

**Descriptions — Natural Science  
of  
Courses**

**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: NS 142, NS 142A, NS 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) BS 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.

**300. Nursing II**

Fall. 10(7-9) NE 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.

- 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.
- 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.
- 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.
- 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.
- 405. Nursing VII**  
*Spring. 10(3-21) N E 401, N E 407.*  
Nursing of individuals and families with depleted health. Analysis of community health issues. Integration of theory and research from nursing and related sciences. Interdependent clinical practice within health care systems.
- 407. Introduction to Nursing Research**  
*Fall. 2(2-0) N E 301, approval of college.*  
Lecture and independent activities are used to facilitate an understanding of the research process, terminology, and types of investigations undertaken in nursing. Findings relevant to practice are discussed.
- 440. Clinical Problems in Adaptation I**  
*Fall. 5(5-0) ANT 316, PSL 240, PSL 241, MPH 234, PHM 350; approval of college.*  
Theoretical concepts necessary to understanding of individual's adaptive-maladaptive responses to stress. Emphasis on pathophysiology.
- 441. Clinical Problems in Adaptation II**  
*Winter. 5(5-0) N E 440.*  
Emphasis placed upon individual's adaptive-maladaptive responses. Use of clinical case presentations.
- 490. Special Problems in Nursing**  
*Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Approval of college.*  
Exploration of particular areas in nursing in greater depth-and/or from a different perspective than possible within the limits of required courses.
- 490H. Honors Work**  
*Fall, Winter, Spring, Summer. 1 to 12 credits. Honors College students or approval of college.*
- 495. Selected Topics in Nursing**  
*Fall, Winter, Spring, Summer. 2 to 6 credits. May reenroll for a maximum of 6 credits if different topic is taken. Approval of college.*  
Allows exploration of unique issues in nursing. Topics to be selected from current issues.
- 511. Women and Health in the U.S.**  
*Winter. 3(3-0) Graduate students; advanced undergraduate students; approval of instructor.*  
Health status of women and women's roles as consumers and as providers of healthcare in the U.S. health care delivery system.
- 521. Evaluation of Health Services**  
*Spring. 2 to 4 credits. Approval of instructor. Interdepartmental with and administered by the Department of Community Health Science.*  
Use of experimental and quasi-experimental designs. Cost benefit and efficiency models. Assessment of health services delivery.
- 540. Family Health Seminar for the Clinical Nurse Specialist**  
*Fall. 3(3-0) Majors or approval of instructor.*  
Conceptual frameworks of family. Assessment of family health behavior.
- 541. Facilitating Patient Participation**  
*Winter. 3(3-0) N E 564 or approval of instructor.*  
Learning theories and methods to promote patient self care.
- 543. Health and Adaptation of the Elderly**  
*Fall. 3(3-0) Baccalaureate degree in health science; approval of instructor. Interdepartmental with the Department of Community Health Science.*  
Health and adaptation of the aged individual experiencing the normative biophysiological and psychodevelopmental changes related to the aging process.
- 544. Aging, Environment, and Health: An Interactional Approach**  
*Winter. 3(3-0) Baccalaureate degree in health science; approval of instructor.*  
Quality and quantity of interaction between the aged and their environment as an index of the health status of the older individual.
- 545. Human Sexuality for Health Professionals**  
*Spring. 3(3-0) FCE 445 or approval of instructor.*  
Focus on physiological and psychosocial components of sexual functioning, clinical assessment and diagnosis of common sexual problems and primary care treatment.
- 564. Primary Care Seminar I: Role of the Clinical Nurse Specialist**  
*Fall. 2(2-0) Approval of instructor.*  
Role of nurse in advanced practice. Dimensions of primary care within the health care system.
- 565. Primary Care Seminar II: Interdisciplinary Team Functioning**  
*Winter. 2(2-0) Approval of instructor.*  
Theories of team functioning. Communication, consultation, collaboration, conflict and decision making. Role strategies.
- 566. Primary Care Seminar III: Organizational Structure**  
*Fall. 3(3-0) N E 564, N E 565 or approval of instructor.*  
Organization of nursing in primary care.
- 567. Primary Care Seminar IV: Health Care Policy**  
*Spring. 3(3-0) N E 564 or approval of instructor.*  
Policy influence on health care delivery systems.
- 570. Nursing Theories and Conceptual Models**  
*Fall. 3(3-0) STT 421 or approval of instructor.*  
Issues, problems and processes of theory and concept development.
- 580A. Clinical Nurse Specialist Practicum I**  
*(580.) Winter. 2(1-3) N E 564, approval of college.*  
Beginning skill development in physical assessment and interviewing, history taking.
- 580B. Clinical Nurse Specialist Practicum I**  
*(580.) Spring. 3(1-6) N E 580A, approval of college.*  
Completion of physical examination and patient history, interpreting data. Health assessment of adult.
- 581. Clinical Nurse Specialist Practicum II**  
*Fall. 5(2-9) N E 564, N E 565, N E 580B, CMS 521 or concurrently, approval of college.*  
Nursing management of clients in primary care. Focus on health maintenance, health promotion and self care. Single acute problems. Longitudinal study of a family.
- 582. Clinical Nurse Specialist Practicum III**  
*Winter. 5(2-9) N E 581, approval of college.*  
Primary care management of clients with chronic health problems. Utilizes stress-adaptation framework. Longitudinal study of a family.
- 583. Clinical Nurse Specialist Practicum IV**  
*Spring. 5(2-9) N E 582, approval of college.*  
Primary care management of clients with multiple health problems. Focus on loss theory. Longitudinal study of a family.
- 590. Special Problems**  
*Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 12 credits. Approval of instructor.*  
Individual or group in-depth study of specific areas in nursing. Independent study.
- 595. Selected Topics**  
*Fall, Winter, Spring. 2 to 6 credits. May reenroll for a maximum of 6 credits if different topics are selected. Approval of instructor.*  
Selected issues, trends, programs or theories in nursing.
- 899. Master's Thesis Research**  
*Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 15 credits. N E 570, approval of instructor.*  
Clinical research problem related to primary health care.