

- 376. Historical Problems in Technical Change**
Fall, Spring. 4(4-0) Juniors or approval of school.

Factors which influence technical change. Exploration of both historical and contemporary problems of technology and technical change.

- 377. The Natural Environment: Perceptions and Practices**
Spring. 4(4-0) Sophomores.

Factors which have influenced U.S. environmental attitudes as reflected in art and literature. Ways in which changing attitudes have led to changes in legislation and practice.

- 378. Popular Culture and Technical Change**

Winter. 4(4-0) Juniors or approval of school. Interdepartmental with American Studies.

Interrelationships among elements of mass culture and technical change. Introduction to relevant research methods.

- 484. Philosophy of Biological Sciences**

Winter, Spring. 4(4-0) Nine credits in science or approval of school. Interdepartmental with the Department of Philosophy.

Methodological notions and problems of the biological sciences such as: observation and measurement, classification, teleological and functional explanation, teleological systems, emergentism, vitalism, value neutrality.

- 490. Directed Study**

Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 12 credits. Juniors and approval of school.

Faculty directed studies in curricular areas which are normally related to regular course offerings.

- A. Directed Study—General
- B. Directed Study—Biology
- C. Directed Study—Chemistry/Physics
- E. Directed Study—Science and Technology Studies

- 491. Senior Seminar I**

Fall, Winter, Spring. 4(4-0) Seniors or approval of school.

Selected problems in the study of science and technology as human activities, using philosophical, historical, literary, social science or interdisciplinary perspectives or methods. Thesis topic refined and outlined.

- 492. Senior Seminar II**

Fall, Winter, Spring. 4(4-0) LBS 491 or written approval of instructor.

Research, write, defend and evaluate a significant thesis paper in science and technology studies or related interdisciplinary science problems.

- 493. Field Experience**

Fall, Winter, Spring. 1 to 15 credits. May reenroll for a maximum of 16 credits. Approval of school.

Experiential learning related to the public or private practice of science and technology.

- 495. Independent Study**

Fall, Winter, Spring. 1 to 12 credits. May reenroll for a maximum of 12 credits. Juniors and approval of school.

Student conceived individual courses of study in curricular areas. Preliminary faculty approval and continuing guidance.

- A. Independent Study—General
- B. Independent Study—Biology
- C. Independent Study—Chemistry/Physics
- E. Independent Study—Science and Technology Studies

MANAGEMENT

MGT

College of Business and Graduate School of Business Administration

- 101. Introduction to Business**

Fall, Winter, Spring. 4(4-0) Approval of department.

Functions performed by business and the role of administration in our economy as a whole and in the operation of a specific business. Four major objectives: to aid students in choosing a vocation, to help business majors select a field of concentration, to show the place of specialized techniques presented in more advanced business courses, and to give some familiarity with common business practices and terminology.

- 302. Organization and Management**

Fall, Winter, Spring, Summer. 4(4-0) Junior Business majors; EC 201, AFA 201.

Executive roles and functions in the business enterprise and other goal directed institutions; organization design; organization/environment interaction; analysis of internal organization structure; leadership, motivation, conflict, organization change and development.

- 303. Materials and Logistics Management**

Fall, Winter, Spring, Summer. 4(4-0) Juniors in the College of Business or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.

Management concepts and techniques for purchasing, operations and distribution processes. Productivity and profit contributions. Planning, analysis and control of purchasing, production and transportation-distribution.

- 304. Operations Planning and Control**

Winter, Spring. 4(4-0) MGT 303 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.

Managing the production system. Product development, process selection, facilities location and layout; staffing; materials, cost and quality control.

- 305. Purchasing Management**

Fall, Winter, Spring. 4(4-0) MGT 303 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.

Planning, organizing and controlling the purchasing function within organizations. Purchasing responsibilities, objectives and policies. Source selection and evaluation. Price, cost and value analysis. Negotiation. Managing purchase inventories.

- 306. Analysis of Processes and Systems**

Fall, Winter, Spring. 4(4-0) CPS 115, MTA 317 or concurrently.

Analysis of some fundamental systems and process concepts which are basic to industrial management. The course is oriented toward computer model building, acquainting the student with the use of the computer as an instrument for analysis of complex problems in industry. Course includes consideration of criteria for efficiency and optimization, and program planning.

- 310. Fundamentals of Personnel Management**

Fall, Winter, Spring, Summer. 4(4-0) Juniors.

Formulation and administration of employee relations policies in the business enterprise; human resource utilization; introduction to personnel staffing, training and development, performance appraisal, compensation, and labor relations.

