

**823. Seminar in Comparative Literary Criticism**  
Fall. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Arts and Letters, English, and Romance Languages. Administered by Arts and Letters.  
P: AL 822. R: Approval of college.  
Theory and practice of comparative literary criticism, with attention to the development of critical approaches and to current topics in the critical literature.

**825. Comparative Critical Theory**  
Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Arts and Letters, English, and Romance Languages. Administered by Arts and Letters.  
P: AL 822 or approval of college. R: Open only to graduate students in College of Arts and Letters.  
Critical theory of comparative literature, including comparative studies in rhetorical theory and discourse analysis.

**863. The Literatures of Africa and the Diaspora**  
Spring. 3(3-0) Interdepartmental with English and Romance Languages. Administered by English.  
R: Open only to graduate students in College of Arts and Letters.  
Literatures of Africa and the Diaspora with emphasis on Third World critical approaches, non-canonical perspectives, and problems.

**991B. Topics in Comparative Literature**  
Fall. 3(3-0) A student may earn a maximum of 12 credits in all enrollments for this course. Interdepartmental with English and Romance Languages. Administered by English.  
R: Open only to Ph.D. students. Approval of department.  
Critical approaches to genre, periodization, and influence in English and other literatures.

**991D. Topics in the Literature of Africa and the African Diaspora**  
Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with English and Romance Languages. Administered by English.  
R: Approval of department.  
Authors, movements, and cultures of the literature of Africa and the African diaspora.

**991E. Topics in Anglophone South Asian Literature**  
Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with English. Administered by English.  
R: Open only to graduate students in College of Arts and Letters. Approval of department.  
Analysis of an area of South Asian literature written in English.

## LYMAN BRIGGS SCHOOL LBS

### Lyman Briggs School College of Natural Science

**117. College Algebra and Trigonometry**  
Fall. 3(3-0)  
R: Open only to Lyman Briggs School majors. Designated score on mathematics placement test. Not open to students with credit in MTH 103 or MTH 110 or MTH 116 or MTH 120.  
Rational and real numbers. Functions and inverses. Equations, simultaneous equations. Inequalities. Graphing. Trigonometry.

**118. Calculus I**  
Fall, Spring. 5(5-0)  
P: LBS 117 or MTH 110 or MTH 116 or designated score on mathematics placement test. R: Open only to students in Lyman Briggs School. Not open to students with credit in MTH 120 or MTH 124 or MTH 132 or MTH 152H or MTH 133.  
Limits, continuity, differentiation, integration, and elementary applications.

**119. Calculus II**  
Fall, Spring. 4(4-0)  
P: LBS 118. R: Open only to Lyman Briggs School majors. Not open to students with credit in MTH 133 or MTH 153H or MTH 235.  
Continuation of LBS 118. Further applications of one variable calculus. Infinite series. Ordinary differential equations.

**125. Introduction to C Language with Applications**  
Spring. 3(3-0)  
P: LBS 118. R: Open only to Lyman Briggs School majors. Not open to students with credit in CPS 101 or CPS 131 or CPS 230.  
Computer programming using the C language and the UNIX operating system. Emphasis on scientific and mathematical applications.

**126. Personal Computers and Networks**  
Fall, Spring. 3(3-0)  
R: Open only to Lyman Briggs School majors. Not open to students with credit in CPS 101.  
Selecting, installing and using personal computer software and hardware. Computer networks.

**127. Introduction to FORTRAN Language with Applications**  
Fall. 3(3-0)  
P: LBS 118 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in CPS 131.  
Computer programming using the FORTRAN language and the UNIX operating system with emphasis on scientific and mathematical applications.

**133. Introduction to Science and Technology Studies**  
Fall, Spring. 4(4-0)  
P: Designated score on English placement test. R: Open only to Lyman Briggs School majors. Not open to students with credit in MC 111 or MC 112 or ATL 110 or ATL 115 or ATL 120 or ATL 125 or ATL 130 or ATL 135 or ATL 140 or ATL 145 or ATL 150 or ATL 195H or AL 192 or AL 192H.  
Instruction and practice in expository writing. Paper and report topics drawn from readings in the history, philosophy, and other areas of science and technology.

