871. Advanced Studies in Sociolinguistics
Spring, 3(0) A student may earn a maximum of 6 credits in all enrollments for this course. R: LING 401.
Linguistic and societal bases for language choice. Topics exemplifying modern sociolinguistics including concerns of power, politeness, gender, quantitative microsociolinguistics, and ethnomethodology. QP: LING 415 QA: LING 815

890. Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department. Special projects, directed reading, and research arranged by an individual student and a faculty member in areas supplementing regular course offerings. QA: LING 880

891. Special Topics
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department. Special topics supplementing regular course offerings proposed by faculty on a group study basis. QA: LING 880

892. Seminar in Linguistics
Spring, 3(0) A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to graduate students in Linguistics. Approval of department. Directed original research on current topic in linguistics. QA: LING 880

898. Master’s Research
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department. Directed research in support of Plan B master’s degree requirements. QA: LIN 899

899. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Approval of department. QA: LIN 899

LYMAN BRIGGS SCHOOL

LINGUISTICS AND LANGUAGES

LL

Department of Linguistics and Germanic, Slavic, Asian and African Languages
College of Arts and Letters

290. 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. QA: LING 880

380. Methods of Teaching Foreign Languages
Fall, Spring, even numbered years 3(0-0) P: GRM 205 or RUS 202 or ChS 200% or JPN 202 or approval of department. Methods of teaching in Slavic, Germanic, Slavic, Asian, and African languages for teacher education candidates. Theories of second language acquisition and practical application of teaching strategies. QP: GRM 203 QA: T 340

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. QA: LING 880

491. Special Topics in Linguistic and Languages
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. Special topics supplementing regular course offerings proposed by faculty on a group study basis. QA: LING 880

117. College Algebra and Trigonometry
Fall, 3(0) R: Open only to Lyman Briggs School majors. Designated score on mathematics placement test. Admission to students with credit in MTH 120 or MTH 110 or MTH 116 or MTH 120. Rational and real numbers. Functions and inverses. Equations, simultaneous equations. Inequalities. Graphing. Trigonometry. QA: LING 111, MTH 111, MTH 108, MTH 109

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 Lyman Briggs School majors. Not open to students with credit in MTH 120 or MTH 124 or MTH 125 or MTH 126. Limits, continuity, differentiation, integration, and elementary applications. QP: LBS 111, MTH 108, MTH 111 QA: LBS 112, MTH 112, LBS 113, LBS 119

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 133H or MTH 235. Continuation of LBS 118. Further applications of one variable calculus. Infinite series. Ordinary differential equations. QP: LBS 113, MTH 113 QA: LBS 113, MTH 113, LBS 217, MTH 215

125. Introduction to C Language with Applications
Spring, 3(0) P: LBS 118. R: Open only to Lyman Briggs School majors. Not open to students with credit in CPS 130 or CPS 131 or CPS 230. Computer programming using the C language and the UNIX operating system. Emphasis on scientific and mathematical applications. QP: MTH 112 or LBS 112

136. 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 100. Selecting, installing and using personal computer software and hardware. Computer networks.

137. 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.

138. 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, MC 112, ATL 110, ATL 125, ATL 140, ATL 145, ATL 150, ATL 152. R: Approval of department. Instruction and practice in expository writing. Paper and report topics drawn from readings in the history, philosophy, and other areas of science and technology. QP: LBS 131, LBS 232

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 MTH 110. Modern biology at the organismal level of integration. Principles of genetics, evolution, ecology, and organismal diversity as interactive disciplines. QP: LBS 140, BS 212

145. Biology II: Cellular and Molecular Biology
Fall, Spring. 4(3-3) P: LBS 142; CEM 115 or CEM 121 or CEM 155H or LBS 165 concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in MTH 110. Modern biology at the cellular level of integration. Principles of cell structure and function are used to explain processes of bioenergetics, protein synthesis, and others.

QP: LBS 140 QA: LBS 141, LBS 242, BS 210, BS 211

164. Introduction to Physics and Chemistry I
Fall, 3(3-0) P: LBS 164 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHYS 131 or PHYS 132. Physics principles, problem solution techniques. QP: LBS 109, MTH 111, LBS 111 QA: LBS 162, LBS 261, PHYS 203, PHYS 298

164L. Introductory Physics Laboratory I
Fall. 1(0-3) P: LBS 164 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHYS 192 or PHYS 291. Techniques and instruments in the physics laboratory. Selected experiments in classical and modern physics. QP: LBS 162L, LBS 261L, PHYS 257, PHYS 259, PHYS 297, PHYS 299

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. Advanced physics with credit in PHYS 131 or PHYS 192. Determination of density and molecular weight. States of matter. Solutions, acids and bases, equilibria. Thermodynamics, kinetics. QP: LBS 191, LBS 163, CEM 141, CEM 151, CEM 152

