

**Descriptions — Natural Science
of
Courses**

155. Cosmology, Humanity's Place in the Universe (N)
(NS 135D.) Fall, Winter, Spring, Summer. 4(3-2) Students may not receive credit in more than one of the following: AST 119, AST 217, AST 229, N S 135, N S 155.
Our attempts to understand the universe and our place within it. The interaction between scientific concepts and the beliefs and values of the culture in which they are proposed.

162. Race, The Evolution of an Idea (N)
Fall, Winter, Spring. 4(3-2) N S 115 or approval of department.
Human races and evolution. The biological concept of race based on the theories of the gene, evolution, and natural selection.

171H. Our Biological Nature (N)
Fall. 4(4-0) Honors College students or approval of department.
Various issues confronting us in our attempt to understand our biological selves. Emphasis on the role that science can play in helping to resolve these issues.

172H. Our Place in Nature (N)
Winter. 4(4-0) Honors College students or approval of department.
Various issues confronting us in our attempt to understand our 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 (N)
Spring. 4(4-0) Honors College students or approval of department.
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.

1814. Natural Science (N)
Fall. 4(3-2) Not open to students with credit in N S 115. Enrollment in Remedial-Developmental Writing Program 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.

1824. Natural Science (N)
Winter. 4(3-2) Not open to students with credit in N S 125. N S 1814 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.

1834. Natural Science (N)
Spring. 4(3-2) Not open to students with credit in N S 135. N S 1824 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, Society and Public Policy
Winter. 3(3-0) Twelve credits from natural science or engineering. Interdepartmental with and administered by Engineering.
Description and analysis of certain current technologies and their consequences; exploration of avenues for assessing such consequences as an aid to formulation of public policy.

209. Humans and Disease (N)
Fall, Winter, Spring. 4(4-0)
Disease as a natural biological phenomenon and how it has influenced the human race from a worldwide perspective. Environmental and cultural factors and how these influence and interrelate with disease.

242. Wilderness Environmental Field Studies (N)
Winter, Summer. 4(4-0) Approval of instructor. Students may not receive credit in more than one of the following: N S 142, N S 142A, N S 242.
Study of ecosystem balance between physical, biological and human elements while hiking in selected wilderness areas. Requires out-of-state travel.

292. Selected Topics
Fall, Winter, Spring. 3 to 5 credits. May reenroll for a maximum of 8 credits if different topic is taken.
Interdisciplinary study of topics in the natural sciences or the natural sciences as related to the humanities and social sciences.

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. Variable elective credit will be determined when the student secures instructor, adviser, and department approval.

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 and 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. Engineering and Public Policy
Spring. 3(3-0) Seniors, or approval of department. Interdepartmental with and administered by Engineering.
Sociotechnical assessment of impact of technology on society, with analysis of the role of engineering and natural science in contributing to public policy formulation.

456. Foundations of Developmental Biology
Winter of even-numbered years. 3(3-0) ZOL 317; ZOL 417 recommended. Interdepartmental with and administered by the Department of Zoology.
Reading and discussion of original research which posed significant problems of modern developmental biology.

**NATURAL SCIENCE NSC
(COLLEGE OF)**

201. Science Problem Solving Seminar I
Fall. 2(2-0) MTH 108 concurrently, approval of instructor.
Problem solving principles and application of strategies to the disciplines of science and mathematics. Activities reflecting the types of problems encountered in these disciplines emphasized.

202. Science Problem Solving Seminar II
Winter. 2(2-0) NSC 201, approval of instructor.
Continuation of NSC 201. Emphasis upon problem solving in science disciplines and principles of research design.

203. Science Problem Solving Seminar III
Spring. 2(1-3) May reenroll for a maximum of 4 credits. NSC 202, approval of instructor.
Applied experience in research. Design and implementation of simple research problems. Relationship of science and society.

