INTRODUCTION TO ENVIRONMENTAL SCIENCE (ENV 280)

Dear student,
I hope that you will find the study of environmental science challenging, enlightening, and practical to your day-to-day activities. This course is designed to increase your awareness of contemporary environmental science issues with the ultimate objective of enabling you to incorporate environmental science into your general philosophy of life. Upon completing this course, you will be able to apply the lessons learned to make improvements in your personal life practices.

In responding to the test questions, you should not rely solely on your textbook and do not copy materials directly from sources or references that you consult. Be sure to answer the short essay questions by paraphrasing responses in your own words. To avoid plagiarism, appropriate references must be cited where necessary. Each chapter is followed by a list of suggested readings and additional sources of information in the footnotes. Review questions and additional activities are also listed at the end of each chapter. In addition to the course content, neatness, legibility and accuracy are important for the overall impact of your lessons. Errors in grammar, spelling, sentence structure, and punctuation will be considered when determining your grade for each lesson submitted.

Should you have questions or require additional information, do not hesitate to let me know or contact me directly. My contact information is as follows:

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Required Textbook

Environmental Science: A Global Concern, 11th Edition by William P. Cunningham and Mary Ann Cunningham; McGraw Hill Publishers (ISBN: 978-0-07-338321-7)

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Environmental Science
A Global Concern
Eleventh Edition: Active, In-Print
William P. Cunningham, University of Minnesota--Minneapolis
Mary Ann Cunningham, VASSAR COLLEGE

Overview:

Environmental Science: A Global Concern, 11th edition, is a comprehensive presentation of environmental science for non-science majors. It emphasizes critical thinking, environmental responsibility, and global awareness. This book is intended for use in a one- or two-semester course in environmental science, human ecology, or environmental studies at the college or advanced placement high school level. The authors have updated data throughout the chapters in this book. Information and examples presented are the most recent available as of the mid-2009. You will find an abundance of specific numbers and current events – details that are difficult to keep up-to-date in a textbook.

The goal of the textbook is to provide an up-to-date, introductory global view of essential themes in environmental science along with emphasis on details and case studies that will help students process and retain the general principles. Because most students who will use this book are freshman or sophomore non-science majors, the authors make the text readable and accessible without technical jargon or a presumption of prior science background.

Lessons/Final Exam Scoring and Grading Scale

- Lessons 1-18 (100 points each) = 60% of grade
- Final Examination (100 points) = 40% of grade
- Grading Scale: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 59 and below

Note: Each lesson is composed of 25 multiple choice and 3 short essay questions (75% and 25%, respectively). All of your responses to the short essay questions in each of the 18 lessons must be typed and printed on separate answer sheets or submitted as a Microsoft Word document on Blackboard. The final examination will be proctored and is composed of 100 multiple-choice questions covering the entire course (all 18 lessons inclusive). Sixty percent (60%) of your grade will be determined by your grades from the twenty lessons and 40% of your grade is based on the final examination. However, in order to pass the course, you must pass the final examination with at least 60%. A minimum of 60% in the final examination is a policy of WKU On Demand.

QEP Project (Lesson 18): This individual project is in fulfillment of WKU's Quality Enhancement Plan (QEP) theme of Engaging Students for Success in a Global Society. It is based on the premise that students who are more actively involved in their education will learn more, and thus be more successful during their educational careers and beyond.

Disability Statement

Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for the final examination of this course must contact the Office of Student Disability Services (OFSDS) in Room A-200, Downing University Center (DUC) (Tel.: 270 745-5004 V/TDD).

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COURSE OUTLINES

Lesson 1, Chapter 1: Understanding Our Environment

1.1 What is Environmental Science?
1.2 Current Conditions
1.3 A Brief History of Conservation and Environmentalism
1.4 Human Dimensions of Environmental Science
1.5 Sustainable Development
1.6 Environmental Ethics
1.7 Faith Conservation and Justice

Lesson 2, Chapter 3: Matter, Energy, and Life

3.1 Elements of Life
3.2 Energy
3.3 Energy for Life
3.4 From Species to Ecosystems
3.5 Material Cycles and Life Processes

Lesson 3, Chapter 4: Evolution, Biological Communities, and Species Interactions

4.1 Evolution Produces Species Diversity
4.2 Species Interaction Shape Biological Communities
4.3 Community Properties Affect Species and Population
4.4 Communities are Dynamic and Change over Time

Lesson 4, Chapter 5: Biomes: Global Patterns of Life

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5.3 Freshwater Ecosystems
5.4 Human Disturbance

Lesson 5, Chapter 7: Human Populations

7.1 Population Growth
7.2 Perspectives on Population Growth
7.3 Many Factors that Determine Population Growth
7.4 Ideal Family Size is Culturally and Economically Dependent
7.5 A Demographic Transition Can Lead to Stable Population Size
7.6 Family Planning Gives Us Choices
7.7 What Kind of Future Are We Creating?

