

University of Wyoming
College of Business
Department of Economics and Finance

Economics 4410-01
Natural Resource Economics
TR 09:35-10:50 AM, Business College, Room BU 105
Fall 2003

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Course Description: This course explores the application of economic analysis to the allocation and management of non-renewable and renewable resources. The focus will be on land, water, fossil fuels and mineral resources, fisheries and forests. The distinction between public and private goods, the influence of property right regimes and market structure, and the role of natural resources in economic development will also be stressed.

Prerequisites: ECON 1010, 1020 or 2400; or consent of instructor. However, it is strongly recommended that students enrolled in this course have already completed an undergraduate intermediate microeconomics course or its equivalent. Much of the course material is inherently mathematical, and it will be assumed that all students have a thorough understanding of microeconomic theory and its applications.

Course Objectives: The main aim of this course is to introduce students with a good understanding of undergraduate microeconomics, preferably at the intermediate level, to the field of natural resource economics. The emphasis will be on learning basic quantitative methods for determining optimal extraction and depletion of key natural resources for use in the economic process, as well as on analyzing the underlying economic behavior behind such allocations. Students will therefore learn the rudiments of applying economic theory to various natural resource problems. To do this, students will have to master course material presented in the texts and lectures that will involve microeconomic applications in both a “static” (i.e. timeless) and “dynamic” (i.e. over time) setting. This will be accomplished both through take-home “problem sets” as well as in-class exams.

Grading and Course Requirements: The academic requirements of this course consist of a mid-term examination, a final examination, and four take-

home problem sets. Each student's final grade in the course will be determined as follows:

Top three out of four problem sets	45% (15% each)
Midterm examination	25%
Final examination	30%

Each problem set must be handed in by the assigned due date. These are: **September 23, October 14, November 11 and December 2**. Any problem set handed in after its assigned due date will lose automatically ten points for each day late. If the problem set is more than three days late, it will not be graded and receive zero points. This policy is not negotiable. Although students are urged to complete all four problem sets, the problem set with the lowest grade will not count toward the final grade for the course. Undertaking all the problem sets will be an extremely valuable exercise in understanding the economic concepts and applications to various natural resource problems that will be covered in the course. This will also be important preparation for the two in-class exams.

The midterm examination is tentatively scheduled for **Tuesday October 21**. The exam will be taken in class time on that day. The exam will involve mainly brief essay or discussion questions, although to answer them will require knowledge of the economic concepts, methods and applications covered in the course up to the midterm. Under no circumstances will there be any make-up or early exams.

The final examination is scheduled for **Tuesday December 16 from 10:15 to 12:15 pm**. The exam will involve answering two out of four essay or discussion questions. Their aim is to test students' knowledge of the economic concepts, methods and applications covered in the entire course.

Attendance Policy: Students are expected to attend all classes. Any student who fails to attend regularly will inevitably fall behind and find that his or her performance is badly affected.

Academic Dishonesty: Also known as "cheating" academic dishonesty will not be tolerated in this class. Cases of academic dishonesty will be prosecuted in accordance with UNIREG 802 Rev.2. Cheating in this course can result in an "F" final grade. In this course, academic dishonesty includes (but is not limited to) unapproved assistance on examinations, copying the work of other students, plagiarism or other use of published materials without complete citations, or fabrication of referenced information, including purchasing and/or downloading from the internet others' work without acknowledging this source.

Group Work Guidelines: Although no group work is anticipated in this course, students are encouraged to discuss lecture and text material with each other outside of class. Students may decide to work on the problem sets either on

their own or with others. However, each student is responsible for submitting his or her own answers to each problem set, and will be graded accordingly.

Course Calendar: A tentative calendar for the course is indicated below under the heading **Course Readings and Schedule**.

Disclaimer: The instructor may need to modify the course requirements, grading standards and calendar during the teaching of the course this semester. If so, the instructor will notify all students in class of any changes and confirm these changes in a written memo, handout and/or email.

Course Readings and Schedule

Course Readings:

The required text for this course is:

Field, Barry C. 2001. *Natural Resource Economics: An Introduction*. McGraw-Hill, New York.

There is also a recommended text:

Hartwick, John M. and Olewiler, Nancy D. 1998. *The Economics of Natural Resource Use*, 2nd ed. Addison-Wesley, New York.

As Field (2001) serves as an excellent background text for many topics, it is the required reading for this course. ***All students should obtain a copy of Field (2001), and undertake the required reading from it assigned during the course.*** However, some lecture material will come from Hartwick and Olewiler (1998), but as this text is fairly advanced, it is only recommended. Students who are interested in a more advanced treatment of this material, or would like more background to some of the lectures, should obtain a copy and undertake the recommended readings.

Occasionally, short readings and articles to supplement the two texts may be distributed in class. Such readings will be for your interest only. Also, there is a useful website accompanying Field (2001) that is recommended:

<http://www.mhhe.com/economics/field/>

Course Schedules and Assignments:

Week 1: Introduction and key concepts

Required reading: Field, Chapters 1-5

Recommended reading: Hartwick and Olewiler, Chapter 1 and the

Information on “Using Graphs” from the website for Field’s book:
<http://www.mhhe.com/economics/field/student/graphs/index.mhtml>

- Week 2: Land and water**
Required reading: Field, Chapters 6-7.
Recommended reading: Hartwick and Olewiler, Chapter 3
- Week 3: Land and water**
Required reading: Field, Chapters 14-16
Recommended reading: Hartwick and Olewiler, Chapter 3
- Week 4: Minerals and energy**
Required reading: Field, Chapters 10-11
Recommended reading: Hartwick and Olewiler, Chapters 8-9
First problem set due on Tuesday September 23.
- Week 5: Minerals and energy**
Required reading: Field, Chapters 10-11
Recommended reading: Hartwick and Olewiler, Chapters 8-9
- Week 6: Minerals and energy**
Required reading: Field, Chapters 10-11
Recommended reading: Hartwick and Olewiler, Chapters 8-9
- Week 7: Fisheries and marine resources**
Required reading: Field, Chapter 13
Recommended reading: Hartwick and Olewiler, Chapters 4-5 and 11
Second problem set due on Tuesday October 14.
- Week 8: Fisheries and marine resources**
Required reading: Field, Chapter 13
Recommended reading: Hartwick and Olewiler, Chapters 4-5 and 11
Midterm exam on Tuesday October 21.
- Week 9: Fisheries and marine resources**
Required reading: Field, Chapter 13
Recommended reading: Hartwick and Olewiler, Chapters 4-5, and 11
- Week 10: Fisheries and marine resources**
Required reading: Field, Chapter 13
Recommended reading: Hartwick and Olewiler, Chapters 4-5, and 11
- Week 11: Forestry**
Required reading: Field, Chapter 12
Recommended reading: Hartwick and Olewiler, Chapter 10
Third problem set due on Tuesday November 11.

Week 12: Forestry

Required reading: Field, Chapter 12

Recommended reading: Hartwick and Olewiler, Chapter 10

Week 13: Resource use and sustainable development

Required reading: Field, Chapters 20 and 21

Recommended reading: Hartwick and Olewiler, Chapters 2 and 12

Week 14: Resource use and sustainable development

Required reading: Field, Chapters 20 and 21

Recommended reading: Hartwick and Olewiler, Chapters 2 and 12

Fourth problem set due on Tuesday December 2.

Week 15: Course wrap up

Week 16: Final Exam: *Tuesday December 16 from 10:15 to 12:15 pm.*