<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>144</td>
<td>Biology I: Organismal Biology</td>
<td>Fall, Spring, 4(3-3) R: Open to students in the Lyman Briggs College. SA: LBS 144 Not open to students with credit in BS 162 or BS 172 or BS 182H or BS 192H. Modern biology at the organismal level of integration. Principles of genetics, evolution, ecology, and organismal diversity as interactive units.</td>
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<tr>
<td>155</td>
<td>Introduction to Quantitative Science and Research</td>
<td>Fall, Spring, 3(2-3) P: (MTH 1825 or concurrently) or (MTH 103 or concurrently) R: Open to freshmen in the Lyman Briggs College. Exploration of fundamental chemistry, biology, physics, mathematics and statistics. Quantitative analysis and research.</td>
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<tr>
<td>171</td>
<td>Principles of Chemistry I</td>
<td>Fall, Spring, 4(4-0) P: MTH 114 or MTH 116 or concurrently or MTH 132 or concurrently or MTH 133 or concurrently or MTH 152H or concurrently or (LB 117 or concurrently) or (LB 118 or concurrently) or (LB 119 or concurrently) or (LB 171 or concurrently) R: Open to students in the Lyman Briggs College. Continuation of LB 118. Integration techniques, elementary differential equations, parametric curves, polar coordinates, sequences and series, vectors, and vector operations.</td>
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<tr>
<td>172</td>
<td>Principles of Chemistry II</td>
<td>Spring, 3(4-0) P: LB 171 or CEM 141 or concurrently or CEM 151 or concurrently or CEM 181H or concurrently R: Open to students in the Lyman Briggs College. Introduction to history, philosophy, and sociology of science, technology, the environment, and medicine. Introduction and practice in formal writing.</td>
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<tr>
<td>172L</td>
<td>Principles of Chemistry II - Reactivity Laboratory</td>
<td>Spring, 3(0-3) P: (LB 171 or CEM 141 or concurrently or CEM 151 or concurrently or CEM 181H or concurrently R: Open to students in the Lyman Briggs College. Introduction to history, philosophy, and sociology of science, technology, the environment, and medicine. Introduction and practice in formal writing.</td>
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<tr>
<td>181</td>
<td>Introduction to Science, Technology, the</td>
<td>Fall, 3(3-0) Interdepartmental with Fisheries and Wildlife and James Madison College. Administered by Fisheries and Wildlife. Relation of science and technology to ethics and public policy. Modern biology, mainly at the cellular level of integration. Principles of cell structure and function used to explain processes of bioenergetics, protein synthesis, and development.</td>
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<tr>
<td>182H</td>
<td>Honors Organismal and Population Biology</td>
<td>Fall, 3(3-0) Interdepartmental with Biological Science and Integrative Biology and Plant Biology. Administered by Biological Science. SA: BS 159H Not open to students with credit in LB 145. Physicochemical and molecular organization of cells as the unifying framework for genetics, evolution, and the social relevance of biology.</td>
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<tr>
<td>191H</td>
<td>Honors Cell and Molecular Biology Laboratory</td>
<td>Spring, 2(1-3) Interdepartmental with Biochemistry and Molecular Biology and Biological Science. Administered by Biological Science. P: BS 181H or concurrently SA: BS 159H Not open to students with credit in LB 145. Basic techniques of cellular and molecular biology including experimental design and hypothesis formulation; biochemistry, molecular biology and genetics.</td>
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<tr>
<td>192H</td>
<td>Honors Organismal and Population Biology</td>
<td>Fall, 2(1-3) Interdepartmental with Biological Science and Integrative Biology and Plant Biology. Administered by Biological Science. P: BS 182H or concurrently SA: BS 156H, BS 110 Not open to students with credit in LB 144. Nature and process of organismal biology, including experimental design and statistical methods, hypothesis testing, genetics, ecology, and evolution.</td>
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<tr>
<td>220</td>
<td>Calculus III</td>
<td>Fall, Spring, 4(4-0) P: LB 119 or MTH 133 or concurrently or MTH 153H or concurrently R: Open to students in the Lyman Briggs College. Continuation of LB 119. Differential calculus of functions of two or three variables. Double and triple integrals. Line and surface integrals.</td>
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</tbody>
</table>
Directed study in mathematics.