- 341. Transportation Distribution Systems**

Fall, Winter, Summer. 4(4-0) MGT 303 or approval of department. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.

Application of economic and business principles to transportation and distribution systems, functional analysis of all major transport modes. Identification of major issues, analysis of alternatives and discussion of probable future outcomes.

- 342. Traffic Management**

Winter, Spring, Summer. 4(4-0) MGT 303 or approval of department. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.

Basic practices related to purchasing and operating transportation services for private and public enterprises.

- 403. Research and Negotiation for Purchasing Materials and Management**

Fall, Winter, Spring. 4(4-0) MGT 303 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.

Applied research and planning focusing on the purchasing and materials management functions in organizations. Preparation for and conducting purchase negotiations. Field research studies. Administration of the research and planning effort.

- 405. Operations Management Topics**

Fall, Winter, Spring. 4(4-0) MGT 304 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.

Consideration of current and controversial questions in operations management. Field experience to study operations and policies in business. Industry studies; impact of new technology and government regulations.

- 406. Introduction to Management Science**

Winter. 4(4-0) MGT 306.

Quantitative models and techniques applied to various business problems integrating the computer into the problem solving process. Topics include linear programming, integer programming, dynamic programming, queuing problems, Bayesian Decision Theory, theory of games.

**Descriptions — Management
of
Courses**

407. Materials and Logistics Policy
Winter, Spring. 4(4-0) MGT 303 plus 12 credits in MLM Program. Interdepartmental with and administered by the Department of Marketing and Transportation Administration. Analysis of comprehensive cases incorporating topical coverage of the entire materials and logistics management program.

409. Business Policy
Fall, Winter, Spring, Summer. 4(4-0) Seniors in business administration and MGT 302; AFA 391; MTA 300. Problems, methods, and analytical frameworks for building and maintaining consistent and effective policy frameworks in the business enterprise. Written and oral analyses are made of comprehensive cases cutting across the major functions within business organizations. Team and individual reports are required.

411. Staffing the Organization
Fall. 4(4-0) MGT 310; MTA 317. Job design; job analysis; employment planning; recruitment, selection, and placement; employment interviewing and testing; validation of selection procedures; affirmative action constraints; EEOC guidelines; induction and orientation of employees.

412. Appraisal, Compensation and Benefits
Winter. 4(4-0) MGT 310. Wage and salary administration; job evaluation; employee motivation; performance appraisal; relating pay to performance; financial and non-financial incentives; equity considerations; employee benefits.

413. Occupational Safety and Health Administration
Fall, Winter. 4(4-0) Juniors; MGT 302 for majors. Programs and procedures for control of work accidents and maintenance of health in business and other organizations. Analysis of costs related to employee and product safety. Administration of a safety program in compliance with new Federal law.

415. Managerial Approaches to Collective Bargaining
Winter, Spring. 4(4-0) MGT 302 or Junior non-business majors. Union-management problems and managerial strategy and tactics in collective bargaining—the union challenge, legal constraints, negotiations and operating under the contract, dimensions of cooperation and conflict.

417. Minorities and Women in the World of Work
Fall, Spring. 4(4-0) Senior majors or approval of department. Interdepartmental with the School of Social Work. Racial, ethnic, sexual and other minority experiences and problems in the world of work. Awareness training approach (what it's like to be ...) featuring movies, guests, subgroup discussions and encounter-type exercises.

419. Group Dynamics and Organization Development
Spring. 4(4-0) MGT 302. Students may not receive credit in both MGT 419 and PSY 356. Group dynamics and development; organizational diagnosis; assessment of work attitude and organization climate; organization development goals and methods; action research, survey feedback, team building, conflict management; evaluating organization development activities.

426. Personnel Training and Individual Development
Fall. 4(4-0) MGT 310. The training and development function; career stages and career planning; needs analysis; training and individual development techniques; evaluation of training and employee development programs.

445. Physical Distribution Management
Fall, Winter, Spring. 4(4-0) MTA 303 or approval of department. Interdepartmental with and administered by the Department of Marketing and Transportation Administration. Micro analysis of private and public physical distribution systems. Emphasis on component parts of the movement system; analytical tools used in planning, implementing and controlling the system.

468. Field Studies
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits. Business administration majors and approval of department. Planned program of observation, study, and work in selected business firms. Designed to supplement classroom study in such a way as to make maximum contribution to students' total educational experience. Field work may be arranged in finance, insurance, marketing, personnel management, production management, purchasing, real estate, retailing, transportation and banking.

