

**ECON 362  
Environmental Economics  
Section 1676-01  
Fall 2018****INSTRUCTOR INFORMATION**

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**TIME/PLACE**

**Term Dates:** August 27, 2018 – December 10, 2018  
**Weekly Class Meeting:** Mondays 12 – 2:50PM  
**Classroom:** Bell Tower 1462  
**Office Hours:** 8:00 to 9: A.M and 6 to 7:30 P.M.--“by Appointment”  
Sage Hall # 2042. Ext. 8599

**Course Description:**

The objective of this course is to develop the techniques of economic reasoning and to apply them to environmental issues. In particular, the topics of pollution and natural resource management, measurement of cost and benefits of environmental protection, and market failures due to externalities will be addressed in this course.

**Program Learning Goals:** These are the skills we try to help you build in all MVS courses

1. Critical Thinking
2. Oral Communication
3. Written Communication
4. Collaboration
5. Conduct (Ethics)
6. Competency in Discipline

### **Course Learning Outcomes:**

Students who successfully complete this course will be able to:

- Define the conditions for an economically efficient allocation of resources (1,3)
- Apply economic analysis and efficiency in natural resources and environmental problems (1,6)
- Explain those circumstances under which a market-based economy will allocate resources efficiently (2,3)
- Explain measurement of cost and benefits of environmental protection (2,3)
- Analyze applications of cost and benefit analysis in policy making (2,3)
- Explain cost-effectiveness and impact Analysis (1,2,3)
- Explain those circumstances under which a market-based economy will fail to allocate resources efficiently. In particular, students will be able to demonstrate market failures due to externalities (2,3,4)
- Analyze government regulatory attempts to correct market failures in terms of their economic efficiency (1,2,3,6)
- Describe incentive-based approaches to correct market failures (2,3)
- Identify examples of common property resources (2,3)
- Apply the Coase theorem to environmental issues and use the Coase theorem to develop policies to improve environmental quality. (1,2,3)
- Analyze government policy toward common property resources (1,2,3)
- Make an effective oral presentation (using PowerPoint) (2)

**Prerequisites:** Principles of Microeconomics (Econ 110 and Econ 111 or Econ 300)

**Required Text:** Environmental Economics & Natural Resources Economics by Tom Tietenberg 2015 (10<sup>th</sup> Edition), Published by Addison-Wesley. Additional readings will be assigned as well. See the Chapter Assignments Section.

### **Evaluation Procedures and Grading**

Student performance will be evaluated on the basis of two one-hour exams, the final exam, one report and presentation, and homework and class assignments. The grades will be based on 20 percent for each of the two midterms, 20 percent for the final exam, and 30 percent for one term-paper and presentation, and the remaining 10% is for the class assignments and participations.

Each student is expected to write one report (2500 words, about 8-10 pages doubled spaced) on a topic discussed in the class or from the list of topics given in the syllabus. The report will be summarized and presented by the student during the class period. Students can submit their reports up to one week before the Final Exam. Choose an environmental problem and evaluate it in economic terms. I have listed some candidate topics for your reports. Once you have settled on a topic, do a rough outline and come see me.

## Grading

40%  
20%  
30%  
10%

## Semester's Grade Determination

Two mid-term exams  
Final Exam  
Term-Paper and Presentation  
Homework

The following scale will be used to determine the letter grade:

<u>Percentage</u>	<u>Letter grade</u>
95 – 100%	A
90 – 94.9	A-
87 – 89.9	B+
83 – 86.9	B
80 – 82.9	B-
77 – 79.9	C+
73 – 76.9	C
70 – 72.9	C-
67 – 69.9	D+
63 – 66.9	D
60 – 62.9	D-

## Incompletes and Late Withdrawal

Incomplete grades will only be awarded under extraordinary circumstances. Not doing well in the course does not constitute an extraordinary circumstance. To avoid being assigned failing grades, students who decide not to complete the class must withdraw themselves from the class in accordance with the procedures described in the University catalog.

## Drop Policy

According to University policy, non-attendance does not constitute withdrawal; to withdraw from this class you must file a drop form with the University. If you fail to attend this class, and you do not formally drop the class, a "WU" (unauthorized withdrawal), the equivalent of a failing grade, will be recorded.

