961. Analytical Studies
Winter. 3(3-0) Approval of department.
Analysis of melody, harmony, rhythm, color, texture, counterpoint, and form in music from the late seventeenth to the early eighteenth century.

962. Analytical Studies
Spring. 3(3-0) Approval of department.
Analysis of melody, harmony, rhythm, color, texture, counterpoint, and form in music of the eighteenth century.

963. Schenker Analysis
Fall. 2(2-0) Approval of department.
Analytical techniques and concepts of Heinrich Schenker. Examination of his sketches and writings, reading about him, and analysis of music using his techniques.

964. Set-Theory Analysis of Atonal Music
Spring. 2(2-0) Approval of department.
Set-Theory principles and their application to the analysis of atonal music.

970. Contrapuntal Techniques
Fall of odd-numbered years, Summer. 3(3-0) MUS 482 or approval of department.
Advanced contrapuntal practice from the sixteenth to the present.

971. Contrapuntal Techniques
Winter and Summer. 3(3-0) MUS 970.
Continuation of MUS 970.

972. Contrapuntal Techniques
Spring of even-numbered years, Summer. 3(3-0) MUS 971.
Continuation of MUS 971.

999. Doctoral Dissertation Research
Fall, Winter, Spring. Summer. Variable credit. Approval of department.

College of Natural Science University College

Students who have not taken any of the required natural science courses, may take any three courses from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>N S 115</td>
<td>Analytical Studies</td>
<td>3</td>
</tr>
<tr>
<td>N S 122</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 123</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 135</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
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<tr>
<td>N S 142</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 152</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
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<tr>
<td>N S 162</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
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<tr>
<td>N S 171H</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
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<tr>
<td>N S 172H</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 173H</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
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</tbody>
</table>

OR

If you are enrolled in ATL 101, you may take N S 181, 182, 183.

For students who have already taken one or two natural science courses, the following table may be used:

<table>
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<tr>
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<th>Credits</th>
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<tbody>
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<tr>
<td>N S 122</td>
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<tr>
<td>N S 135</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 142</td>
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<td>3</td>
</tr>
<tr>
<td>N S 152</td>
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<td>3</td>
</tr>
<tr>
<td>N S 162</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
<tr>
<td>N S 171H</td>
<td>Advanced Research Techniques in Music</td>
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</tr>
<tr>
<td>N S 173H</td>
<td>Advanced Research Techniques in Music</td>
<td>3</td>
</tr>
</tbody>
</table>

115. The Nature and Continuity of Life (N)
Fall, Winter, Spring, Summer. 4(3-2)
A—The development and testing of scientific concepts as examples of man's attempt to understand the world in which he lives. Selected topics from the life sciences illustrate the nature of scientific investigation.
B—Theories of the origin, development and structure of life and the universe of which it is a part. Examination of contemporary problems associated with defining life and death.
C—Consideration of social and ethical issues relating to our increasing control of reproduction and heredity. Reproduction and heredity from the viewpoint of molecular, cellular, and organismic perspectives, including human structure and function.
D—The nature of living things, contrasting various scientific and non-scientific views. The implications of the modern scientific understanding of life for our beliefs and values.

122. Biocultural Evolution of Man (N)
Fall. 4(3-2)
Man's current understanding of himself and his behavior as products of biological and cultural evolution. Implications for man's future.

125. Time and Change in Nature (N)
Fall, Winter, Spring. 4(3-2)
A—Man's attempts to explain the present in terms of past events are explored through selected topics from the life sciences and earth sciences. Stress the role of controversy in science and the nature of scientific evidence.
B—Heredity, evolution and diversity of life are examined from the viewpoint of the biological and cultural development of the human species. Evolutionary relationships between humans and their environment.
C—The origin and evolution of earth and living things are studied as vital and related problems. Emphasis on problem-solving in science and impact of evolutionary concepts on human societies.

127. The Biocultural Evolution of Health
Fall, Winter, Spring. 4(3-2)
Man's health examined from evolutionary and ecological viewpoints. Emphasis on the impact of increasingly man-made environments on the health of Western man.

129. The Biotechnology of Health
Winter, Spring. 4(4-0)
Survey of the biotechnology currently and potentially available to manage health problems. Social issues associated with this biotechnology.
135. Changing Concepts of the Universe (N)
Fall, Winter, Spring. 4(3-2)
A-The origin and development of scientific explanations of the physical world. The origins of modern science and scientific revolutions.
B-The role of science in the development of western man's ideas about reality. The origin and development of mechanistic concepts of the physical world and their part in intellectual dialogue.
C-Growth of theories of celestial motion and of matter. Their interdisciplinary impact. Impact of scientific knowledge on society. The contribution of science to clarification and solution of social problems.
D-Man's attempts to understand the universe and his place within it. The interaction between scientific concepts and the beliefs and values of the culture in which they are proposed.

142. Life, Its Environment (N)
(118) Fall, Winter, Spring. 4(3-2)
Natural ecological systems and the impact of human biological and cultural development on them. Examination of specific ecological problems and the role of science in seeking solutions.