800. Materials and Logistics Management
Fall, Winter, Spring, Summer. 4(4-0) Graduate students. Interdepartmental with the Department of Marketing and Transportation Administration. Management concepts of and frameworks for acquisition, conversion and distribution processes. Impact on business and social systems, productivity and profits. Emphasis on planning, analysis and control of purchasing, production and physical distribution.

801. Operations Management
Winter. 4(4-0) MGT 800 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration. Managing the production system. Strategies of product and process selection. Design of production facilities; location, layout and capacity. Organizing and staffing operations and work measurement. Controlling quality and costs.

803. Purchasing Administration
Winter, Spring. 4(4-0) MGT 800. Interdepartmental with the Department of Marketing and Transportation Administration. Purchasing objectives, responsibilities, policies and organization. Source selection, evaluation and development. Negotiations. Purchase planning and evaluation.

806. Organization and Management
Fall, Winter, Spring, Summer. 4(4-0) Approval of department. Macro and micro models of organizational behavior applied to organizational process and design. Topics include: organization planning and design, design strategies (product, function, matrix, other), organization-environment interface, motivation, leadership, group processes, conflict management, the managerial role.

807. Administrative Policy
Fall, Winter, Spring, Summer. 4(4-0) MGT 806, MTA 805, AFA 889. Last term MBA students or approval of dean. Application of administrative theory and techniques to business situations through cases cutting across major functions within business organization. Cases viewed from standpoint of general management with consideration of social and physical environmental forces surrounding the firm.

808. Seminar in Management, Organization, and Administration
Fall, Winter, Spring, Summer. 4(4-0) May reenroll for a maximum of 12 credits. Philosophy, practice, research, and current problems in management, organization, and administration. Historical and current literature, lectures, discussion, individual research, cases and plant visits are methods of study used in various terms.

History of Management Thought
Fall. Development of management concepts as evidenced in the writings of major contributors. Environment factors and relation of early ideas to current thought.

Contemporary Issues in Administration
Spring. Recent and current developments in the administration of business enterprises. Examination of theory and practice.

Organization Theory
Winter, Summer. Critical and comparative consideration of organization theory with special reference to industrial organizations. Problems of organization structure and administrative practice in the management of business concerns are analyzed in the light of objectives, environment, and current theories.

809. Transportation Distribution Strategies
Fall, Winter. 4(4-0) MGT 800. Interdepartmental with and administered by the Department of Marketing and Transportation Administration. Planning and control of the enterprise's transportation and physical distribution system. Emphasis on detailed examination of component parts of the movement storage system.

810. Personnel Management
Fall, Winter, Summer. 4(4-0) MGT 806. Management of the personnel function; personnel policy formulation; the role of the personnel executive; personnel staffing, training and development; performance appraisal, compensation and benefits; labor relations; relevant legislation and judicial decisions.

811. Organizational Staffing
Fall. 4(4-0) MGT 810. Job design and analysis, recruitment selection and placement; employment interviewing and testing; validation of employment criteria and selection procedures; induction and orientation of employees; equal opportunity and affirmative action requirements are stressed.

812. Systems Design Modeling
Spring. 4(4-0) MGT 800. Interdepartmental with and administered by the Department of Marketing and Transportation Administration. Research procedure and planning models for design of the firm's logistical system. Emphasis on situational analysis, research methodology, data analysis, analytical techniques and implementation.

