

**NATURAL SCIENCE      N S**

**University College**

Alternative approaches or tracks are offered on an optional basis all of which meet the course objectives of 191, 192, 193. These are described briefly below and are designated by letters which are used as part of the course number for registration. *No student may receive credit for more than one track within a course (191, 192, 193).*

**191. Natural Science**  
(183.) *Fall, Winter, Spring, Summer.*  
4(2-3)

- A. The Copernican Revolution, Atomic Theory and Relativity related to man's attempt to find a unified view of nature. Emphasis on effects of science and society on one another.
- B. Man's conception of nature and origin of the universe and social and philosophical implications of his changing views. Consideration of major controversies regarding man's place in the universe.
- C. Major revolutions in physical science illustrate growth and structure of theories. Special attention to effects on man's world view, the impact of science on society and of society on scientists.
- D. Development of physical sciences; emphasis on contemporary social and moral dilemmas created by scientific advancement; application of scientific criteria, and exploration of future potential of man.
- E. World views (man's view of himself, his universe and his place in the universe) are emphasized. The Copernican Revolution and Relativity illustrate how major changes in world view come about.
- H. Honors track. Man's attempt to find a unified view of nature. Effects of science and society on one another.

**192. Natural Science**  
(181.) *Fall, Winter, Spring, Summer.*  
4(2-3) *Four credits in a 191 track.*

- A. A major explanatory system in depth: the gene theory. Cell and reproduction as background and, once developed, its subsequent modification resulting from experiment and observation.
- B. Man's conception of life. Development of contemporary ideas on its nature and origin. Is scientific discovery an orderly, logical process? Is life only a matter of physics and chemistry?
- C. Cell and gene concepts illustrate development and nature of theories. The present biological revolution raises social problems of genetic surgery, creation of life, conquest of death, transplants, mind control, etc.
- D. Development of the concepts of life, reproduction and heredity. Examination of contemporary socio-scientific problems associated with these topics and application of scientific criteria to proposed solutions.
- H. Honors track. A major explanatory system in the gene theory. Development and modification of the theory.

**193. Natural Science**  
(182.) *Fall, Winter, Spring, Summer.*  
4(2-3) *Four credits in a 192 track.*

- A. Interaction of scientific and cultural thought leading to consideration of man's past, present and future. Interaction of scientific and cultural thought in the rise of geology and biology.
- B. Man's conception of his own nature and origins. Consideration of human biological and cultural evolution directed to investigation of the question: "What is the nature of man?"

- C. Recent geological research gives new view of earth. Concept of uniformity used to interpret this evidence and tie it to evolution. Evolutionary principles applied to problems of population, pollution and aggression.
- D. Development of the concept of evolution in science. Emphasis given to human evolution and application of evolutionary principles to contemporary socio-scientific problems.
- H. Honors track. Interaction of scientific and cultural thought leading to consideration of man's past, present and future.

**300. Supervised Individual Study**  
*Fall, Winter, Spring. 1 to 4 credits.*  
193; *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.

**NATURAL SCIENCE      NSC**  
**(COLLEGE OF)**

**390H. The Human Organism**  
*Spring. 3(2-0) Juniors; approval of the Honors College.*

The importance of new discoveries in biology for our understanding of the human organism with emphasis from the fields of genetics, molecular biology, behavior, developmental biology, physiology and ecology.

**391H. Man's Universe**  
*Fall. 3(2-0) 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. Man's Earth**  
*Winter. 3(2-0) Juniors; approval of the Honors College.*

A summary by senior faculty from astronomy, anthropology, botany, geology, meteorology, and zoology of new theories and methods employed by current researchers to unravel the mysteries of the earth's origin, its interior, the forces developing the scenic surface features, and the evolution of life in its historical setting.

**800. Electron Microscopy of Biological Material**  
*Fall, Spring. 4(2-6) Graduate student in area of biology; or approval of college.*

Preparation of biological material for observation in the electron microscope; operation and principles of the electron microscope; associated electron microscope photography and dark room techniques.

**801. Special Problems in Electron Microscopy**

*Fall, Winter, Spring, Summer. 1 to 15 credits. Student in area of biology; or approval of college.*

**NURSING      N E**

**College of Natural Science**

**205. Foundations of Nursing**  
*Fall. 3(2-3) Approval of school.*

Introduction to principles basic in identifying nursing problems and their use in sound planning of patient care.

