Current research in the field. Topics vary.

**The Eli Broad College of Business**

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

**808 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**
Fall. 3(3-0) R: Open only to MBA students.

**804 Applied Data Analysis for Managers**
Fall. 2(2-0) 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 second half of semester.

**806 Business Ethics and the Legal Environment**
Spring. 2(2-0) R: Open only to MBA students.
Framework for identifying, analyzing, and resolving ethical dilemmas in business. Key legal topics in business using critical thinking analysis.

**808 Leadership and Teamwork**
Fall. 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. Offered first half of semester.

**814 Applied Economics**
Fall, Spring. 3(3-0) R: Open only to MBA students.
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 first half of semester.

**821 Supply Chain Management**
Fall. 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**
Fall. 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.

**823 Information Technology Management**
Spring. 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. Competitive advantage, efficient operations, and improved decision quality. Offered second half of semester.

**824 Managing the Workforce**
Spring. 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. Offered first half of semester.
Master of Business Administration—MBA

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

841 Studies in the Global Marketplace
Summer. 3(1-4) Summer: International trip. 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 Strategic Management
Fall. 2(2-0) R: Open only to MBA students. Concepts and methods that integrate previous training in functional areas of management. Total firm perspective and ways top managers create and sustain competitive advantage in today's challenging global marketplace.

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. RB: 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.

310 Phase Equilibria in Materials
Fall. 3(3-0) P: (MSE 250 or concurrently) and (MTH 234 or MTH 254H or LBS 220) R: Open only to juniors or seniors in the College of Engineering. SA: MSE 351
Enthalpy. Entropy. Free energy. Phase changes in metal, ceramic, and polymer materials systems. Application to alloying, phase diagram determination, and electrochemistry.

320 Mechanical Properties of Materials
Fall. 3(3-0) P: (ME 222 or concurrently) and (MSE 250) R: Open only to juniors or seniors in the Materials Science and Engineering major. SA: MSE 355

324 Biomaterials and Biocompatibility
Spring. 3(3-0) Interdepartmental with Biomedical Engineering. P: (PSL 250 or concurrently) and (MSE 250) R: Open only to students in the College of Engineering. SA: MSM 424
Materials science of human implants. Design requirements imposed by the human body. Need for bodily protection.

331 Materials Characterization Methods I
Fall. 1(0-3) P: (MSE 310 or concurrently and MSE 320 or concurrently) R: Open only to juniors or seniors in the Materials Science and Engineering major. SA: MSE 375
Thermal analysis. Optical and Scanning Electron Microscopy Laboratory for characterizing microstructure-property relationships. Effects of processing on microstructures, properties, and fracture surfaces in metal, ceramic and polymer systems.

350 Electronic Structure and Properties of Materials
Spring. 3(3-0) P: (PHY 184 or concurrently) and (CEM 141 or concurrently) and (CEM 151 or concurrently) Not open to students with credit in MSE 455.
Fundamentals of electrical, thermal, magnetic and optical properties of metals, dielectrics, semiconductors and polymers. Crystal structure, reciprocal space, quantum mechanics, electron band structure, and phonons. Materials applications in electronics and optoelectronics.

360 Fundamentals of Microstructural Design
Spring. 3(3-0) P: (MSE 310 and MSE 350 or concurrently) R: Open only to juniors or seniors in the College of Engineering. SA: MSE352
Fick’s laws of diffusion. Models of solid state diffusion. Arhenius plots. Use of non-equilibrium energy storage from solidification, phase changes, and deformation to predict and control microstructural changes and stability during processing in metal, ceramic, and polymer systems.

370 Physical Processing of Materials
Spring. 3(3-0) P: (MSE 310 and MSE 350 or concurrently) R: Open only to juniors or seniors in the Materials Science and Engineering major. SA: MSE 385, MSE 380
Physical processing of powders. Mixing and casting. Surface modification of ceramic, polymeric, and metallic materials in order to engineer the microstructure, properties, and form of components.

381 Materials Characterization Methods II
Spring. 2(1-3) P: (MSE 360 or concurrently) and (MSE 370 or concurrently) R: Open only to juniors or seniors in the Materials Science and Engineering major. SA: MSE 376
X-ray and infrared spectroscopic analysis laboratory for the characterization of microstructure-property relationships. Effects of processing on microstructures, properties, and fracture surfaces in metal, ceramic, and polymer systems.

401 Quantitative Human Biology
Spring. 3(4-0) Interdepartmental with Biomedical Engineering; Radiology; Human Anatomy. Administered by College of Engineering. P: (MTH 235 and PHY 184) and (PSL 250 or concurrently or PSL 451 or concurrently) and (CEM 141 or concurrently) and (MTH 235 and PHY 184) and (CEM 141 or concurrently) and (ANTR 350 or concurrently) RB: (CSE 131 or concurrently or CSE 231 or concurrently or CSE 410)
Qualitative description and quantitative engineering analysis of selected, tractable human-biological systems. Multi-disciplinary problem-solving among medical and engineering professionals.

426 Introduction to Composite Materials
Spring. 3(3-0) Interdepartmental with Mechanical Engineering. P: (ME 222) R: Open only to juniors or seniors in the College of Engineering. SA: MSM 444

451 Microscopic and Diffraction Analysis of Materials
Spring. 3(2-3) P: (PHY 184 or PHY 184B) RB: (MSE 350 and MSE 381) R: Open only to seniors or graduate students in the College of Engineering or Natural Science. SA: MSM 451

454 Ceramic and Refractory Materials
Fall. 3(3-0) P: (PHY 184B) RB: (MSE 350 and MSE 381) R: Open only to seniors in the College of Engineering. SA: MSM 454
Ceramic and glassy materials. High temperature processes. Mechanical and physical properties of technical ceramics.

465 Design and Application of Engineering Materials (W)
Spring. 3(3-0) P: (MSE 331 and MSE 381) and completion of Tier I writing requirement. R: Open only to students in the Engineering Mechanics or Materials Science and Engineering major. SA: MSM 465
Fundamental principles of strengthening; toughening, specific strength and stiffness. Material development based on environmental, temperature, wear, damping, fatigue and economic considerations.

466 Fracture and Failure Analysis
Fall. 3(2-3) P: (MSE 250) RB: (MSE 331 and MSE 320) R: Open only to seniors in the College of Engineering. SA: MSM 466
Modes and causes of failure in mechanical components. Non-destructive evaluation. Legal and economic aspects of materials failure. Analysis illustrated in student projects requiring integration of prior course work.