

**AREC/ECON 340 –Introduction to Natural Resource Economics**  
**Department of Agricultural and Resource Economics**  
**Colorado State University**  
**Spring, 2010**  
**TR 12:30-1:45 PM, Clark C 250**

**Course Syllabus**

Dr. Craig A. Bond

Assistant Professor

B 311 Clark

(970) 491-6951 (office)

craig.bond@colostate.edu

OH: MW 9-11, plus most T afternoons 2-4, or by appt.

Drew Moxon

Teaching Assistant (TA)

Office: B307 Clark

drew.moxon@colostate.edu

OH: TBA

***COURSE DESCRIPTION***

This class is designed as an undergraduate-level introduction to concepts related to natural resource economics, including scarcity, pricing, allocation, and the institutions influencing various non-renewable and renewable resources. We will work within an economic framework to understand historical and contemporary natural resource issues, with a concentration on why certain resources are allocated in a particular way, and how changes in technological and institutional regimes might result in different allocation decisions.

***COURSE OBJECTIVES***

Students will learn how to apply economic principles to the analysis of natural resource use and policy. In particular, students will be able to conceptualize and discuss the benefits and costs of alternative natural resource allocation schemes, become familiar with issues related to the institutional framework under which allocation decisions are made, and better understand and critique contemporary natural resource management at several scales of analysis.

***PREREQUISITES***

AREC/ECON 202 (Agricultural and Resource Economics) or equivalent.

***REQUIRED TEXT***

Field, B.C. 2005. *Natural Resource Economics: An Introduction*. Waveland Press.

In addition, I will post any additional readings on RamCT (<http://ramct.colostate.edu>).

***GRADING***

Final grades will be based on total weighted point accumulations according to the following schedule: A=90-100%, B=80-89.99%, C=70-79.99%, D=60-69.99%, and F<60%. Pluses and minuses will not be assigned. Your grade is based on *my* expectations of your performance in the class, *not* your performance relative to your classmates. As such, there is no “curve”, but this also means that everyone in the class has the opportunity to achieve an “A” grade. However, the professor reserves the right to shift the bounds of the letter grades “downward” (e.g., a “B” may range from 75% to 85%) to the benefit of the students.

For example, last year, the “A” range was from 88.4 and up, the “B” range was from 79.3% to 88.3%, the “C” range was from 68.55% to 79.2%, and the “D” range was from 58% to 68.54%. The adjustments were made on the basis of being able to discriminate between letter grades, and performance on the final exam.

## EVALUATION

### Exams (70% of final grade):

There will be two midterm exams and one comprehensive final exam in this class. Your grade will be assigned according to the following formula:

$$\max \left\{ \begin{array}{l} .20midterm1 + .20midterm2 + .30final \\ .10midterm1 + .10midterm2 + .50final \end{array} \right\}$$

In other words, I will use the weighting formula that gives you the highest numerical value. In this way, a “slow start” can be overcome with hard work throughout the entire semester. **In addition, any student achieving a 100% grade on the final exam will receive an “A” grade.**

The format of each exam will include fill-in-the-blank, multiple choice, short answer, and/or graphical or mathematical questions related, **but not identical to**, the material covered in class and on the problem sets. As such, it is expected that you will be able to *apply* the relevant economic concepts and models we learn to a variety of contemporary natural resource issues, and approach exam questions from an economic perspective. **Memorization of material presented in class will likely not be sufficient to earn a high grade on exams.**

In fact, the class is designed in a very specific manner. Generally, I’ll present the basic, mostly theoretical ideas in lecture, and then you will practice applying that theory to specific problems in the homework. This might mean working through a numerical example, testing the theory in a new situation, etc... These homeworks are admittedly long, but there are only 5 per semester, and are designed to help you learn how to use the theory. **The homework problems are not designed to mimic exam questions!** Exam questions will generally be developed from the *concepts* presented in class and practiced in the homeworks. They are designed to test your *understanding* and *ability to apply* the material, rather than your ability to *memorize*. In other words, I’d like you to leave the class with a tool set that you can use to help describe a) why individuals, firms, and governments act as they do with respect to natural resource use; and b) how changing incentive structures might change this behavior. This is much more useful to you in the long run than just being able to parrot back lecture notes; namely, it helps develop your critical thinking skills (which happen to be quite valuable in labor market)!