**144. Biology I: Organismal Biology**  
Fall, Spring. 4(3-3)  
R: Open only to Lyman Briggs School majors. Not open to students with credit in BS 110.  
Modern biology at the organismal level of integration. Principles of genetics, evolution, ecology, and organismal diversity as interactive units.

**145. Biology II: Cellular and Molecular Biology**  
Fall, Spring. 4(3-3)  
P: LBS 144; CEM 141 or CEM 151 or CEM 181H or LBS 165 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in BS 111.  
Modern biology mainly at the cellular level of integration. Principles of cell structure and function are used to explain processes of bioenergetics, protein synthesis, and development.

**148H. Honors Organismal Biology**  
Fall. 3(3-0) Interdepartmental with Biological Science.  
R: Honors College student or approval of department. Not open to students with credit in BS 110 or LBS 144.  
Diversity and basic properties of organisms, with emphasis on genetic principles, ecological interactions, and the evolutionary process. Historical approach to knowledge discovery.

**149H. Honors Cell and Molecular Biology**  
Spring. 3(3-0) Interdepartmental with Biological Science.  
P: CEM 141 or CEM 151 or CEM 181H or LBS 165 R: Honors College student or approval of department. Not open to students with credit in BS 111 or LBS 145.  
The physicochemical and molecular organization of cells as the unifying framework for genetics, evolution, and the social relevance of biology.

**158H. Honors Organismal Biology Laboratory**  
Fall. 2(1-3) Interdepartmental with Biological Science.  
C: LBS 148H concurrently. R: Honors College student or approval of department. Not open to students with credit in BS 110 or LBS 144.  
Basic procedures used by organismal biologists, including experimental design and statistical methods. Development and implementation of research projects to test hypotheses in genetics, ecology, and evolution.

**159H. Honors Cell and Molecular Biology Laboratory**  
Spring. 2(1-3) Interdepartmental with Biological Science.  
P: CEM 141 or CEM 151 or CEM 181H or LBS 165 C: LBS 149H concurrently. R: Honors College student or approval of department. Not open to students with credit in BS 111 or LBS 145.  
Basic techniques of cellular and molecular biology, including experimental design and hypothesis formulation. Development and implementation of research projects to test hypotheses in biochemistry, molecular biology, or genetics.

**164. Introduction to Physics and Chemistry I**  
Fall. 3(4-0)  
P: LBS 117 or concurrently or MTH 116. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 181B or PHY 183 or PHY 183B or PHY 231 or PHY 231B or PHY 193H.  
Basic physics principles, problem solution techniques. Mechanical systems, elementary thermodynamics, vibrations and waves. Atoms and nuclei.

**164L. Introductory Physics Laboratory I**  
Fall. 1 credit.  
P: LBS 164 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 192 or PHY 251.  
Techniques and instruments in the physics laboratory. Selected experiments in classical and modern physics.

**165. Introduction to Chemistry and Physics I**  
Spring. 4(4-0)  
P: LBS 164. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 141 or CEM 152 or CEM 182H.  
Chemical principles: structure and bonding, periodic properties. Stoichiometry, states of matter. Solutions, acids and bases, equilibria. Thermodynamics, kinetics.

**165L. Introductory Chemistry Laboratory I**  
Spring. 1 credit.  
P: LBS 165 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 161 or CEM 185H.  
Determination of density and molecular weight. Stoichiometry. Acid-base titration, redox titration. Reaction kinetics, thermochemistry, Beer's law, freezing point depression, and equilibrium constants.

**Descriptions —Lyman Briggs School  
of  
Courses**

**220. Calculus III**

Fall, Spring. 5(5-0)

P: LBS 119. R: Open only to Lyman Briggs School majors. Not open to students with credit in MTH 234 or MTH 235 or MTH 254H or MTH 255H.

Continuation of LBS 119. Three-dimensional vector geometry, differential calculus of functions of two or three variables. Double and triple integrals, line integrals.

**239. Topics in Science and Technology Studies**

Fall, Spring. 4(4-0)

P: LBS 133 or completion of Tier I writing requirement.

R: Open only to Lyman Briggs School majors.

Topics in history, sociology, and philosophy of science and technology. Science policy.

