Course Reserve Text and Optional Texts: A copy of James R. Kahn’s *The Economic Approach to the Environment* is on reserve (for the course AGEC 406) in the Management and Economics Library on the second floor of the Krannert building and is a good introductory reference to environmental and resource economics. If you do not have a strong economics background or want to know more about environmental or natural resource economics, you might consider buying a used copy of either of the texts listed below. Note that the focus of AGEC525 is principally environmental economics.


Tietenberg and Lewis, *Environmental and Natural Resource Economics*. If interested in natural resource economics as well as environmental economics, you may want to get a used/previous edition of this text. 8th ed. is most current, but 7th should cost less and be just as good as an introduction or reference text for you.

Course Description:
The course will consist of three parts, beginning with a foundation of economic concepts for environmental policy analysis and management, including marginal analysis, welfare measures, property rights, policy instruments, and the jointly-determined nature of social and environmental systems. The second section of the course will focus on case studies of environmental policies and will combine readings and in-class discussions with faculty from several disciplines in other departments and colleges across campus. Cases will cover a variety of different environmental media and policy issues that are the subject of past or ongoing environmental policy research at different scales of analysis (local/regional/national/global). Students will form small interdisciplinary teams and develop their own applications or cases over the course of the semester, presenting them to the class during the third section of the course.

Course Objectives:
1) To understand key economic concepts and methods used to analyze environmental policies
2) To understand the role of economics and economists in public policy analysis
3) To apply economic concepts to real world problems and understand how good economic analysis of environmental policy uses and complements research from other disciplines
4) To understand what is involved in working as part of an interdisciplinary team to provide objective information that is needed by decision makers
5) *For economics students:* to understand the importance of other disciplines in conducting environmental economics research and policy analysis
6) *For non-economics students:* to understand how scientific knowledge from other disciplines is utilized in economic analysis of environmental policy.
Grades:

Reflection Essays 15%
Each student will write 10 reflection essays during weeks 2-14 of the class.

Midterm 25%
Individual participation 20%
Team project 40%

Individual Reflection Essay Guidelines

Each week during the remainder of the semester you have the opportunity to write a one page single spaced or 2 pages double-spaced essay [12pt Times New Roman font with 1” margins all the way around] to demonstrate your understanding of key economic concepts from the readings, applications/cases, or lectures in a given week. This is your opportunity to show me you understand the material and demonstrate that you can think like an economist. One example would be to apply the concepts from class to an environmental or natural resource issue that you are interested in or concerned about. You are required to turn in ten (10) of these over the next 13 weeks of the course in order to receive all of the credit for this 15% of your grade.

Essays are either acceptable or they are not and you will be given one chance to re-write an essay that is deemed unacceptable. Essays submitted should not be summaries of articles read or other material covered in class, rather the focus is on demonstrating that you can apply the topics from class, or explore economic or environmental policy topics from the class in a more rigorous fashion.

Essays are due to me by 5PM on Fridays and must be turned-in in the week which we discussed the material. For example, if you choose to write an essay during week 2 of class it must be about one of the two topics covered in class that week and late essays will not be accepted. All essays should be submitted via email.

