450. Natural Resource Administration
Fall, Spring. 4(4-0) Interdepartmental with Fisheries and Wildlife, Forestry, Park and Recreation Resources and Resource Development Departments. Administered by the Forestry Department.

471. Environmental Topics in Nonmetropolitan Regions
Fall. 4(4-0) Nomination of students by own department and approval by participating faculty. Interdepartmental with the College of Natural Science and Agriculture.
Environmental topics in nonmetropolitan regions including issues on production agriculture, service industries, nonagricultural uses, rural urban balance, discussion topics and case studies.

475. International Studies in Agriculture and Natural Resources
Summer. 3 to 9 credits. Approval of the college. Interdepartmental with and administered by Forestry Department.
Study-travel experience emphasizing contemporary problems affecting agriculture in the world, national, and local communities. Field trips, case studies, interviews with leading experts, government officials, community leaders. Supervised individual study.

491. Natural Resources and Modern Society
Spring, Summer. 3(3-0) Juniors. Interdepartmental with the Forestry and the Resource Development Departments and administered by Forestry Department.
A survey of the social and economic significance of natural resources in modern industrial and urban society. Current problems of natural resource management and use are examined in terms of the society in which they exist.

111. The Nature of Science I
(192A.) Fall, Winter, Spring. Summer. 4(2-3)
The development and validation 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 process of scientific investigation.

112. The Nature of Science II
(193A.) Fall, Winter, Spring, Summer. 4(2-3) 111 preferred; or 131, 137, 141, 151, 171H, 181, or 322.
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.

113. The Nature of Science III
(191A.) Fall, Winter, Spring, Summer. 4(2-3) 112 preferred; or 122, 132, 142, 152, 162, 172H, or 192.
The origin and development of scientific explanations of the physical world. The origins of modern science and scientific revolutions.

120. Science, Beliefs and Values I
(191B.) Fall, Winter, Spring, Summer. 4(2-3)
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.

121. Science, Beliefs and Values II
(192B.) Fall, Winter, Spring, Summer. 4(2-3) 120 preferred; or 140, 150, 160, or 321.
The nature of living things, contrasting various scientific and non-scientific views. The implications of the modern scientists' understanding of life for our beliefs and values.

122. Science, Beliefs and Values III
(193B.) Fall, Winter, Spring, Summer. 4(2-3) 121 preferred; or 111, 131, 141, 151, 171H, 181, or 321.
Man's current understanding of himself and his beliefs as products of biological and cultural evolution. Implications for man's future.

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

131. Science, Man and Society I
(192C.) Fall, Winter, Spring, Summer. 4(2-3)
The role science plays in our lives is explored through consideration of aspects of reproduction and heredity. Emphasis on the origin of scientific explanations and their significance to the individual.

132. Science, Man and Society II
(193C.) Fall, Winter, Spring, Summer. 4(2-3) 131 preferred; or 111, 121, 141, 151, 171H, 181, or 322.
The origin and evolution of earth and man are examined in terms of human biological and cultural development. Emphasis on the success and failures of scientific ideas in offering a unified picture of reality.

133. Science, Man and Society III
(191C.) Fall, Winter, Spring, Summer. 4(2-3)
The nature of science, its power, its limitations and the interaction of science and culture. The idea of motion and/or matter from early concepts to relativity.

140. Life, Its Origin
(116., 119D.) Fall, Winter, Spring. 4(2-0)
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.

141. Life, Its Continuity
(117., 120D.) Fall, Winter, Spring. 4(2-3)
Origins of evolutionary concepts from Mendel to modern times. Genetic theory—its application to man.

150. The Dynamics of Scientific Ideas I
(191D.) Fall, Winter, Spring, Summer. 4(2-3)
The role of science in the development of modern man's ideas about reality. The origin and development of mechanistic concepts of the physical world and their part in intellectual dialogue.

151. The Dynamics of Scientific Ideas II
(192E.) Fall, Winter, Spring. 4(2-3) 150 preferred; or 120, 140, 160, or 321.
The influence of scientific ideas about the living world on the western intellectual tradition. Emphasis on the successes and failures of scientific ideas in offering a unified picture of reality.

152. The Dynamics of Scientific Ideas III
(193E.) Fall, Winter, Spring. 4(2-3) 151 preferred; or 111, 121, 141, 171H, 181, or 322.
Controversies concerning interpretation of modern scientific concepts such as evolution, uncertainty and relativity are discussed in terms of developing a personal philosophy.

160. Evolution of Scientific Ideas I
(191E.) Fall, Winter, Spring, Summer. 4(2-3)
The nature of science, its power, its limitations and the interaction of science and culture. The idea of motion and/or matter from early concepts to relativity.

161. Evolution of Scientific Ideas II
Fall, Winter, Spring, Summer. 4(3-2)
The nature of science, its power, its limitations and the interaction of science and culture. The evolution of the germ concept from Mendel to modern times. Genetic theory—its application to man.

