

University of Wyoming
College of Business
Department of Economics and Finance

Economics 4400-01
Environmental Economics
MWF 10:00-10:50 AM, Business College, Room 304
Fall 2001

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Course Description: This course explores the application of economic theory and analysis to the allocation and management of two key functions of the natural environment: the provision of amenity and life support services and the absorption of waste flows, or pollution, from the economic process. Because the environmental damages resulting from pollution as well as most ecological services are not "priced" by markets, the course will also focus on the economic valuation of these non-marketed environmental "goods" and "bads". The distinction between public and private goods, the influence of property right regimes and market structure, and the role of the environment in economic development will also be stressed. This course will not deal with a third environmental function, the use of non-renewable and renewable resources for energy and material inputs in the economic process. That topic is the focus of different course, Economics 4410 (The Economics of Natural Resources).

Prerequisites: ECON 1010 and ECON 1020 (i.e. M1). However, it is strongly recommended that students enrolled in this course have already completed an undergraduate intermediate microeconomics course or its equivalent. Much of the course material is inherently mathematical, and it will be assumed that all students have a thorough understanding of microeconomic theory and its applications.

Course Objectives: The main aim of this course is to introduce students with a good understanding of undergraduate microeconomics, preferably at the intermediate level, to the field of environmental economics. The emphasis will be on learning basic economic methods and approaches to the valuation of non-marketed environmental benefits and damages; the management of various pollution problems (e.g., air, water and toxic waste); and determining appropriate policy instruments to control pollution and account for environmental benefits. Students will therefore learn the rudiments of applying economic theory to

various environmental problems. To do this, students will have to master course material presented in the texts and lectures that will involve microeconomic applications using both quantitative (i.e. mathematical) and graphical analysis. This will be accomplished both through take-home “problem/short essay sets” as well as in-class exams.

Grading and Course Requirements: The academic requirements of this course consist of a mid-term examination, a final examination, and four take-home problem/short essay sets. Each student’s final grade in the course will be determined as follows:

Top three out of four problem/short essay sets	45% (15% each)
Midterm examination	25%
Final examination	30%

Each problem/short essay set must be handed in by the assigned due date. These are: **September 24, October 15, November 12 and December 3**. Any problem/short essay set handed in after its assigned due date will lose automatically ten points for each day late. If the problem/short essay set is more than three days late, it will not be graded and receive zero points. This policy is not negotiable. Although students are urged to complete all four problem/short essay sets, the one with the lowest grade will not count toward the final grade for the course. Undertaking all the problem/short essay sets will be an extremely valuable exercise in understanding the economic concepts and applications to various environmental problems that will be covered in the course. This will also be important preparation for the two in-class exams.

The midterm examination is tentatively scheduled for **Wednesday October 24**. The exam will be taken in class time on that day. The exam will involve mainly brief essay or discussion questions, although to answer them will require knowledge of the economic concepts, methods and applications covered in the course up to the midterm. Under no circumstances will there be any make-up or early exams.

The final examination is scheduled for **Monday December 17 from 10:15 to 12:15 pm**. The exam will involve answering two out of four essay or discussion questions. Their aim is to test students’ knowledge of the economic concepts, methods and applications covered in the entire course.

Attendance Policy: Students are expected to attend all classes. Any student who fails to attend regularly will inevitably fall behind and find that his or her performance is badly affected.

Academic Dishonesty: Also known as “cheating” academic dishonesty will not be tolerated in this class. Cases of academic dishonesty will be prosecuted in accordance with UNIREG 802 Rev.2. Cheating in this course can result in an “F”

final grade. In this course, academic dishonesty includes (but is not limited to) unapproved assistance on examinations, copying the work of other students, plagiarism or other use of published materials without complete citations, or fabrication of referenced information, including purchasing and/or downloading from the internet others' work without acknowledging this source.

Group Work Guidelines: Although no group work is anticipated in this course, students are encouraged to discuss lecture and text material with each other outside of class. Students may decide to work on the problem/short essay sets either on their own or with others. However, each student is responsible for submitting his or her own answers to each problem/short essay set, and will be graded accordingly.

Course Calendar: A tentative calendar for the course is indicated below under the heading **Course Readings and Schedule**.

Disclaimer: The instructor may need to modify the course requirements, grading standards and calendar during the teaching of the course this semester. If so, the instructor will notify all students in class of any changes and confirm these changes in a written memo, handout and/or email.

Course Readings and Schedule

Course Readings: The two required texts for this course are:

Tietenberg, Tom. 2000. *Environmental and Natural Resource Economics*, 5th ed. Addison-Wesley, New York.

Russell, Clifford S. 2001. *Applying Economics to the Environment*. Oxford University Press, New York.

Most of the required reading for this course will be from Tietenberg (2000), and this text will be used as the basis for most lectures. However, Russell (2001) also serves as an excellent background text for many topics. Where both texts are required reading, it is advisable to read first the chapters assigned from Tietenberg as an introduction to a topic, and then read the Russell chapters. It is therefore important that students use both texts and undertake the required and recommended reading assigned during the course.

Occasionally, short readings and articles to supplement the two texts may be distributed in class. Such readings will either be for your interest only or will be the basis for in-class group discussion.

Course Schedules and Assignments:

- Week 1: Introduction and key concepts**
Required reading: Tietenberg, Chapter 1; Russell, Chapter 1.
Recommended reading: Russell, Chapter 2.
- Week 2: Valuing the environment: concepts**
Required reading: Tietenberg, Chapter 2; Russell, Chapter 6.
Recommended reading: Russell, Chapters 3-5.
- Week 3: Valuing the environment: methods**
Required reading: Tietenberg, Chapter 3; Russell, Chapters 7 and 8.
- Week 4: Property rights, externalities and the environment**
Required reading: Tietenberg, Chapter 4.
First problem/short essay set due on Monday September 24.
- Week 5: Economics of pollution control: an overview**
Required reading: Tietenberg, Chapter 15; Russell Chapter 9.
- Week 6: Stationary-source local air pollution**
Required reading: Tietenberg, Chapter 16
- Week 7: Regional and global air pollution: acid rain and climate change**
Required reading: Tietenberg, Chapter 17.
Second problem/short essay set due on Monday October 15.
- Week 8: Mobile-source air pollution**
Required reading: Tietenberg, Chapter 18.
Midterm exam on Wednesday October 24.
- Week 9: Water pollution**
Required reading: Tietenberg, Chapter 19.
- Week 10: Toxic substances**
Required reading: Tietenberg, Chapter 20.
- Week 11: Policy considerations and choice of instruments**
Required reading: Tietenberg, Chapter 21; Russell, Chapter 10.
Third problem/short essay set due on Monday November 12.
- Week 12: Environment, growth and development: an overview**
Required reading: Tietenberg, Chapter 22; Russell, Chapter 14
- Week 13: Environmental valuation in developing countries**
Required reading: Russell, Chapter 15.

Week 14: Environmental policy instruments in developing countries
Required reading: Russell, Chapter 16.
Fourth problem/short essay set due on Monday December 3.

Week 15: Course wrap up

Week 16: Final Exam Monday December 17 from 10:15 to 12:15 pm.