

## **ECON 4535: NATURAL RESOURCES ECONOMICS**

**EDWARD MOREY**

**FALL 1999** (October 20, 1999)

### COURSE DESCRIPTION

Natural Resources Economics (4535) considers the efficient and equitable use of society's scarce natural resources. Natural resources include minerals, trees, fish, water, environmental systems, wildlife, parks, wilderness areas, etc.

Natural resource use will be considered from three perspectives: the market allocation of natural resources, efficient and equitable allocations, and government attempts to achieve a more efficient and equitable allocation.

Natural Resource Economics is a course in applied welfare economics. Welfare economics is concerned with the "welfare" of society and how economics can be used to improve society's welfare. The course will study in detail when the market is, and is not, capable of efficiently allocating natural resources.

The course is designed for Econ majors who have had intermediate micro theory, calculus and math econ. My hope is that you will finish the course with a sound understanding of the economic theories of natural resource use and how these theories explain, in part, what does, and should, happen in the "real world".

Courses in environmental economics and natural resource economics both consider natural resources but differ in that natural resource courses have historically dealt with the intertemporal utilization of conventional renewable and nonrenewable natural resources such as fish, trees and minerals, whereas environmental courses have considered pollution and other environmental issues from a static perspective. This historical distinction is starting to blur.

Before we begin, I want to make a few comments about what economics is not. Economics is not about making money or how to run a firm. Economics is the study of the allocation of society's scarce resources. Economics per se is not pro market or pro government. The purpose of this course is not to argue that government action to protect the environment is bad; sometimes its bad, and sometimes it is good. The purpose of this course is not to extol the virtues of the market. Markets have many virtues, but when it comes to the environments, they also have many faults. In some ways this course could be described as a course on market failure and government actions to correct those failures.

### Administrative Details

*Web page:* My web site is located at <http://spot.Colorado.EDU/~morey/index.html> . From it you can link to the web page for Econ 4535, or you can go directly to web page for the course at <http://spot.Colorado.EDU/~morey/4535/4535home.html> .

All past and current assignments, review questions, and additional readings will be made available at this site on an as-need basis.

*Review questions and problems* will be handed out for each section of the course. I strongly encourage you to write out answers to these questions and discuss them with your classmates. You will want to form study groups. Your grade will be **highly correlated** with your knowledge of the review questions. It is important, for life, to be able to write well. Improvement comes with practice and I will give you ample opportunity to practice.

*Final:* There will be a comprehensive final which will constitute 25% of your course grade.

*Assignments:* There will be N short exams assignments (quizzes, small projects, problems, debates, etc.) during the term, and your grades on your best (N-1) of these assignments will constitute 40% of your course grade. Use the review questions to study for the quizzes. Each in-class exam will take approximately ½ hour and likely consist of either one essay question or a few short-answer questions. Some of these exams will be group efforts and some will be take home.

Some of the assignments will be in class, some will be take-home. Some of the assignments will be done in groups. The group, usually three people, will work together and just turn in one assignment. Everyone in the group will get the same grade for that assignment. Group assignments are one of my ways of giving you an incentive to work and study together.

*Class participation:* 5% of your course grade will be based on class participation, so make sure to come to class prepared to participate.

*Paper or project:* There will be a paper (5-10 pages - no more) which will constitute 30% of your course grade. Choose some natural resource or environmental problem and evaluate it in economic terms. Please discuss your paper topic with me. Once you have settled on a topic, do a rough outline and come see me again. The final copy of your paper will be due in my office on the day of the final. If you get a preliminary version to me two weeks before the end of the term, I will get it back to you within a week with comments. There will be assignments having to do with your paper topic.

I am fairly flexible about what constitutes a paper, with the provision that it has economic and environmental content. It could be a project of some sort, and it could be a group endeavor. A project might be the development of a web page that looks at some natural resource or environmental issue from an economic perspective. What is important to me is to see that you have taken the theory you have learned in class and can apply it to gain insight into some environmental problem or issue that is of interest to you. For example, choose a natural resource or environmental market failure that interests you, explain why the market failed, and suggest policies for improving the situation. I want to see you thinking like an economist. A profusion of footnotes and references is not necessary, but it is important to properly reference your sources, including web pages. .