**246. Experimental Projects in Biology**

Spring. 1 to 3 credits. A student may earn a maximum of 5 credits in all enrollments for this course.

P: LBS 145 or BS 111; LBS 133 or another Tier I writing course.

R: Open only to Lyman Briggs School majors.

Experiments, field studies. Selected problems in biology such as cell structure and metabolism, diversity, stability, evolution of natural communities, and reproductive biology.

**266. Introduction to Chemistry and Physics II**

Fall. 3(4-0)

P: LBS 118 or concurrently, LBS 165. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 142 or CEM 151 or CEM 181H.

Spectroscopy and symmetry. Coordination chemistry, solubility and stability constants. Electrochemistry, main group chemistry, atmospheric chemistry, organometallic chemistry. Polymers.

**266L. Introductory Chemistry Laboratory II**

Fall. 1 credit.

P: LBS 165L, LBS 266 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 162.

Synthesis and characterization of chemical systems.

**267. Introduction to Physics and Chemistry II**

Spring. 3(4-0)

P: LBS 118, LBS 164. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 182B or PHY 184 or PHY 184B or PHY 232 or PHY 232B or PHY 294H.

Principles of electromagnetic theory, special relativity, quantum physics, optics, atomic and subatomic physics.

**267L. Introductory Physics Laboratory II**

Spring. 1 credit.

P: LBS 164L; LBS 267 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 192 or PHY 252.

Selected experiments in classical and modern physics.

**290A. Directed Study-Multidisciplinary**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed studies involving at least two Lyman Briggs School curricular areas: biology, chemistry, physics, mathematics, science and technology, computer science.

**290B. Directed Study--Biology**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed studies in biology.

**290C. Directed Study--Chemistry/Physics**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed studies in chemistry and physics.

**290D. Directed Study--Mathematics**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed studies in mathematics.

**290E. Directed Study--Science and Technology Studies**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed study in science and technology studies.

**290F. Directed Study--Computing**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to Lyman Briggs School majors.

Directed studies in computing.

**331. Literature and Science**

Spring. 4(4-0)

P: LBS 133 or another Tier I writing course. R: Not open to freshmen. Open only to Lyman Briggs School majors.

Representations of science and technology in texts drawn from science fiction, Gothic, and utopian literature or mainstream writings.

**332. Technology and Culture**

Fall. 4(4-0) Interdepartmental with American Studies.

R: Open only to juniors and seniors in American Studies and Lyman Briggs School, and to graduate students in American Studies. Completion of Tier I writing requirement.

History of technology with special emphasis on the interaction of technical innovation and other elements of culture.

**333. Topics in History of Science**

Fall, Spring. 4(4-0) A student may earn a maximum of 8 credits in all enrollments for this course.

R: Open only to juniors and seniors in Lyman Briggs School. Completion of Tier I writing requirement.

Various themes or periods in physical/biological science. May emphasize patterns of theory development, changes in explanatory aims and standards or interaction of social and cultural factors with scientific ideas, practices, instrumentation or experimentalism.

**334. Science, Technology and Public Policy**

Spring. 4(4-0)

R: Not open to freshmen. Open only to Lyman Briggs School majors. Completion of Tier I writing requirement.

Science and technology in public policy formation considered from the perspectives of the history, philosophy, and sociology of science and technology.

**335. The Natural Environment: Perceptions and Practices**

Spring. 4(4-0) Interdepartmental with American Studies.

R: Not open to freshmen. Open only to students in American Studies and in Lyman Briggs School. Completion of Tier I writing requirement.

American attitudes toward the natural environment and related public and private institutions.

**347. Advances in Applied Biology**

Fall. 3(2-3)

P: ATL 110 or LBS 133; BS 111 or LBS 145. R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.

Advances in cell and molecular biology and application: plant and animal breeding, environment, and therapeutics.

**355. Philosophy of Technology**

Spring. 4(4-0) Interdepartmental with Philosophy.

R: Not open to freshmen. Open only to students in Lyman Briggs School and the Department of Philosophy. Completion of Tier I writing requirement.

Examination of the desirability of technology, its social forms, and its alternatives. Conventional productivist, ecological progressive, and radical humanist outlooks.

