954. Music Supervision

Summer of even-numbered years. 3(3-0) Completion of undergraduate program in Music Education.

955. Current Tendencies in Music Education

Winter of even-numbered years. Summer of odd-numbered years. 3(3-0) Completion of undergraduate program in Music Education.

956. Advanced Research Techniques in Music

Spring, Summer. 3(3-0) Approval of department.

Application of behavioral research to music including development and validation of original data gathering devices.

960. Analytical Studies in Music Literature

Fall, Summer. 3(3-0) 382 and two years of music literature or approval of department.

Melodic, formal, contrapuntal and harmonic analysis of music from plainsong to contemporary music.

961. Analytical Studies in Music Literature

Winter, Summer. 3(3-0) 960.

Continuation of 960.

962. Analytical Studies in Music Literature

Spring, Summer. 3(3-0) 961.

Continuation of 961.

970. Contrapuntal Techniques

Fall of odd-numbered years, Summer. 3(3-0) 482 or approval of department.

Advanced contrapuntal practice from the sixteenth century to the present.

971. Contrapuntal Techniques

Winter of even-numbered years, Summer. 3(3-0) 970.

Continuation of 970.

972. Contrapuntal Techniques

Spring of even-numbered years, Summer. 3(3-0) 971.

Continuation of 971.

980. Seminar in Theory

Fall, Winter, Spring, Summer. 3(3-0) May re-enroll for a maximum of 9 credits. 482 or approval of department.

999. Research

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

NATURAL RESOURCES N R

College of Agriculture and Natural Resources

202. Soils and Man's Environment

Winter. 3(3-0) Interdepartmental with the Resource Development, and Fisheries and Wildlife Departments and Soil Science and administered by Soil Science.

Use of soil and water resources in a technological society as it relates to environmental quality. Nature of pollution problems and their possible solutions. Food production and world population.

220. Plants and Their Environment

Winter. 3(3-0) Interdepartmental with and administered by the Forestry Department.

Fundamental ecological relationships between various climatic, edaphic and biotic environmental factors of the ecosystem and plant response, including structure, function and evaluation of species.

275. Exploring International Agriculture

Spring. 3(3-0) Interdepartmental with and administered by Agriculture.

Exploration of overseas assignments with international agencies; potential world food actualities and potentialities; special problems of the tropics compared with those in temperate regions.

350. Leadership Development for Agriculture and Natural Resources

Winter, Spring. 3(3-0) May re-enroll for a maximum of 6 credits. Approval of department. Interdepartmental with and administered by Agriculture.

Leadership development. Preparation for community leadership. Firsthand look at social, economic, and political problems. Series of seminars, interviews, field trips. Emphasis on awareness, action, and involvement.

399. Agriculture Internship

Fall, Winter, Spring, Summer. Zero credit. [10 credits.]† Juniors and approval of department. Interdepartmental with and administered by Agriculture.

An opportunity for exposure to the applied aspects of a student's major. Supervision and evaluation conducted by faculty and cooperating agencies.

425. Agriculture and Natural Resources Seminar

Spring. (2-0) Interdepartmental with and administered by Agriculture.

Current agricultural, natural resources, and environmental problems and solutions as presented by discussion leaders from various disciplines, arranged by undergraduate students.

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.

Concepts and methods of administering wildland properties. The legal, economic and social environment. Benefit-cost analysis of management changes. Unit organization, personnel management and accounting. Presents a systems view of administration.

471. Environmental Topics in Nonmetropolitan Regions

Fall. 4(4-0) Nomination of students by own department and approved 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.

†See page A-2 item 3.

475. International Studies in Agriculture and Natural Resources

Summer. 3 to 9 credits. Approval of the college. Interdepartmental with and administered by Agriculture.

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 resources management and use are examined in terms of the society in which they exist.

NATURAL SCIENCE N S

University College

Students may earn credit in only one of the courses in each of the following three groups:

1. 111, 117, 121, 131, 151, 171H, 181, 322.
2. 112, 118, 122, 132, 152, 162, 172H, 182, 323.
3. 113, 116, 120, 133, 150, 160, 173H, 183, 321.

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 117, 121, 131, 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. Stresses the role of controversy in science and the nature of scientific evidence.

113. The Nature of Science III

(183., 191A.) Fall, Winter, Spring, Summer. 4(2-3) 112 preferred; or 118, 122, 132, 152, 162, 172H, or 182.

The origin and development of scientific explanations of the physical world. The origins of modern science and scientific revolutions.

116. Integrated Studies in Science I

(191D.) Fall, Winter, Spring, Summer. 4(2-3)

Science as a process of studying of nature, explored through consideration of the organization science perceives in nature. Topics from the physical and life sciences used to illustrate the integration of the sciences into a concept of natural systems.

117. Integrated Studies in Science II

(192D.) Fall, Winter, Spring, Summer. 4(2-3) 116 preferred; or 120, 150, 160, or 321.

The nature of scientific theories and the means of supporting or refuting them. Emphasis on the interaction of theories from the physical, earth and life sciences.

118. Integrated Studies in Science III

(193D.) Fall, Winter, Spring, Summer. 4(2-3) 117 preferred; or 111, 121, 131, 151, 171H, 181, or 322.

The use and limitations of scientific problem-solving. The interaction of the physical, earth and life sciences in the development of integrative-interdisciplinary solutions to important contemporary problems.

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 116, 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, 117, 131, 151, 171H, 181, or 322.

Man's current understanding of himself and his beliefs as products of biological and cultural evolution. Implications for man's future.

127. The Bioecology 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, 117, 121, 151, 171H, 181, or 322.

The origin and evolution of earth and man are studied as vital and related problems. Emphasis on problem-solving in science and the impact of evolutionary concepts on human societies.

133. Science, Man and Society IV

(191C.) Fall, Winter, Spring, Summer. 4(2-3) 132 preferred; or 112, 118, 122, 152, 162, 172H, or 182.

Origin, growth and nature of theories in modern science. Includes aspects of astronomy and radioactivity. Emphasis on the application of scientific methodology and its products to problems of society.

150. The Dynamics of Scientific Ideas I

(191E.) Fall, Winter, Spring, Summer. 4(2-3)

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.

151. The Dynamics of Scientific Ideas II

(192E.) Fall, Winter, Spring. 4(2-3) 150 preferred; or 116, 120, 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, 117, 121, 131, 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

(191B.) 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 gene concept from Mendel to modern times. Genetic theory—its application to man.

162. Evolution of Scientific Ideas III

(193F., 134.) Fall, Winter, Spring, Summer. 4(2-3) Any group, one course.

The nature of science, its powers, its limitations and the interaction of science and culture. Human races and mankind evolving. The biological concepts of races 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

Fall. 4(2-3) Approval of department.

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) 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 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 assessing such consequences for future technologies.

300. Supervised Individual Study

Fall, Winter, Spring. 2 to 4 credits. 12 credits in department courses, or 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 impact of proposed technologies on economic, political, and cultural aspects of society. Identification of technical strategies and social goals. Techniques of assessment.