

- 882 Logistics Field Study**  
Fall. 6 credits. P:M: (MSC 879) RB: Completion of 24 credits of Master of Science in Logistics program. R: Open only to students in the Master of Science in Logistics.  
Practical application of course material to a problem or situation in the student's organization.
- 888 Capstone Project in Manufacturing**  
Fall, Spring, Summer. 3(1-6) Interdepartmental with Engineering. Administered by Engineering. R: Open only to seniors in the Manufacturing Engineering major or to students in the Business Management of Manufacturing major.  
Problem solving in manufacturing. Design of products and processes for manufacturing using a systems approach. Teaming and communication skills are emphasized.
- 890 Independent Study**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. SA: ML 890, MTA 890  
Faculty-supervised independent study.
- 905 Theory Development and Research Design in Marketing**  
Fall. 3(3-0) R: Open only to Ph.D. students SA: ML 905, MTA 905  
Research concepts and scientific methods for the study of marketing. Formulation of hypotheses, concepts of measurement, and quantitative methods.
- 906 Quantitative Methods in Marketing**  
Spring. 3(3-0) P:NM: (MSC 905) or approval of department. R: Open only to Ph.D. students. SA: ML 906, MTA 906  
Concepts and methods in the scientific investigation of marketing phenomena. Focus on the use of multivariate analytic tools.
- 907 Causal Modeling in Marketing**  
Fall. 3(3-0) P:NM: (MSC 906) R: Open only to Ph.D. students. SA: ML 907, MTA 907  
Statistical methods in marketing, emphasis on causal modeling.
- 908 Marketing Decision Models**  
Fall. 3(3-0) P:NM: (MSC 906) R: Open only to Ph.D. students. SA: ML 908, MTA 908  
Applications of marketing decision models in new product development, pricing, distribution, advertising, and sales promotion.
- 910 History of Marketing Thought**  
Fall. 3(3-0) R: Open only to Ph.D. students. SA: ML 920, MSC 920, MTA 920  
Evolution of marketing institutions, techniques, theories, and critiques. Influence of changing environmental and technological factors.
- 911 Theories of Competition in Marketing**  
Spring. 3(3-0) R: Open only to Ph.D. students SA: ML 921, MSC 921, MTA 921  
Relationships among competition, marketing, and corporate and economic growth. Competition phenomena studied through a variety of disciplines, including marketing, economics, political science, sociology and social psychology.
- 912 Seminar in Social Sciences in Marketing**  
Spring. 3(3-0) R: Open only to Ph.D. students. SA: ML 922, MSC 922, MTA 922  
Social science perspectives on marketing.
- 913 Seminar in Spatial and Temporal Marketing**  
Spring. 3(3-0) R: Open only to Ph.D. students. SA: ML 923, MSC 923, MTA 923  
Theory concerning marketing strategies and programs in logistics, channels, and pricing. Field research needs.
- 918 Procurement and Sourcing Theory**  
Fall of even years. 3(3-0) R: Open only to Ph.D. students. SA: MGT 918  
Theoretical models explaining procurement and sourcing strategy. Frameworks to guide research.
- 919 Procurement and Sourcing Management Strategy**  
Spring of odd years. 3(3-0) P:NM: (MSC 918) R: Open only to Ph.D. students. SA: MGT 919  
Management issues affecting the contribution of procurement and sourcing strategies to the competitiveness of the firm.
- 920 Seminar in Manufacturing Strategy**  
Fall of even years. 3(3-0) P:NM: (MSC 803) R: Open only to Ph.D. students. SA: ML 920, MTA 920, MGT 920  
Research in manufacturing strategy. Quality, technology, flexibility, innovation. Theory building.
- 921 Seminar in Inventory Management**  
Fall of odd years. 3(3-0) P:NM: (MSC 803) R: Open only to Ph.D. students SA: ML 921, MTA 921, MGT 921  
Classical, just-in-time, and multi-echelon inventory control models. Forecasting.
- 923 Topics in Operations Management**  
Spring of odd years. 3(3-0) P:NM: (MSC 803) R: Open only to Ph.D. students SA: ML 923, MTA 923, MGT 923  
Current research in the field. Topics vary.
- 930 Theory of Transportation-Distribution Systems**  
Fall of odd years. 3(3-0) P:NM: (MSC 805) R: Open only to Ph.D. students. SA: ML 930, MTA 930  
Transportation-distribution research on systems integration. Elements of networks, systems, and economic theory in the design, evaluation, and control of logistics systems. Topics include strategic logistics, forecasting, and system integration models.
- 931 Transportation and Distribution Research Methods**  
Spring of odd years. 3(3-0) P:NM: (MSC 930) R: Open only to Ph.D. students. SA: ML 931, MTA 931  
Techniques and methodology of system design, customer service and policy formulation.
- 932 Transportation and Distribution Development Policy**  
Fall of even years. 3(3-0) P:NM: (MSC 805) R: Open only to Ph.D. students. SA: ML 932, MTA 932  
The interaction of government, carrier, and user logistics and distribution strategies, particularly at the macro-corporate and national policy levels.
- 940 International Business Theory**  
Fall of even years. 3(3-0) P:NM: (MSC 860 or MSC 862) R: Open only to Ph.D. students. SA: ML 940, MTA 940  
Theories explaining international business phenomena. Varying perspectives on international business activities, concepts, and frameworks.
- 941 International Business Research Issues**  
Spring of odd years. 3(3-0) P:NM: (MSC 940) R: Open only to Ph.D. students. SA: ML 941, MTA 941  
Scientific methods of research on international business. Topics include cultural bias and organizing multi-country studies.
- 990 Independent Study**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to Ph.D. students. SA: ML 924, MTA 924  
Intensive reading and research on a marketing topic of mutual interest to a faculty member and a Ph.D. student.
- 995 Directed Research Paper**  
Fall, Spring, Summer. 1(1-0) R: Open only to Ph.D. students in the Department of Marketing and Supply Chain Management. SA: ML 995, MTA 995  
Production of research paper under the direction of a senior faculty member.
- 999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in the Department of Marketing and Supply Chain Management. Approval of department. SA: ML 999, MTA 999  
Doctoral dissertation research.