Directed studies in chemistry and physics.

Directed studies in biology.

Directed studies in computing.

Directed study in history, philosophy, and sociology of science.

Directed study--History, Philosophy, and Sociology of Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open to students in the Lyman Briggs College. SA: LBS 290E
Directed study in history, philosophy, and sociology of science.

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 to students in the Lyman Briggs College. SA: LBS 290F
Directed studies in computing.

Directed study of the history, politics, theories, science, cultures, and communities of lesbian, gay, transgender, queer, and intersex people including a global perspective.

Directed study of the relationship between science and society, public engagement with science and technology, public expressions of scientific knowledge, and science in culture. Emphasis on scholarship in the arts and humanities.

Directed study of the relationship between science and society, public engagement with science and technology, public expressions of scientific knowledge, and science in culture. Emphasis on scholarship in the arts and humanities.

Directed study of the relationship between science and society, public engagement with science and technology, public expressions of scientific knowledge, and science in culture. Emphasis on scholarship in the arts and humanities.

Directed study of technology and innovation in relation to science and/or medicine. Emphasis on scholarship and methodologies from the social sciences.

Directed study of technology and innovation in relation to science and/or medicine. Emphasis on scholarship and methodologies from the social sciences.

Directed study of science, sex, gender, and sexuality in relation to science and/or medicine. Emphasis on scholarship and methodologies from the arts and humanities.

Directed study of science, sex, gender, and sexuality in relation to science and/or medicine. Emphasis on scholarship and methodologies from the arts and humanities.

Directed study of science, sex, gender, and sexuality in relation to science and/or medicine. Emphasis on scholarship and methodologies from the arts and humanities.

Directed study of how and why humans have transformed their environments, as well as changes in people’s attitudes about nature and wilderness over time. Emphasis on scholarship and methodologies from the arts and humanities.
325B Science and the Environment - Social Sciences (W)
On Demand. 4(4-0) P: Completion of Tier I Writing Requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Minor. Interdisciplinary study of the interrelationship between human systems and natural systems, including human drivers of environmental impact and solutions to environmental problems. Emphasis on scholarship and methodologies from the social sciences.

326A Medicine and Health - Arts and Humanities (W)
On Demand. 4(4-0) P: Completion of Tier I Writing Requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Minor. Interdisciplinary study of health and medicine. Emphasis on scholarship and methodologies from the arts and humanities.

326B Medicine and Health - Social Sciences (W)
On Demand. 4(4-0) P: Completion of Tier I Writing Requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Minor. Interdisciplinary study of health and medicine. Emphasis on scholarship and methodologies from the social sciences.

327A Scientific Practice - Arts and Humanities (W)
On Demand. 4(4-0) P: Completion of Tier I Writing Requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Minor. Motivations and methodologies of the scientific endeavor, as well as the institutions that support it. Historical perspectives on the development of scientific practice, ethical implications of scientific work, and the impact of cultural practices, norms, and identities on scientific innovation. Emphasis on scholarship and methodologies from the arts and humanities.

327B Scientific Practice - Social Sciences (W)
On Demand. 4(4-0) P: Completion of Tier I Writing Requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Minor. Explores the motivations and methodologies of scientific endeavors and the relationships between science and other major human institutions such as religion, politics, government, and the economy. Emphasis on scholarship and methodologies from the social sciences.

330 Topics in History, Philosophy, and Sociology of Science (W)
Fall, Spring, Summer of odd years. 4(4-0) P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 330 Topics in history, philosophy, and sociology of science, technology, the environment, and medicine.

331 Literature and Science (W)
Fall, Spring. 4(4-0) P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College. SA: LBS 331 Representations of science, technology, the environment, and medicine in texts drawn from science fiction, Gothic, and utopian literature, or mainstream writings.

332 Technology and Culture (W)
Fall, Spring. 4(4-0) Interdepartmental with American Studies. Administered by Lyman Briggs. P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the American Studies Major or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 332 History of technology with special emphasis on the interaction of technical innovation and other elements of culture.

