

**Descriptions – Natural Science
of
Courses**

125. Time and Change in Nature

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

A—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.

B—Heredity, evolution and diversity of life are examined from the viewpoint of the biological and cultural development of the human species. Evolutionary relationships between humans and their environment.

C—The origin and evolution of earth and living things are studied as vital and related problems. Emphasis on problem-solving in science and impact of evolutionary concepts on human species.

127. The Bioecology of Health

Fall, Winter, Spring. 4(3-2)

Man's health examined from evolutionary and ecological viewpoints. Emphasis on the impact of increasingly man-made environment has had on the health of Western man.

129. The Biotechnology of Health

Winter, Spring. 4(4-0)

Survey of the biotechnology currently and potentially available to manage health problems. Social issues associated with this biotechnology.

135. Changing Concepts of the Universe

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

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

B—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.

C—Growth of theories of celestial motion and of matter. Their interrelationship. Impact of scientific knowledge on society. The contribution of science to clarification and solution of social problems.

D—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.

142. Life, Its Environment

(118.) Fall, Winter, Spring. 4(3-2)

Natural ecological systems and the impact of human biological and cultural development on them. Examination of specific ecological problems and the role of science in seeking solutions.

142A. Life, Its Environment

Summer. 4(3-2) Approval of instructor.

May not receive credit in both N S 142 and N S 142A.

Academic goals and objectives are parallel to those for Natural Science 142; however, examination of geological and ecological features will be done through direct experience in wilderness areas off campus. Offered only in an off campus wilderness setting. Approved through Spring term 1980.

152. Science and Culture in the 20th Century

(193E.) Fall, Winter, Spring. 4(3-2)

Controversies concerning interpretation of modern scientific concepts such as evolution, uncertainty and relativity are discussed in terms of developing a personal philosophy.

162. Race, The Evolution of an Idea

Fall, Winter, Spring. 4(3-2)

Human races and mankind evolving. The biological concept of race based on the theories of the gene, evolution, and natural selection.

171H. Man's Nature

(192H.) Fall. 4(3-2)

Various issues confronting modern man in his attempt to understand his biological self. Emphasis on the role that science can play in helping to resolve these issues.

172H. Man's Place in Nature

(193H.) Winter. 4(3-2)

Various issues confronting modern man in his attempt to understand his place in and relation to the environment. Emphasis on the role of science in helping to resolve these issues.

173H. Science-Technology and Human Values

Spring. 4(3-2)

The nature and significance of science and technology in Western culture, with emphasis on their relationship to other creative activities, particularly those within the arts.

181. Natural Science

Fall. 4(3-2) Not open to students with credit in N S 115. Enrollment in ATL 101 or approval of department.

Scientific methods emphasizing development and modification of explanation systems. The nature of cells and sexual reproduction as background for Mendelian gene theory and its modern modifications. Social implications are emphasized.

182. Natural Science

Winter. 4(3-2) Not open to students with credit in N S 125. N S 181 or approval of department.

Scientific methods with emphasis on evolutionary ideas regarding origin of earth features as related to modern problems. Human origins and development are considered, with a number of modern problems.

183. Natural Science

Spring. 4(3-2) Not open to students with credit in N S 135. N S 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 cosmology are also introduced.

200. Technology and Society

Winter. 3(3-0) Twelve credits of Natural Science. Interdepartmental with and administered by the Department of Engineering.

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, Summer. 2 to 4 credits. May reenroll for a maximum of 12 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.

310. Science and Pseudoscience

Spring. 3(3-0) Juniors.

Techniques of reasoned, critical analysis applied to science-related ideas such as astrology, gods from outer space, and the secret life of plants. Specific topics selected from recent writings.

325. Biological and Social Aspects of Human Reproduction

Fall, Winter, Spring. 4(4-0) Juniors or approval of department.

Anatomy and physiology of human reproduction will be integrated with consideration of such current social concerns as contraception, abortion, venereal disease and drugs.

380. Issues in Science and Religion

Winter. 4(4-0) Juniors or approval of department. Interdepartmental with the Department of Religious Studies and Justin Morrill College. Administered by the Department of Religious Studies.

History of relationships between science and religion. Methods of science and religion. Attempts at resolution of conflicts and formation of new syntheses.

401. Technology Assessment

Spring. 3(3-0) Seniors, or approval of department. Interdepartmental with and administered by the Department of Engineering.

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.

**NATURAL SCIENCE NSC
(COLLEGE OF)**

390H. The Human Organism

Winter. 3(3-0) 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(3-0) 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. The Uniqueness of Man

Spring. 3(3-0) Approval of the Honors College, or course coordinator.

Physiological processes; behavioral mechanisms; genetic information; life support systems; physical disorders and adjustment to hostile environments.

400. Nature and Uses of Electron Microscopes

Fall. 3(2-1) MTH 111, Juniors, 1 year college physics.

Principles of electron optics including history, construction, and design of electron optical equipment. Lectures and demonstrations will be given on uses of various types of electron microscopes in representative biological and physical sciences.