**425. American and European Health Care Since 1800**

Spring. 4(4-0) Interdepartmental with History. Administered by History.

R: Not open to freshmen. Completion of Tier I writing requirement.

Social and cultural transformation in health care delivery since 1800, primarily in North America and western Europe. Therapeutic revolutions. Medical education and professionalization. Social and alternative medicine. Managed care.

**470. Clarion Science Fiction and Fantasy Writers' Workshop**

Summer. 4 credits.

R: Approval of school; application required.

A six week, intensive workshop for science fiction writers early in their careers. Taught by professional writers and directed by MSU faculty. Competitive admission based on review of applicant manuscripts. Enrollment limited to 15-18.

**483. Literature and Medicine**

Spring. 3(3-0) Interdepartmental with English and Psychology. Administered by English.

R: Not open to freshmen and sophomores. Completion of Tier I writing requirement.

Human dimensions of medicine as seen in literature. Health, illness, mortality. Medical dilemmas. Physical and psychological self. Psychological theories used in interpreting literature.

**490A. Advanced Directed Study--Multidisciplinary**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.

Directed advanced studies involving at least two LBS curricular areas: biology, chemistry, physics, mathematics, science and technology studies, computing.

**490B. Advanced Directed Study--Biology**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.

Directed advanced studies in biology.

**490C. Advanced Directed Study--Chemistry or Physics**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.

Directed advanced studies in chemistry or physics.

**490D. Advanced Directed Study--Mathematics**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.  
Directed advanced studies in mathematics.

**490E. Advanced Directed Study--Science and Technology Studies**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.  
Directed advanced studies in Science and Technology Studies.

**492. Senior Seminar**  
Fall, Spring. 4(4-0)  
P: LBS 239 or LBS 331 or LBS 332 or LBS 333 or LBS 334 or LBS 335 or LBS 355 or LBS 490E or HST 425 or ENG 483. R: Open only to juniors or seniors in Lyman Briggs School. Completion of Tier I writing requirement.  
Selected problems in the study of science and technology as human activities, using philosophical, historical, literary, social science or interdisciplinary perspectives or methods. Development and defense of thesis paper.

**493. Field Experience**  
Fall, Spring. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Not open to freshmen and sophomores. Open only to Lyman Briggs School majors.  
Experiential learning related to the public or private practice of science and technology.

## MANAGEMENT

## MGT

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

**302. Management and Organizational Behavior**  
Fall, Spring, Summer. 3(3-0)  
P: EC 201 or EC 251H; ACC 201 or ACC 230 or ACC 251H. R: Open only to juniors and seniors.  
Managerial roles and functions in goal-directed institutions. Organization design, analysis of organizational structure. Leadership, motivation, work attitudes, conflict management, and management of diversity.

**310. Human Resource Management (W)**  
Fall, Spring, Summer. 3(3-0)  
P: MGT 302 or concurrently. R: Open only to juniors and seniors. Completion of Tier I writing requirement.  
Formulation and administration of human resource policies in the business enterprise. Personnel planning, job analysis and evaluation, staffing. Compensation and labor relations. Employee safety. Training, development, and performance appraisal. Issues of diversity and ethics.

**409. Business Policy and Strategic Management**  
Fall, Spring, Summer. 3(3-0)  
P: MGT 302, MGT 303, FI 311, MSC 300. R: Open only to seniors in the College of Business.  
Techniques for building and maintaining consistent and effective policy and strategy. Content cuts across the major functions within a firm. Strategic integration, ethics, and international competition.

**411. Organizational Staffing**  
Fall. 3(3-0)  
P: MGT 310 or concurrently.  
Job and organizational analysis. Personnel planning, recruitment, selection and placement. Employment interviewing and testing. Validation of selection procedures, EEO guidelines, and affirmative action. Diversity and ethics issues.

**412. Compensation and Reward Systems**  
Spring. 3(3-0)  
P: MGT 310 or concurrently. R: Open only to juniors and seniors.  
Designing compensation systems. Job evaluation, internal and external equity. Pay-for-performance plans and financial incentives. Wage and salary surveys. Benefits administration. Diversity and ethical considerations.