## Academic Dishonesty

University rules prohibit cheating, fabrication, facilitating the academic dishonesty of another student, and plagiarism. In accordance with the CSU Channel Islands policy on academic dishonesty, students in this course who submit the work of others as their own (plagiarize), cheat on tests and examinations, help other students cheat or plagiarize, or commit other acts of academic dishonesty will receive appropriate academic penalties, up to and including failing the course.

## **Disability Accommodation Services**

Students with disabilities needing accommodation, make requests to, Disability Accommodation Services, East Bell Tower, 1796. Please discuss approved accommodations with me.

### **Course Outline and Chapter Assignments**

#### I. Introduction and Conceptual Framework for Analysis of Natural Resource and Environmental Problems.

- A. Review of economic concepts; market system, supply, demand, market failure, consumer surplus, externalities, marginal cost, marginal returns, opportunity costs and other cost concepts, discounting, public (collective) goods, common property resources (open access resources) and materials balance model.
- B. Readings:
  - 1. Tom Tietenberg. Environmental Economics and Policy, 10th ed., 2015. Chapters 1, 2, 3 and 4.

#### II. Decision Making and Analysis for Natural Resource Use and Environmental Protection.

- A. Planning approaches and analytical techniques for project feasibility, cost effective and benefit/cost analysis including the use of productivity measures, travel cost procedures, contingent valuation, and market data to estimate benefits and costs.
- B. Readings:
  - 1. Tom Tietenberg. Environmental Economics and Policy, 10th ed., 2015. Chapter 3.
  - 2. Elaine Shen, Shah Dabirian, Anthony Oliver, Socioeconomic Report of the 2016 Air Quality Management Plan (Chapter 3 Benefit and Cost). <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/socioeconomic-analysis>  
Cost and Benefit Analysis of the EPA Clean Air Act Regulation <https://publicpolicy.wharton.upenn.edu/live/news/2025-cost-benefit-analysis-of-epa-regulations-and-clean>, August 2017
  - 3. Costs-Benefit Analysis of Plug in Hybrid Electric Vehicle Technology Retrieved May 28, 2007 from <http://www.nrel.gov/vehiclesandfuels/vsa/pdfs/40485.pdf>
  - 4. Sizing the Clean Economy [http://www.brookings.edu/reports/2011/0713\\_clean\\_economy.aspx](http://www.brookings.edu/reports/2011/0713_clean_economy.aspx)  
Matthew A. Cole, and Rob J. Elliott “Do Environmental Regulations Cost Jobs?” The B.E. Journal of Economics Analysis & Policy 2007. Article 28, pp.1-25.
  - 6. Clearing the air: incorporating air quality and environmental justice into climate policy. James K. Boyce & Manuel Pastor. Climate Change, June 2013.

7. CalEnviroScreen June 2017.  
<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

### III. Natural Resource Use and Scarcity

- A. Natural resource stocks and rates of use; resource use and population growth rates; optimum use of natural resources over time; alternative approaches to managing natural resources and factors mitigating scarcity.
- B. Readings:
  1. Tom Tietenberg. Environmental Economics and Policy, 10th ed., 2015 Chapters 6-13.
  2. Amory B. Lovins Reinventing Fire, Rocky Mountain Institute 2011.
  3. Shah Dabirian. “Uncertain Environmental Risk and Optimal Rate of Oil Recovery.” Journal of Environmental Management. December 1995.

### IV. Environmental Economics and Future Growth and Development and the Interaction of Natural Resource and Human Systems.

- A. Managing waste disposal systems, controlling pollution levels, optimal levels of pollution control, emission charges, standards and pollution permits.
- B. Readings:
  1. Tom Tietenberg. Environmental Economics and Policy, 10th ed., 2015. Chapters 14-22.
  2. Sue Lieu, Scott Johnson, Shah Dabirian. “An Approach to Evaluating the Economic Impact of Emission Trading.” Journal of Air and Waste Management, 1993.

You may access numerous related articles by using the EPA’s environmental economic sites, classified by topic, at <https://www.epa.gov/environmental-economics>.