- 815. Business and Material Forecasting**
Fall. 4(4-0) MGT 800 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.
Causes and consequences of supply dynamics. Analyses and forecasts of national and international materials and purchasing business trends. Influences of material resource problems on policies, strategies and behaviors.
- 816. Transportation Policy and Plans**
Fall, Winter. 4(4-0) MGT 800. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.
An operational model and theoretical perspective on national policies that are apt to shape the future of the transportation system. Interaction of government, carrier, and user logistics and distribution strategies.
- 817. Women, Minorities and Management**
Spring. 4(4-0) MGT 806.
Women and minorities in the world of work; management issues specific to race and sex; entry, training, staff-line relationship, peer relationships; legal, environmental, behavioral aspects; marriage and dual careers; implications for the individual and the organization.
- 818. Supervisory and Executive Development**
Fall, Spring, Summer. 4(4-0) MGT 806 or MGT 808.
Theory and research of developmental stages of executive careers. Special emphasis on: impact of organization on executive potentiality; forces influencing development of executive skills and abilities; studies of antecedents of executive role performance; role of training programs.
- 821. Production and Inventory Planning and Control**
Winter, Spring. 4(4-0) MGT 800 or approval of department. Interdepartmental with the Department of Marketing and Transportation Administration.
Theory and practice of production and inventory planning and control. Focus on computer based planning systems for material requirements including aggregate planning, master scheduling, capacity planning, shop floor control and inventory planning.
- 826. Personnel Training and Individual Development**
Winter. 4(4-0) MGT 810.
Training and development of personnel at all levels of the business enterprise; planning, implementing and evaluating training programs; career stages and career planning; matching individual and organizational development needs.
- 831. Computers and Systems Analysis for Business**
Fall, Spring. 4(4-0) MTH 111, STT 315 or concurrently or 12 credits of college mathematics. Open only to MBA candidates without background in computer usage and systems analysis.
Computer programming and systems analysis in business administration.
- 832. Statistical Methods for Business**
Fall, Spring. 4(4-0) MTH 111, STT 315. Open only to MBA candidates without background in statistics.
Statistics for analysis and research in business.
- 833. Decision-Making Models**
Fall, Winter, Spring, Summer. 4(4-0) MGT 831, MGT 832; AFA 840 or concurrently.
Normative decision analysis in business under different assumptions of information availability.
- 834. Linear Optimization Models**
Fall. 4(4-0) MGT 833; MTH 334 or EC 480.
Linear Programming; basic concepts and terminology. Model building with LP with applications to problems from business. The simplex method. Introduction to dual problems. Economic interpretations of duality. Post-optimality analysis.
- 835. Nonlinear Optimization Models**
Winter. 4(4-0) MTH 215; MGT 834 or CHE 465. Students may not receive credit for both SYS 835 and MGT 835.
Nonlinear optimization-examples and applications. Kuhn-Tucker Theory. Saddle point optimality conditions. Algorithms for problems with constraints. Unconstrained optimization; introduction to search methods.
- 836. Applied Stochastic Processes for Business**
Spring. 4(4-0) MGT 833, MTH 228, STT 423.
The structure and analysis of stochastic models common to business and economics. Topics may include the Poisson process, renewal-reward processes, discrete Markov processes, with examples from queuing, reliability, maintenance and inventory.
- 837. Systems Simulation**
Fall. 4(4-0) MGT 833. Interdepartmental with the Department of Statistics and Probability.
The concept of a model, model building, characteristics of simulation models. Techniques of computer simulation. Simulation models in research and management planning/control. Validation and experimental design. Special purpose languages.
- 841. Materials and Logistics Management Policy**
Spring, Summer. 4(4-0) MGT 800 plus 30 credits in the MBA Program. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.
Case course that integrates the materials and logistics management program. Emphasis on problem recognition, applying course materials and preparation of plans that improve total systems performance.
- 848. Management Science Applications**
Summer. 4(4-0) MGT 833.
Analysis of cases utilizing techniques of management science. Problem definition, data collection, and problem solving and implementation.
- 860. Corporation Management and Society**
Spring. 4(4-0) MGT 806.
Analysis of the emerging character of administrative structure of the large corporation. Administrative autocracy, corporate government, stockholder and director relationships. Examination of ethics of decision making, strategic values and priorities basic to resource allocation decisions.
- 880. Organization and Control in the Political Economy: Institutions and Theory**
Winter of even-numbered years. 4(4-0) Interdepartmental with and administered by the Department of Economics.
Organization and technique in choice and implementation of economic, (especially planning, programming) functions of political authority.
- 881. Organization and Control in the Political Economy: Selected Problems**
Winter of odd-numbered years. 4(4-0) Approval of instructor. Interdepartmental with and administered by the Department of Economics.
Analysis of role and tasks, appropriate techniques and organizational structures of political agencies in planning and management of complex programs.
- 890. Special Problems**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 906. Behavioral Research: Organization**
Winter. 3 credits. MTA 905.
Concepts and methods of behavioral science research that are applicable to the study of organization as a strategic device in the development of tangible and intangible values and in the control of elements of business enterprise.
- 907. Seminar in Organizational Behavior**
Fall. 4(4-0) MGT 806.
Directed reading on the behavior of individuals within business organizations. Theory and research in motivation, leadership, and group dynamics are covered.
- 908. Seminar in Organization Theory**
Winter. 4(4-0) MGT 806; doctoral candidates; master's candidates with approval of department. Interdepartmental with the Department of Psychology.
Directed reading and research on issues in contemporary organization theory.
- 911. Seminar in Personnel Research**
Spring. 4(4-0) MGT 810; doctoral candidates; master's candidates with approval of department.
Directed reading and research on issues in contemporary personnel administration theory and practice.
- 912. Special Topics Research Seminar**
Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Specialized topics in management.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.