credits  
 Prerequisite: 601 or equivalent. Survey of basic techniques of operations research. Stresses application to functional areas of business with particular emphasis given to production and planning aspects.
- 663 APPLIED INDUSTRIAL STATISTICS I** 3 credits  
 Prerequisite: 601 or equivalent. Designs for survey sampling and estimation. Simple linear regression analysis, including inferences, aptness of the model and joint confidence intervals.
- 664 APPLIED INDUSTRIAL STATISTICS II** 3 credits  
 Prerequisite: 663. Applications of multiple regression including determining "best" set of independent variables, correlation models, analysis of variance models including multifactor models. Experimental designs including randomized block and Latin square designs.
- 671 ADVANCED OPERATIONS RESEARCH** 3 credits  
 Prerequisite: 662. Designed to present in more depth and breadth certain topics surveyed in 662, with emphasis on application of these techniques to student's own business situations.
- 672 MANUFACTURING AND OPERATIONS ANALYSIS** 3 credits  
 Prerequisite: 601 or equivalent. Provides an applications forum where skills gained in other manufacturing — quantitative areas of curriculum can be empirically utilized and applied.
- 673 QUALITY AND PRODUCTIVITY TECHNIQUES** 3 credits  
 Prerequisite: 601. Introduction to techniques for improving productivity and quality, including statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control and management of the program.
- 674 ADVANCED QUALITY AND PRODUCTIVITY TECHNIQUES** 3 credits  
 Prerequisite: 673. Examines advanced techniques in statistical process control, experimental design, determination of customer quality needs/customer service, product reliability/quality and management of quality systems.
- 675 MATERIALS MANAGEMENT** 3 credits  
 Prerequisite: 600. Surveys functions and explores opportunities for profit improvement and cost reduction in those functions integrated under the organizational concept of materials management.
- 676 MANAGEMENT OF PRODUCTION AND OPERATIONS** 3 credits  
 Prerequisites: 600, 602, 662. Surveys the management of resources required to transform inputs into products or services. Addresses issues related to services, materials, people and equipment utilized for production.
- 678 PROJECT MANAGEMENT** 3 credits  
 Provides working knowledge of tools and methods available to project managers including computerized analysis of network models to aid in the planning and control functions.
- 683 HEALTH SERVICES SYSTEMS MANAGEMENT** 3 credits  
 Prerequisite: 580 or 600 or equivalent or permission of instructor. Study of health services organizations, comparative delivery systems, the roles of third-party payors and government policy in health care. Seminar format; major research paper required.
- 688 HEALTH SERVICES RESEARCH PROJECT** 3 credits  
 Prerequisites: 580 or 600 or equivalent and 582 and co-requisite 683 or permission of instructor. In-depth field study in health services administration with applications of research and analysis skills. Course requires review of literature and a major research paper.
- 687 GRADUATE SEMINAR IN HEALTH SERVICES POLICY AND ADMINISTRATION** 3 credits  
 Prerequisites: 580 or 600 or equivalent and 582 and co-requisite 683 or permission of instructor. Advanced seminar; in-depth study of contemporary issues in health services policy and administration. Includes examination of macro-societal and micro-organizational issues. Major paper required.
- 688 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION** 1-3 credits  
 (May not be repeated for more than three credits) Prerequisites: 580 or 600 or equivalent and 683 or permission of instructor. Independent study and research of a special topic of interest in health services administration (e.g., management), chosen by the student in consultation with and under the supervision of the instructor.
- 690 SELECTED TOPICS IN MANAGEMENT** 3 credits  
 (May be repeated for a total of six credits) Prerequisite: 652. Selected topics in historical, contemporary and/or operational and functional areas of management.
- 695 BUSINESS STRATEGY AND POLICY: DOMESTIC AND INTERNATIONAL** 3 credits  
 Prerequisite: to be final course in M.B.A. program. A case-oriented course which focuses on integration of theoretical and practical knowledge acquired in core business courses. Students analyze, evaluate, formulate organization objectives and strategies within domestic and international environmental contexts.
- 697 INDEPENDENT STUDY IN MANAGEMENT** 1-3 credits  
 (May be repeated for a total of three credits) Focus on special topics of study and research in management on an independent basis.