As you might suspect, many students find this extremely challenging, and this challenge is often reflected in exam grades. For example, last year’s unadjusted midterm grades averaged 77% and 66%, and the average on the final exam was 73%. However, I also acknowledge that our typical evaluation instruments (such as exams) are generally imperfect. As such, my policy is to adjust all exam grades (each worth 100 pts.) by adding the difference between a perfect score and the top grade in the class to your raw score. In mathematical terms, this implies:

$$adjexam_i = \left(100 - \max_j (rawexam_j)\right) + rawexam_i,$$

where  $i$  and  $j$  denote individuals,  $adjexam$  is the exam grade used in your final grade calculation, and  $rawexam$  is an unadjusted exam grade. Last year, the top score on midterm 1 was 98, the top score on

midterm 2 was 95, and the top score on the final was 93. Thus, the mean adjusted exam grades were 79%, 71%, and 80%, right where we would expect.

Finally, to let you know what to expect for final grades, here's the final distribution from last year, for those that took the final exam:

|   |     |
|---|-----|
| A | 27% |
| B | 24% |
| C | 37% |
| D | 12% |
| F | 0%  |

***Homeworks and Other Assignments (30% of final grade):***

*Take-Home Assignments*

- 1) Take-home assignments will be posted to RamCT, and focus on applications of analytical tools we cover in class. These assignments are due at the beginning of class, usually one week after distribution on RamCT. There will likely be 5-6 of these over the course of the semester. These will total 20% of your final grade.

*Writing Exercises*

- 2) Each student is required to contribute an original post to the class blog hosted on RamCT under "Discussions/Natural Resource Economics Blog". This post must be at least 200 words in length and contain a (preferably web-based/url) citation to a newspaper, magazine, or internet equivalent article (not cited elsewhere on the blog) that discusses a contemporary natural resource issue. The content of this post should summarize the major problem or issue, identify the position of individuals or groups on opposite sides of the issues, and any pending solutions mentioned in the article (such as legislation, tax changes, etc...).

This initial post is due at **5PM on Friday, February 19**. It is worth 5% of your final grade.

- 3) Each student is required to comment on at least **two** original posts from others, either as a direct response to the post or as a response to previously left comments by other students. These comments must be at least 100 words in length, and provide some degree of economic analysis about the issue identified in the original post. As such, each comment must propose either a) a solution to the problem based on the economic theories we've discussed in class or b) support or refute the arguments made in the original post or subsequent comments through additional insight or analysis.

Each of these comments is worth 2.5% of your grade. The first is due **Friday, March 26 at 5PM**, while the second is due on **Friday, April 30 at 5PM**. Click "Comments" under the original post to draft a comment.

Of course, you may post more than what is required, and I'll use the best ones in calculation of your grade. Keep in mind that this exercise is a great way to practice taking the theory we've learned and applying it to contemporary natural resource problems. In other words, a good job here is likely to help you on the exams!

## **CLASS POLICIES**

1. Take-home homework assignments are due at the beginning of class. Late submissions will be accepted within 24 hours of the time due with a 25% decrease in possible points, and 48 hours of the time due with a 50% decrease. Submissions after 48 hours will not be accepted. ***Make-up exams will only be offered under extraordinary unforeseen circumstances (e.g., death in the family, personal incarceration by the state) or for University-sanctioned extracurricular/co-curricular activities, and with acceptable documentation of the event responsible. Otherwise, no early or late exams will be offered.***

2. To dispute a homework or exam grade, attach a typewritten argument to the assignment/exam in question and return it to the instructor or the TA within one week of receipt of the graded work. All such requests will be reviewed; however, grades will be subject to both upward and downward revisions. ***Requests in all other forms will not be considered.***

3. Please be on time and respectful of your fellow students. This includes eliminating all externality-generating emissions, including, but not limited to, audible sounds from mobile phones, PDA's, and beepers and excessive snoring.

