Econ 240: Issues in Environmental Economics

Spring 2018

Professor:	Anders Fremstad
Office:	C319 Clark
Contact:	anders.fremstad@colostate.edu
Class meetings:	Tuesday/Thursday 2:00-3:15, Military Sciences 200
Office hours:	Wednesday 10:30-12, Thursday 12-1:30, and by appointment

Course description

Environmental economics uses economic principles to understand how society uses and misuses environmental resources. This course is an introduction to the language of economics. Becoming proficient in environmental economics will serve you beyond this classroom as a citizen engaged in environmental issues at the local, national, and international levels.

The first half of the course describes the economic theory of environmental degradation. We will discuss and debate what constitutes the efficient level of pollution. We will also study benefit-cost analysis, which is how economics is applied to environment issues in practice. In the second half of the course we will address how the government has succeeded and failed to limit environmental degradation. We will analyze a variety of methods of protecting the environment, including the exchange of property rights, environmental standards, Pigovian taxes or subsidies, and tradeable pollution permits. Throughout the course, I will encourage students to apply economic principles to the environmental issues that interest you. We will conclude the semester with group presentations that use benefit-cost analysis to evaluate projects or programs with environmental impacts.

Course objectives

- To master basic economic models of the environment
- To use benefit-cost analysis to examine environmental issues
- To communicate effectively about environmental economics in writing, in-class discussion, and group presentations

Readings

The required book for this course is the 7th edition of Eban Goodstein and Stephen Polasky's *Economics and the Environment*. New and used copies of the book are for sale at the CSU bookstore, used copies are available online for about $70, and a digital version is available for about $40. All other required readings will be made available on Canvas.

Course structure

Each week, I will assign about 2 hours of reading. You should complete each day's reading before attending class. The two class meetings each week will consist of my presentation of course material, discussion, and in-class work. Over the course of the semester, we will also conduct 3 in-class experiments, which can earn you up to 2 points of extra credit, but cannot be made up if you miss class.

There will be 3 homeworks over the course of the semester. Although I will not grade the homeworks, they will be excellent preparation for quizzes and exams. I highly encourage students to solve the homework questions in small groups. Both strong and weak students gain a lot by working together. I am available to help you find the solutions to these problems in class, on Canvas, by email, and in my office hours. You will be tested on the material covered in this class in two 30-minute quizzes, a 75-minute midterm exam, and a 120-minute final exam. The quizzes and exams will consist of multiple-

choice and short-answer questions. Makeup exams will not be permitted without a university-recognized excuse that you communicate to me in advance.

Throughout the semester, we will apply the tools from this course to environmental issues of your choice, such as water, forests, transportation, solid waste, energy, climate change, economic development, land use, and agriculture. We will finish the semester with groups of students presenting their benefit-cost analyses of specific projects or policies that impact the environment. In Week 4, I will share with you some of the projects analyzed by students in previous semesters. In Week 6, every student will post an analysis of an environmental project or policy, and the following week every student will provide detailed criticisms and suggestions to two of their peers' analyses. After the midterm, we will form groups of 3 students interested in pursuing a more thorough analysis of an environmental project or policy. Groups will provide me with an outline of their analysis in Week 11 and arrange to meet with me by the end of Week 12. We will devote three of the final class days to group presentations, and each group should prepare a set of slides and a 10-to-12 minute presentation of their environmental issue, followed by class discussion.

Finally, economics is an abstract subject and this will be a difficult course for many students. My advice is the following: First, spend time with the textbook and the homeworks, because it takes time for some concepts to make sense. Second, ask questions about the course material, even if your question is simply "I'm lost". It is usually most effective for students to ask questions in class, but if you prefer you can email me, post the question on Canvas, or ask me before or after class. Finally, if you fall behind, immediately find a time to meet outside of class. It is my job to help you learn this material – the sooner the better.

Grading

Your final grade will be calculated as a weighted average of your grades in each of the following categories:

5% quiz 1
20% midterm exam
5% quiz 2
30% benefit-cost analyses
40% final exam

The grading scale used in this course is:

A+	97-100	B+	87-90	C+	77-80	D+	67-70
A	93-97	B	83-87	C	73-77	D	63-67
A-	90-93	B-	80-83	C-	70-73	F	0-66

Contact hours and workload

Attend lecture	~3.0 hours/week
Readings	~2.0 hours/week
Study practice problems for exams	~2.0 hours/week
Research project	~2.0 hours/week
Total	~9.0 hours/week

Accommodation for students with disabilities

If you require special accommodation to complete the requirements of this course, please let me know as soon as possible. The student is responsible for obtaining the appropriate verification and paper work.

