Energy and Environmental Economics

Instructor Information

Fidel Gonzalez
Associate Professor
Department of Economics and International Business
Sam Houston State University

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Phone: (936) 294-4796
Office: SHB 237J
Office Hours: TUTH 11.00 - 12.30 am or by appointment. Send me an email if you cannot make it to my office hours to set an appointment.

Course Information

Meeting Place: SHB 108 MW 9.30-10.50 AM
Course Number: ECON 3352

Course Content

This class will study the economics of public policy toward natural resources, the environment and the energy sector. The objective of the class is to provide you with the tools and techniques to analyze environmental policy. You will develop economic economist and start thinking about the environmental and natural resources like an economist.

The class is divided in two sections. The first one covers the economic theory on the environment: public goods, externalities, property rights, market failure and social cost-benefit analysis. In this part, we will cover the different instruments and policies used by the government. In particular, in this section we will talk about water and air pollution as well as waste disposal.

The second section of the class is devoted to the optimal (renewable and non-renewable) natural resource management such as fossil fuel and fisheries. We will compare the market and optimal solutions.

Required Textbook


Assignments and Grading

Grading will consist of the following three main categories only: exams, homework and quizzes. Please notice that grades, assignments, power point slides, answer keys and all material will be posted on Blackboard.
**Exams:** there will be three partial exams and one final exam.

1) All exams are multiple choice.

2) The final exam is comprehensive.

3) If by the end of the semester you are happy with your grade you do NOT have to take the final exam. The final exam grade substitutes the lowest grade of your partial exams. If the final exam grade is no better than any of your partial exam grades you will keep your old grade, that is taking the final exam will not hurt your grade in the class. For example, imagine that your grades in the partial exams are: 80, 70 and 60. Then you take the final and obtain a grade of 75. In this case, the grade of 60 in your third partial exam is substituted for a grade of 75.

4) Each partial test has a different weight according to how well you do in each test. The highest grade represents 30% of your grade, the second highest grade 25% and the third highest grade 20%.

5) I will post a practice test with its answer key before each partial exam. The hardest questions in the partial exam will also have a more detailed explanation of the answer. All exams with the respective answer key will be posted a few days after the exam day.

**Homework:** there will be six homework sets.

1) The homework set will be similar to the midterms and all questions are multiple choice or true/false.

2) The main purpose of the Homework is better prepare you for the partial exams.

3) The homework will be posted online on Blackboard and you MUST input your answers online. I will post a pdf file of the homework that you can print and work on it but when it comes to input the answers it has to be done online.

4) Homework will be graded from 0 to 100. If you do not input your answers before the due date you get a zero.

5) When calculating your final grade, I drop your lowest homework grade and then calculate your homework average. You can work in groups when solving the homework. If you work in groups it is important that you make sure that you understand the material.

6) The answer keys to the homework will be posted on Blackboard after the due date.

7) The homework average (without the lowest grade) has a weight of 15% in your final grade.

**Quizzes:** there will be a total of six quizzes in the semester.

1) Quizzes will take place during first 5 minutes of class (see the chart below for the specific days).
2) If you do not take a quiz you get zero.

3) Quizzes represent 10% of the final grade.

4) Each quiz consists of one or two easy question about the most important topics of the previous two classes. You may want to review your notes before class.

5) When calculating the average quiz grade I will drop your lowest quiz grade.

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<thead>
<tr>
<th></th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Highest Exam Grade</td>
<td>30%</td>
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<tr>
<td>Second Highest Exam Grade</td>
<td>25%</td>
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<tr>
<td>Third Highest Exam Grade</td>
<td>20%</td>
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<tr>
<td>Homework Average (w/out lowest grade)</td>
<td>15%</td>
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<tr>
<td>Quiz Average (w/out lowest grade)</td>
<td>10%</td>
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| Total | 100% |

Attendance

I will take attendance starting on the first day of class by university regulations. However, attendance for extra points will start on Monday August 26th 2010. In order for your presence to count as attendance you have to stay for the whole class time.

Attendance is important but not required. I believe that you will learn more if you come to class:

1) If you do not miss any classes, you will receive a bonus of 3 points out 100 of in your final grade.