162. Evolution of Scientific Ideas III
(193F., 134.) Fall, Winter, Spring. 4(2-3) Any group, one course.
The nature of science, its power, its limitations and the interaction of science and culture. Human races and mankind evolving. The biological concepts of life based on the theories of the gene, evolution, and natural selection.
171H. Honors Natural Science  
(192H.) Fall. 4(2-3)  
Exploration of various topics of interest and value to students eligible for Honors, especially the nature and significance of science in western culture and its interrelationship with other creative activities.

172H. Honors Natural Science  
(193H.) Winter. 4(2-3) 171H.  
A continuation of 171H.

173H. Honors Natural Science  
(191H.) Spring. 4(2-3) 172H.  
Continuation of 172H.

181. Natural Science  
The role of methods in science emphasizing the development and modification of systems of explanation. The nature of the cell and sexual reproduction as background for Mendelian gene theory and its modern modifications. Social implications are emphasized.

182. Natural Science  
Winter. 4(2-3) 181 or approval of department.  
Methods in science continued with emphasis on evolutionary ideas regarding the origin of earth features and existing life forms. The origin and development of man is considered along with a number of modern problems.

183. Natural Science  
Spring. 4(2-3) 188 or approval of department.  
Nature of science as exemplified by ideas from physical sciences. The Copernican Revolution is used as an example of the science-society interaction. Modern concepts of the nature of matter are also introduced.

200. Technology and Society  
Winter. 3(3-0) One term of American Thought and Language. Interdepartmental with and administered by the Engineering Department.  
An attempt to describe and analyze portions of current technology and its desired and undesired consequences; and exploration of avenues for assaying such consequences for future technologies.

300. Supervised Individual Study  
Fall, Winter, Spring. Summer. 2 to 4 credits. May re-enroll for a maximum of 15 credits. Approval of department.  
Selected students requesting individual study of interdisciplinary problems will work under supervision of University College professors. Variable elective credit will be determined when the student secures instructor, adviser, and department approval.

321. Studies in Natural Science I  
Fall. 4(2-3) Juniors.  
An interdisciplinary analysis of the nature of science and its role in the human experience, with emphasis on science as a way of knowing. Subject matter used includes material from the physical sciences.

322. Studies in Natural Science II  
Winter. 4(2-3) Juniors.  
An interdisciplinary study of the nature of science and its role in the human experience, with emphasis on the way science affects society and is, in turn, affected by society. Subject matter used includes material from the biological sciences.

323. Studies in Natural Science III  
Spring. 4(2-3) Juniors.  
An interdisciplinary approach to the nature of science and its role in the human experience, with emphasis on man and his understanding of the world around him. Subject matter used includes material from the historical sciences.

401. Technology Assessment  
Spring. 3(3-0) Seniors, or approval of department. Interdepartmental with and administered by the Engineering Department.  
Sociotechnical evaluation of proposed technologies on economic, political, and cultural aspects of society. Identification of technical strategies and social goals. Techniques of assessment.

435. Pest Management I: Pesticide Chemistry and Application Systems for Plant Protection  
Fall. 5(2-3) Interdepartmental with Agriculture and Natural Resources.  
A broad overview of pesticide chemistry, efficient usage, environmental fate, legislation and application techniques.

436. Pest Management II: Biological Systems for Plant Protection  
Winter. 3(3-0) ENY 430, BOT 405, HBT 402 or CSC 402. Interdepartmental with Agriculture and Natural Resources.  
Management of plant pests utilizing host resistance, cultural practices, legislation, and biological systems.

437. Pest Management III: Systems Management for Plant Protection  
Spring. 4(2-3) 435 and 436, FAM 200 or EC 301. Interdepartmental with Agriculture and Natural Resources.  
Designed to integrate knowledge and improve ability in arriving at pest management decisions of varying complexity involving the fields of agronomy, wildlife, horticulture, entomology, and plant pathology.

471. Environmental Topics in Nonmetropolitan Regions  
Fall. 4(4-0) Nomination of students by own department and approved by participating faculty. Interdepartmental with Natural Resources and Agriculture and administered by Natural Resources.  
Environmental topics in nonmetropolitan regions including issues on: production agriculture, service industries, nonagricultural uses, rural urban balance, discussion topics and case studies.

501. Special Problems in Electron Microscopy  
Fall, Winter, Spring. Summer. 1 to 15 credits. Approval of instructor.

810. Methods in Transmission Electron Microscopy  
Fall, Winter, Spring. 3(1-5) 400 or approval of instructor.  
Use of the transmission electron microscopes and preparative instruments. Preparative technique for biological and nonbiological materials. Photographic principles including interpretation of micrographs.

820. Methods of Scanning Electron Microscopy  
Fall, Winter, Spring. 3(1-5) 400 or approval of instructor.  
Use of the scanning electron microscope and preparative equipment. Preparative technique for biological and nonbiological materials. Interpretation of micrographs.

830. Analytical Electron Microscopy  
Fall. 3(1-3) 810 or 820 or approval of instructor.  
Use of X-ray analysis on electron microscopes and electron microprobes with biological and physical materials. Methods of preparation and analysis of product data.

NURSING

College of Natural Science

205. Foundations of Nursing  
Fall. 3(2-2) Approval of school. Introduction to principles basic in identifying nursing problems and their use in sound planning of patient care.