Academic integrity

This course will adhere to the Academic Integrity Policy of the General Catalog and the Student Conduct Code. As per university policy, "Any student found responsible for having engaged in academic

dishonesty will be subject to academic penalty and/or University disciplinary action." (General Catalog 2011-2012, 1.6, p.8). Any academic dishonesty in this course may result in a grade of "F" for the course and may be reported to the Office of Conflict Resolution and Student Conduct Services.

Please be aware that the General Catalog specifically identifies the following examples of academic dishonesty: cheating in the classroom, plagiarism, unauthorized possession or disposition of academic materials, falsification, and facilitation of cases of academic dishonesty.

Plagiarism is defined as follows: "Plagiarism includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment. Examples include a submission of purchased research papers as one's own work; paraphrasing and/or quoting material without properly documenting the source." (General Catalog 2011-2012, 1.6, p. 8).

Copyright

Schedule

Date	Topics	Required Readings	Coursework
Week 1	**Intro. to Env. Economics**		
1/16/2018	Global warming	Ch. 1	
1/18/2018	Tragedy of the commons	Chs. 2 & 3	**In-class experiment 1**
Week 2	**The Efficiency Standard**		
1/23/2018	Pareto and Coase	Ch. 4 (pp. 48-60)	
1/25/2018	Benefit-cost analysis	Ch. 4 (pp. 60-73)	
Week 3	**Benefits**		
1/30/2018	Contingent valuation	Ch. 5 (pp. 74-85)	
2/1/2018	Other methods	Ch. 5 (pp. 86-100)	
Week 4	**Costs**		
2/6/2018	Engineering costs	Ch. 6	
2/8/2018	Samples of benefit-cost analysis	Group projects	**Complete HW 1**
Week 5	**Measuring Sustainability**		
2/13/2018	Strong sustainability	Ch. 9 (pp. 166-177)	**Quiz 1**
2/15/2018	Weak sustainability and discounting	Ch. 9 (pp. 177-200)	
Week 6	**Nat. Res. and Eco. Services**		
2/20/2018	Non-renewable resources	Ch. 10 (pp. 201-214)	
2/22/2018	Renewable resources	Ch. 10 (pp. 214-234)	**Post ind. B-C analysis**
Week 7	**Consumption and Welfare**		
2/27/2018	Positional externalities	Ch. 11 (pp. 235-245)	
3/1/2018	Restraining consumption	Ch. 11 (pp. 245-252)	**Comments for 2 peers**
Week 8	**Review and Midterm Exam**		
3/6/2018	Review	Chs. 1-6, 9-11	**Complete HW 2**

3/8/2018	Midterm!		**Midterm**
Spring break			
3/13/2018			
3/15/2018			
Week 9	**Pol. Economy of Env. Regulation**		
3/20/2018	Politics and legislation	Chs. 12 and 13	**Form groups of 3**
3/22/2018	Achievements and obstacles	Ch. 14	
Week 10	**IB Regulation: Theory**		
3/27/2018	Pigovian taxes and tradeable permits	Ch. 15	**In-class experiment 2**
3/29/2018	IB regulation and distribution	Boyce op-ed	
Week 11	**IB Regulation: Practice**		
4/3/2018	Lead, CFCs, and SO2	Ch. 16 (pp. 346-355)	**Submit group B-C outline**
4/5/2018	Carbon emissions	Ch. 16 (pp. 355-373)	**Complete HW 3**
Week 12	**Building a Better Future**		
4/10/2018	Promoting clean technology	Ch. 17	**Quiz 2**
4/12/2018	Energy policy and the future	Ch. 18	**Group meeting with me**
Week 13	**Global Challenges**		
4/17/2018	Poverty and the environment	Chs. 19 and 20	**In-class experiment 3**
4/19/2018	Global agreements	Ch. 21	
Week 14	**Environmental Issues**		
4/24/2018	Group presentations	Peers' analyses	
4/26/2018	Group presentations	Peers' analyses	
Week 15	**Environmental Issues**		
5/1/2018	Group presentations	Peers' analyses	
5/3/2018	Review for final	Chs. 1-6, 9-21	