**206. Foundations of Nursing**  
*Winter. 4(3-3) 205.*

Fundamental principles are presented as they relate to the care of the whole person; identification of problems confronting the individual in illness, methods of approach to the patient as a person whereby joint effort may contribute to improved well-being and/or recovery.

**207. Foundations of Nursing**  
*Spring. 7(5-6) 206.*

Continues building on concepts, using principles and knowledge introduced in the foregoing nursing courses. The laboratory now moves into the clinical area where practice in the nursing of patients becomes the focus of application of past learning and study.

**303. Medical and Surgical Nursing**  
*Fall, Spring. 12 credits. 207.*

Care of individuals receiving medical and surgical therapy with emphasis on integration of preventive, emotional and social aspects of illness, pathological relationships, and all forms of therapy and rehabilitation as they relate to medical and surgical nursing. Instruction and guided practice.

**304. Medical and Surgical Specialties**  
*Winter, Summer. 12 credits. 303.*

Continuation of 303.

**305. Obstetrical Nursing**  
*Fall, Winter, Spring, Summer. 12 credits. Approval of school.*

Nursing through pregnancy, parturition, and puerperium, including care of the new born. Instruction and guided practice.

**306. Nursing of Children**  
*Fall, Winter, Spring, Summer. 12 credits. 207; FCS 362.*

Normal growth and development from infancy through adolescence, care and health supervision of well children, treatment and rehabilitation of sick and handicapped children. Instruction and guided practice.

**400H. Honors Work**  
*Fall, Winter, Spring, Summer. 1 to 12 credits. Approval of school.*

**402. Psychiatric Nursing**  
*Fall, Winter, Spring. 12 credits. Approval of school.*

Principles of practice in nursing the mentally ill with emphasis on rehabilitation program. Fundamental bases of behavior reactions. Instruction and guided practice.

**403A. Introduction to Public Health for Nurses**  
*Fall, Winter, Spring. 4(4-0) Seniors.*

Principles of organization and administration, responsibility and function of public health including epidemiology, environmental health and biostatistics.

**403B. Public Health Nursing**  
*Fall, Winter, Spring. 8(2-24) Seniors.*

Objectives and responsibilities of public health nursing; basic principles underlying its practice with guided application in selected public health agencies.

**404. Survey of Nursing**  
Fall, Winter, Spring. 4 credits. Seniors.

Development of nursing to present status, current problems and long-term goals. Fields of service open to graduate nurses; nursing organizations, national, state and local, their services and objectives.

**406. Senior Nursing**  
Fall, Winter, Spring. 8(3-20) Senior majors.

A study of basic principles of leadership and their application in the practice of team nursing.

## PACKAGING

PKG

### College of Agriculture and Natural Resources

**210. Principles of Packaging**  
Fall, Winter, Spring, Summer. 3(3-0)

A general course in packaging principles covering the growth and development of the field, and the technological and motivational problems involved in present day packaging. Consideration will be given to the basic functions of the package and their relation to the needs and wants of our society.

**320. Packaging Materials**  
Fall, Winter, Spring. 5(4-4) CEM 132.

Detailed study of common packaging materials such as wood, paper, paperboards, plastics, metal foils and sheets, glass, and cushioning media. A one-day field trip required.

**330. Graphics for the Packaging Industry**  
Spring. 4(3-3) 320 or approval of school.

Designing graphics for specific types of printing processes and for various packaging materials. Considerations in ink formulation, identification of the various printing processes used, and the advantages and disadvantages of various reproduction methods as used for packaging.

**422. Packaging Systems**  
Fall, Winter, Spring. 5(4-4) 320 or approval of school.

Design, use and evaluation of packages and packaging systems. A one-day field trip is required.

**423. Dynamics of Packaging**  
Winter, Spring. 5(4-3) MTH 215.

A study of the protective function of the packaging systems in relation to their environment and shock and vibration isolation methods. A one-day field trip is required.

**424. Packaging Problems**  
Fall, Winter, Spring, Summer. 1 to 3 credits. 422 or 423. Approval of school.  
Development of solutions to specific packaging problems.

