

AAEC 5314
Environmental Economics and Policy Analysis
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INTRODUCTION. In your undergraduate and graduate studies, you have become familiar with many environmental and natural resource issues in your disciplines and you have probably found that these issues tend to be multi-disciplinary. Groundwater management involves agriculture, hydrogeology, engineering, and public administration. Forestry management involves silviculture, animal agriculture, wildlife biology, and urban planning. Most of these issues have an economic component. By understanding the economic issues involved along with the aspects of your discipline, you will have a better understanding of the motivations of many of the stakeholders, and, therefore, be in a better position to develop an effective solution to the situation.

In this course we will distinguish between natural resource issues and environmental issues. Natural resource management deals with resources such as water, oil and gas, forests, wildlife, and agriculture. The issues faced by natural resource managers are generally supply and distribution of those resources in a sustainable manner. Environmental issues include pollution of resources such as water, air, or land and focus on policies and economic tools that will reduce, mitigate, or prevent pollution.

This course is organized into three sections. The first involves the economic concepts and tools necessary to analyze the scenarios presented later in the course. The next section involves natural resource issues in which you will study general natural resource issues and then choose a natural resource for more detailed study. The last section involves environmental issues in which you will study general environmental issues and then select an environmental issue for more detailed study.

LEARNING OUTCOMES. This course has one general learning outcome. Upon completion of this course, you will be able to understand and use basic economic concepts to evaluate natural resource and environmental issues. Additionally, each section has lesson objectives that support those of the overall course.

ORGANIZATION**a. Section 1. Economic Concepts**

Learning Outcomes: Upon completion of this section of the course, the student will be able to understand the following economic concepts in preparation for using the concepts to analyze policies:

- 1) Understand how economics is used to value the environment.
- 2) Understand concepts of net benefits, net present value, and static and dynamic efficiencies
- 3) Understand risk assessment, valuation methods, and discount rate issues
- 4) Understand property rights and externalities
- 5) Understand intertemporal fairness and economic sustainability

b. Section 2. Natural Resource Economics

Learning Outcomes: Upon completion of this section of the course, the student will be able to:

- 1) Understand the concepts of efficient intertemporal and market allocations.
- 2) Identify and discuss major issues pertaining to management of energy, water, agriculture, forest, and commercially valuable species.
- 3) Analyze selected policies of one of the above natural resources using the economic methods discussed.

c. Section 3. Environmental Economics

Learning Outcomes: Upon completion of this section of the course, the student will be able to:

- 1) Understand efficient and market allocation of pollution and efficient and cost-effective policy responses to pollution.
- 2) Identify and discuss major environmental issues of local air pollution, regional and global pollutants, transportation, water pollution, solid waste, and toxic waste.
- 3) Analyze selected policies of one of the above environmental issues the economic methods discussed.

METHODOLOGY. You will meet the course learning objectives through individual study of the required readings, review and analysis of pertinent issues, research and review of additional readings, and the completion of course written requirements. You may discuss the subject matter with others who might contribute to your learning.

a. The lesson order takes you from understanding of economic concepts, to natural resource management issues, environmental issues such as pollution mitigation and prevention, and finally to issues of sustainability.

b. In each section, you will develop the concepts and issues through a series of readings from the textbook and from articles from other sources. In sections 2 and 3, we will analyze the economics of various issues through specified readings, then you will provide an economic analysis of one issue of your choosing and approved by the instructor.

c. A writing requirement will be designated for each section. The requirement for sections 2 and 3 will pertain to your selected issue.

d. The final exam will be a paper dealing with a sustainability issue that will require you to use concepts developed throughout the course.

e. Your comprehension and knowledge of the material in each lesson is evaluated. In general you should be able to answer the requirement satisfactorily from the material within the lesson. In all of the requirements, I am interested in how you use the concepts to develop the solution to the proposed problems. I am interested in your thoughts and how you express them; however, you should have some basis for your thoughts. Your solution to the writing requirement should answer the questions in a manner that shows your comprehension of the course material.

COURSE MATERIAL. The resources listed below will be used throughout the course and contain assigned readings and references required to achieve the learning objectives and complete the course requirements.

- a.** Tietenberg, T. Environmental Economics and Policy. Fourth Edition. Pearson Addison Wesley Publishing. 2004.
- b.** Ellsworth, B. and J.A. Higgins. English Simplified. Tenth Edition. Longman Publishers. 2004.
- c.** TTU Guidelines for Dissertations and Theses. Chapter 2.
<http://www.depts.ttu.edu/gradschool/THDManual.htm>

WRITTEN REQUIREMENTS. All grades for this course will be earned through written assignments. Ellsworth and Higgins publication is a quick refresher and good reference for grammar and punctuation usage. Use the TTU guidelines for proper format of the assignments.