

# ECON 415: Environmental Economics

University of Illinois at Urbana-Champaign  
College of Liberal Arts & Sciences  
Department of Economics

Dr. Bryan Buckley

Fall 2023

123 DKH

## Meeting Time

- 11:00 AM to 12:20 PM

## Communication

- **E-mail:** [bbuckley@illinois.edu](mailto:bbuckley@illinois.edu)
- **Zoom Office Hours:** Use Moodle to register for a time.

## Catalog Description

This course covers advanced undergraduate environmental economics with an emphasis on policy design and analysis. This course will focus on the economics of environmental issues and will start with establishing how property rights and environment quality interact. The course will then explore different methods of reducing inefficiency by using markets, incentive-based regulation and command and control regulation. The course will also explore trends in environmental data. (3 Hours) Prerequisite: ECON 302

## Course Outcomes

- Discuss the development of property rights and the effects of different property rights regimes on environmental quality.
- Graphically and mathematically analyze competitive markets with externalities.
- Graphically and mathematically analyze competitive markets for natural resources for dynamic efficiency.
- Discuss regulatory and non-regulatory methods of pollution control and the costs and benefits of each.
- Become familiar with trends in the data for environmental degradation and improvements.

## Modality

Course lectures will be delivered in-person. Math Assignments and formative tutorials will be available through Moodle. There will be readings and assignments from provided sources and one required textbook. Exams will be given in-person during regularly scheduled lecture time.

## Required Items

### Textbooks

Anderson and Libecap. (2014) Environmental Markets. *Cambridge University Press*.

### Supplemental

TI-89 Graphing Calculator

## **Student Assessment**

Final scores will be rounded to the nearest integer. There is no curve in this class.

### *Grade Weights*

- Assignments (30%)
- Data Project (15%)
- Highest-Scoring Midterm (20%)
- Lowest-Scoring Midterm (10%)
- Final Exam (25%)

### *Plus/Minus Grade Cutoffs*

A+ ≥ 97	90 > B+ ≥ 87	80 > C+ ≥ 77	70 > D+ ≥ 67	60 > F
97 > A ≥ 93	87 > B ≥ 83	77 > C ≥ 73	67 > D ≥ 63	
93 > A- ≥ 90	83 > B- ≥ 80	73 > C- ≥ 70	63 > D- ≥ 60	

## **Assignments**

Assignments are administered through the Moodle. There are two types of Assignments: Math and Graph Assignments and Reading Assignments. Reading assignments will be due at the start of class on the day they are discussed (11:00 AM). Math and Graph Assignments will be due at 11:00 PM on the day of the exam in which they are tested. No exceptions will be made for technological problems. Start assignments with enough time before the deadline to accommodate potential issues. The lowest online assignment grade will be dropped when calculating the average for the homework portion of your grade.

### *Math and Graph Assignments*

Math and Graph Assignments may be completed multiple times before their due date. The highest scored attempt will be kept of the Assignment Average. Once the due date for a Math and Graph Assignment has passed, the same assignment can be accessed as Practice (After Due Date). Practice (After Due Date) versions of the assignments are worth 70% of the points scored. If the partial credit score of a Practice (After Due Date) version is greater than the score on the original, then the original grade will be replaced. Practice (After Due Date) versions cannot lower your score.

### *Reading Assignments*

There are four reading assignments for economics article that are provided as PDFs. Also, there is a book which is divided into two additional reading assignments. Each reading assignment will be a summary of the article or portion of the text. Each assignment will be accompanied by instructions which will give additional guidance to that assignment. Save your summaries as Word Documents or PDF documents and submit them through Moodle by their due date and time to receive full credit.

Reading Assignments turned in after their due dates will be worth 0.5 points less per hour late. Assignments in formats that cannot be opened will count as late based on the time the readable assignment is turned in. This period will include the time it takes to tell the student that the file is unreadable.

### *Readings*

- Anderson and Libecap. (2014) Environmental Markets. *Cambridge University Press*.
- Coase, R. (1960) The Problem of Social Cost. *Journal of Law and Economics*.
- Hayek, H. A. (1945) The Use of Knowledge in Society. *American Economic Review*.
- Mankiw, N. G. (2009). Smart Taxes: An Open Invitation to Join the Pigou Club. *Eastern Economic Journal*.
- Yandle, B. (1999) Baptists and Bootleggers in Retrospect. *Regulation*.

### Extra Credit

Many lectures have extra credit tutorials associated with them. These tutorials will walk you through solving a common type of problem in the course. Completing all tutorials will score 10 points added to your Assignment Average.

### **Data Project**

At the end of the semester, students are required to turn in a Data Project. The data project is a paper which describes what has been happening to a measure of environmental quality over time. This paper is approximately eight pages in length. See: Data Project Instructions for more details.

