

- 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.
- F. Concentrates on man's concept of motion from Copernicus to Einstein in an effort to give the student an understanding of the methodology of science, and the interaction of science with the culture of which it is a part.
- 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.
- F. Genetics as a scientific theory; its application to man and the scientific basis of "races" and the social problems of racism.
- H. Honors track. A major explanatory system in the gene theory. Development and modification of the theory.
- J. The subject matter of ecology and genetics is used to explore the methodology of science and the relationship between science and the society of which it is a part.

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.

- F. Evolution of the earth and lower organisms as background and context for extended discussion of the origin and evolution of man. Science related problems faced by modern man.
- 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.

321. Studies in Natural Science I

Fall. 4(2-3) Juniors. Students may not earn credit in NS 191 or 183 and 321.

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. Students may not earn credit in NS 192 or 181 and 322.

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. Students may not earn credit in NS 193 or 182 and 323.

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.

**NATURAL SCIENCE NSC
(COLLEGE OF)**

390H. The Human Organism

Winter. 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.

800. Electron Microscopy of Biological Material

Fall. 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. Approval of instructor.

NURSING

NE

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. 4(2-6) 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 362B.

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(4-16) 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.

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, 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
Spring. 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.

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

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

413. Residential Construction Systems
Spring. 4(3-2) 312 or approval of department.

Analysis of the primary construction systems employed in the residential building industry, especially the economic and social aspects in meeting the housing goals of the U. S.

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.

417. Residential Finance
Winter. 4(4-0) Juniors.

Analysis of financial programs for the construction, rehabilitation, remodeling and purchase of homes; especially meeting the nation's goals for low to moderate income housing.

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

420. Construction Management
(F P 314, B C 314.) Spring. 4(2-2) 416 or approval of department.

Systems management techniques for residential building organizations inclusive of organization development, operations, planning, scheduling and control, and administrative systems and procedures.

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.

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
Winter. 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) 422, MTH 215, or approval of department.

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.

**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.) Fall. 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,

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