

**LYMAN BRIGGS  
SCHOOL**

**LBS**

**Lyman Briggs School  
College of Natural Science**

**361. Asian Literature in English or in English Translation**

*Spring. 3(3-0) Interdepartmental with English. Administered by English. P: Completion of Tier I writing requirement. 3 credits of literature.* Literary traditions of a major Asian civilization—Chinese, Indian or Japanese. Historical, cultural, and international contexts of Asian literature.

**380. Methods of Teaching Foreign Languages**

*Spring of odd years. 3(3-0) P: GRM 202 or RUS 202 or CHS 202 or JPN 202 or approval of department. R: Open only to undergraduate students in the East Asian Languages and Cultures or German or Russian major with a teacher certification option or in the German or Japanese or Russian minor.*

Methods of teaching Germanic, Slavic, Asian, and African languages for teacher education candidates. Theories of second language acquisition and practical application of teaching strategies.

**413. Slavic Language I (MTC)**

*Fall. 4(4-1) A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department.*

Development of skills in speaking, reading, listening comprehension, and writing in a Slavic language other than Russian, such as Serbo-Croatian, Polish, Czech, or Ukrainian.  
SA: RUS 413

**414. Slavic Language II (MTC)**

*Spring. 4(4-1) A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department.*

Further development of skills in speaking, reading, listening comprehension, and writing in a Slavic language other than Russian, such as Serbo-Croatian, Polish, Czech, or Ukrainian.  
SA: RUS 414

**474. Aesthetic Theory and Modernism**

*Fall. 4(4-0) Interdepartmental with Philosophy; English; History of Art; Music; and Romance Languages. Administered by Philosophy. R: Not open to freshmen or sophomores.*

Problems, assumptions, and arguments of modern aesthetic theory examined in the context of debates over modernity and modernist artistic practice.

**490. Independent Study**

*Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Approval of department.* Special projects in linguistics and languages arranged by an individual student and a faculty member in areas supplementing regular course offerings.

**821. Proseminar in Comparative Literature**

*Fall. 3(3-0) Interdepartmental with Arts and Letters; English; and Romance Languages. Administered by Arts and Letters. R: Open only to graduate students in the College of Arts and Letters.*

History and practice of comparative literature including foundational concepts and current directions.

**822. Methods of Comparative Literature**

*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. R: Open only to graduate students in the College of Arts and Letters.*

Case studies in international literary tradition, reception, and transmission. Approaches to genre and period. History and aesthetics of reception.

**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. R: Open only to graduate students in the College of Arts and Letters.*

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. R: Open only to graduate students in the 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.

**117. College Algebra and Trigonometry**

*Fall. 3(3-0) P: Designated score on Mathematics placement test. R: Open only to students in Lyman Briggs School. 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 116 or MTH 104) 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 students in Lyman Briggs School. 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 students in Lyman Briggs School. Not open to students with credit in CSE 101 or CSE 131 or CSE 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 students in Lyman Briggs School. Not open to students with credit in CSE 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 students in Lyman Briggs School. Not open to students with credit in CSE 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 students in Lyman Briggs School. Not open to students with credit in AL 192 or AL 192H or ATL 110 or ATL 120 or ATL 125 or ATL 130 or ATL 135, ATL 140 or ATL 145 or ATL 150 or ATL 195H or MC 111 or MC 112 or ATL 115.*

Instruction and practice in expository writing. Paper and report topics drawn from readings in the history, philosophy, and other areas of science and technology.

## Descriptions—Lyman Briggs School of Courses

**144. Biology I: Organismal Biology**  
Fall, Spring. 4(3-3) R: Open only to students in Lyman Briggs School. 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. 5(3-4) P: (LBS 144 or BS 110 or LBS 148H) and (CEM 141 or concurrently or CEM 151 or concurrently or CEM 181H or concurrently or LBS 165 or concurrently) R: Open only to students in Lyman Briggs School. 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 school. 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 concurrently or CEM 151 or concurrently or CEM 181H or concurrently or LBS 165 or concurrently) R: Honors College student or approval of school. Not open to students with credit in BS 111 or LBS 145.

Exploration of 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. Not open to students with credit in BS 110 or LBS 144. C: LBS 148H concurrently.

