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.

883. 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. Literature 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.

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 140 or MTH 145. 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 123 or MTH 142 or MTH 147.
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)
P: 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.

131. 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 MTH 111 or MTH 112 or MTH 120 or MTH 115 or MTH 122 or MTH 129 or MTH 133 or MTH 135 or MTH 145 or MTH 150 or MTH 161H or MTH 164 or MTH 165H.
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)
P: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.
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 or MTH 141 or CPS 151 or CPS 181H or CPS 188 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.
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.
P: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.
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: CPS 141 or CPS 151 or CPS 181H. R: Honors College student or approval of department.
Not open to students with credit in R: Honors College student or approval of department.
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.
P: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.
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: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.
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. 3(2-1) Interdepartmental with Physics.
P: LBS 164 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 182 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. 3(4-0)
P: LBS 164. R: Open only to Lyman Briggs School majors. Not open to students with credit in R: Honors College student or approval of department.

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 R: Honors College student or approval of department.
Determination of density and molecular weight. Stoichiometry. Acid-base titration, redox titration. Reaction kinetics, thermochromism, Beer's law, freezing point depression, and equilibrium constants.

LYMAN BRIGGS SCHOOL—Descriptions 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 214 or MTH 241 or MTH 254H. Not open to freshmen or seniors.  
   R: Open only to Lyman Briggs School majors. Not open to freshmen or seniors.  
   Maximum of 6 credits in all enrollments for this course.  
   Topics in mathematical analysis and vector calculus, including vector fields, line integrals, and multiple 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.  
   Maximum of 8 credits in all enrollments for this course.  
   General topics in science and technology, including history, sociology, and philosophy of science and technology. Science policy.

246. **Experimental Projects in Biology**  
   Spring. 1 to 3 credits.  
   P: LBS 119 of, or equivalent, or Tier II writing requirement.  
   R: Open only to Lyman Briggs School majors.  
   Maximum of 8 credits in all enrollments for this course.  
   Directed study in biology, with special emphasis on experimental design and data analysis.  
   Topics include cellular and molecular biology, biochemistry, and biophysics.

266. **Introduction to Chemistry and Physics II**  
   Fall. 3(3:0)  
   P: LBS 119, or equivalent, or LBS 165.  
   R: Open only to Lyman Briggs School majors. Not open to students with credit in CSM 132 or CSM 135 or CSM 181H.  
   Maximum of 8 credits in all enrollments for this course.  
   Topics in general chemistry, structure and bonding, and chemical calculations.  
   Directed study in advanced chemistry.

266L. **Introductory Chemistry Laboratory II**  
   Fall. 1 credit.  
   P: LBS 165L, LBS 266, or equivalent, or LBS 165L.  
   R: Open only to Lyman Briggs School majors. Not open to students with credit in CSM 162.  
   Maximum of 8 credits in all enrollments for this course.  
   Laboratory experiments in general chemistry, including qualitative and quantitative analysis.

267. **Introduction to Physics and Chemistry II**  
   Spring. 3(3:0)  
   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 equivalent.  
   Maximum of 8 credits in all enrollments for this course.  
   Topics in quantum mechanics, special relativity, and quantum physics, with emphasis on problem-solving.

276. **Introductory Physics Laboratory II**  
   Spring. 1 credit.  
   P: LBS 164L, LBS 267, or equivalent.  
   R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 182 or PHY 290.  
   Maximum of 8 credits in all enrollments for this course.  
   Laboratory experiments in classical and modern physics, including mechanics, electricity, and magnetism.

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 in at least two Lyman Briggs School curricular areas: biology, chemistry, physics, mathematics, science, technology, and 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.

331. **Literature and Science**  
   Spring. 4(4:0)  
   P: LBS 133 or another Tier I writing course.  
   R: Open only to freshmen. Not open to freshmen.  
   Maximum of 8 credits in all enrollments for this course.  
   Topics in the history and philosophy of science, including scientific methods and the role of science in society.

393. **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 American Studies and Lyman Briggs School, and to graduate students in American Studies.  
   Completion of Tier I writing requirement.  
   Maximum of 8 credits in all enrollments for this course.  
   History of science and technology with special emphasis on the interaction of technical innovation and other elements of culture.

394. **Science, Technology and Public Policy**  
   Spring. 4(4:0)  
   R: Open only to freshmen. Not open to freshmen.  
   Maximum of 8 credits in all enrollments for this course.  
   Topics in the history and philosophy of science, including scientific methods and the role of science in society.

395. **The Natural Environment: Perceptions and Practices**  
   Spring. 4(4:0)  
   Interdepartmental with American Studies.  
   R: Open only to freshmen. Not open to freshmen.  
   Maximum of 8 credits in all enrollments for this course.  
   Topics in the history and philosophy of science, including scientific methods and the role of science in society.

470. **Claron 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.
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 229 or LBS 331 or LBS 332 or LBS 333 or LBS 334 or LBS 335 or LBS 409E or HST 425 or ENG 483. R: Open only to seniors in Lyman Briggs School. Completion of Tier I writing requirement.
Selected problems in the study of science and technology as human activity, using philosophical, historical, scientific, 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

Management—Descriptions of Courses

810. Human Resource Management
Fall, Spring. 3(3-0)
P: MGT 810 or concurrently. R: Open only to graduate students in programs for which MGT 810 is a catalog-listed requirement.

811. Organizational Staffing
Spring. 3(3-0)
P: MGT 806; MGT 810 or concurrently. R: Open only to graduate students 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.

812. 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 812 is a catalog-listed requirement.
Planning, implementing and evaluating training programs. Career stages and career planning. Matching individual and organizational development needs.

813. 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. Cour se stresses policy as distinct from statistical and computer applications.

835. Optimization Models II
Spring of even-numbered years. 3(3-0)
P: MGT 834.