165L. Introductory Chemistry Laboratory I
Spring. 1(0-3) P: LBS 165 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 141 or CEM 152. Determination of density and molecular weight. Stoichiometry, states of matter. Solutions, acids and bases, equilibria. Thermodynamics, kinetics. QP: LBS 161L, LBS 163L, CEM 161

220. Calculus III
Fall, Spring, 5(5-0) P: LBS 127. R: Open only to Lyman Briggs School majors. Not open to students with credit in MTH 234 or MTH 235 or MTH 254 or MTH 255H. Determination of density and molecular weight. Stoichiometry, unit conversion, reaction rates, reaction kinetics. Thermodynamics, Beer’s law, Beer’s law, Beer’s law. QP: LBS 121, LBS 121QA: LBS 216, LBS 217, MTH 214, MTH 215

A-100
290. **Topics in Science and Technology Studies**
Fall, Spring. (4-0)
P: LBS 183 or another Tier I writing course. R: Open only to Lyman Briggs School majors.
Topics in history, sociology, and philosophy of science and technology. Science policy.
QP: LBS 131

246. **Experimental Projects in Biology**
Spring. 1 to 3 credits. A student may earn a maximum of 8 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 reproduction.
QP: LBS 140, LBS 141 QA: LBS 142

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 141 or CEM 151 or CEM 151H.
Introduction to chemistry, synthesis and characterization of chemical systems.
QP: LBS 161, CEM 141, CEM 153 QA: LBS 262, CEM 153

286L. **Introductory Chemistry Laboratory II**
Fall. 1(0-0)
P: LBS 156L, LBS 266 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in CEM 162.
Laboratory work in inorganic and organic chemistry.
QP: LBS 163, LBS 163L QA: LBS 262L, CEM 162, CEM 163

287. **Introduction to Physics and Chemistry II**
Spring. 3(0-0)
P: LBS 115, LBS 164. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 162 or PHY 184 or PHY 233 or PHY 259 or PHY 294H.
Principles of electromagnetic theory, special relativity, quantum physics, optics, atomic and subatomic physics.
QP: LBS 261, PHY 237, PHY 237B, PHY 281 QA: LBS 263, PHY 236, PHY 236B, PHY 239, PHY 239B, PHY 283

267L. **Introductory Physics Laboratory II**
Spring. 1(0-0)
P: LBS 164L, LBS 267 or concurrently. R: Open only to Lyman Briggs School majors. Not open to students with credit in PHY 192 and 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.
QA: LBS 290A

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.
QA: LBS 290B

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.
QA: LBS 290F

322. **Technology and Culture**
Fall. (4-0) Interdepartmental with American Studies.
P: LBS 183. R: Not open to freshmen and sophomores. History of technology with special emphasis on the interaction of technical innovation and other elements of culture.
QP: LBS 223 QA: LBS 376, LBS 378

333. **Topics in History of Science**
Fall, Spring. (4-0) A student may earn a maximum of 8 credits in all enrollments for this course.
P: LBS 133 or another Tier I writing course. R: Open only to Lyman Briggs School majors. Fall, Spring.
Science and technology in public policy formation occurred from the perspectives of the history, philosophy, and sociology of science and technology.
QP: LBS 232

334. **Science, Technology and Public Policy**
Spring. (4-0)
P: LBS 133. R: Not open to freshmen. Open only to Lyman Briggs School majors.
Science and technology in public policy formation occurred from the perspectives of the history, philosophy, and sociology of science and technology.
QP: LBS 232

335. **The Natural Environment: Perceptions and Practices**
Spring. (4-0) Interdepartmental with American Studies.
P: LBS 133 or another Tier I writing course. R: Not open to freshmen. Open only to Lyman Briggs School majors. Directed advanced studies involving at least two LBS curricular areas: biology, chemistry, physics, mathematics, science and technology, computer science.
QP: LBS 131 QA: LBS 577

347. **Advances in Applied Biology**
Fall. (3-2-3)
P: AT/L 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.
QP: LBS 242, BS 210, BS 211, BS 212

355. **Philosophy of Technology**
Spring. (4-0) Interdepartmental with Philosophy.
P: LBS 133 or another Tier I writing course. R: Not open to freshmen. Examination of the desirability of technology, its social forms, and its alternatives. Conventional productivity, ecological progressive, and radical humanist outlooks.
QP: LBS 232 QA: LBS 361

470. **Clarron 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 applicants' manuscripts. Enrollment limited to 15-16.
QA: LBS 470

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.
QA: LBS 490A

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.
QA: LBS 490B

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.
QA: LBS 490C

490D. **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, computer science.
QA: LBS 490D

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.
QA: LBS 490E

492. **Senior Seminar**
Fall, Spring. (4-0)
P: LBS 239 or LBS 332 or LBS 335 or LBS 334 or LBS 335 or LBS 335 or LBS 499E. R: Open only to juniors and 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.
QA: LBS 491, LBS 492

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 to freshmen. Directed study related to the public or private practice of science and technology.
QA: LBS 493