

**Economics 436
Environmental Economics
Syllabus
Spring 2023
Prof. Robert Halvorsen**

ECON 436 analyzes the relationship between economic activity and environmental quality. The major topics considered are the economic origins of environmental problems, the trade-offs involved in determining the goals of public policy toward the environment, the choice of policy instruments to attain those goals, and the role economic analysis has played in the formulation of actual environmental policy in the U.S.

By the end of the course, students should understand how to apply economic analysis to determine the optimal level of environmental quality, the circumstances under which a free market system will and will not result in optimal outcomes, and the advantages and disadvantages of alternative policy instruments for improving on market outcomes.

Lectures and exams will occur in person at the regularly scheduled class times. The lecture notes will be posted on Canvas. There is no textbook or course pack.

Three, non-cumulative, exams will each count for 30% of the course grade. Please refer to the next page for very important information on the rules for taking exams. Note especially the information concerning cell phones. Last Quarter's exams are posted on Canvas as a preview of the types of questions that will be asked as well as sources of practice questions in studying for this Quarter's exams.

Three problem sets will count for 10% of the course grade and will be graded credit/no credit. Problem sets must be posted to Canvas as PDF's. They do not need to be typed but do need to be easy to read. Detailed answer sheets for the problem sets will be posted on Canvas. Reviewing the answers and comparing them to your own are excellent ways to learn the course material.

My office hour for ECON 436 will be 11:00–12:00 on Tuesday. An appointment to meet at another mutually agreed time can be made by email at halvor@uw.edu. You can also use email to ask any short-answer questions that may arise as you review your notes or work on the problem sets.

Exam Rules

I Exam Absence Policy

1. If you are unable to make it to an exam due to illness, the grades on the other two exams will be reweighted accordingly.
2. If you know that you are going to be away due to a University-related activity, such as participation in an away sport or debate, let me know well in advance so that arrangements can be made.

II Exam Taking Rules

1. Material allowed during an exam.
 - i. You must bring a large bluebook with nothing written on or in it.
 - ii. All books, papers, notebooks, etc., must be placed inside your backpack or other type of bag, which must be securely and fully closed. If you do not have a bag, you must place all your material out of your reach.
 - iii. Cell phones must be turned off and placed in your closed bag (not in your pocket). **If your cell phone is observed at any point during the exam, your exam will be taken away and assigned a grade of zero.**
 - iv. Baseball caps and any other kinds of headgear that conceal your eyes are not permitted.
2. Attendance and special accommodation
 - i. You are not allowed to leave the room during the exam. This includes restroom use; be sure to use the restroom before the beginning of the exam.
 - ii. If you arrive late to an exam, you will not get extra time after the official end of the exam to make up for the missing time at the beginning.

III Academic Integrity

1. Exams are individual work and cheating will not be tolerated. Looking at notes or your neighbors' answers will result in the immediate termination of your exam time and a grade of zero for the exam.
2. Altering an exam before submitting it for a review of the grading, obtaining an advance copy of an examination, or arranging for a surrogate test-taker are all flagrant violations of University policy.
3. Cheating of any kind may result in expulsion from the University. The Department will follow University policy in case of academic misconduct. I strongly recommend that you review University policy at <http://www.washington.edu/uaa/advising/help/academicintegrity.php>. Students found to have engaged in academic dishonesty will be subject to sanctions, which range from a disciplinary warning to permanent expulsion from the University, depending on the seriousness of the misconduct.

Course Schedule

All dates except for the final exam are subject to revision.

Washington state law requires that UW has a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy \(https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/\)](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/).

Accommodations must be requested within the first two weeks of this course.

March 27th Lecture 1

Technical alternatives for reducing pollution.
Derivation of the standard pollution diagram

March 29th Lecture 2

Coase Theorem

April 3rd Lecture 3

Policy design when MB and MD curves are known.

Tax, subsidy, regulation
Incentives for innovation
Monopolistic polluter

April 5th Lecture 4

Non-monotonic marginal damages
Non-convex total net benefits

Instrument choice when MB and MD curves are not known.

Per unit tax vs. regulation

April 10th Lecture 5

Tradable pollution permits

Instrument choice when MB and MD curves are uncertain.

Expected Pigouvian tax vs. tradable permits

April 12th Exam review. Problem Set 1 Due.

April 17th Exam 1

April 19th Lecture 6

Hybrid instrument
Nonlinear tax

April 24th Lecture 7

Distributional effects of environmental policies
Political economy of instrument choice
Porter hypothesis

April 26th Lecture 8

Economic theory of policy evaluation

Economic efficiency and social welfare
Criteria for policy analysis

May 1st Lecture 9

Government policy analyses

Regulatory impact analysis
Cost-effectiveness
Value of a statistical life (VSL)

May 3rd Lecture 10

Estimation of VSL
Factors affecting VSL.
Risk-risk analysis

May 8th Exam review. Problem Set 2 Due.

May 10th Exam 2

May 15th Lecture 11

U.S. Environmental Policies

Water pollution

May 17th Lecture 12

Air pollution
Global issues
1973 perspective
Stratospheric ozone depletion

May 22nd Lecture 13

Global climate change

Causes and effects
Technical alternatives for responding to global climate change.

May 24th Lecture 14

Obstacles to effective international agreements
Instrument choice
Social discount rate
Discounting formulas

May 29th Memorial Day

May 31st Exam review. Problem Set 3 Due.

June 8th Exam 3