
ECON 4545
Environmental Economics
Fall 2021
TTH 9:35-10:50, ECON 119

COURSE SYLLABUS

Overview:

Examines the effects of economic growth on the environment; application of economic theory of external diseconomies, cost-benefit analysis, program budgeting, and welfare economics to problems of the physical environment.

Office Hours and Contact Information:

Professor: Jonathan Hughes
Office location: Economics 102
Office hours: Tuesdays and Thursdays from 12:00pm-1:30pm (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 (6th 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:

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. 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 **Tuesday September 28, 2021** and **Tuesday November 2, 2021**. The final exam will be held on **Saturday December 11 from 1:30 pm - 4:00 pm**.

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.

Classroom Behavior:

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender

expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

Requirements for COVID-19:

As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is a temporary precaution during the delta surge to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined, contact me as soon as possible to make alternate arrangements for completing coursework online or upon your return to campus.

Accommodation for Disabilities:

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns:

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code:

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation:

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about OIEC, university policies, [reporting options](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options.

Religious Holidays:

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. In this class, contact me at the beginning of the semester to make alternate arrangements for completing course assignments or exams. See the [campus policy regarding religious observances](#) for full details.

Tentative Course Outline:**Week 1 (August 23 – August 27): 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 30 – September 3): Modeling the market process

[Chapter 2 in C&T](#) – Market demand, market supply, market equilibrium

Efficiency and welfare measures.

Week 3 (September 6 – September 10): Modeling market failure

[Chapter 3 in C&T](#) – Public goods and externalities

Absence of property rights, Coase Theorem

Week 4 (September 13 – September 17): 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 20 – September 24): Modeling solutions to environmental problems

[Chapter 5 in C&T](#) – Market based approaches

Pollution charges, subsidies, pollution permit trading systems

Week 6 (September 27 – October 1): Analytical tools for environmental planning

Midterm – September 28

[Chapter 6 in C&T](#) – Environmental risk analysis (*Rocky Flats in class exec.*)

Week 7 (October 4 – October 8): 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 11 – October 15): Analytical tools for environmental planning

[Chapter 8 in C&T](#) – Measuring environmental (compliance) costs

Engineering, survey, ad hoc revealed preference approaches

Week 9 (October 18 – October 22): Analytical tools for environmental planning

[Chapter 9 in C&T](#) – Benefit cost analysis (BCA)

Reservations and government use of BCA

Week 10 (October 25 – October 29): 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 1 – November 5): Applications – Air quality

Midterm – November 2

[Chapter 11 in C&T](#) – Air quality mobile sources

Week 12 (November 8 – November 12): 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 15 – November 19): Applications – Air quality

[Chapter 13 in C&T](#) – Global policy and climate change

Fall Break November 22 – November 26

Week 14 (November 29 – December 3): Applications – Water quality
[Chapter 14 in C&T](#) – Water quality standard setting

Week 15 (December 6 – December 10): Applications – Water quality
[Chapter 15 in C&T](#) – Controlling point and nonpoint source pollution
Market-based solutions to improving water quality

Final Exam – December 11