

- 815. Seminar in Chamber Music: 18th Century**  
Fall, Summer. 2(2-0) Approval of department.  
Intensive study of selected chamber music works of the 18th century.
- 816. Seminar in Chamber Music: 19th Century**  
Winter, Summer. 2(2-0) Approval of department.  
Intensive study of selected chamber music works of the 19th century.
- 817. Seminar in Chamber Music: 20th Century**  
Spring, Summer. 2(2-0) Approval of department.  
Intensive study of selected chamber music works of the 20th century.
- 820. Music Workshop**  
Summer. 1 to 6 credits. May re-enroll for a maximum of 6 credits. Approval of department.
- 824. Research Methods and Materials**  
Fall, Winter, Summer. 3(3-0)  
A critical examination of encyclopedias, indices, and other aids to research.
- 825. Acoustics for Musicians**  
Winter. Summer of even-numbered years. 3(3-0)  
Classical theory of sound, stressing its application to musical instruments and the human voice.
- 830. Sixteenth Century Counterpoint**  
Fall of even-numbered years, Summer. 3(3-0) 482 or approval of department.  
Study and writing of counterpoint based upon the works of Orlando Lasso and Palestrina.
- 831. Sixteenth Century Counterpoint**  
Winter of odd-numbered years, Summer. 3(3-0) 830.  
Continuation of 830.
- 832. Sixteenth Century Counterpoint**  
Spring of odd-numbered years, Summer. 3(3-0) 831.  
Continuation of 831 to include a study of madrigal counterpoint.
- 834. Seminar in Composition**  
Fall, Winter, Spring, Summer. 3(3-0)  
May re-enroll for credit. 482.
- 840. Pedagogy of Theory**  
Fall, Summer. 3(3-0) Approval of department.  
Music theory treatises and pedagogical practices of historical importance.
- 841. Pedagogy of Theory**  
Winter, Summer. 3(3-0) 840.  
Current literature in the field of music theory and approaches to theory pedagogy.
- 842. Pedagogy of Theory**  
Spring, Summer. 3(3-0) 841.  
Continuation of 841 with emphasis upon new instructional media.
- 850. Applied Music**  
Fall, Winter, Spring, Summer. 3 credits for Applied Music majors; 2 credits for others. May re-enroll for credit.
- 852. Choral Technique and Materials**  
Spring, Summer. 3(3-0) Completion of undergraduate program in music education.

Advanced course for further development of choral proficiency. Demonstrations of choral techniques, conducting by students, examination and evaluation of new materials.

- 860. Problems in Analysis**  
Fall, Winter, Spring, Summer. 4(4-0)  
May re-enroll for a maximum of 8 credits. Approval of department.  
An application of analytical procedures to school music repertoire.
- 880. Materials of Music**  
Fall, Winter, Spring, Summer. 1 to 4 credits. 282.  
Correlation of the areas of music theory as a basis for the study of 19th and 20th century music.
- 881. Materials of Music**  
Fall, Winter, Spring, Summer. 1 to 4 credits. 880.  
Continuation of 880.
- 882. Materials of Music**  
Fall, Winter, Spring, Summer. 1 to 4 credits. 881.  
Continuation of 881.
- 899. Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 903. Proseminar in Music Education**  
Fall, Winter, Spring, Summer. 3(3-0)  
May re-enroll for a maximum of 9 credits. Approval of department.  
Consideration of problems of music teaching and learning with readings from aesthetics, psychology, human growth, and education.
- 915. Medieval Music**  
Fall. 3(3-0)  
Investigation of various developments in European music to middle of fifteenth century. Some attention given to Gregorian Chant as well as to various types of secular Monody, but greater stress is laid on the forms and styles of Polyphonic music.
- 916. Renaissance Music**  
Winter. 3(3-0)  
Investigation of developments in European music from 1450 to 1600, tracing developments in both sacred and secular music.
- 917. Music of the Seventeenth Century**  
Spring. 3(3-0)  
Instrumental and vocal music of Early Baroque period.
- 924. Seminar in Musicology**  
Fall, Winter, Spring. 3 credits. May re-enroll for credit. Approval of department.
- 954. Music Supervision**  
Summer of even-numbered years. 3(3-0)  
Completion of undergraduate program in Music Education.
- 955. Current Tendencies in Music Education**  
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 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.

**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, Parks 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.

**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.

**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, 134, 152, 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 Bio-ecology 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 III**

(191C.) Fall, Winter, Spring, Summer. 4(2-3) 132 preferred; or 112, 118, 122, 134, 152, 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.

**134. Science, Man and Society IV**

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

Biological concepts of race. Exploration of scientific alternatives to the currently held biological concept of race.

**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. Knowledge and Science**

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

The intuitive and reasonable nature of scientific "truth" is examined in relation to the structure and functions of the human brain.

**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.) Fall, Winter, Spring, Summer. 4(2-3) 171H.

A continuation of 171H.

**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,
2. 112, 118, 122, 132, 134,
3. 113, 116, 120, 133,
1. 151, 171H, 181, 322
2. 152, 172H, 182, 323
3. 150, 160, 173H, 183, 321