Environmental Economics
AAE / Econ / Envir. St. 343
Spring 2019

Instructor:

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Class Meetings: 9:30-10:45 (T Th) ENGR HALL 2535

Office Hours:　　Johnston:　Thursday, 2:30-4:30
　　　　　　　　　Theising:　Monday, 2:30-4:30

Course Description

The primary goal of this course is to introduce students to major concepts in the field of environmental economics. Given the diverse backgrounds of students with respect to previous coursework in economics, the approach taken in this course is to convey concepts using a mix of standard graphical exposition, case studies, classroom games, and short problem sets. The focus throughout the term is on real-world problems.

The course is organized around four major questions:

> 1. Why do environmental problems occur and how can we do better?
> 2. How much environmental damage should be allowed?
> 3. Are we running out of natural resources?
> 4. What is the role of economics in the major environmental issue of our time?

We will examine each of the first three major questions by developing a set of economic tools and then analyzing real-world cases related to each question. The fourth question applies these tools in an examination of climate change and energy policy.

Readings

The textbook for this class is **recommended**, not required.

> Keohane, N.O. and S.M. Olmstead. 2016. *Markets and the Environment*. Island Press. Second Edition.

The textbook is available on-line at Amazon and directly from Island Press. I've also requested that the UW library put it on reserve.

Email

Please include the course number, "343", in the subject of e-mails about the course.

Course Material on the Web

Course material such as the syllabus, lecture slides, homework assignments and solutions, reading materials, and solutions to exams will be posted on Canvas. The course website is
https://canvas.wisc.edu/courses/131497

Grading

Grading is based on two in-class exams, lecture and discussion participation, and homework assignments. Exams will cover material presented in class and discussion, assigned readings, and homework assignments. Emphasis is placed on material presented in class and discussion, so attendance is necessary for a satisfactory performance. The exams each count for 30% of your grade (plus ½ point for putting your name on your exam), the homework assignments count for 24%, and lecture and discussion participation count for 15%. Additional information about your grade for participation and homework is provided below. In summary:

      30.5 points for the first exam
      30.5 points for the second exam
      24   points for the problem sets (9 problem sets, 2.67 points each)
      15   points for participation in lecture and discussion (30 total designated
             lectures/discussions, each worth 1/2 point)
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      100 points total

Exam dates (exams are in class): March 12, May 2

Top Hat student engagement platform

We will be using Top Hat during lectures and discussion. This educational platform allows students to use their mobile devices (smartphones, laptops, iPads, etc.) to respond to questions I ask in class. This requires you to create an account. Last I checked, the cost is $16 for a semester, or $20 for the year, and this subscription fee covers all UW courses that use Top Hat. For instructions on creating an account, go here. A student guide is here. Once you have an account, enroll in the UW course titled, "Environmental Economics Spring 2019".

Do not procrastinate on creating your Top Hat account and enrolling in this course. We will test the Top Hat software in the first lecture. If you do not have an account by the second lecture (Jan 24), your participation grade will suffer because, as described below, responses to Top Hat polls are the basis for receiving participation credit in lecture and discussion.

If you are not in the lecture/discussion room when a poll is conducted you are NOT allowed to respond to the poll. This is a form of cheating. If I catch you doing this—and I do have ways of determining whether a student is doing this—you will lose all participation credit for the semester.

Lecture and Discussion Participation: Grading

15% of your grade is based on active participation in the course. Course participation involves responding to questions in lecture using Top Hat, and participating in discussion section.

Polling serves three basic purposes. The first is to break up the lecture a bit –75 minutes is a long time for a student to stay focused on class material –by having students participate in the lecture via their polling responses to questions raised in class. Questions will range from those querying your opinion about environmental or other matters (e.g. "Do you believe the U.S. should have pulled out of the Paris Climate Accord?"), to those specific to the material presented in the class ("Under this tax system, how many units of pollution will firm X emit?").

Second, we will use polling in several economic games to illustrate certain economic principles.

Finally, polling gives us feedback on whether you understand the material we present. If I ask a question about the material and find out that most of you have no idea about what is going on, then I have good reason to go back through the material, presenting it a little differently to facilitate your understanding.

For questions for which there is a correct answer, your participation grade for that lecture/discussion will depend on whether you provide a correct answer or not. For such questions, 75% of your score will reflect the simple fact that you answered it, and 25% will reflect whether you got the question right. I give this demerit for incorrect responses to encourage you to think seriously about the question. Generally, if you're paying attention in class, you'll get the correct answer.