## Graduate Courses

- 600 MANAGEMENT AND PRODUCTION CONCEPTS** 3 credits  
 Quantitative, behavioral, systems approach to introduce management process, emphasizing production function. Designed for student who has not previously had courses in business.
- 601 QUANTITATIVE DECISION MAKING** 3 credits  
 Prerequisite: finite mathematics. Applies quantitative techniques to business decision making. Topics covered include probability estimation and hypothesis testing, simple and multiple regression and correlation analysis, analysis of variance and nonparametric statistics.
- 602 COMPUTER TECHNIQUES FOR MANAGEMENT** 3 credits  
 Introduction to the use of integrated spreadsheet software, database management software and the analysis and design of management information systems.
- 640 MANAGEMENT INFORMATION SYSTEMS** 3 credits  
 Prerequisite: 602 or equivalent. An introduction to systems design, management information systems, data base management; their relationships to problem solving and the organization. Cannot be taken in lieu of 6200:655.
- 641 APPLIED DATA MANAGEMENT** 3 credits  
 Prerequisite: 602. An in-depth examination of the treatment of data, from collection through organization and storage to data extraction and manipulation, including uses of online databases.
- 642 SYSTEMS SIMULATION** 3 credits  
 Prerequisite: 601, 602. Manufacturing or service sector systems are analyzed and modeled on a computer. Experimental designs, statistical significance of results, model verification and validation will be discussed.
- 643 EXPERT-SYSTEMS IN BUSINESS** 3 credits  
 Prerequisite: 641. Introduction to artificial intelligence in general and expert systems. Course provides hands-on experience in designing systems for business applications using engineering tools software.
- 644 MANAGERIAL DECISION SUPPORT SYSTEMS** 3 credits  
 Prerequisites: 6500:641. Examines decision support systems as an analytical tool in the current business environment. Business problems are analyzed and a DSS is designed and implemented.
- 645 ADVANCED MANAGEMENT INFORMATION SYSTEMS** 3 credits  
 A case-oriented course which examines the problems of managing the Corporate Information Systems activity as regarded by users, general management and IS management. Cannot be taken in lieu of 6200:655.
- 651 PRODUCTIVITY AND QUALITY OF WORKLIFE ISSUES** 3 credits  
 Prerequisite: 652 or permission of instructor. A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management.
- 652 ORGANIZATIONAL BEHAVIOR** 3 credits  
 Prerequisite: 600 or equivalent. Study of factors which influence human behavior in business organizations. Emphasis on theories of individual and group behavior, motivation, leadership and communication in organizations.
- 653 ORGANIZATIONAL THEORY** 3 credits  
 Prerequisite: 652. Leadership styles in organized institutional setting; influence of these styles on individual, group behavior; organizational goal attainment. Analysis of leader's role in administrative process.

Kenan-Flagler School of Business Administration

The University of North Carolina at Chapel Hill

BA 299-Q20 -- Managing for Quality

Spring Semester 1992  
TuTh, 3:30 p.m.  
New Carroll G-9

Mr. Evans  
203 Old Carroll  
962-4602

I. Materials

A. Course Pack

1. "Primer on Quality Control Tools", by Gail Ann M. Honda.
2. "Lessons Learned from the Masters - Experiences in Applying the Principles of Deming, Juran, and Crosby," by T. A. Lowe and J. M. Mazzeo, presented at the 42nd Annual Quality Congress of the American Society for Quality Control, Dallas, May 9-12, 1988.
3. "Eliminating Complexity from Work: Improving Productivity by Enhancing Quality", by F. T. Fuller, National Productivity Review, Autumn 1985.
4. "A Dose of OR," by Doug Samuelson, ORMS Today, December 1991.
5. "The Trust Gap", by Alan Farnham, Fortune, December 4, 1989.
6. "My Employees Are My Service Guarantee", by T. W. Firnstahl, Harvard Business Review, Jul-Aug 1989.
7. "Hospital Care Frontiers in Managing Quality", by G. S. Binns and J. F. Early, Juran Report, No. 10, Autumn 1989.
8. "How Velcro Got Hooked on Quality", by K. T. Krantz, Harvard Business Review, Sep-Oct 1989.



