Economics 436
Environmental Economics
Summer 2019
Prof. Robert Halvorsen

The major topics considered in ECON 436 are the economic origins of environmental problems, determining the goals of public policy toward the environment, the choice of policy instruments, 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.

Two, non-cumulative, exams will count for 70% of the course grade, with the grade for the exam on which you do better receiving a weight of 0.6 and the other exam receiving a weight of 0.4. 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. **Please refer to the next page for important information on the rules for taking exams and quizzes. Note especially the information concerning cell phones.**

Seven in-class quizzes will account for 20% of the course grade. The quiz on which you do least well will not be included in calculating the overall quiz grade.

Eight problem sets will account for 10% of the course grade. Detailed answer sheets will be posted for the problem sets and quizzes. Reviewing the answers and comparing them to your own are excellent ways to learn the course material.

With daily classes, a problem set or quiz almost every day, and the mid-term exam coming up in a couple of weeks, it is obviously necessary for you to be able to devote a substantial amount of time to this course on an essentially continuous basis.

There is no textbook or course pack. Lecture notes on the topics expected to be covered in class are posted on Canvas. The actual lectures may not be identical to the posted notes.

My office hours Summer Quarter are 10:00 – 11:00 on Monday, Tuesday, and Friday in Savery 351. An appointment to meet at another mutually convenient time can be made in person after class or 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 period due to illness or another unexpected happening, do the following:

   i. Notify me no later than the time of the exam that you are not able to take the exam and why.

   ii. If you missed the exam for health reasons, you need to show me a note issued by a medical professional documenting the reason you missed the exam.

   iii. If there was some other reason for missing the exam, come and see me to explain the reason. You will need to show appropriate documentation. Not waking up or missing your bus/plane is not an acceptable excuse.

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, blank, bluebook for your answers.

   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. No electronic devices, including calculators, can be accessible during the exam. 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 cannot expect to get extra time after the official end of the exam to make up for the missing time at the beginning.

   iii. If you have a documented disability, please show me documentation from the Office of Disability Resources for Students early in the Quarter so that I can make any arrangements required for accommodations.

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.

June 24th

Derivation of the standard pollution diagram

June 25th

Coase Theorem

June 26th **Problem Set 1 Due**

Policy design when MB and MD curves are known
- Choice of policy instrument
- Incentives for innovation
- Monitoring and enforcement

June 27th **Quiz 1**

- Monopolistic polluter
- Non-monotonic marginal damages
- Non-convex total net benefits
- Concentration of polluting activities

June 28th **Problem Set 2 Due**

Instrument choice when MB and MD curves are not known
- Per unit tax vs. regulation
- Tradable pollution permits

July 1st **Quiz 2**

Instrument choice when MB and MD curves are uncertain
- Expected Pigouvian tax vs. tradable permits
- Hybrid instrument
- Nonlinear tax

July 2nd **Problem Set 3 Due**

Disaggregate pollution
Distributional effects of environmental policies
Political economy of instrument choice

July 3rd **Quiz 3**

Economic theory of policy evaluation
- Economic efficiency and social welfare
- Criteria for policy analysis
- Marginal willingness to pay vs marginal utility

July 4th **HOLIDAY**

July 5th **AT–HOME REVIEW FOR MIDTERM EXAM**

July 8th **IN–CLASS REVIEW FOR MIDTERM EXAM**

July 9th MIDTERM EXAM

July 10th Problem Set 4 Due

Porter Hypothesis
Types of policy analysis

July 11th Quiz 4

Valuation of risks to life
Risk-risk analysis

July 12th Problem Set 5 Due

Water pollution control
Safe Drinking Water Act
Air pollution control
    Regulated pollutants
    National Ambient Air Quality Standards

July 15th Quiz 5

    Regulatory policies
    Benefit-cost analysis
Global issues: 1973 perspective

July 16th Problem Set 6 Due

Stratospheric ozone depletion
Global climate change
    Causes
    Economic Effects

July 17th Quiz 6

    Technical alternatives for responding to global climate change
    Instrument choice
    Obstacles to effective international agreements

July 18th Problem Set 7 Due

Discounting
    Rate of time preference
    Opportunity cost rate
    Discounting formulas

July 19th Quiz 7

    Discounting and climate change

July 22nd Problem Set 8 Due

IN–CLASS REVIEW FOR FINAL EXAM

July 23rd AT–HOME REVIEW FOR FINAL EXAM

July 24th FINAL EXAM COVERS MATERIAL SINCE MIDTERM EXAM