2) If you only miss one class you will receive a bonus of 2 points.

3) If you miss two classes you will only receive 1 extra point.

4) The only valid excuse for an absence not to be counted is to present a doctor’s note saying that you were ill during the days of the class.

5) You also get extra points for NOT coming to class. **If you only come to three classes or less you will get 3 extra points.** Not coming to class implies not showing up at all. If you come and leave early then it is counted as an absence but it is not counted as “not coming” to class. However, if you decide to not come to class or leave early you do so in the understanding that you are waving your right to ask me questions about the lecture you missed.

6) Notice that you are not required to attend class but if you decide to come you must not disturb the class.
Crossword Puzzles
You can also get extra points in the **partial exams** by doing the crossword puzzles. The crossword puzzle will be assigned before each partial exam and gives you the opportunity to increase your grade in the upcoming exam. You will have around ten days to do it.

Other Extra Points
During the semester you will have opportunity to gain one extra point in your final grade by undertaking different assignments that I will assign during the semester.

Final Numerical and Letter Grade.
The final numerical grade is calculated as follows:

(Homework Average without the lowest grade) x 0.15 + (Quiz Average without the lowest grade) x 0.1 + (Highest Midterm Grade) x 0.3 + (Second Highest Midterm Grade) x 0.25 + (Third Highest Midterm Grade) x 0.2 + Attendance Points (if any) + Extra Points (if any)

Final Numerical Grade

Once I obtain the final numerical I will assign a letter grade using the following table. Please note that there is **no curve in the final numerical grade.**

<table>
<thead>
<tr>
<th>Final Numerical Grade</th>
<th>Final Letter Grade</th>
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<tbody>
<tr>
<td>87 to 100</td>
<td>A</td>
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<tr>
<td>77 to 86</td>
<td>B</td>
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<tr>
<td>67 to 76</td>
<td>C</td>
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<td>57 to 66</td>
<td>D</td>
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<tr>
<td>Less than 57</td>
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Grade Calculator
I understand that grades are very important. In Blackboard there is a link that will take you to a grade calculator that I have developed for the class. In this calculator you can input the grades of each homework, quiz and midterm and it will compute your final numerical and letter grade. Clearly, you do not know what grades you have in some items because you have not done in those
cases just input an expected grade (that is a grade you think you can make). This is a tool to help you figure out how you are doing in the class and the find out what grades you need to get to obtain certain letter grade.

Important Dates

Exam I   September 28th
Exam II  October 31st
Exam III December 7th
Final Exam December 13th 8:00 to 10:00 AM

Electronic Devices

During class you can use electronic devices as long as you are not disturbing/distracting me or other students. Please use common sense. If I find your use of electronic devices distracting or disturbing I will ask you to leave the classroom. According to university regulations any communication device during exams must be hidden from view. This means not only that you CANNOT use your mobile phone as a calculator during exams but also that it must not be visible.

Religious Holidays

The student, not later than the 4th class day after the first day off the semester, must notify the instructor of each scheduled class day he/she will be absent for a religious holy day. Request forms are available in the Department of Economics office in SHB 232. The form must be personally presented to the instructor or sent certified mail, return receipt requested, within the time limits established. Students who are absent from a class for observance of a religious holy day will be allowed to make-up the examination or complete the assignment scheduled for that day within one week of returning to class.

Disable Student Policy

It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall not be excluded, solely by reason of his/her disability, from participation in any academic program of the University. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance are expected to visit with the Office of Services for Students with Disabilities located in the Counseling Center. They should than make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired. SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential.
Email Policy

During the semester I will be sending emails to the students in the class. The emails are sent to your SHSU account, it is YOUR responsibility to make sure that you have a working SHSU email. I am always glad to receive email from my students. When you send me an email please help me by:

1) Putting your first and last name, class name and meeting time
2) If you are asking a question about a topic covered in class try to be specific.