Lesson 6, Chapter 8: Environmental Health and Toxicology

- 8.1 Environmental Health
- 8.2 Toxicology
- 8.3 Movement, Distribution and Faith of Toxins
- 8.4 Mechanisms for Minimizing Toxic Effects
- 8.5 Measuring Toxicity
- 8.6 Risk Assessment and Acceptance
- 8.7 Establishing Health Policy

Lesson 7, Chapter 9: Food and Hunger

- 9.1 World Food and Nutrition
- 9.2 Key Food Sources
- 9.3 Food Production Policies
- 9.4 The Green Revolution and Genetic Engineering

Lesson 8, Chapter 10: Farming: Conventional and Sustainable Practices

- 10.1 Resources for Agriculture
- 10.2 Ways We Use and Abuse Soil
- 10.3 Water and Nutrients
- 10.4 Pests and Pesticides
- 10.5 Environmental Effects of Pesticides
- 10.6 Organic and Sustainable Agriculture
- 10.7 Soil Conservation

Lesson 9, Chapter 11: Biodiversity: Preserving Species

- 11.1 Biodiversity and the Species Concept
- 11.2 How Do We Benefit From Biodiversity?
- 11.3 What Threatens Biodiversity?
- 11.4 Endangered Species Management
- 11.5 Captive Breeding and Species

Lesson 10, Chapter 15: Air, Weather, and Climate

- 15.1 The Atmosphere is a Complex System
- 15.2 Weather Events Follow General Patterns
- 15.3 Natural Climate Variability
- 15.4 How Do We Know Recent Climate Change is Human-Caused?
- 15.5 What are the Effects of Climate Change and Should We Care?
- 15.6 Envisioning Solutions

Lesson 11, Chapter 16: Air Pollution

- 16.1 The Air Around Us
- 16.2 Natural Sources of Air pollution
- 16.3 Human Caused Air pollution
- 16.4 Climate, Topography and Atmospheric Processes
- 16.5 Effects of Air pollution
- 16.6 Air Pollution Control

16.7 Current Conditions and Future Prospects

Lesson 12, Chapter 17: Water Use and Management

17.1 Water Resources
17.2 Major Water Compartments
17.3 Water Availability and Use
17.4 Fresh Water Shortages
17.5 Dams and Diversions
17.6 Getting By With Less Water
17.7 Increasing Water Supplies

Lesson 13, Chapter 18: Water Pollution

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18.2 Types and Effects of Water Pollution
18.3 Water Quality Today
18.4 Water Pollution Control
18.5 Water Legislation

Lesson 14, Chapter 19:Conventional Energy

19.1 Energy Resources and Uses
19.2 Coal
19.3 Oil
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19.5 Nuclear Energy
19.6 Radioactive Waste Management
19.7 Changing Fortunes of Nuclear Power
19.8 Nuclear Fusion

Lesson 15, Chapter 20: Sustainable Energy

20.1 Conservation
20.2 Tapping Solar Energy
20.3 High Temperature Solar Energy
20.4 Fuel Cells
20.5 Energy from Biomass
20.6 Energy from the Earth's Forces

Lesson 16, Chapter 21: Solid, Toxic, and Hazardous Waste

21.1 Solid Waste
21.2 Waste Disposal Methods
21.3 Shrinking the Waste Stream
21.4 Hazardous and Toxic Wastes

Lesson 17, Chapter 24: Environmental Policy, Law, and Planning

24.1 Basic Concepts in Policy
24.2 Major Environmental Laws
24.3 How Policies are Made
24.4 International Treaties and Conventions

24.5 Dispute Resolution and Planning

Lesson 18, QEP: Limiting Air Pollutants from Motor Vehicles
(Details are provided in a separate document)