4. All University regulations regarding student behavior and responsibilities, including academic integrity, will be ***strictly*** enforced. Remember, "faculty and students have not only a right, but also a responsibility, to examine critically the insights, understandings, values, issues, and concerns which have evolved in the various areas of human activity" (2007-2008 *General Catalog*, p. 35). From time to time in the class, we may discuss issues that touch, challenge, or reinforce deeply held personal values. While discussion of such issues is strongly encouraged both inside and outside of class, general rules of civil discourse, mutual respect, and decorum should be adhered to at all times. ***Please respect those that may hold alternative views from your own.***

5. I will make every attempt to answer any phone calls or emails as soon as possible. However, just like you, I have many responsibilities outside of class, and an immediate response may not be possible. A reasonable expectation is a response within 24 hours of the initial request. ***Please note that this likely precludes last-minute emails regarding homeworks or exams, so manage your time wisely.***

6. Please use office hours as a resource. However, it is your responsibility to make an effort to solve your problem ***before*** office hours...it is likely that not only will your questions be better, but you'll learn more, too.

6. I will make every attempt to be open and honest about class material, decisions, the grading system, and other issues. ***If you have a question about these issues at any time, or would like to discuss other matters of academic interest in class, please ask.***

7. You are responsible for reviewing your recorded grades on RamCT. If there is any discrepancy, please contact the TA.

***SCHEDULE (all EXCEPT exam dates subject to revision)***

Intro to Class: *Most Dangerous Catch*, major introductions, and Field Ch 1 & 2  
Willingness to Pay and Demand – Field Ch 3  
Costs and Supply – Field Ch 4  
Putting it Together: Markets, Failures, and Static Efficiency – Field Ch 5 & 6  
Valuation of Natural Resources – Field Ch 9  
Public Policy – Field Ch 7  
Types of Analysis and Discounting – Field Ch 3 & 8

**MIDTERM #1: TUESDAY, MARCH 2**

Mineral Economics and Dynamic Efficiency – Field Ch 10  
Energy Economics – Field Ch 11  
Forest Economics – Field Ch 12  
Marine Resource Economics – Field Ch 13  
Land Economics – Field Ch 14  
Water Resource Economics – Field Ch 15

**MIDTERM #2: TUESDAY, APRIL 13**

Special topics, possibly including, but not limited to, Economics of Outdoor Recreation, Economics of Wildlife Management, Economics of Biodiversity, Natural Resources, Growth, and Development.

\* If you'd like to cover a particular topic here, please let me know ASAP! This is our chance to discuss interesting natural resource issues not necessarily in the text and bring our toolbox to bear on them.

**FINAL EXAM: TUESDAY, MAY 11, 3:40 PM – 5:40 PM**

**OPTIONAL READING MATERIALS: Economics in the Popular Literature and On the Web:**

Fun Books (not necessarily resource related):

*Moneyball: The Art of Winning an Unfair Game*, Michael Lewis

*Eat the Rich: A Treatise on Economics*, P.J. O'Rourke

*Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*, Steven Levitt

*New Ideas from Dead Economists*, Todd G. Buchholz

*The World is Flat*, Thomas L. Friedman

On the Web:

Environmental Economics, <http://www.env-econ.net/>

Ecological Economics, <http://forestpolicy.typepad.com/ecoecon/>

The Commons, <http://commonsblog.org/>

Café Hayek, <http://cafehaye.typepad.com/hayek/>

Marginal Revolution, <http://www.marginalrevolution.com/>

Natural Capital, <http://envecon.wordpress.com/>

Environmental and Urban Economics, <http://greeneconomics.blogspot.com/>

Oikos, <http://www.greenomics.blogspot.com/>

Globalisation and the Environment, <http://globalisation-and-the-environment.blogspot.com/>

Knowledge Problem, <http://www.knowledgeproblem.com/>

Common Tragedies, <http://commontragedies.wordpress.com/>

Economist's View: Environment,

<http://economistsview.typepad.com/economistsview/environment/index.html>

Freakonomics, <http://freakonomics.blogs.nytimes.com/>

Greg Mankiw's Blog, <http://gregmankiw.blogspot.com/>

Asymmetrical Information, <http://meganmcardle.theatlantic.com/>

Paul Krugman, <http://krugman.blogs.nytimes.com/>

The Energy Blog, <http://thefraserdomain.typepad.com/energy/>

Endogenous Preferences, <http://endogenouspreferences.wordpress.com/>

Environmental Economics and Sustainable Development, <http://environmental-economics.blogspot.com/>

Your suggestions are greatly appreciated!