9. "A New Era for Auto Quality," by D. Woodruff, Business Week, October 22, 1990.
  10. "The House of Quality," by J. R. Hauser and D. Clausing, HBR, May-June 1988.
  11. "Zero Defections," by F.F. Reichheld and W.E. Sasser, Jr., HBR, September-October 1990
  12. "The Baldrige Award: Leading the Way in Quality Initiatives," by C. W. Reimann, Quality Progress, July 1989.
  13. Malcolm Baldrige National Quality Award application.
  14. "How the Baldrige Award Really Works," by David A. Garvin, HBR, November-December 1991.
  15. Texas Instruments (A) - Harvard Business School case 9-189-029.
  16. Texas Eastman Company - Harvard Business School case 9-190-039.
  17. Analog Devices: The Half-Life System - Harvard Business School case 9-190-061.
  18. "An Open Letter: TQM on the Campus," HBR, November-December 1991.
- B. Text: Managing Quality, by David A. Garvin, The Free Press, New York, 1988.

## II. Grading

|                     |     |
|---------------------|-----|
| Case Brief (1)      | 15% |
| Problem Set         | 15% |
| Group assignment    | 20% |
| Class Participation | 10% |
| Exam                | 40% |

### III. Tentative Schedule

**Note:** The underlined words in the Topic column below are references to the applicable section of the criteria for the Malcolm Baldrige National Award.

| <u>Class</u> | <u>Topic</u>   | <u>Assignment</u>  |
|--------------|--|--|
| Thu Jan 9    | Introduction to course, logistics, overview  | Read Garvin, Chapters 1 and 2 and course pack items 8, 9, and 18.      |
| Tue Jan 14   | Quality as a competitive issue; what quality means   | Read Garvin Chapters 3, 4, and 5                                       |
| Thu Jan 16   | Baldrige Award; systems view of Quality; <u>Leadership</u>   | Read course pack items 7, 12, and 13                                   |
| Tue Jan 21   | Measures of Quality; class discussion of Texas Instruments (A); <u>(Information and Analysis, Quality Results)</u> | Read Garvin Chapters 6 and 7<br>Turn in brief on Texas Instruments (A) |
| Thu Jan 23   | Process improvement; <u>Quality Results</u>  | Read course pack item 1, sections I - VI                               |
| Tue Jan 28   | Process capability and "Six Sigma" performance   | Review course pack item 1, sections I - VI                             |
| Thu Jan 30   | No class meeting   | Meetings for group assignment.<br>Read course pack item 14.            |
| Tue Feb 4    | Applications of tools of Quality Control; sampling and inspection  | Read course pack item 1, sections VI - IX                              |
| Thu Feb 6    | Case discussion - Texas Eastman (course pack item 16); <u>Human Resource Utilization</u>                           | Read Garvin Chapter 8 and course pack item 3                           |
| Tue Feb 11   | Customer requirements and <u>customer satisfaction</u>   | Read Garvin Chapter 9 and course pack items 10 and 11                  |

- Thu Feb 13 Quality planning - case discussion of Analog Devices (course pack item 17)      Read course pack items 4, 5, and 6
- Tue Feb 18 Benchmarking and Taguchi methods - Notes to be distributed an overview
- Thu Feb 20 Synthesizing a view of quality - common corporate challenges; Leadership      Read Garvin Chapters 10 and 11 and course pack item 2
- Tue Feb 25 Presentation of group reports      Start take-home exam

#### IV. Group Assignment

The group assignment will employ the criteria for the Malcolm Baldrige National Quality Award. Working in groups of four (or so), you will review one of two cases used in the 1991 Examiner Preparation Course for the Baldrige Award. The two cases are:

- ▶ Alpha Telco (a fictional telephone company)
- ▶ Herton Technology (a fictional manufacturer of dyes and pigments)

In U.S. companies you will encounter terms such as Total Quality Control, Total Quality Management, Quality Management Process, Leadership through Quality, and many others. These terms generally represent one company's approach to quality improvement. These approaches are, in turn, often influenced by perspectives from the work of one or more of the following: P. Crosby, W. Edwards Deming, A. Fiegenbaum, K. Ishikawa, J. M. Juran, and Japanese Total Quality Control, (pretending, for the moment, that there is such a thing as one version of Japanese Total Quality Control). The criteria for the Baldrige Award have been designed in an attempt to be "guru free." That is, the criteria do not follow or use the terminology of any one of these perspectives. Not surprisingly, however, the Baldrige criteria contain many of the underlying concepts found in these other works. The objective of the Baldrige criteria is to provide a widely useful framework for assessment, whether that assessment is being done within a company or for the purposes of an external award and whether that company is in a manufacturing or a service business.