### **Exam Policy**

#### Midterm Exam Policy

- There are two midterm exams.
- There are no make-ups for missed exams.
- If an exam is taken, then the grade will count towards the student's grade.
- The lowest-scoring midterm will be worth 10% of your score in the course. The highest-scoring midterm will be worth 20% of your score in the course.
- If a student misses either or both midterm exams, the weight from the missed midterm exam will be redistributed to the final exam using the following system:
  - One missed midterm exam: Final Exam Weight 35%
  - Two missed midterm exams: Final Exam Weight 55%
- For each midterm taken, 0.25 points will be added to your score in the course.
- No outside materials are permitted which includes, notes and textbooks. Cell phones are not permitted in the exam room.
- All requests for grading corrections must be submitted before the following exam.

#### Final Exam Policy

Students must take the final exam. The Provost prohibits students from taking final exams before the final exam week. The only exception to this is with a Dean-approved excuse.

Undergraduate students who must miss a final examination should report this fact to the dean of their college as soon as possible. For satisfactory reasons, students may be "excused" by the dean of their college and be examined later by their instructor (<http://www.las.illinois.edu/faculty/advising/incompletes/>). The date of the deferred exam will be scheduled by the Department of Economics and will fall within the first two weeks of the next semester.

Students who do not take the exam during the exam week will receive an ABS grade. Students in this situation may take the deferred final if and only if they have taken at least 2 of the 3 midterm exams. The ABS grade will be replaced by the grade earned with the deferred final.

### **Statement on Accommodations**

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak Street, Champaign, call 333-4603 (V/TTY), or email a message to [disability@uiuc.edu](mailto:disability@uiuc.edu).

## **Academic Integrity**

“The University has the responsibility for maintaining academic integrity so as to protect the quality of education and research on our campus and to protect those who depend upon our integrity.

### *Expectations of Students:*

It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Students have been given notice of this Part by virtue of its publication. Regardless of whether a student has actually read this Part, a student is charged with knowledge of it. Ignorance is not a defense.”

## **Semester Schedule**

### **Part 1**

#### **Week 1- August 22 and 24**

- Tues: Class Overview and Lesson 1.1- Positive and Normative
- Thurs: Lesson 2.1 to 2.3- Markets

#### **Week 2- August 29 and 31**

- Tues: Lesson 2.4 and 2.5- Taxes and Subsidies
- Thurs: Hayek Reading Assignment due at 11:00 AM and Lesson 3.1 to 3.3- Present Discounted Value

#### **Week 3- September 5 and 7**

- Tues: Lesson 3.4- Dynamic Optimization
- Thurs: Lesson 3.5- Renewable Resource Use

#### **Week 4- September 12 and 14**

- Tues: Lesson 4.1 and 4.2- Positive Externalities
- Thurs: Lesson 4.3 to 4.5- Negative Externalities and Pecuniary Externalities

#### **Week 5- September 19 and 21**

- Tues: Review Lesson 1.1 to 4.5
- Thurs: Midterm Exam 1 and Part 1 Assignments Due by 11:00 PM

### **Part 2**

#### **Week 6- September 26 and 28**

- Tues: Lesson 5.1 and 5.2- Pigou and Taxes
- Thurs: Mankiw Reading Assignment due at 11:00 AM and Lesson 5.3 and 5.4- Missing Markets and Pigovian Subsidies

#### **Week 7- October 3 and 5**

- Tues: Lesson 6.1 to 6.3- Property Rights and Open Access
- Thurs: Coase Reading Assignment Due at 11:00 AM and Lesson 6.4 to 6.6- Coase, Ostrom, and the Commons

#### **Week 8- October 10 and 12**

- Tues: Lesson 7.1 and 7.2- Interactive Resources
- Thurs: Lesson 7.3- Pollution Permits

#### **Week 9- October 17 and 19**

- Tues: Data Project Discussion
- Thurs: A&L 1-4 Reading Assignment due 11:00

#### **Week 10- October 24 and 26**

- Tues: Lesson 5.1 to 7.3
- Thurs: Midterm Exam 2 and Part 2 Assignments: Pigovian Tax, Cap and Trade due at 11:00 PM

### **Part 3**

#### **Week 11- October 31 and November 2**

- Tues: Lesson 8.1 and 8.2- Pollution Control
- Thurs: Lesson 8.3 and 8.4- Policy Assessment

#### **Week 12- November 7 and 9**

- Tues: Catch up material.
- Thurs: Reading and Data Project Explanation. A&L 5-8 Reading Assignment Due at 11:00 AM.

#### **Week 13- November 14 and 16**

- Tues: Yandle Reading Assignment Due at 11:00 AM and Lesson 9.1 to 9.3- Public Choice
- Thurs: Lesson 10.1 and 10.2- Pollution Trends and Environmental Kuznets Curve

### **Fall Break**

#### **Week 14- November 28 and 30**

- Tues: Lesson 10.3- Property Rights and Environmental Improvements)
- Thurs: Lesson 10.4 and 10.5- Entrepreneurship and the Future

#### **Week 15- December 5**

- Tues: Review Lesson 1 to 10 and Data Project Due by 11:00 PM

#### **Examination Period- Friday, December 8 to Friday, December 15**

- Exam Dates and Times announced on Moodle and on UIUC Course Explorer
- All tutorials, and Practice (After Due Date) due by 11:00 PM last Friday of exam week.