## Lecture Schedule

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|--------------|----------|--|
| <b>Aug.</b>  | 27       | Introduction Visions of the Future (Text Ch. 1)<br>Economics Approach: Property Rights, Externalities, and Environmental Problems (Text Ch. 2).  |
| <b>Sept.</b> | <b>3</b> | <b>Labor Day. Holiday</b>  |
|              | 10       | Evaluating Trade-Offs: Benefit and Cost Analysis and Cost-effectiveness (Text Ch. 3).<br>Cost-effectiveness of Air Quality Regulations<br>Chapter 3, Benefit and Cost “Socioeconomic Report of the 2012-16 Air Quality Management Plan.” <a href="http://airnet.aqmd.gov/">http://airnet.aqmd.gov/</a> |
|              | 17       | Valuing the Environmental Methods (Text Chapter 4)   |
|              | 24       | Dynamic Efficiency and Sustainable Development (Tentative) (Text Ch. 5).   |

- Oct. 1 First Exam**  
 Depletable Resource Allocation: (Text Ch. 6)  
 8 Energy: Transitions from Depletable to Renewable Resources (Text Ch. 7)  
 15 Recyclable Resources: Minerals, Paper, Bottle, and E-waste (Text Ch. 8)  
 22 Water Resources (Text Ch. 9)  
 Land and Agriculture (Text Ch. 10)
- 29 Storable, Renewable Resources, Biodiversity I: Forest (Text Ch. 11)  
 Common-Pool Resources: Commercial Fisheries  
 (Text Ch. 12)
- Nov. 5 Second Exam**  
 Economics of Pollution Control (Text Ch. 14)  
 Stationary-Source, Local Air Pollution (Text Ch. 15)
- 12 Veterans Day: Holiday**
- 19 Climate Change and Environmental Justice (Text Ch.16)  
 Mobile Source and Transportation Air Pollution (Text Ch. 17)  
 26 Water Pollution Control (Text Ch. 18)  
 Toxic substance and Environmental Justice (Text Ch. 19)
- Dec. 3 The Quest for Sustainable Development (Text Ch. 20)**  
**10 Final Exam**

## Selected Topics for Reports

1. What are the potential Nuclear Disasters in U.S.?
2. Assess National and Regional Green Jobs creations.
3. Would opening the Alaskan National Wildlife Refuge to oil drilling give the U.S. oil price stability? Hint: Consider OPEC's impact on oil prices and the quantity of oil available in Alaska relative to what the U.S. imports.
4. What are the arguments for and against compensating forest property owners overseas when environmental regulation limits their land use?
5. Do Environmental Regulations Cost Jobs?
6. Analyze and discuss the following statement: "As the U.S.'s cost of disposing of trash increases over time, recycling rates should automatically increase as well." What factors might prevent or encourage recycling to expand?
7. What are the impacts of conservation on global warming?
8. According to the South Coast Air Quality Management District, seventy percent of air pollution in the Los Angeles Air Basin is coming from mobile sources. What would be the solution?
9. In your hometown what system or method is used to price the city's water supply? What are the advantages and disadvantages of this pricing system? What system would you recommend?
10. Is the 200-mile limit a sufficient form of government intervention to ensure that the tragedy of the commons (open access) does not occur for ocean fisheries within the 200-mile limit? Why or why not?
11. What are the economic incentives (reasons) to limit family size? What are the economic reasons for the drop in population growth rate?
12. What are the pros and cons of export of hazardous waste to developing countries? Under what conditions, if any, would it be an economically efficient solution?
13. Do the goals of environmental policy and our concern for the poor, inevitably conflict? Does the burden of attempts to improve the environment necessarily fall disproportionately on the poor?
14. When the undesirable side effects are considered, is economic growth counterproductive? Why or why not? Has the economic growth process outlived its usefulness?

15. Food self-sufficiency is a poor public policy for developing countries. Use economics to explain why.
16. Review and evaluate different policies for managing fish: taxes, regulation, quotas, permits, etc.
17. Will biotechnology in forestry lead to a surplus of wood in the future much as it has for agricultural products? Why or why not?
18. Give the pros and cons of not being able to consider costs when setting air pollution standards?
19. What are current views of reducing greenhouse gases and global warming?
20. Do we pay the full cost of driving cars in the U.S.? What costs are left out? Why?
212. How widespread is groundwater contamination by toxic chemicals in the U.S.? What can we do to reduce the contamination?
22. Evaluate the economic potential of biofuels, such as biodiesel, from a social economic perspective.
23. Evaluate the economic potential of wind or solar energy from a social-economic perspective.
24. What are the costs of mercury contamination in the U.S.? What are their major sources and means of control?
25. What are the potential adverse health effects of GMO's.
26. Current policies toward Environmental Justice.