333 Topics in History of Science (W)
Fall, Spring. 4(4-0) P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 333 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 (W)
Fall of odd years. Spring. 4(4-0) P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 334 Formation, implementation, and evaluation of public policy related to science, technology, the environment, and medicine.

335 The Natural Environment: Perceptions and Practices (W)
Fall of even years, Spring. 4(4-0) Interdepartmental with American Studies. Administered by Lyman Briggs. P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the American Studies Major or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 335 American attitudes toward the natural environment and related public and private institutions.

336 Gender, Sexuality, Science, Technology (W)
Spring. 4(4-0) P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 336 Significance of gender in relation to science, technology, the environment, and medicine.

348 Research Experiences in Biology
Fall, Spring. 3(1-4) A student may earn a maximum of 6 credits in all enrollments for this course. P: (LB 144 and LB 145) or (BS 161 and BS 162 and BS 171 and BS 172) or (BS 181H and BS 182H and BS 191H and BS 192H) and (LB 119 or STT 231) and completion of Tier I writing requirement R: Open to undergraduate students in the Lyman Briggs College. Laboratory, data science, or field research in basic or applied molecular, cellular, or organismal biology. Field trips required.

355 Philosophy of Technology (W)
Spring. 4(4-0) Interdepartmental with Philosophy. Administered by Lyman Briggs. P: (LB 133) or completion of Tier I writing requirement RB: PHL 200 R: Open to students in the Department of Philosophy or in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 355 Examination of the desirability of technology, its social forms, and its alternatives. Conventional produc- tivist, ecological progressive, and radical humanist outlooks.

368 Science, Technology, and Society
Fall, Spring. 4(4-0) Interdepartmental with Sociology. Administered by Sociology. RB: (LB 133) or some familiarity with basic concepts and methods in sociology. R: Not open to freshmen or sophomores. Role of science and technology in social change. Values and ethics in contemporary perspectives, controversies, and cases. Science and technology as forms of knowledge.

425 American and European Health Care since 1800
Fall, 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.

440 Bioethics Capstone

459 Science, Technology, Environment and Public Policy Capstone
Fall, Spring. 3(3-0) Interdepartmental with James Madison College. Administered by James Madison College. P: (FW 181 or approval of college) and completion of Tier I writing requirement. Selected topics in science, technology, environment and public policy (STEPPS). Analysis of key issues and problems. Case studies.

LB—Lyman Briggs
LB—Lyman Briggs

473A Literature and Medicine
Spring. 3(3-0) Interdepartmental with English. Administered by English. P: Completion of Tier I Writing Requirement R: Not open to freshmen or sophomores. SA: ENG 483

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 to students in the Lyman Briggs College. SA: LBS 490A
Directed advanced studies involving at least two Lyman Briggs College curricular areas: biology, chemistry, physics, mathematics, history, philosophy, sociology of science, and 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 to students in the Lyman Briggs College. SA: LBS 490B
Directed advanced studies in biology.

490E Advanced Directed Study—History, Philosophy, Sociology of Science (W)
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: (LB 133) or completion of Tier I writing requirement R: Open to students in the Lyman Briggs College or in the Science, Technology, Environment and Public Policy Specialization. SA: LBS 490E
Directed advanced studies in history, philosophy, sociology of science, technology, the environment, or medicine.

492 Senior Seminar (W)
Fall, Spring, Summer. 4(4-0) P: ((LB 321A or concurrently) or (LB 321B or concurrently) or (LB 322A or concurrently) or (LB 322B or concurrently) or (LB 323A or concurrently) or (LB 323B or concurrently) or (LB 324A or concurrently) or (LB 324B or concurrently) or (LB 325A or concurrently) or (LB 325B or concurrently) or (LB 326A or concurrently) or (LB 326B or concurrently) or (LB 327A or concurrently) or (LB 327B or concurrently)) R: Open to juniors or seniors in the Lyman Briggs College. SA: LBS 492
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 or project.

493 Field Experience
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Open to students in the Lyman Briggs College. SA: LBS 493
Experiential learning related to the public or private practice of science and technology.

494 Undergraduate Research
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 college; application required. SA: LBS 494
Faculty-guided undergraduate research.