Your group will select one of the two cases. Once you know whether you will work on the manufacturing or the service case, that case will be distributed to you. In this way you incur the copying charge for only the case that you will use. Your group will produce two things:

- ▶ a feedback report, based on the Baldrige criteria indicating the areas of strength and weakness (officially called areas for improvement) that you identify in the company's quality practices and results; and
- ▶ a description of the process that your group used to prepare the feedback report.

Guidelines for this assignment are as follows:

- ▶ Both parts of this assignment are to be typed, double spaced.
- ▶ The feedback report should not exceed four pages. The report should be written constructively. Assume that you work for the company and that you plan to continue to do so. Avoid cheap shots.
- ▶ The process description should not exceed one page. This should make clear how you conceptualized the assignment, how you envisioned the interrelationships among the various elements of the Baldrige criteria, and how you divided the responsibility.
- ▶ Organization, style, punctuation, and grammar are an integral part of the overall **quality** of your work.
- ▶ You are to work in teams of four on this assignment. Part of the reason for this is to achieve some division of labor. The more important reason is that making this a group team project is intended to produce discussions that will add to your understanding.

You should form your group quickly. Each group should be prepared to present a short report in the last scheduled class on Tuesday, February 25.

## V. Organization of the Course

This course is divided into two modules. The first module may be taken independently for 1.5 semester hours of credit. The assignments in Section III above are for this first module. The second module, for those who elect to continue into it, is also for 1.5 semester hours of credit and will be comprised of quality improvement projects. The first module is a prerequisite for the second.

Topics for the quality improvement projects will be drawn from the MBA Program in the Kenan-Flagler School of Business. With the agreement and support of the administration of the Program, any aspect of the Program is fair game. However, in the spirit of quality improvement, we want to choose projects that have relatively high priority for the Program, as opposed to my or your pet project.

If you have not yet registered for the second module but wish to do so, you should see Caroline Truelove in the MBA Program Office about this in the near future. Once the registration is known for the second module, we will have an organizational meeting.

My objectives for this portion of the course are the following, not necessarily in the order stated:

- Learn something by applying quality improvement concepts;
- Contribute something to the MBA Program;
- Have some fun; and
- Create a base from which the School can build in the future.

I hope that we will have enough people to form about five teams of four people each. In this way the interaction among projects will have value for you and the contribution to the Program will be increased.

## VI. References

### A. Managerial aspects of Quality

Crosby, P., Quality Is Free. McGraw-Hill, New York. 1979.

Crosby, P., Quality Without Tears, 1984.

Deming, W. E., Out of the Crisis. Massachusetts Institute of Technology Center for Advanced Engineering Study, Cambridge, MA. 1986.

Ishikawa, K. and Lu, D., What Is Total Quality Control? The Japanese Way. Prentice-Hall, Englewood Cliffs, NJ. 1985.

Juran, J. M. Juran on Planning for Quality. Basic Books, New York. 1984.

Juran, J. M. Juran on Leadership for Quality, 1988.

Nemoto, M. Total Quality Control for Management. Prentice-Hall, Englewood Cliffs, NJ. 1987.

Scherkenbach, W.W., The Deming Route to Quality and Productivity - Roadmaps and Roadblocks, ASQC Press, Milwaukee, WI, 1987.

Schonberger, Richard J., Building a Chain of Customers, The Free Press, New York, 1990.

Walton, M., The Deming Management Method, 1986.

### B. Related reading -- emphasis on service quality

Albrecht, K. and Zemke, R., Service America!: Doing Business in the New Economy. Dow Jones-Irwin, Homewood, IL. 1985.

Albrecht, K., At America's Service. Dow Jones-Irwin, Homewood, IL. 1988.

### C. Technical aspects of Quality

Evans, J.R. and W. M. Lindsay, The Management and Control of Quality, West Publishing Company, St. Paul, MN, 1989.

Feigenbaum, A. Total Quality Control, Third Edition. McGraw-Hill, New York. 1983.

Gitlow, H., S. Gitlow, A. Oppenheim, and R. Oppenheim, Tools and Methods for the Improvement of Quality, Dow Jones-Irwin, Homewood, IL, 1989.

Ishikawa, K., Guide to Quality Control, Asian Productivity Organization. Tokyo, Japan. 1982.