305. Women in Science
Spring. 3(3-0) Introductory course in chemistry or physics or biological science or approval of instructor.
The development of women scientists of the past, present, and future will be examined. Emphasis will be on representatives from physics, biology, medicine, mathematics, and engineering.

394H. Current Topics in Science (MTC)
Fall, Winter, Spring. 3(3-0) May reenroll for a maximum of 9 credits if different topics are taken. Approval of Honors College or course coordinator.
Scientists from several disciplines lecture on a common topic of current scientific interest, indicating the key concepts, the analytic approaches, the processes and the constraints of their respective disciplines.

410. Environmental Toxicology
Winter. 4(4-0) B S 212, BCH 401. Interdepartmental with Agriculture and Natural Resources.
Fate and effects of toxic chemicals in soil, plants, wildlife, and aquatic systems. Interactions between chemicals and the environment which influence their fate and ecological importance.

445. Pest Management: Pesticide Chemistry and Application Systems for Plant Protection
Fall. 5(3-4) CEM 143, ENT 425, HRT 402 or CSS 402, BOT 405 or concurrently or approval of instructor. Interdepartmental with Agriculture and Natural Resources.
A broad overview of pesticide chemistry, efficient usage, environmental fate, legislation and application techniques.

446. Pest Management: Biological Systems for Plant Protection
Fall. 3(3-0) ENT 425, HRT 402 or CSS 402, BOT 405 or concurrently or approval of instructor. Interdepartmental with Agriculture and Natural Resources.
Management of plant pests utilizing host resistance, cultural practices, legislation, and biological systems.

447. Pest Management: Systems Management for Plant Protection
(444.) Winter. 4(3-2) NSC 445, NSC 446 or approval of instructor. 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.

492. Integrative Studies
Fall, Winter, Spring, Summer. 3 to 5 credits. Juniors.
In-depth study of topics which require an integration within or among the natural sciences or between the natural sciences and other major areas of human knowledge.

801. Special Problems in Electron Microscopy
Fall, Winter, Spring, Summer. 1 to 15 credits. Approval of instructor.

802. Essentials of Electron Microscopy
Fall, Winter. 2(2-0) Approval of instructor; NSC 810 or NSC 820 or NSC 830 concurrently.
Principles of electron microscopy including optical theory, instrument design and construction and selected specimen preparative procedures. Emphasis on current literature.

810. Methods in Transmission Electron Microscopy
Fall, Winter, Spring. 3(1-5) Approval of instructor; NSC 802 or concurrently.
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
Fall, Winter, Spring. 3(1-5) Approval of instructor; NSC 802 or concurrently.
Use of the scanning electron microscope and preparative equipment. Preparative technique for biological and nonbiological materials. Interpretation of micrographs.

830. Analytical Electron Microscopy
Fall, Spring. 2(1-3) Approval of instructor; NSC 802 or concurrently.
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)**

200. Nursing I
Spring. 3(3-0) or 4(4-0) Approval of college.
Concepts and theories of nursing in relation to professional nursing practice. Role of nursing in contemporary society.
Approved through Winter 1989.

202. Introduction to Professional Nursing Practice
Winter. 3(3-0) Approval of college, N E 203 concurrently. Not open to Registered Nurses.
Fundamental theoretical concepts necessary for the delivery of professional practice utilizing the nursing process. Development of interpersonal communication and documentation skills. Accountability in nursing practice.

203. Introduction to Professional Nursing Practice Practicum
Winter. 3(0-9) Approval of college, N E 202 concurrently. Not open to Registered Nurses.
Application of fundamental theoretical concepts in nursing utilizing nursing process in simulated and real life settings. Development of fundamental psychomotor nursing skills.

212. Professional Nursing I: Basic Concepts
Winter. 2(2-0) Approval of college.
Introductory concepts forming foundation of professional nursing practice. Standards of practice, code of ethics. Relationship of nursing research to practice and health promotion.