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. Not open to students with credit in BS 111L or LBS 145. C: LBS 149H concurrently.

Basic techniques of cellular and molecular biology including experimental design and hypothesis formulation. Student-initiated projects to test hypothesis-driven projects 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) or designated score on mathematics placement test. R: Open only to students in Lyman Briggs School. Not open to students with credit in PHY 181B or PHY 183 or PHY 183B or PHY 193H or PHY 231 or PHY 231B.

Basic physics principles, problem solution techniques. Mechanical systems, elementary thermodynamics, vibrations and waves. Atoms and nuclei.

**164L. Introductory Physics Laboratory I**

Fall. 1(0-3) P: (LBS 164 or concurrently) R: Open only to students in Lyman Briggs School. 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 students in Lyman Briggs School. 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(0-3) P: (LBS 165 or concurrently) R: Open only to students in Lyman Briggs School. 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.

**220. Calculus III**

Fall, Spring. 5(5-0) P: (LBS 119 or MTH 133) R: Open only to students in Lyman Briggs School. 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.

**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 and BS 111L) or (LBS 149H and LBS 159H) and completion of Tier I writing requirement. R: Open only to students in Lyman Briggs School.

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 165) and (LBS 118 or MTH 133 or concurrently) R: Open only to students in Lyman Briggs School. 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(0-3) P: (LBS 165L and LBS 266 or concurrently) R: Open only to students in Lyman Briggs School. 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 or MTH 133) and (LBS 164 or concurrently) R: Open only to students in Lyman Briggs School. 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(0-3) P: (LBS 164L and LBS 267 or concurrently) R: Open only to students in Lyman Briggs School. Not open to students with credit in PHY 192 or PHY 252.

Selected experiments in classical and modern physics.

**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 students in Lyman Briggs School.

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 students in Lyman Briggs School.

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 students in Lyman Briggs School.

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 students in Lyman Briggs School.

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 students in Lyman Briggs School.

Directed studies in computing.

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

Fall, Spring. 4(4-0) P: (LBS 133) and completion of Tier I writing requirement. R: Open only to students in Lyman Briggs School majors.

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

SA: LBS 239

**331. Literature and Science**

Spring. 4(4-0) P: Completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors in Lyman Briggs School.

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. P: Completion of Tier I writing requirement. R: Open only to juniors or seniors in the American Studies major in Lyman Briggs School. 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. P: Completion of Tier I writing requirement. R: Open only to juniors or seniors in Lyman Briggs School.

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) P: Completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors in Lyman Briggs School.

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. P: Completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors in the American Studies major or in Lyman Briggs School.

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

**336. Gender, Science, Technology (W)**

Fall. 4(4-0) P: (LBS 133) RB: (LBS 144 and LBS 145)

Topics such as: impacts of gender on the development of sciences and technologies; feminist critiques of science and technology; barriers to women's participation in science and technology; scientific constructions of sex, gender, and sexuality.

**347. Advances in Applied Biology**

Fall. 3(2-3) P: (LBS 145) or (BS 111 or concurrently and BS 111L) or (LBS 149H or concurrently and LBS 159H) and completion of Tier I writing requirement. R: Open only to juniors or seniors in Lyman Briggs School.

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. P: Completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors in Lyman Briggs School or the Department of Philosophy.

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

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; Psychology. Administered by English. P: Completion of Tier I writing requirement. R: Not open to freshmen or sophomores.

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: Open only to juniors or seniors in Lyman Briggs School.

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: Open only to juniors or seniors in Lyman Briggs School.

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: Open only to juniors or seniors in Lyman Briggs School.

Directed advanced studies in chemistry or physics.

**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: Open only to juniors or seniors in Lyman Briggs School.

Directed advanced studies in science and technology studies.

**492. Senior Seminar**

Fall, Spring. 4(4-0) P: (LBS 239 or LBS 330 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) and completion of Tier I writing requirement. R: Open only to juniors or seniors in Lyman Briggs School.

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: Open only to juniors or seniors in Lyman Briggs School.

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) R: Open only to juniors or 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) and completion of Tier I writing requirement. R: Open only to juniors or seniors.

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.