

Economics 435
Natural Resource Economics
Autumn 2023
Prof. Robert Halvorsen

ECON 435 is a survey of the economics of natural resources. Topics include renewable resources, such as fish and trees; nonrenewable resources, such as oil and copper; environmental resources, such as clean air and water; and ecological resources, such as biodiversity and endangered species.

A principal theme in analyzing these topics is the determination of the optimal trade-offs between the benefits and costs of resource use, with special emphasis on trade-offs between current and future resource use and the implications for sustainability. The prerequisite for this course is ECON 300 and the class discussions will assume that students have a solid understanding of intermediate-level microeconomics.

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

Three, non-cumulative, exams will each count for 30% of the course grade. The previous 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 by 5:30 PM on the date due. 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 435 will be on Zoom from 2:00–3:00 PM on Wednesday. An appointment to meet either on Zoom or in person at another mutually convenient 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.

Washington state law requires that UW develop 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.

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.

September 28th Lecture 1

Microeconomic theory of policy evaluation

Economic efficiency and equity
Private markets and efficiency

October 3rd Lecture 2

Dynamic efficiency
Present value analysis

October 5th Lecture 3

Forestry Economics

Optimal harvesting age
Standing value

October 10th Lecture 4

Faustmann rule
Recycling and the stock of trees

October 12th Lecture 5

Fishery Economics

Dynamic analysis of optimal stock and harvest
Static analysis of optimal effort

October 17th Exam review. Problem Set 1 due.

October 19th Exam 1

October 24th Lecture 6

Perverse open-access results

October 26th Lecture 7

Command and control instruments
Economic incentive instruments

October 31st Lecture 8

Nonrenewable resources

Condition for optimal extraction

November 2nd Lecture 9

Monopolistic extraction
Effects of taxes

November 7th Lecture 10

Effects of externalities

Threat of expropriation

November 9th Exam review. Problem Set 2 due.

November 14th Exam 2

November 16th Lecture 11

Sustainability

Desirability

Feasibility

November 21st Lecture 12

Environmental economics

Coase theorem

Policy: MB and MD curves known

November 23rd Lecture 13

Policy: MB and MD curves unknown

Policy: MB and/or MD curves uncertain

November 28th Lecture 14

Ecological Resources

Biodiversity

Preservation of species

November 30th Lecture 15

US Endangered Species Act

CITES

December 5th Exam review. Problem Set 3 due.

December 7th Exam 3