## MASTER OF BUSINESS ADMINISTRATION MBA

### The Eli Broad College of Business and The Eli Broad Graduate School of Management

- 800 The Global Organization and the Firm's Strategic Position**  
Fall, Spring. 2(2-0) R: Open only to MBA students.  
Organizational goals, design, and control of the global business enterprise. Maximization of shareholder value, competitive forces, configuring the value-added chain. Strategies for implementing new organizational forms. Designing and managing strategic change.
- 802 Financial Accounting Strategies**  
Fall, Spring. 2(2-0) R: Open only to MBA students.  
Financial accounting model, valuation, and reporting concepts and uses. Valuing securities, financial statement analysis, and cash flows. Budgeting, decision analyses, cost estimation and accumulation, capital budgeting, and international financial concepts.
- 804 Applied Data Analysis for Managers**  
Fall, Spring. 2(2-0) P:NM: (STT 315) R: Open only to MBA students. Not open to students with credit in MSC 833.  
Analysis of business and economic data to support managerial decision-making. Building, interpreting, and applying regression models. Time series and forecasting. Offered half of semester.

## Master of Business Administration—MBA

**806 Business Ethics and the Legal Environment**  
Fall, Spring. 2(2-0) R: Open only to MBA students.

Framework for identifying, analyzing, and resolving ethical dilemmas in business. Examination of key legal topics in business using critical thinking analysis.

**808 Leadership and Teamwork**  
Fall, Spring. 1(1-0) R: Open only to MBA students.

Understanding team management and leadership through experiential and skill-based learning. Effective communication, including the use of electronic communication technologies for team development and maintenance. Active practice of teamwork, communication, and leadership skills.

**812 Managerial Accounting Strategies**  
Fall, Spring. 2(2-0) R: Open only to MBA students.

Performance measurement and incentive system design. Organization structure, budgeting, and transfer pricing. Target costing. Relevant costs and management decision models. Activity-based costing. Aligning management accounting and firm strategy. Accounting for quality. International perspective on management accounting issues.

**814 Applied Economics**  
Fall, Spring. 2(2-0) R: Open only to MBA students.

The economic view of the firm. Modeling market mechanics in supply and demand, marginal concepts, elasticity, market characteristics, pricing with market power, and strategic behavior. Applications to business problems and situations. Principal-agent relationships and wealth maximization. Offered half of semester.

**816 Business Presentations**  
Fall, Spring. 1(1-1) R: Open only to MBA students.

Development of effective interpersonal communications skills. Emphasis is on oral communications in business settings.

**820 Marketing Management**  
Spring, Summer. 3(3-0) R: Open only to MBA students.

Concepts, methods, and applications of decision modeling to address marketing issues such as market segmentation and positioning, new product development, and advertising response and budgeting. Advanced techniques to model marketing decision problems facing marketing managers to ensure optimum outcomes for the firm and its managers.

**821 Supply Chain Management**  
Spring, Summer. 3(3-0) R: Open only to MBA students.

Integrative approach to product design, development, and delivery. Flow of products from concept development through delivery to the final user, including product and process development, managing information and product flows, total quality management, and resource and capacity management.

