ECONOMICS 3535
NATURAL RESOURCE ECONOMICS

Fall 1990

COURSE OUTLINE AND READING LIST:

Instructor: Raymond Prince
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Office Hours: 10-11 MWF

COURSE OBJECTIVE:

The objective of this course is to examine the economic use of both renewable resources such as forests and fisheries and non-renewable resources such as energy and minerals. The economic techniques needed to examine questions of resource use are developed and applied to issues of public policy.

COURSE FORMAT:

There are three exams - two hour exams and a final. Each exam will assume familiarity with the subjects covered to date in the lectures and readings. The final exam covers material for the entire course.

Your final grade will be based on the following weights:

Hour exams (2) - 33% each
Final exam - 67%

READINGS:

Required Text:

Tietenberg, T. 1988. Environmental and Natural Resource Economics 2nd ed. (Glenville, IL: Scott, Foresman & Co.)

KINKO’S readings

Additional Sources:


I. FRAMING THE ISSUES

1. THE IMPORTANCE OF NATURAL RESOURCES — A HISTORICAL OVERVIEW —
   Chpts 1, 5, 13, Gordon, Rosenberg (last two in KINKO's readings)
   
   A. DEPLETION OF RESOURCES AND THE DECLINE OF PAST CIVILIZATIONS
   B. MODERN CONCERNS ABOUT THE DEPLETION OF NATURAL RESOURCES

2. AN ECONOMIC DEFINITION OF EFFICIENT RESOURCE USE — Chpt 2
   
   A. STATIC EFFICIENCY
      1. EXAMPLE OF A TWO PRIVATE GOODS, TWO CONSUMER, ONE INPUT ECONOMY
      2. EXAMPLE OF ONE PRIVATE GOOD — ONE PUBLIC GOOD, TWO CONSUMER, ONE INPUT ECONOMY
   B. DYNAMIC EFFICIENCY

3. CAUSES OF INEFFICIENT RESOURCE USE — Chpts 3, 6, Dudley (KINKO’s)
   
   A. DEFINITION OF ECONOMIC INEFFICIENCY
   B. CAUSES OF INEFFICIENT RESOURCE USE
      1. MARKET FAILURE
      2. GOVERNMENT FAILURE
      3. THE PROPERTY RIGHTS EXPLANATION

4. A GENERALIZED MODEL OF NATURAL RESOURCES
   
   A. DIFFERENTIATING RESOURCES BY THEIR RATES OF REGENERATION
   B. RECYCLING AS A SUBSTITUTE FOR REGENERATION
II. MANAGEMENT OF SPECIFIC NATURAL RESOURCES

1. MANAGEMENT OF NON-RENEWABLE NATURAL RESOURCES: RESOURCES WITH A ZERO OR NEGLIGIBLE RATE OF REGENERATION

   A. NUCLEAR AND FOSSIL FUEL ENERGY - Chpt 7, Sassin (KINKO's)
   B. NON-FUEL MINERALS - Chpt 8
   C. GROUNDWATER - Chpt 9, Ambroggi (KINKO's)

2. MANAGEMENT OF RENEWABLE RESOURCES — RESOURCES WITH STOCK INDEPENDENT RATES OF REGENERATION

   A. SURFACE WATER - Chpt 9, Ambroggi (KINKO's)
   B. AGRICULTURAL LAND - Chpt 10, Scrimshaw and Taylor (KINKO's)
   C. NATURAL RECREATION AREAS
   D. SOLAR ENERGY

3. MANAGEMENT OF RENEWABLE RESOURCES — RESOURCES WITH STOCK DEPENDENT RATES OF REGENERATION

   A. FORESTS - Chpt 11
   B. FISHERIES - Chpt 12
   C. EXTINCTION OF BIOLOGICAL RESOURCES: AN EXAMPLE OF IRREVERSIBLE DECISIONS

III. OTHER ISSUES OF SIGNIFICANCE TO NATURAL RESOURCE ECONOMICS

1. USE OF COST-BENEFIT ANALYSIS - Chpt 4
2. POPULATION GROWTH AND SUSTAINABILITY - Chpt 21-3