Tentative Schedule Fall 2009

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic/Presenter(DEPT)</th>
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<tbody>
<tr>
<td>25-Aug</td>
<td>Course Overview</td>
</tr>
<tr>
<td>27-Aug</td>
<td>Economics and the environment</td>
</tr>
<tr>
<td>1-Sep</td>
<td>Foundation: Welfare Economics</td>
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<tr>
<td>3-Sep</td>
<td>Market Failure: Public Goods</td>
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<tr>
<td>8-Sep</td>
<td>Coase: The Problem of Social Cost</td>
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| 10-Sep | 1) Market Failure: Externalities  
           2) Team Project Kick-off               |
| 15-Sep | Property Rights                            |
| 17-Sep | 1) Tying Concepts Together  
           2) Team Work Session                  |
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>22-Sep</td>
<td>No Class (Team Project topic and description due to Dr. Gramig)</td>
</tr>
<tr>
<td>24-Sep</td>
<td>Economics of Pollution Control</td>
</tr>
<tr>
<td>29-Sep</td>
<td>Application: Command-and-Control and Economic Incentives</td>
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<tr>
<td>1-Oct</td>
<td>Nonmarket Valuation: Revealed Preferences</td>
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<tr>
<td>6-Oct</td>
<td>Nonmarket Valuation: Stated Preferences</td>
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<tr>
<td>8-Oct</td>
<td><strong>Mid-term exam</strong></td>
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<tr>
<td>13-Oct</td>
<td>NO CLASSES - October Break</td>
</tr>
<tr>
<td>15-Oct</td>
<td>Linda Prokopy (FNR): Watershed Mgt</td>
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<tr>
<td>20-Oct</td>
<td>Otto Doering (AGEC): topic TBA</td>
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<tr>
<td>22-Oct</td>
<td>Team Project work day</td>
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<tr>
<td>27-Oct</td>
<td>Wally Tyner (AGEC): Bio-energy</td>
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<tr>
<td>29-Oct</td>
<td>Gramig (AGEC): TBA</td>
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<tr>
<td>3-Nov</td>
<td>Bill Hoover (FNR): Case study on non-timber forest products</td>
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<tr>
<td>5-Nov</td>
<td>Bill Hoover (FNR): International case study</td>
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<tr>
<td>10-Nov</td>
<td>Gramig (AGEC): TBA</td>
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<tr>
<td>12-Nov</td>
<td>Team Project work day</td>
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<tr>
<td>17-Nov</td>
<td>Leigh Raymond (PS): Climate change</td>
</tr>
<tr>
<td>19-Nov</td>
<td>John Lee (AGEC): Water Resource Development in Panama</td>
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<tr>
<td>24-Nov</td>
<td>Gerald Shively (AGEC): Tropical Deforestation in the Philippines</td>
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<tr>
<td>26-Nov</td>
<td>NO CLASS-Thanksgiving Holiday</td>
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<tr>
<td>1-Dec</td>
<td>Team prep for Case presentations</td>
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<tr>
<td>3-Dec</td>
<td>Team Presentations of Cases</td>
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<tr>
<td>8-Dec</td>
<td>Team Presentations of Cases</td>
</tr>
<tr>
<td>10-Dec</td>
<td>LAST CLASS MEETING: Semester debriefing and student feedback</td>
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Each team of 3-4 people (appointed by Ben Gramig) will identify a case study of an environmental problem, policy, or issue that can be used to illustrate the principles and models of environmental economics. (*Notice:* If you are unwilling or unable to serve on a team, then you may write an individual research paper on a case study as a substitute for the team effort. You must provide independent reviews of five (5) journal articles, as well as a paper that is no longer than 18 pages double spaced, 12 pt. font, 1-inch margins.)

Examples of a case study might be:

- A case study of the actual use of a water quality trading market to achieve a pollution control objective ([http://www.epa.gov/owow/watershed/trading.htm](http://www.epa.gov/owow/watershed/trading.htm))
- A case study of the use of an environmental fee (e.g. tolls to enter central London or charging for use of disposable grocery bags) or emissions tax as an environmental policy designed to harness the power of economic incentives
- A case study of the importance of economic components in models/modeling for climate change prediction or adaption/mitigation studies
- A case study of marketable pollution permits used to reduce CO2 in Europe
- The case study of an actual use of environmental/health valuation methods in a policy or legal context
- A case study of a situation where a person or firm’s use of an environmental resource (e.g. groundwater pumping) creates an externality problem associated with environmental quality for other persons or firms
- A case study of the role of economists in a particular policy or regulatory process (e.g. SO2 reductions, safe drinking water) demonstrating the usefulness of the economic-way-of-thinking, economic analysis and economic modeling
- A case study of the role that can be played by economic analysis in adaptive management (something very specific is meant by this term) of natural resources or ecosystems
- A case study of the costs and benefits of a particular project or investment that has implications for environmental quality or natural resource use (e.g., expanded irrigation in arid regions)
- A case study of an actual trans-boundary dispute with respect to the pollution of a shared environmental resource (e.g., air pollution from Eastern Europe lowering air quality in Western Europe) that illustrates the economics of cross boundary externalities and attendant policy responses
- A case study of an international agreement to address a global open access or common property problem (e.g. the Montreal Protocol) and how the agreement can be facilitated by or analyzed by economic analysis
- A case study of a corporate environmental management response to an environmental quality issue showing how corporate environmental management or business sustainability can be incorporated into neoclassical economic analysis
- A case study of measurement of the economic value of (willingness to pay or willingness to accept payment for) an ecosystem service(ES) and the institution(s) necessary to support payment for the provision of ES
- A case study of the disclosure of environmental information as an instrument of environmental policy (e.g. Toxic Release Inventory, the effect of environmental performance information on a firm’s stock value)
- A case study of environmental quality or sustainability dimensions of renewable (e.g. solar or wind) or bio-energy policy (e.g. ethanol from corn grain, use of cellulosic feedstocks)

You may have a better idea, so ask. Be sure your framing of the case study allows you to use *economic analysis.*
As part of this effort, the **team** will then identify three (3) journal articles that address the team’s chosen topic. These three (3) journal articles will come from economics-oriented journals. Each article will be thoroughly and critically reviewed by the team as a **group**.

