

**ECON 3545**  
**Environmental Economics**  
**FALL 2020**  
**MWF 4:10-5:00, MUEN E050**

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## **COURSE SYLLABUS**

### **Overview:**

In this class you will learn how to think about environmental problems such as pollution and resource depletion from an economic perspective. Why does society care about pollution? What types of policies can be implemented to address environmental problems? How do we evaluate which policies are “best?” Using economic theory you will develop tools to answer these questions and become a better informed advocate or critic of environmental policy.

### **Office Hours and Contact Information:**

Professor: Jonathan Hughes  
Office location: Economics 102  
Office hours (Zoom): Mondays and Wednesdays from 1:30pm to 3:00pm (or by appointment)  
Phone: (303) 735-0220  
Email: jonathan.e.hughes@colorado.edu  
Class web site: Canvas

### **Textbook:**

Environmental Economics and Management: Theory, Policy and Applications, by Scott J. Callan and Janet M. Thomas, 2010 (6<sup>th</sup> edition). This textbook provides an excellent introduction to the economic concepts in environmental economics. In the syllabus, readings from this book will be denoted “**C&T**”

### **Attendance and participation:**

Class attendance and participation are expected, though I will not take roll. Empirically, students’ grades are *strongly* positively correlated with attendance (and completing the course assignments). Please make every effort to attend class each day. If you do miss class, it is your responsibility to get notes and assignments from a classmate.

An important part of class participation will be in-class iClicker questions. Note that for fall 2020, OIT recommends instructors use iClicker Cloud and students create an [iClicker Reef account](#). Students will still need to [link their iClicker to their Reef account](#), as well as register for their courses via Reef and link those courses to Canvas.

**Grading:**

25% Class participation (Clicker questions and in-class quizzes)  
15% Problem sets  
20% Midterm 1  
20% Midterm 2  
20% Final exam

**Problem Sets:**

Problem sets will be assigned weekly. These exercises are designed to reinforce the concepts covered in class and to prepare you for the midterm and final exams. Solutions to the problem sets will be posted on Canvas so that you may check your work.

**Supplementary reading:**

From time to time supplementary reading will be posted on the course web page. I will announce these assignments in class. Please be prepared to discuss these readings in class. Materials discussed in class will be covered on the midterm and final exams.

**Examinations:**

There will be two in-class mid-term exams and a final exam. The mid-term exams will be held on **Wednesday September 30, 2020** and **Wednesday November 4, 2020**. The final exam will be held on **TBD**.

**Grading policy:**

The grade distribution will be consistent with other upper-level economics electives. You may make an appointment to discuss your grade at any point during the course. However, I will not discuss strategies to improve your grade after the final exam.

**Late Assignments and Missed Examinations:**

Problem sets and other assignments are due before the start of class on the date due. No late assignments will be accepted except in the case of documented medical or family emergency. No make-up exams will be given. Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. If you foresee a conflict, contact me as soon as possible to make alternate arrangements for you to complete the requirements of this course.

**Lecture Notes:** My lectures will make use of both the chalkboard and Powerpoint. The lecture slides and graphs can be downloaded from the class web site, available through Canvas. Please visit the class website often.

**Campus Policies:** I will adhere to all campus policies with respect to disabilities, religious observances, appropriate behavior, discrimination and harassment, and academic conduct. See <https://www.colorado.edu/academicaffairs/policies-customs-guidelines/required-syllabus-statements>

## **Tentative Course Schedule:**

Week 1 (August 24 – August 28): The role of economics in environmental management  
Introduction - course goals, how economists view the environment  
**Chapter 1 C&T** – The role of economics in environmental management

Week 2 (August 31 – September 4): Modeling the market process  
**Chapter 2 in C&T** – Market demand, market supply, market equilibrium  
Efficiency and welfare measures.

Week 3 (September 7 – September 11): Modeling market failure  
**Chapter 3 in C&T** – Public goods and externalities  
Absence of property rights, Coase Theorem

Week 4 (September 14 – September 18): Modeling solutions to environmental problems  
**Chapter 4 in C&T** – Command and control approach  
Efficiency and cost-effectiveness of the command and control approach

Week 5 (September 21 – September 25): Modeling solutions to environmental problems  
**Chapter 5 in C&T** – Market based approaches  
Pollution charges, subsidies, pollution permit trading systems

Week 6 (September 28 – October 2): Analytical tools for environmental planning  
**Chapter 6 in C&T** – Environmental risk analysis (*Rocky Flats in class exec.*)  
**Midterm – September 30**

Week 7 (October 5 – October 9): Analytical tools for environmental planning  
**Chapter 7 in C&T** – Measuring environmental benefits  
Contingent valuation, averting behavior, travel cost, hedonic price methods (*Hypothetical Auction in class exec.*)

Week 8 (October 12 – October 16): Analytical tools for environmental planning  
**Chapter 8 in C&T** – Measuring (abatement) costs  
Engineering, survey, ad hoc revealed preference approaches

Week 9 (October 19 – October 23): Analytical tools for environmental planning  
**Chapter 9 in C&T** – Benefit cost analysis (BCA)  
Reservations and government use of BCA

Week 10 (October 26 – October 30): Applications – Air quality  
**Chapter 10 in C&T** – Air quality standard setting  
Evaluating U.S. air quality policy and the Clean Air Act, (*Currie and Walker, 2019 in class exec.*)

Week 11 (November 2 – November 6): Applications – Air quality  
**Chapter 11 in C&T** – Air quality mobile sources  
**Midterm – November 4**

Week 12 (November 9 – November 13): Applications – Air quality  
Mobile sources continued, (*Clinton and Steinberg, 2018 in class exec.*)  
**Chapter 12 in C&T** – Air quality stationary sources

Week 13 (November 16 – November 20): Applications – Air quality  
Reading: Bushnell, Holland, Hughes, Knittel (2017)  
**Chapter 13 in C&T** – Global policy and climate change

Week 14 (November 23 – November 25): Applications – Water quality  
**Chapter 14 in C&T** – Water quality standard setting  
Evaluating U.S. Clean Water Act, oil spills (*English et. al., 2018 in class exec.*)

**Fall Break November 26 – November 27**

Week 15 (November 30 – December 4): Applications – Water quality  
**Chapter 15 in C&T** – Controlling point and nonpoint source pollution  
Market-based solutions to improving water quality

Week 15 ½ (December 7): Catch-up and review

**Final Exam: TBD**