**822 Financial Management**  
Spring, Summer. 3(3-0) R: Open only to MBA students.

Investment decisions by firms. Value creation, risk and return, pricing models, and financial markets. Financing alternatives, market efficiency, capital budgeting, and leverage and risk relationships. Optimizing firm value. Agency problems and effects on investment and financing decisions. Offered half of semester.

**823 Information Technology Management**  
Spring, Summer. 2(2-0) R: Open only to MBA students.

Role of information technology in operations, decision making, and learning in organizations. Competitive and economic benefits from managing information technology resources. How information technology can achieve competitive advantage, efficient operations, and improved decision quality.

**824 Managing the Workforce**  
Spring, Summer. 2(2-0) R: Open only to MBA students.

Role of workforce management in fulfilling the goals and mission of the organization. Theories and applications of management principles to acquiring, motivating, and rewarding employees and structuring their work. Domestic and international issues in the workplace.

**826 International, Comparative, and Cross-Cultural Business**  
Spring, Summer. 2(2-0) R: Open only to MBA students.

International businesses' approaches to global markets, economic trade issues, methods of entry, and organizational alternatives. Cross-cultural differences and their impacts on business practices. Trade agreements, strategic alliances, negotiations, and cultural consequences. Offered half of semester.

**840 Applied Business Experience**  
Fall, Summer. 3(0-9) R: Open only to MBA students.

Student teams work on projects in organizations identified by a company sponsor and approved by a faculty adviser.

**841 Studies in the Global Marketplace**  
Summer. 3(1-4) R: Open only to MBA students.

Commercial, economic, cultural, and political aspects of global environments. Exposure to leading executives and government representatives in world markets. Comparative framework for competitive strategy in a multi-country context. International field trip required.

**850 Integrative Case Experience and Future Global Strategies**  
Fall, Spring. 2(2-0) R: Open only to MBA students.

Future trends in management. Strategic positioning of organizations for success. An integrative case experience focusing on a specific corporate situation. Use of library and computer network sources. Case presentation to faculty and business managers.

**889 Hospitality Industry Field Study**  
Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Hospitality Business. Administered by School of Hospitality Business. P:NM: 12 credits graduate course work R: Open only to graduate students in the College of Business.

Research on a current issue, problem or opportunity into a segment of the hospitality industry. Industry relationships and networking. Faculty supervision in a field setting.

**891 Special Topics in Business Management**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to MBA students.

Current and emerging issues in management. New and changing developments affecting managers.

**893 MBA Internship Experience**  
Fall, Spring, Summer. 1 credit. A student may earn a maximum of 2 credits in all enrollments for this course. P:NM: Completion of at least one semester in the MBA program. R: Open to MBA students except students in the Advanced Management Program or Program in Integrative Management.

Internship in business organizations; application of business knowledge and management techniques in a work environment.

## MATERIALS SCIENCE AND MECHANICS MSM

### Department of Materials Science and Mechanics College of Engineering

**160 Engineering Graphic Communications**  
Fall, Spring. 3(1-4) P:M: (MTH 116 or concurrently or LBS 117 or concurrently or MTH 132 or concurrently) or (MTH 103 and MTH 114 or concurrently)

Computer-aided design and drafting. Freehand sketching. Two and three dimensional visualization. Blueprint reading. Geometric dimensioning and tolerancing. Introduction to engineering design.

**205 Statics**  
Fall, Spring. 3(3-0) P:M: (MTH 132 or LBS 118)

Vector description of forces and moments. Two and three dimensional equilibrium of particles and rigid bodies. Analysis of trusses, frames and machines. Coulomb friction.

**206 Introduction to Solid Mechanics**  
Spring. 4(4-0) P:M: (MTH 133 or MTH 153H or LBS 119) R: Not open to students in the Civil Engineering or Engineering Arts or Engineering Mechanics or Manufacturing Engineering or Materials Science and Engineering or Mechanical Engineering major. Not open to students with credit in MSM 211 or MSM 205.

Statics: moment and force resultants, equilibrium. Mechanics of deformable bodies: stress and strain, classification of material behavior, generalized Hooke's law. Engineering applications: axial loads, torsion of circular rods and tubes, bending and shear stresses in beams, deflection of beams, combined stresses, stress and strain transformation.

**211 Mechanics of Deformable Solids**  
Fall, Spring. 3(3-2) P:M: (MSM 205) and (MTH 133 or concurrently or LBS 119 or concurrently)

Tension compression and shear stresses. Axially loaded bars. Torsion of circular shafts. Beam theory. Combined stresses. Mohr's circles. Columns.