142A. Life, Its Environment
Summer. 4(3-2) Approval of instructor. May not receive credit in both N S 142 and N S 142A.
Academic goals and objectives are parallel to those for Natural Science 142; however, examination of geological and ecological features will be done through direct experience in wilderness areas off campus. Offered only in off campus wilderness setting. Approved through Spring term 1980.

152. Science and Culture in the 20th Century (N)
(193E) Fall, Winter, Spring. 4(3-2)
Controversies concerning interpretation of modern scientific concepts such as evolution, uncertainty and relativity are discussed in terms of developing a personal philosophy.

162. Race, The Evolution of an Idea (N)
Fall, Winter, Spring. 4(3-2)
Human races and mankind evolving. The biological concept of race based on the theories of the gene, evolution, and natural selection.

171H. Man's Nature (N)
(192H) Fall. 4(3-2)
Various issues confronting modern man in his attempt to understand his biological self. Emphasis on the role that science can play in helping to resolve these issues.

172H. Man's Place in Nature (N)
(193H) Winter. 4(3-2)
Various issues confronting modern man in his attempt to understand his place in and relation to the environment. Emphasis on the role of science in helping to resolve these issues.

173H. Science-Technology and Human Values (N)
Spring. 4(3-2)
The nature and significance of science and technology in Western culture, with emphasis on their relationship to other creative activities, particularly those within the arts.

1814. Natural Science (N)
Fall. 4(3-2) Not open to students with credit in NS 115. Enrollment in ATL 101 or approval of department.
Scientific methods emphasizing development and modification of explanation systems. The nature of cells and sexual reproduction as background for Mendelian gene theory and its modern modifications. Social implications are emphasized.

1824. Natural Science (N)
Winter. 4(3-2) Not open to students with credit in NS 152. NS 181 or approval of department.
Scientific methods with emphasis on evolutionary ideas regarding origin of earth features as related to modern problems. Human origins and development are considered, with a number of modern problems.

1834. Natural Science (N)
Spring. 4(3-2) Not open to students with credit in NS 135. NS 182 or approval of department.
Nature of science as exemplified by ideas from physical science. The Copernican Revolution is used as an example of the science-society interaction. Modern concepts of cosmology are also introduced.

200. Technology, Society and Public Policy
Winter. 3(3-0) Twelve credits from Natural science or engineering. Interdepartmental with and administered by Engineering.
Description and analysis of certain current technologies and their consequences; exploration of avenues for assessing such consequences as an aid to formulation of public policy.

300. Supervised Individual Study
Fall, Winter, Spring. Summer. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Selected students requesting individual study of interdisciplinary problems will enroll in supervision of University College professors. Variable elective credit will be determined when the student secures instructor, adviser, and department approval.

310. Science and Pseudoscience
Spring. 3(3-0) Juniors
Techniques of reasoned, critical analysis applied to science-related ideas such as astrology, gods from outer space, and the secret life of plants. Specific topics selected from recent writings.

325. Biological and Social Aspects of Human Reproduction
Fall, Winter, Spring. 4(4-0) Juniors or approval of department.
Anatomy and physiology of human reproduction will be integrated with consideration of such current social concerns as contraception, abortion, venereal disease and drugs.

335. Science, Health and the Consumer
Spring. 4(4-0) Juniors or approval of department.
Scientific basis for decisions affecting individual and public health. Emphasis is on learning to use scientific principles to make rational judgments in those areas.

380. Issues in Science and Religion
Winter. 4(4-0) Juniors or approval of department. Interdepartmental with the Department of Religious Studies and Justin Morrill College. Administered by the Department of Religious Studies.
History of relationships between science and religion. Methods of science and religion. Attempts at resolution of conflicts and formation of new syntheses.

401. Technology Assessment
Spring. 3(3-0) Senior, or approval of department. Interdepartmental with and administered by the Department of Engineering.

NATURAL SCIENCE (COLLEGE OF)

390H. The Human Organism
Winter. 3(3-0) Juniors, approval of the Honors College.
The importance of new discoveries in biology for our understanding of the human organism with emphasis on the fields of genetics, molecular biology, behavior, developmental biology, physiology and ecology.

391H. Man's Universe
Fall. 3(3-0) Juniors, approval of the Honors College.
A creative review by senior faculty from astronomy, biochemistry, biophysics, geology, physics, and philosophy of the impact of recent space probes in developing modern concepts of the universe, the origin of the earth and life upon it.

392H. The Uniqueness of Man
Spring. 3(3-0) Approval of the Honors College, or course coordinator.
Physiological processes; behavioral mechanisms; genetic information; life support systems; physical disorders and adjustment to hostile environments.

400. Nature and Uses of Electron Microscopes
Fall. 3(3-1) MTH 111, Juniors, 1 year college physics.
Principles of electron optics including history, construction, and design of electron optical equipment. Lectures and demonstrations will be given on use of various types of electron microscopy in representative biological and physical sciences.

410. Environmental Toxicology
Winter. 4(4-0) B S 212, BCH 401. Interdepartmental with Agriculture and Natural Resources.
Effects and effects of toxic chemicals in soil, plants, wildlife, and aquatic systems. Interactions between chemicals and the environment which influence their fate and ecological importance.