Meeting Time and Location: TR 3:00-4:15 p.m., 310 Old CE Building  
Instructor: Dr. Matthew E. Oliver, Assistant Professor  
Office: 223 Old CE Building  
Office Hours: TR, 1:30-3:00 p.m., or by appointment  
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Course Description: Environmental issues are becoming increasingly central in our lives. As the world population and its associated consumption grows, there are more and more people taking natural resources such as fossil fuels, minerals, timber, and fishes from the environment. At the same time, they are adding to the environment wastes such as air and water pollution, acid rain, toxins, and gases that are altering the earth’s climate. What will the future hold for us, and can anything be done? To answer these questions, we need a coherent framework of analysis, and economics provides one framework. Environmental economics, in particular, provides the framework for examining the interaction between economic systems and environmental systems. Similarly, natural resource economics analyzes the efficient allocation of natural resources both across users and over time. We will see that although market systems are well suited for producing and allocating many of the goods used in modern societies, these markets are not well suited for allocating ‘non-market’ goods such as clean air and water, pristine forests, or biodiversity, nor are they effective in limiting the ‘bads’, i.e. the harmful wastes flowing into the environment. Environmental and natural resource economics addresses how markets can be altered, regulated, or even created, usually through necessary government actions, so that a more socially optimal allocation of goods and bads can be achieved.

Course Objectives: This course will focus primarily on theory (as opposed to the spring course taught by Prof. Johnson that will focus primarily on empirical methods). Students who have a basic understanding of microeconomics will be introduced to several key concepts in environmental and natural resource economics and their corresponding theoretical models, and understand how these concepts and models can be used to analyze a wide array environmental economic problems.


Recommended Texts: Other texts that I will use to help us explore different topics, but that you are not required to purchase:


Grading and Course Requirements: As much of the course material will be exceedingly subjective, the manner in which I will grade your performance will be subjective as well. Be aware that effort, attentiveness, attendance, and communication will go a long way in terms of influencing that subjectivity. However, given that we must have some sort of statistical methodology for assigning grades, the grading scale for this course is as follows:

- 85%-100% A
- 70%-85% B
- 55%-70% C
- < 55% D

Your grade for this course will comprise four components:

1. Homeworks (20%) – Your homework assignments are designed to prepare you for answering exam questions (both for this course and for the field exam). I anticipate 3-4 homework assignments, depending on the speed of our progress through the material. For each homework assignment, I will give you one exam-style question, and you will be required to research the textbook (along with any other applicable literature), and write a 2-3 page answer.

2. Exams (30%) – We will have one mid-term and a final exam, each of which is equally weighted. For each exam, I will give you four candidate questions in advance. On exam day, a randomization device will determine which two questions you will be required to answer.

3. Seminar presentations (20%) – Any academic or professional discipline, but especially economics, requires its practitioners to be coherent and effective oral communicators. Thus, you will be required to give two seminar presentations. You will choose a sufficiently recent journal article from the environmental and natural resource economics literature (subject to my approval – it should be one with some sort of theoretical model in it). For your first presentation, you will present the model from the paper you have chosen. For your second presentation, you will present your research paper (discussed below). Your presentations will be graded on style, content, and communicative effectiveness. You will also be required to critique (in a constructive manner) each other’s presentations regarding each of the aforementioned aspects, as a means to help each other learn what does and does not work well when presenting economics to an audience.

4. Research paper (30%) – You will be required to think of an extension to the model from the paper you chose for your first seminar, research how to implement that extension, and write an original paper describing your model extension. We will talk more about this in class. The deadline for submitting your research paper is Nov. 31.
**Attendance & Other Course Policies:** Attendance is encouraged. Please make every effort *not* to arrive late to class (chronic tardiness is very likely to negatively affect your grade). Except in the case of an emergency, please let me know in advance if you need to leave class early.

Please set cell phones to ‘silent’, and *do not* answer your phone while in class (do not get up and leave the classroom to answer your phone either). If it is a genuine emergency, you will be permitted to exit the classroom to address the issue. Texting during class is not permitted. You may bring your laptop computer or other device to class, but only if you are using it for course-related activities (not for playing games or looking at Facebook, among other things).

The dates for the mid-term exam and the seminar presentations will be jointly decided by the class early in the semester, after which they are non-negotiable. The date and time of the final exam will be in accordance with the Institute’s final exam schedule, and is non-negotiable. However, if you become gravely ill or some other misfortune befalls you such that you acquire an Institute-approved excusal from an exam, you will be permitted to reschedule.

Finally, if you are a non-native English speaker, I strongly encourage you to please seek the guidance of the Georgia Tech **Language Support Center** (LSC) for consultation regarding proper grammar, spelling, punctuation, and sentence structure when writing your research paper. Be assured that such details will *not* explicitly affect your grade on the research paper. However, the better I am able to understand what you have written, the more likely I am to reward you with a good grade!

**Academic Dishonesty:** Cheating and plagiarism will not be tolerated. Any violation of the Institute’s Honor Code will be reported to the Dean of Students.

**Group Work Guidelines:** You are encouraged to interact with other students outside the classroom to discuss the homework and candidate exam questions, but no formal group assignments are assigned.

**Disclaimer:** If anything significant should change with respect to this syllabus, I will let you know immediately. There are also likely to be some weeks in which we will need to reschedule a class due to my own family commitments (my wife travels frequently, and during those times I need to be available to pick up my stepdaughter from school in the afternoon). I will do everything I can to give notice far in advance and to work with everyone’s schedules such that any rescheduled meetings do not interfere with your other obligations.

**Course Outline** (subject to change):

I. **Introduction**

Required reading:
- Ch. 1 of Hanley, Shogren, & White (2007).
II. Market Failure vs. Coordination Failure

Required reading:
- Ch. 3 of Hanley, Shogren, & White (2007).
- Ch. 6 of Hanley, Shogren, & White (2007).

III. Environmental Economics & Environmental Policy

Required Reading:
- Ch. 4 of Hanley, Shogren, & White (2007).
- Ch. 5 of Hanley, Shogren, & White (2007).

IV. Risk and Uncertainty

Required Reading:
- Ch. 12 of Hanley, Shogren, & White (2007).

V. Natural Resource Economics

a. Renewable Resources (Forests & Fisheries)

Required Reading:
- Ch. 10 of Hanley, Shogren, & White (2007).
- Ch. 4 of Hartwick & Olewiler (1998). [I will provide you with a copy of this reading assignment.]

Optional Reading:
- Ch. 7 of Hanley, Shogren, & White (2007).
- Ch. 3 of Conrad (1999). [I will provide you with a copy of this reading assignment.]
b. Non-renewable Resources

Required Reading:
- Ch. 8 of Hartwick & Olewiler (1998). [I will provide you with a copy of this reading assignment.]
- Ch. 5, Sections 5.6 and 5.7 of Conrad (1999). [I will provide you with a copy of this reading assignment.]

Optional Reading:
- Ch. 7-8 of Hanley, Shogren, & White (2007).

VI. Sustainable Development

Required Reading:
- R. Solow (1992). “Sustainability: An Economist’s Perspective.” Natural Geographic Research and Exploration 8, p. 10-21. [This can be found as Ch. 28 of Stavins, 2012].
- Ch. 2 of Hanley, Shogren, & White (2007).

Optional Reading:
- Ch. 8 of Conrad (1999). [I will provide you with a copy of this reading assignment.]

VII. Environmental Valuation Methods (time permitting)

Required Reading:
- Ch. 11 of Hanley, Shogren, & White (2007).