215. Transition to Professional Nursing
Spring. 4(3-3) Approval of college. Open only to Registered Nurses.
Transition issues for Registered Nurses seeking baccalaureate education. Essential theoretical and clinical components for professional nursing practice. Assessment, documentation and interpersonal skills.

300. Nursing II
Fall. 10(7-9) N E 200, FCE 200, FCE 255, CEP 450.
Independent nursing role. Holistic approach to the healthy individual. Impact of developmental levels upon client health. Application of assessment component of nursing process in simulated and actual health care settings.
Approved through Summer 1989.

301. Nursing III
Winter. 10(6-12) N E 300.
Care of individuals at risk across the life span. Application of entire nursing process in a variety of health care settings.
Approved through Fall 1989.

302. Nursing IV
Spring. 10(5-15) N E 301, N E 441.
Application of the nursing process to individuals in diminished-stable health. Assessment of healthy families. Relation of research findings to practice. Clinical placement in acute care settings.
Approved through Winter 1990.

303. Concepts of Nursing Care of the Young and Older Adult
Fall, Winter, Spring. 3(3-0) Approval of college, N E 304 concurrently.
Theoretical concepts in nursing care of adult and elderly with acute alterations in health status. Prototype health states, nursing diagnosis and application of professional standards of nursing care.

304. Practicum in Nursing Care of the Young and Older Adult
Fall, Winter, Spring. 4(0-12) Approval of college, N E 303 concurrently.
Applied nursing care of adults and elderly in acute care settings. Implementation of nursing process. Application of standards of care and professional accountability.

305. Concepts of Nursing Care of the Childbearing Family
Fall, Winter, Spring. 3(3-0) Approval of college, N E 306 concurrently.
Concepts of nursing care of the childbearing family during prenatal, intrapartum and postpartum periods. Typical and atypical client care situations.

306. Practicum in Nursing Care of the Childbearing Family
Fall, Winter, Spring. 4(0-12) Approval of college, N E 305 concurrently.
Practicum in nursing care of the childbearing family in prenatal, intrapartum and postpartum periods. Implementation of nursing process in a variety of settings.

307. Concepts of Nursing Care of Children and Their Families
Fall, Winter, Spring. 3(3-0) Approval of college, N E 308 concurrently.
Concepts relative to holistic care of children in real or potential altered health states and their families. Health promotion and application of growth and development concepts.

308. Practicum in Nursing Care of Children and Their Families
Fall, Winter, Spring. 4(0-12) Approval of college, N E 307 concurrently.
Application of nursing process to children with potential or real altered health states and their families. Implementation of health promotion and growth and development concepts.

312. Professional Nursing II: Change and the Change Process
Spring. 2(2-0) N E 212.
Situations in which the nurse and client experience change. Appropriate independent nursing interventions. Therapeutic relationships and nursing advocacy techniques.

400. Nursing V
Fall. 10(5-15) N E 302, PSY 425.
Nursing of individuals in diminished-unstable and families in diminished-stable health states. Client referral and interdependent practice. Relation of research findings to practice. Clinical placement in acute care settings.
Approved through Summer 1990.

401. Nursing VI
Winter. 10(4-18) N E 400.
Nursing of individuals in depleted-compensated and families in diminished-unstable health states. Community assessment. Application of research findings to practice. Interdependent clinical practice within health care systems.
Approved through Fall 1990.

403. Concepts in Advanced Nursing Care of the Young and Older Adult
Fall, Winter, Spring. 3(3-0) Approval of college, N E 403 concurrently.
Concepts of care of adult and elderly clients with complex health problems. Professional, legal, ethical issues and relevant research.

404. Practicum in Advanced Nursing Care of the Young and Older Adult
Fall, Winter, Spring. 5(0-15) Approval of college, N E 403 concurrently.
Practicum in nursing care of the adult and elderly client in acute care setting. Implementation of nursing process and health promotion.