

# Environmental Economics

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Sample Syllabus

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## Course Description

How do the economy and the natural environment relate? This course is all about exploring the linkages — both complements and conflicts — between economic activity and the surrounding natural resources and ecosystems. The purpose of this class is to present the role of environmental variables within economic thinking in both microeconomic and macroeconomic aspects. Its first half is dedicated to a microeconomic understanding of topics such as firm polluting, resource depletion, and welfare analysis. Then, the second half is dedicated to including environmental variables, such as greenhouse gas emissions and energy use, into macroeconomic models.

## Course Objectives

By the end of the course, students will be able to:

- Have a critical assessment about how economic modeling includes environmental variables into its framework;
- Understand neoclassical and alternative approaches to environmental economics;
- Include environmental variables into students' economic toolbox, for both empirical and theoretical projects.

## Prerequisites

Intermediate Micro and Macroeconomics.

## References

### Required Textbooks:

- T. Tietenberg and L. Lewis (2016). *Environmental & Natural Resource Economics*, 10th edition. Routledge.
- D. Foley, T. Michl, and D. Tavani (2019). *Growth and Distribution*, 2nd edition. Cambridge University Press.

### **Additional References:**

- D. Pearce and R. Turner (1990). *Economics of Natural Resources and the Environment*. Johns Hopkins University Press.
- N. Keohane and S. Olmstead (2016). *Markets and the Environment*, 2nd edition. Island Press.

## **Grading**

Assignments (50%) + Participation (10%) + Research Paper (40%)

### **Assignments**

This class will have no exams. Each class will dedicate approximately 20 minutes for open discussions about the lecture topic. Furthermore, 4 Problem Sets and 10 quizzes will account for 60% of students' grades.

### **Class Participation**

Class attendance is required, and class participation is a crucial part of class dynamics.

### **Research paper**

Students will be asked to submit a research paper, due on the last day of class. It must be no longer than 10 pages, double spaced. Students are welcome to work either individually or in pairs. The papers should verse about the topics seen in class, and can be more micro- or macro-oriented, depending on students' preferences. Projects may involve literature reviews, setting up theoretical models, or applied work. Those who are comfortable and willing to work with applied statistical/econometric methods are welcome to ask the instructor about useful methodologies and data sets. Of course, any assistance needed will be provided by the instructor, as well as a template which students may use to structure their papers on.

In general, the [Extended Penn World Tables \(EPWT\)](#) are a good place to start looking at some macroeconomic/environmental data.

## **Letter Grade Distribution**

- Excellent, superior performance: A (93-100%), A- (90-92.9%)
- Good performance: B+ (87-89.9%), B (83-86.9%), B- (80-82.9%)
- Standard performance: C+ (77-79.9%), C (73-76.9%), C- (70-72.9%)
- Substandard performance: D+ (67-69.9%), D (63-66.9%), D- (60-62.9%)
- Unsatisfactory performance: E (0-59.9%)

## Class Policies

You can expect me to:

- Grade and provide feedback on assignments and exams within one week from the due date;
- Reply to emails/messages within 24 hours during the week and within 48 hours on weekends and holidays;
- Hold weekly in person/virtual office hours, where students can join and ask every question and talk about any issues/concerns relative to our class. For virtual cases, links for each meeting will be provided every week.

I expect students to:

- Come to class prepared, by checking out announcements, new content updates, and studying the assigned readings;
- Take the exams on the scheduled dates. No make-up exams will be allowed, except in cases of documented medical emergencies or religious circumstances;
- Respectfully participate in in-class discussions and activities;
- Immediately notify me in the event of an emergency that prevents you from doing an exam or completing the course;
- Ask questions if any expectations or assignments are unclear.

## Tentative Course Outline

The course will follow 10 sections, whose readings are detailed below:

### 1. **Course introduction; The environmental challenge; The role of economics**

- *Required Readings:*
  - Tietenberg and Lewis (2016), ch. 1.
- *Recommended Readings:*
  - Keohane and Olmstead (2016) ch. 1.

### 2. **Economic efficiency, property rights, externalities as market failures**

- *Required Readings:*
  - Tietenberg and Lewis (2016), ch. 2.
- *Recommended Readings:*
  - Keohane and Olmstead (2016), ch. 5.

### 3. Cost-benefit analysis

- *Required Readings:*
  - Tietenberg and Lewis (2016), ch. 3.
- *Recommended Readings:*
  - Keohane and Olmstead (2016) ch. 3.

### 4. Dealing with pollution I

- *Required Readings:*
  - Tietenberg and Lewis (2016), ch. 8 and 9.

### 5. Dealing with pollution II

- *Required Readings:*
  - Tietenberg and Lewis (2016), ch. 14.

### 6. Macroeconomics & the environment

- *Required Readings:*
  - Foley et al. (2019), ch. 2 and 13.
- *Recommended Readings:*
  - A. Rezai and S. Stagl (2016). “[Ecological Macroeconomics: Introduction and Review,](#)” *Ecological Economics*, 121, pp. 181–185.

### 7. Exhaustible resources

- *Required Readings:*
  - Foley et al. (2019), ch. 14.

### 8. Global warming I

- *Required Readings:*
  - Foley et al. (2019), ch. 18.
- *Recommended Readings:*
  - IPCC Special Report: [Global warming of 1.55°C](#), ch. 1.

### 9. Global warming II

- *Required Readings:*
  - Foley et al. (2019), ch. 18.
- *Recommended Readings:*
  - IPCC Special Report: [Global warming of 1.55°C](#), ch. 2 and 3.

### 10. Global warming III

- *Required Readings:*

- Foley et al. (2019), ch. 18.
- *Recommended Readings:*
  - IPCC Special Report: [Global warming of 1.55°C](#), ch. 4 and 5.

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