Finally, I will try to answer emails as soon as I can but you have to understand that sometimes I am unable to do so (specially during weekends).
<table>
<thead>
<tr>
<th>Wednesday August 24</th>
<th>Monday August 29</th>
<th>Wednesday August 31</th>
<th>Wednesday September 7</th>
<th>Monday September 12</th>
<th>Wednesday September 14</th>
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<tr>
<td><strong>First Day of Class</strong></td>
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<td></td>
<td><strong>Homework 1 Assigned</strong></td>
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<td><strong>Homework 1 Due</strong></td>
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<td><strong>Monday September 19</strong></td>
<td><strong>Wednesday September 21</strong></td>
<td><strong>Monday September 26</strong></td>
<td><strong>Wednesday September 28</strong></td>
<td><strong>Monday October 3</strong></td>
<td><strong>Wednesday October 5</strong></td>
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<tr>
<td><strong>Quiz 2</strong></td>
<td><strong>Homework 2 Due</strong></td>
<td><strong>Practice Midterm</strong></td>
<td><strong>EXAM I</strong></td>
<td><strong>Crossword Puzzle Due</strong></td>
<td><strong>Homework 3 Assigned</strong></td>
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<td><strong>Crossword Puzzle Assigned</strong></td>
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<td><strong>Monday October 10</strong></td>
<td><strong>Wednesday October 12</strong></td>
<td><strong>Monday October 17</strong></td>
<td><strong>Wednesday October 19</strong></td>
<td><strong>Monday October 24</strong></td>
<td><strong>Wednesday October 26</strong></td>
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<tr>
<td><strong>Homework 3 Due</strong></td>
<td><strong>Homework 4 Assigned</strong></td>
<td><strong>Crossword Puzzle</strong></td>
<td><strong>Homework 4 Due</strong></td>
<td><strong>Practice Midterm</strong></td>
<td><strong>Homework 5 Due</strong></td>
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<td><strong>Quiz 4</strong></td>
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<td><strong>Wednesday November 9</strong></td>
<td><strong>Monday November 14</strong></td>
<td><strong>Wednesday November 16</strong></td>
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<td><strong>EXAM II</strong></td>
<td><strong>Homework 5 Assigned</strong></td>
<td><strong>Quiz 5</strong></td>
<td><strong>Homework 5 Due</strong></td>
<td><strong>Quiz 6</strong></td>
<td><strong>Homework 6 Assigned</strong></td>
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<td><strong>Crossword Puzzle Due</strong></td>
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<td><strong>Homework 6 Due</strong></td>
<td><strong>Practice Midterm</strong></td>
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<td><strong>EXAM III</strong></td>
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Outline.

**Topic I. Environment and Economics**
1. How economists look at the environment.
2. Main issues in environmental policy.

**Topic II. Concepts to value the environment.**
1. Environment as an asset
2. Normative criteria for decision making
3. Finding the optimal outcome

**Topic III. Methods to value the environment.**
1. Why valuing the environment
2. Valuing benefits
3. Valuing costs
4. Discount rate
5. Cost-Benefit Analysis

**Topic IV. Property rights, externalities and environmental problems**
1. Definition of externalities.
2. Types of externalities.
3. Property rights.
5. Types of public goods.

**Topic V. The population problem**
1. Historical perspective
2. Population growth and economic development
3. Population-environment connection
4. Economic approach to population control

**Topic VI. Energy**
1. Natural gas
2. Oil
3. National security and climate
4. Unconventional oil, coal and nuclear
5. Electricity
6. Energy efficiency
7. Transition to renewables

**Topic VII. Regional and global air pollution**
1. Regional pollutants: acid rain
2. Global pollutants
3. Ozone Depletion
4. Climate Change
5. Kyoto agreement
**Topic VIII. Water pollution**
1. Nature of water pollution problems
2. Water pollution control policies
3. Efficiency and cost-effectiveness

**Topic IX. Water**
1. Potential for water scarcity
2. Efficient allocation of scarce water
3. Current allocation system
4. Potential remedies

**Topic X. Forests**
1. Forest harvesting decisions
2. Source of inefficiency
3. Poverty and debt
4. Sustainable forestry
5. Public policy

**Topic XI. Fisheries and other commercially valuable species**
1. Efficient allocations
2. Market solutions
3. Public policy toward fisheries