**413. Personnel Training and Development**  
Spring. 3(3-0)  
P: MGT 310 or concurrently. R: Open only to juniors and seniors.  
Designing and implementing training and development programs. Career stages and career planning. Needs analysis. Experimental design and program evaluation. Learning theories. Diversity and ethics issues.

**414. Diversity in the Workplace**  
Fall. 3(3-0)  
P: MGT 310 or concurrently. R: Open only to juniors and seniors.  
Problems experienced in work organizations by racial, ethnic, physically handicapped, and other minorities. Awareness training for managers. Ethical issues.

**491. Special Topics in Human Resource Management**  
Spring of even-numbered years. 3(3-0)  
P: MGT 310 or concurrently. R: Open only to juniors and seniors in the College of Business or in programs for which MGT 491 is a catalog-listed requirement.  
Topics of interest to specialists in human resource management, such as advanced organizational behavior, managing labor relations, organizational development, and organizational theory and design.

**498. Field Studies**  
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 seniors.  
Program of observation, study, and work in selected business firms to supplement classroom study. Supervised independent research on special topics in Management.

**806. Management and Organizational Behavior**  
Fall, Spring. 3(3-0)  
R: Open only to graduate students in Business or students in programs for which MGT 806 is a catalog-listed requirement.  
Micro and macro models of organizational behavior applied to the management of organizational processes and design. Motivation, leadership, structural design, and workforce diversity.

**808. Business as an Institution**  
Fall. 1(1-0)  
R: Open only to students in the Advanced Management Program.  
Institutional goals and control of the business enterprise. Positioning of the firm in the marketplace. Ethical foundations of business.

**810. Human Resource Management**  
Fall, Spring. 3(3-0)  
P: MGT 806 or concurrently. R: Open only to graduate students in the College of Business or in programs for which MGT 810 is a catalog-listed requirement.  
Design, administration, and evaluation of the human resource function. Job analysis, planning, staffing, training, performance appraisal, and career development. Labor relations, safety and health programs. International human resource management.

**811. Organizational Staffing**  
Spring. 3(3-0)  
P: MGT 806; MGT 810 or concurrently. R: Open only to graduate students in the College of Business or in programs for which MGT 811 is a catalog-listed requirement.  
Scientific, legal, and administrative issues in the selection, placement and promotion of individuals in organizations. Topics include job analysis, recruitment, testing, interviewing, performance appraisal, and affirmative action.

**813. Human Resource Training and Individual Development**  
Spring. 3(3-0)  
P: MGT 810. R: Open only to graduate students in the College of Business or in programs for which MGT 813 is a catalog-listed requirement.  
Planning, implementing and evaluating training programs. Career stages and career planning. Matching individual and organizational development needs.

**815. Special Topics in Human Resource Management**  
Spring of even-numbered years. 3(3-0)  
P: MGT 806; MGT 810 or concurrently. R: Open only to graduate students in Business.  
Advanced organizational behavior, organizational theory and design, labor relations, and organizational development.

**819. Organization Design and the Management of Change**  
Fall. 2(2-0)  
P: MGT 808. R: Open only to students in the Advanced Management Program.  
Alternative methods of organization. Dividing tasks and coordinating divided parts. Strategies for implementing new organizational forms and for changing strategies in general.

**820. Managing the Internetworked Firm**  
Spring, Summer. 2(2-0)  
R: Open only to MBA students.  
Managing the domestic and international uses of the Internet. History, technology, ownership, and regulation of the Internet. Modes of communication via the Internet. Legal and technical suitability of the Internet. Privacy, security, and access issues.

**822. Management of Compensation**  
Fall. 3(3-0)  
P: MGT 810 or concurrently. R: Open only to graduate students in the College of Business or in programs for which MGT 812 is a catalog-listed requirement.  
Application of compensation principles to organizational objectives. Strategic use of compensation systems for attracting, motivating, and retaining employees. Managerial aspects of paying employees at all organizational levels. Course stresses policy as distinct from statistical and computer applications.

**835. Optimization Models II**  
Spring of even-numbered years. 3(3-0)  
P: MGT 834.  
Advanced optimization techniques. Network and integer programming models and algorithms. Dynamic programming. Analysis of computational complexity. Heuristic procedures.