



## ECON 2350 : Environmental Economics

| 2023 Summer Session   |   |
|---|---|
| <b>Total Class Sessions: 25</b><br><b>Class Sessions Per Week: 5</b><br><b>Total Weeks: 5</b><br><b>Class Session Length (Minutes): 145</b><br><b>Credit Hours: 4</b> | <b>Instructor: Staff</b><br><b>Classroom: TBA</b><br><b>Office Hours: TBA</b><br><b>Language: English</b> |

### **Course Description:**

This course introduces students to the environmental issues from the perspective economics and provides students with economical theoretical and methodological tools to deal with environmental issues. The following modules will be covered in this course, modeling environmental problems, modeling solutions to environmental problems, analytical tools for environmental planning, the case of air, the case of water, the case of solid wastes and toxic substances, global environmental management. Through this course, the students are expected to apply some economic tools to help societies to achieve their environmental goals.

### **Learning Objectives:**

At the end of this course, students will be able to:

1. Understand and become familiar with the important concepts in the field of environmental economics
2. Make use of theoretical and methodological tools to deal with the issues in environmental economics
3. Deal with environmental problems from an analytical perspective

### **Course Materials:**

Callan, S. J., & Thomas, J. M. (2013). Environmental economics and management: Theory, policy, and applications. Cengage Learning.

### **Course Assignments:**

#### **Participation: 10%**

Attendance at all class sessions is required. Should you be ill or otherwise unable to attend class, you should notify the instructor in advance of your absence. If you fail to attend class on a regular basis, your final course grade will be lowered. Likewise, you should join class meetings on time. Active participation in all classroom activities is essential to success in this course. This entails a consistent willingness to play a strong role in both whole class and small group discussions by offering opinions, comments, and questions; careful reading, in advance, of assigned material; and the completion of homework assignments in a thorough and timely fashion.

**Homework assignments: 20%**

There will be five homework assignments, including problem-solving and short-answer questions that related to analysis of environmental economic circumstances. The specific details will be announced by the lecturer before the assignments. The students are responsible to hand in the homework assignments before the due date.

**Quizzes: 15%**

There will be five quizzes administered throughout the whole semester. Quizzes will always be completed in the beginning of class. The quiz problems will be similar to textbook topics and examples on slides. Some of the questions will be similar to the ones in the homework assignments. There will be no make-up quizzes. The lowest one will be dropped.

**Exams: 55%****Midterm Exam**

There will be one midterm exam in this course. The midterm exam will be based on concepts covered in class. It will be in-class, close-book and non-cumulative.

**Final Exam**

The final will be cumulative and close-book. Note that the final will not be taken during the normal class times. Exact time and location for final will be announced later.

**Course Assessment:**

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|----------------------|-------------|
| Participation        | 10%         |
| Homework assignments | 20%         |
| Quizzes              | 15%         |
| Midterm Exam         | 20%         |
| Final Exam           | 35%         |
| <b>Total</b>         | <b>100%</b> |

**Grading Scale (percentage):**

| A+     | A     | A-    | B+    | B     | B-    | C+    | C     | C-    | D+    | D     | D-    | F   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 98-100 | 93-97 | 90-92 | 88-89 | 83-87 | 80-82 | 78-79 | 73-77 | 70-72 | 68-69 | 63-67 | 60-62 | <60 |

**Academic Integrity:**

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Chengdu University of Technology's *Academic Conduct Code*. Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

**Special Needs or Assistance:**

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.

**Course Schedule:**

| Topics   | Assignments   |
|--|---|
| <b>Week One</b>  |   |
| <b>Introduction to the course</b><br><b>The Role of Economics in Environmental Management</b><br>Economics and the environment<br>Understanding environmental damage<br>Identifying environmental objectives<br><b>Modeling the Market Process</b><br>Market models<br>Market demand and supply<br><b>Modeling Market Failure</b><br>Environmental problems: a market failure<br>Modeling a public goods market for environmental quality<br>Environmental problems: externalities | <ul style="list-style-type: none"><li>• Quiz 1</li><li>• Homework assignment 1</li></ul>                        |
| <b>Week Two</b>  |   |
| <b>Conventional Solutions to Environmental Problems: The Command-and-Control Approach</b><br>Standards in environmental policy<br>Approaches to implementing environmental policy<br><b>Economic Solutions to Environmental Problems: The Market Approach</b><br>Pollution charges<br>Deposit/refund systems   | <ul style="list-style-type: none"><li>• Quiz 2</li><li>• Midterm exam</li><li>• Homework assignment 2</li></ul> |



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| <p>Pollution permit trading systems</p> <p><b>Environmental Risk Analysis</b></p> <p>Risk, risk assessment, risk management</p>  |  |
| <p><b>Week Three</b></p>   |  |
| <p><b>Assessing Benefits for Environmental Decision Making</b></p> <p>Environmental benefits</p> <p>Approaches to measuring environmental benefits</p> <p>Direct estimation methods under the behavioral linkage approach</p> <p><b>Assessing Costs for Environmental Decision Making</b></p> <p>Estimation methods for measuring explicit costs</p> <p><b>Benefit-Cost Analysis in Environmental Decision Making</b></p> <p>Time adjustments to environmental benefits and costs</p> <p>Analysis on environmental benefits and costs</p>  | <ul style="list-style-type: none"><li>• Quiz 3</li><li>• Homework assignment 3</li></ul> |
| <p><b>Week Four</b></p>  |  |
| <p><b>Air Quality</b></p> <p>Defining air quality: the standard-setting process</p> <p>Improving air quality: controlling mobile sources and stationary sources</p> <p>Global air quality: policies for ozone depletion and climate change</p> <p><b>Water Quality</b></p> <p>Defining water quality: the standard-setting process</p> <p>Improving water quality: controlling point and non-point sources</p> <p>Protecting safe drinking water</p> <p><b>Managing Municipal Solid Waste</b></p> <p>Characterizing the hazardous waste problem</p> <p>Controlling hazardous wastes (policy in the US)</p> <p>Characterizing municipal solid waste</p> | <ul style="list-style-type: none"><li>• Quiz 4</li><li>• Homework assignment 4</li></ul> |



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| Policy response<br>The market and its approaches for MSW   |   |
| <b>Week Five</b>   |   |
| <b>Controlling Pesticides and Toxic Chemicals</b><br>Controlling approaches and analysis to the related issues<br>Economic<br><b>Sustainable Development: International Environmental Agreements and International Trade</b><br>Sustainable development as a global objective<br>Global framework for sustainable development<br>International agreements to control transboundary pollution<br><b>Sustainable Approaches: Industrial Ecology and Pollution Prevention</b><br>Industrial ecology<br>Pollution prevention<br>Strategic initiatives and programs<br><br><b>Review For Final Exam</b> | <ul style="list-style-type: none"><li>• Quiz 5</li><li>• Homework assignment 5</li><li>• Final exam</li></ul> |