Also as part of the team project, each **individual** team member will identify two (2) journal articles from economics or another discipline relevant to the chosen topic. Students studying in fields outside of economics are encouraged to review an article from your “academic home” and should indicate how components of this research are necessary inputs for economic analysis of the chosen topic. Likewise, students with social science backgrounds should identify how economic analysis in the selected articles is dependent upon inputs from the natural or physical sciences. Each of these articles will be thoroughly and critically reviewed by the individual team **member**.

1) By October 6, each team will submit a list of the three journal articles they are going to review as a group.

2) By October 15, each team member will submit a list of the two journal articles they are going to individually review.

3) Each team (for 3 team reviews) and individual (for 2 individual reviews) will submit a short review of each article, answering the questions identified on the “Format for Journal Article Reviews” handout that accompanies this assignment. Each article will be fully referenced in the review and a copy of each article should accompany each submitted review.

4) The team will prepare and present a 15 minute PowerPoint™ presentation or “skit” addressing their chosen topic that includes information and conclusions from the three journal articles and any other sources desired. The Presentation is not, however, about the journal articles…rather the articles provide background information for the presentation. The purpose of the presentation is to flaunt your knowledge of economics. Show you know economic principles, methods, models, and concepts and can apply them in a case study. The PowerPoint™ can be composed as (1) a classroom lecture, (2) a seminar to practicing economist professionals, (3) an outreach meeting to non-economists working on the topic, or (4) a policy briefing to decision-makers. (You may have a better idea— if so, talk to me.) *Provide copies of the power points to handout and provide Dr. Gramig with an email file of the presentation. Other related handouts are welcome.*

5) Every team will also be assigned the review responsibilities for another team. Thus on the day of the presentation, the assigned reviewer team will lead off the question and answer period with penetrating questions about the presentation, particularly about the presenting teams use (or abuse) of economics.

Grading will be based on the quality of completion of all these 5 steps.
Deliverable Due Dates:

9/10  Team “groups” announced by Dr. Gramig
9/22  Teams select topic. The topic selected is reported to Dr. Gramig
10/6  Team selects three (3) journal articles – Give full citation to Dr. Gramig
10/15 Individual selects two (2) journal articles – Give full citation to Dr. Gramig
10/20 Team Review #1 due
10/27 Individual Review #1 due
11/3  Team Review #2 due
11/10 Individual Review #2 due
11/17 Team Review #3 due
12/3-7 PowerPoint™ presentation (or substitute individual paper) is due.

Grades:
Individual reviews (2)  10%
Team reviews (3)  10%
PPT  15%
Q&A of other team  5%
TOTAL  40% of total grade in class

You will have a chance to evaluate your team members’ effort and quality of effort at the end of the semester. I will consider these evaluations in my overall scoring of individuals.

Preparing Journal Article Reviews
Format for Reviews

Critically reviewing an article takes time, knowledge and experience. The following are helpful questions to guide you through a review. You can blend your answers to these questions within an essay format, rather than segregating each question and giving it a separate answer, but please try to address all the questions in your review. There may be a question(s) below that is not relevant to your journal article, depending on the article.

1) Nature of the identified problem
   a) What important question(s) was addressed in the paper?
   b) Was it a question in economic theory? Or, a question relating to methodology and/or methods? Was it a question of significance to a public or private decision maker, individual or group? Was the effort problem-centered or technique-centered or combination of the above?
   c) How does the question relate to the theme selected by your team?
2) What were the objectives of the journal article?…or the research effort on which the article was based? Are the objectives appropriate to the identified problem?
3) What hypotheses, if any, were tested? Do the hypotheses adequately relate to the identified problem?
4) What was the frame of reference for the analysis? What economic concepts guided the approach in the analysis and the path to the conclusions? Were the concepts used appropriately?
5) What were the underlying assumptions of the analysis, both implicit and explicit?
6) What tools/techniques/methods were used? Simulation? Other operation research techniques? Econometrics/statistics? Case study? Descriptive analysis? Were these the best tools/techniques that could be used to resolve the identified problem? Explain.
7) What were the major conclusions? What hypotheses were rejected and which were maintained as working hypotheses? Did the conclusions match with the objectives?
8) What research areas were suggested for further work?
9) How does the article relate to the case study selected by your team?