I am particularly fond of papers/projects on local issues. Thousands of papers will be written on global warming, maybe only one, yours, will be about the impact of the parking fees in Boulder Mountain parks. With a local issue you are the only one investigating it from an economic perspective, and you have the opportunity to talk to the people involved. With local issues, the details often jump out, forcing you to be more relevant to real world considerations.

Some interesting papers in the past have been on such topics as: "Do We Really Need Bighorn Sheep," "The Economics of Whaling," "The Economics of Outer Space," "Recycling," "The Love Canal," "The Harp Seal Hunt," "Wilderness Management," "Boulder Mountain Parks," "Deforestation," "Regulating Mountain Biking," "Ski Area Development," "Two Forks Dam," "Management in the Holy Cross Wilderness area," "Vasquez: The Proposed Expansion of Winter Park," "Oxygenated Fuels and the Front Range," "Rafting on the Arkansas," Boulder Open space," Wood-burning Stoves," hunting and fishing in Colorado, etc.

I have a file of newspaper and magazine articles on topics that might make good topics for a paper. Please feel free to stop by and look through the file. If you run across an article whose subject might make a good paper topic, please bring it in and we will add it to the file.

Keep in mind that you will likely not have the resources or time to do a complete study. For example, you will not be able to estimate the benefits and costs of some ski area development. Rather a good paper on this topic would discuss how one might measure such benefits and costs if one had the time and resources. It might, for example, develop a survey instrument.

I grade on the following scale

- \$ 90% = A
- \$ 80% = B
- \$ 70% = C
- \$ 60% = D
- # 59% = F

I grade on the basis on standards rather than on the basis of a curve. Everyone can get an A.

My office hours will be Tues from 3:15 - 4:15, Thursdays from 10:00 to 11:00, and by appointment. My office is Econ 122. To make an appointment, catch me after class or contact me by email ([Edward.Morey@Colorado.edu](mailto:Edward.Morey@Colorado.edu)) . It might take me a day or two to return your email.

### PREREQUISITES

Intermediated Micro Theory (C.U. Econ. 3070) and Introduction to Mathematical Economics (C.U. Econ. 4808), or my permission. Note that calculus is a prerequisite for Math Econ and I will use some calculus in the course. I will assume knowledge of the materials covered in all the prerequisite courses. These are important prerequisites.

### READINGS

Over the years I have brought together a number of journal articles, magazine articles and newspaper articles. These articles are the required reading for the course. Some of these articles are quite old, others very recent. They vary in length from a few newspaper columns to twenty-page journal articles. Some of these articles will be discussed in class. I will often draw review questions from these articles. You are responsible for the material in all of the articles for each section of the outline that is covered in class, even though not all of the readings will be explicitly discussed in class.

Many of these articles were suggested by students. I encourage your comments and feedback on these readings. Bring me articles you feel would be good class readings, and tell me which of the current readings have the greatest value and which have the least value.

I used to bring the articles to class in a *library* box. We will start the term by experimenting with a new method. I have put the articles for the first few sections of the course on the web (See the home page for Econ 4535). They are in .pdf or .html format. Note that some of these files are large. See the course web page for details.

**I will be revising the list of articles during the semester.**

Note that much of the material I will present in class does **not** appear in any of the readings.

I have ordered the book, Environmental and Natural Resource Economics, by Tom Tietenberg. Tom wrote the book as a text for courses in environmental and natural resource economics, but you should not view it as the text for this course. Rather, view it as a supplemental reading. Don't consider it a substitute for either the course readings or class time, and don't feel constrained to buy the book.

I have also ordered Kahn, James., The Economic Approach to Environmental and Natural Resources (2<sup>nd</sup> Edition), by James Kahn. Jim first considers the relevant economic theory in the context of the economy and the environment (Chapters 1-5), and then applies that theory to environmental issues/applications (Chapters 6-18). Don't consider it a substitute for either the course readings or class time, and don't feel constrained to buy the book.

**However**, each of these books has relevant chapters on most of the stuff we will cover in class, so the risk adverse might want to have access to one of these books.

## CLASS FORMAT

View the readings and my lectures as complements rather than substitutes. A lot of the basic material that you will be responsible for will be presented in lecture and is material that is not explicitly in the readings, so class attendance is imperative. Class time will be devoted lectures, problem solving and discussions. It is important that you do the appropriate readings before each lecture. Some class time will be devoted to working on the review questions. Prepare for these review sessions by answering the questions to the best of your ability. I will ask a lot of questions and will sometimes offer extra credit for correct answers. Expect to be called on.