To better understand how this works, consider a lecture involving four questions. Participation in the lecture is worth a half point (0.5 percentage points). If you answer all four questions, but get the correct answer on only two of the questions, then for that lecture you'll receive $(1/2)*(1+1+.75+.75)/4=0.4375$ percentage points toward your final grade. If you participate in all four, and get none of them correct, you'll receive $(1/2)*(.75+.75+.75+.75)/4=0.375$ percentage points towards your final grade. As you can see, getting questions wrong is not very costly, but it still behooves you to pay attention in class. It might make a difference if your total points at the end of the semester is at the tipping point between two letter grades (e.g. between an AB and a B).

There are 35 designated lectures and discussions in which your participation is monitored. Each is associated with 1/2 of a percentage point on your final grade. If you participate in a total of 30 designated lectures/discussions, correctly answering all questions, you'll earn the full participation credit for the class (15%).

- Definition of a "designated" lecture: All lectures except the first one, the two set aside for exams, and the lecture before the final. There are 24 designated lectures in total.

- Definition of a "designated" discussion: Each meeting of your discussion section, except the discussion section in the first week of class, which is an optional review of basic economics. Discussion sections are held every week except the week of the first exam, the week of Spring Break, and the last week of class, for a total of 11 designated discussion meetings.

If you show up in class without a working polling device, you do not receive participation credit; it'll have to count against one of the five lectures/discussion sections that you can miss and still get full participation credit. The class is too large for me to manually change participation grades.

Outside of the five missed lectures/discussions that I allow, I will consider requests for permitted absences due to illness, participation in UW athletic or scholastic events, etc., only if you present a

written request with phone contact from the appropriate supervisory authority (such as your doctor or coach).

Problem Sets

Problem sets will focus on applying concepts from class to real-world environmental problems. There will be 9 problem sets throughout the term, each worth 2.67 percentage points, for a total of 24% of your grade. Homework assignments will be posted on the course website on the date indicated in the table below, and due **at the start of class** on the dates indicated in the table. Late assignments will not be accepted.

Posted	Due (start of class)	Returned (in discussion)
Jan 29	Feb 5	Feb 8
Feb 5	Feb 12	Feb 15
Feb 12	Feb 19	Feb 22
Feb 19	Feb 26	Mar 1
Feb 26	Mar 5	Mar 8
Mar 14	Mar 26	Mar 29
Mar 26	Apr 2	Apr 5
Apr 2	Apr 9	Apr 12
Apr 16	Apr 23	Apr 26

Policy concerning regrading

Homework assignments are not regraded except for an arithmetic error.

If you wish to have an exam regraded, you must give me your exam with a *written explanation of why you believe the scoring is incorrect*. The burden is on you to establish that the original scoring of your exam was unfair. I will not consider regrades without the attendant written request.

Acknowledgements

This course is based on Prof. Bill Provencher's environmental economics course. I am grateful to Professor Provencher for sharing his materials.

Lecture Schedule *(subject to minor adjustments)*

Introduction and Review

Meeting #1 (1-22): Introduction and review of syllabus

Question #1: Why do environmental problems occur and how can we do better? Market failure and environmental policy.

Meeting #2 (1-24): Public goods and externalities I
Meeting #3 (1-29): Public goods and externalities II
Meeting #4 (1-31): Externalities and the Coase Theorem
Meeting #5 (2-5): Economics of pollution control I
Meeting #6 (2-7): Economics of pollution control II
Meeting #7 (2-12): Economics of pollution control III
Meeting #8 (2-14): Economics of pollution control IV

Question #2: How much environmental damage should be allowed? The economic costs and benefits of changes in environmental quality.

Meeting #9 (2-19): Cost-benefit analysis I
Meeting #10 (2-21): Cost-benefit analysis II
Meeting #11 (2-26): Economics of environmental valuation I
Meeting #12 (2-28): Economics of environmental valuation II
Meeting #13 (3-5): Economics of environmental valuation III
Meeting #14 (3-7): Economics of environmental valuation IV

Meeting #15 (3-12): **First Exam** (in class)

Question #3: Are we running out of natural resources? The economics of resource use over time

Meeting #16 (3-14): Resource use over time I
Meeting #17 (3-26): Resource use over time II
Meeting #18 (3-28): Resource use over time III
Meeting #19 (4-2): Resource use over time IV
Meeting #20 (4-4): Resource use over time V
Meeting #21 (4-9): Resource use over time VI

Question #4: What is the role of economics in the major environmental issue of our time?

Meeting #22 (4-11): Economics of climate change and energy policy I
Meeting #23 (4-16): Economics of climate change and energy policy II
Meeting #24 (4-18): Economics of climate change and energy policy III
Meeting #25 (4-23): Economics of climate change and energy policy IV
Meeting #26 (4-25): Economics of climate change and energy policy V

Meeting #27 (4-30): Make-up class or Exam Review
Meeting #28: (5-2): **Second Exam**