**425. Packaging Process Analysis**  
Fall, Winter, Spring. 4(3-3) 422; CPS 110.

The integrated study of the operation structure and control of the packaging and package-making process. A one-day field trip is required.

**428. Packaging Development**  
Fall, Winter, Spring. 4(3-2) 320.

A study of the functions of each area concerned with the development of packages to meet present-day requirements of protection and merchandising.

**430. Packaging Machinery**  
Winter. 4(3-3) 320 or approval of school.

The components for automated packaging lines, and auxiliary materials handling equipment, including consideration of design, selection, specification and operation of machinery for the package-making and package-filling operations.

**463. Seminar**  
Fall. 2(0-4) Must have job experience to enroll.

Detailed report on work performed in fulfillment of practical experience requirements must be submitted.

**801. Package Design**  
Fall. 4(3-3)

Advanced work in the development of the graphic and structural design of packages.

**834. Special Investigations in Packaging**  
Fall, Winter, Spring, Summer. Variable credit.

**899. Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of school.

## Building Construction\* B C

**200. Dynamics of American Housing**  
Fall, Winter, Spring, Summer. 3(3-0)

Impact of housing on the economic and social welfare of America. Analysis of the residential building industry and its problems in providing adequate housing.

**312. Structural Design**  
Fall. 4(4-0) 200 or approval of department.

Consideration of structural design systems as used in light construction.

**314. Methods, Analysis and Controls I**  
(F P 314.) Fall. 4(2-2) 312.

Design, analysis and controls of work methods and operations in construction.

**412. Housing Utilities Design**  
Winter. 4(4-0) 312.

Design of and planning for mechanical and electrical utilities in housing.

**415. Building Materials**  
Spring. 4(4-0) 312 or approval of department.

Properties of building materials pertinent to their application and performance in service.

**416. Building Costs**  
Winter. 4(2-4) Approval of department.

Methods of cost estimating. Effects of codes and production practices on costs.

**418. Special Topics**  
(F P 418.) Fall, Winter, Spring, Summer. 1 to 3 credits. Approval of department.  
Selected topics in housing.

**835. Research in Building Construction**  
(F P 835.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**899. Research**  
(F P 899.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

## PARK AND RECREATION RESOURCES\* PRR

### College of Agriculture and Natural Resources

**200. Resource Ecology and Man**  
For course description, see Interdisciplinary Courses.

**344. Leisure and Recreation Resources**  
(R D 344.) Spring. 3(3-0)

Leisure in relation to park and recreation resources. History and philosophy, significance in modern society, and impact on urban and natural resource developments.

**440. Park and Recreation Administration**  
(R D 440.) Fall. 4(4-0)

Park and recreation organization, administration and policy at municipal, county, and regional level. Field trip required.

**442. State and Federal Recreation Resource Policy**  
(R D 442.) Winter. 3(3-0)

Origin, development and significance of public policy in recreation resource development in the United States with emphasis at state and federal levels. Field trip required.

**444. Park and Recreation Area Design**  
(R D 444.) Fall. 4(2-4) Approval of department.

Planning and design principles of space, scale, and circulation applied to the use of park and recreation areas and facilities. Field trip required.

**446. Park Area Operations**  
(R D 446.) Spring. 3(3-0) Approval of department.

Problems in operations and maintenance of park and recreation areas and facilities. Personnel practices, budgeting, and maintenance schedules. Selection and adaptability of maintenance equipment. Field trip required.

**448. Field Studies in Park Administration**  
(R D 448.) Fall. 3 credits. Approval of department.

Investigation and analysis of outstanding park and recreation programs. Visits to areas under local, state, and federal jurisdiction. Evaluation of administrative practices, area management, and operation policies. Conducted as a traveling class with agency assistance.

**449. Recreation Land Management**  
(R D 440., 350.) Fall, Spring. 3(2-0)  
Not open to majors.

Fundamentals of outdoor recreation resource management. Planning, development, and administration of programs and facilities. Two weekend field trips required.

**450. Natural Resource Administration**  
Fall, Winter. 4(4-0) Interdepartmental with the Fisheries and Wildlife, Forestry, and Resource Development Departments and administered by the Forestry Department.

Concepts and methods of economics and administration and application of techniques to management of wildlands.

\*Established January 1, 1969. Formerly a part of the Department of Resource Development.