444. Pest Management I: Systems Management for Plant Protection

(437.) Fall. 4(3-2) FSM 200 or EC 201. 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.

445. Pest Management II: Pesticide Chemistry and Application Systems for Plant Protection

(435.) Winter. 5(3-4) CEM 132. Interdepartmental with Agriculture and Natural Resources.

A broad overview of pesticide chemistry, efficient usage, environmental fate, legislation and application techniques.

446. Pest Management III: Biological Systems for Plant Protection

(436.) Spring. 3(3-0) ENT 430, BOT 405, HRT 402 or CSS 402. Interdepartmental with Agriculture and Natural Resources.

Management of plant pests utilizing host resistance, cultural practices, legislation, and biological systems.

460. Clinic in Natural Science Teaching

Fall, Winter, Spring, Summer. 1 credit. May reenroll for a maximum of 6 credits. Bachelor's degree.

Each practicum will deal with a specific science or science related problem and its implications for instruction. Discussions are intended to have immediate application by participants.

801. Special Problems in Electron Microscopy

Fall, Winter, Spring, Summer. 1 to 15 credits. Approval of instructor.

810. Methods in Transmission Electron Microscopy

Winter, Spring. 3(1-5) NSC 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 in Scanning Electron Microscopy

Winter, Spring. 3(1-5) NSC 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. 2(1-3) NSC 810 or NSC 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 N E

College of Natural Science

200. Nursing I

Spring. 4(4-0) Admission to School of Nursing.

Concepts and theories of nursing, science and Man in relation to professional nursing practice. Role of nursing in contemporary society.

300. Nursing II

Fall, Summer. 10(7-9) N E 200.

Independent nursing role. The well individual. Holistic approach to Man. Impact of developmental levels upon client health. Application of nursing process in maintaining wellness.

301. Nursing III

Fall, Winter. 10(6-12) N E 300.

Independent nursing role. Application of nursing process in a variety of health care settings. Healthy clients adapting to stress at all stages in the life cycle.

302. Nursing IV

Winter, Spring. 10(5-15) N E 301, N E 441.

Promotion of adaptation of individuals in diminished-stable health states and families in stable health states. Relates research findings to practice.

303. Medical and Surgical Nursing

Fall, Spring. 12 credits. N E 207.

Care of individuals receiving medical and surgical therapy with emphasis on integration of preventative, 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 Specialities

Winter, Summer. 12 credits. N E 303.

Continuation of N E 303.

305. Maternity 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. N E 207; FCS 262B.

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.

400. Nursing V

Fall, Spring. 10(5-15) N E 302.

Individuals in diminished-unstable health states and families in stable health states. Community assessment skills. Interdisciplinary approach to health care systems. Relates research findings to practice.

400H. Honors Work

Fall, Winter, Spring, Summer. 1 to 12 credits. Approval of school.

401. Nursing VI

Winter, Summer. 10(4-18) N E 400.

Individuals in compensated-decompensated health states, families in diminished-unstable health states, and communities in optimal health states. Functions interdependently within health care teams. Applies research findings to practice.

402A. Psychiatric Nursing of Individuals

Fall, Winter, Spring. 6 credits. Seniors, N E 402B concurrently.

Provides opportunities to develop skill in utilizing concepts and principles relevant to creating and maintaining therapeutic interpersonal relationships; individual and group participation with other professionals in providing comprehensive mental health services to the mentally ill individual and his family.

402B. Group Process and Community Action in Psychiatric Nursing

Fall, Winter, Spring. 6 credits. Seniors. N E 402A concurrently.

Provides opportunities to develop skill in utilizing concepts, principles and dynamics of group and community interactions relevant to providing nursing intervention in programs for primary, secondary and tertiary prevention in community mental health.

403A. Introduction to Public Health

Fall, Winter, Spring. 4(4-0) Majors or approval of school.

Philosophy, development, organization, and responsibilities of public health are explored in the light of the current economic and political climate. An introduction to vital statistics, epidemiology, and environmental health is included. Provides a frame of reference for practice in this field.

403B. Public Health Nursing

Fall, Winter, Spring. 8(4-16) Seniors.

Relationships between public health nursing and other health and welfare services. Guided practice is provided for students working with individuals, families and community resources. Major focus is on health maintenance, health promotion and nursing care to the sick in their homes. Roles, responsibilities and functions of the nurse in the community are stressed.

405. Nursing VII

Fall, Spring. 10(3-21) N E 401.

Integration of nursing, biological and behavioral sciences stressing application of the nursing process to the care of individuals, families and communities in depleted health states. Applies research findings to practice.

406. Nursing Leadership and Management

Fall, Winter, Spring. 8(4-16) Senior majors.

Three areas of emphasis are leadership, management and problem-solving within health care work groups. Clinical experience throughout the term is continuous within one work group. Clinical laboratory in community hospitals and agencies.

407. Introduction to Nursing Research

Fall, Winter, Spring. 2(2-0) Seniors in School of Nursing.

Critical reading and critique of nursing research literature; define research terminology and procedures and apply to clinical nursing through discussion and writing.