COURSE ABBREVIATION  ENVS 1401
CREDIT HOURS  3 Semester Hours
COURSE TITLE  Environmental Science
PREREQUISITES  Exit from ENGL 0099, READ 0098, MATH 0099

CATALOG DESCRIPTION
This is a non-lab science course designed to investigate the role of humans in their environment. Students develop a knowledge base about their biological and physical environment. This information leads to exploration of human dependence on, technological control over, and interactions with the environment. Emphasis is placed on sustaining resources and making informed choices concerning environmental issues.

EXPECTED EDUCATIONAL RESULTS
As a result of completing this course, the student will be able to:
1. Define and explain the basic issues concerning the ability of the human community to interact in a sustainable way with the environment.
2. Evaluate scientific information and arrive at defendable conclusions as to its validity and applicability.
3. Describe and discuss the environmental implications of the cycles of biologically important materials through the ecosystem.
4. Discuss the limitations placed on living systems by energy transfer efficiencies.
5. Explain why the size of the human population presents an environmental problem. Define, interpret, and calculate the factors involved in the human population growth rates. Discuss the worldwide distribution of populations.
6. Give examples of how organisms including humans interact in biological systems.
7. Identify ways in which humans interact with their physical environment.
8. Discuss costs and benefits of sustaining each of the following types of resources: a. food; b. health; c. habitats; d. energy; e. water; f. air; g. soil; h. minerals.
9. Give defendable opinions on improving or maintaining the urban environment, determining allocation of environmental costs, and dealing with waste disposal.

GENERAL EDUCATION OUTCOMES
1. This course addresses the general education outcome relating to communications as follows:
   1. Students develop their reading comprehension skill by reading the text, handout materials, and published articles. Students are required to critique articles on current environmental topics from periodical sources.
   2. Students develop their listening skills through lecture and small group problem solving. Videos and/or guest lectures will be included in the course.
3. Students develop their reading and writing skills through the use of exercises developed specifically to enhance their understanding of certain environmental principles. Students provide written or oral analysis of these problems in both individual and group format. They must be able to answer discussion question on course exams.

II. This course addresses the general education outcomes of mathematical concept usage and applies the scientific method as follows:
   1. Students must apply mathematical concepts in the analysis of graphically presented material. Their mathematical skills will also be used to collect, graph, and interpret data from class projects.
   2. Students apply the scientific method as they learn to analyze studies and determine the validity of the data supporting the conclusions.

III. This course addresses the general education outcome relating to identifying and evaluating global, economic, political, historical, and geographical forces and analyzing how these forces help shape the past, present, and future as follows:
   Environmental Science is the most inclusive of all sciences. It crosses the lines among science disciplines as well as having applications in the economic, political, geographical, and sociological areas. It is global in scope.

COURSE CONTENT
I. Introduction - the environment as an idea
   A. History
   B. Basic issues
   C. Critical thinking
II. Connections
   A. The earth as a system
   B. Biogeochemical cycles
   C. Energy transfer
   D. Interactions within human populations - size is an environmental problem
   E. Interactions between humans and other organisms
      1. Ecosystems
      2. Biological diversity
      3. How ecosystems respond to disturbance - restoration and recovery
   F. Interactions between humans and the physical environment
III. Sustaining our resources
   A. Human resources
      1. Food
      2. Environment and health
   B. Biological resources
      1. Habitats
      2. Rare and endangered species
   C. Energy resources
   D. Physical resources
      1. Water
      2. Air
      3. Soil
      4. Minerals
IV. Environment and society
   A. Urban environment
   B. Economics
   C. Waste disposal
   D. What can we do? Who decides?
      1. Impact and planning
      2. Integrating values and knowledge

ASSESSMENT OF EXPECTED EDUCATIONAL RESULTS
A. COURSE GRADE
   1. Tests, quizzes, projects (at least 5 graded assignments)
   2. Comprehensive final exam
   3. There will be assignments that incorporate critical thinking, computer use, and lab or field experience

B. DEPARTMENTAL ASSESSMENT
   This course is part of the science core. There is no procedure for course assessment within the Science Department at this time.

C. USE OF ASSESSMENT FINDINGS

   Effective Date: September 2000
   Reviewed Date: May 2004