**Rose-Hulman Institute of Technology / Department of Humanities, Social Sciences, and the Arts**
**Winter 2019-20: ECONS351: Environmental Economics**
Section 1: MTRF (2:00 – 2:50)/Olin-203-2

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**Office Hours: MTRF, 9:00 to 10:00 am, 1:00 to 2:00 pm, and by appointment**

## Course Description:

Our society faces increasing challenges in sustainably managing environmental and natural resources. Policy making at various levels has become more contentious when it comes to dealing with environment. Economics offers diverse insights in efficiently managing scarce resources. This course is designed to familiarize students with economics tools and techniques that are used in managing environmental and natural resources. The class will help you to understand the economic and social justifications for various environmental policy approaches made at different levels.

## Course Objectives:

Students will be able to:

• know the applications of economic principles in managing natural resources and the environment;

• understand the competing demands for our limited natural resources and need for best management practices for allocating, managing, and protecting the environment; and

• develop the analytical skills that will enable students to critically evaluate diverse policy measures influencing environmental and natural resource management.

## Prerequisites/Corequisites:

ECONS151 (Introduction to Microeconomics) is the prerequisite for this class.

## Required Text:

Eban S. Goodstein and Stephen Polasky, *Economics and the Environment*, 8th ed. (2019), Wiley.

## Assessment:

• The course assessment will consist of (i) Test-Based Assessment (50%), and (ii) Project-Based Assessment (50%).

(i) Test-Based Assessment (50%): Under this assessment, there will be two homework, two in-class quizzes, and three exams.

- The three exams will be comprised of multiple choice questions (MCQ), graphing, numeric, and short answer problems. Each exam will be worth 10% of your term grade, for a total of 30% of your term grade.
- The two homework will be worth a total of 10% of your term grade.
- The two in-class quiz will be worth a total of 10% of your term grade.

(ii) Project-Based Assessment (50%): Under this assessment, there will be two film review assignments, one term paper, and one final project with presentations.

- The two film reiew assignment will be worth a total of 10% of your term grade.
- One term paper will be worth a total of 10% of your term grade.
- The final project will be worth a total of 30% of your term grade.

**Instructions on Final Project and Presentations:**

You will be expected to produce and present a brief research paper by the end of the course.

The course project consists of three graded components. First, you will write a literature survey on a topic of your choice. A good initial source of potential topics and data are available in the website of EPA (https://www.epa.gov/environmental-economics/research-environmental-economics-ncee-working-paper-series), World Bank Climate Change Portal (https://climateknowledgeportal.worldbank.org/), NOAA (https://www.noaa.gov/). In addition, papers published in the top journals of Environmental Economics (https://www.env-econ.net/2008/01/top-journals-in.html) could be nice sources of inspiration.

You will be judged on how well you choose the papers, your summary of each paper and how you relate the papers. Second, you will write a research prospectus. This document will serve as the beginnings of a research paper. It should consist of no more than 5 pages, clearly pose a research question, provide motivation, discuss the identification strategy and the data to be (potentially) used, and place the paper in the existing literature. You will have several opportunities to get feedback before the final prospectus is turned in. Finally, you will give a 10-minute presentation to the entire class followed by a 3-5minute discussion.

Timeline of course project:

Project Task 1: Dec. 20th: Literature surveys due.

Project Task 2: Jan. 24th: Brief project description for instructor and feedback.

Project Task 3: Feb. 7th: Draft prospectus due.

Final Project: Feb. 17th and 21st: Presentations, Final prospectus and presentation slides due.

**Grading Component, and Grading Scale:**

| Grade Component | Weight |
|---|---|
| Three Exams (3*10) | 30% |
| Two Homework (2*5) | 10% |
| Two in-Class Quiz (2*5) | 10% |
| Two Film Review Assignment (2*5) | 10% |
| One Term Paper (1*10) | 10% |
| Final Project and Presentation | 30% |

| Score in Percentage | Grade |
|---|---|
| 90 or better | A |
| 86 to 89 | B+ |
| 80 to 85 | B |
| 76 to 79 | C+ |
| 70 to 75 | C |
| 66 to 69 | D+ |
| 60 to 65 | D |
| Below 60 | F |

**Attendance Policy:**

- Although there is no participation or attendance credit, there is a penalty for unexcused absences:

  4 unexcused absences = 1-letter grade reduction

- A student whose total absences in a course, excused or unexcused, exceed two per credit is liable to fail the course. Click here to see the Rose-Hulman's attendance policy.

- Excused absences will be granted for illness, family emergencies or institute sanctioned events (official notices should be sent by organizing authority). If you believe you have any other legitimate reason for missing a class, discuss it with me ahead of time.

**Academic Misconduct:**

Students must aware of Rose-Hulman's rules and procedures toward academic misconduct. These policies may be found on the Rose-Hulman's web-site at Academic Rules & Procedures at this link.

## Course Schedule:

The table below lists the order of the material to be covered in the class. This schedule is subject to change by the instructure, if necessary.

| Week and Date | Topics and Textbook Reference | Important Due Dates |
|---|---|---|
| Week 1:<br>12/2 – 12/6 | Introduction: syllabus review and basic principles<br>Guidelines on final project and sample presentation<br>Ch 1: Four Economic Questions about Global Warming<br>Ch 2: Ethics and Economics | N/A |
| Week 2:<br>12/9 – 12/13 | Ch 3: Pollution & Resource Degradation as Externalities<br>Ch 4: The Efficiency Standard<br>Ch 5: Measuring the Benefits of Environmental Protection | **Homework#1**<br>(Ch.1-3; Due:12/12) |
| Week 3:<br>12/16 – 12/20 | Ch 6: Measuring the Costs of Environmental Protection<br>Project Task 1: Submit brief Literature review with potential research topic (Maximum 2 pages)<br>Film Review Assignment 1: Poisoned Waters<br>Review for Exam 1 | **In-Class Quiz 1**<br>(Ch. 4-5; Due:12/16)<br>**Project Task 1**<br>(Due:12/20)<br>**Film Review 1**<br>(Due:12/20) |
| 12/23/2019 (M) – 01/03/2019 (F): Holiday Begins: No Classes | | |
| Week 4:<br>1/6 – 1/10 | Ch 7: The Safety Standard<br>Ch 8: The Sustainability Standard<br>Ch 9: Measuring Sustainability<br>**Kevin's talk (1/6/2020); Extra points will be allocated for participating and asking interesting questions** | **Exam 1**<br>(Ch. 1-6; Due: 1/7)<br>**Dr. Kevin's talk (1/6/2020)** |
| Week 5:<br>1/13 – 1/17 | Ch 10: Natural Resources and Ecosystem Services<br>Ch 11: Is More Really Better? Consumption and Welfare<br>Film Review Assignment 2: Erin Brockovich<br>Review for Exam 2 (Chapter 7-12) | **Homework #2**<br>(Ch.7-9; Due:1/16)<br>**Film Review 2**<br>(Due:1/22) |
| Week 6:<br>1/20 – 1/24 | Ch 13: An Overview of Environmental Regulation<br>Ch 14: The Regulatory Record: Achievements and Obstacles<br>Project Task 2: Brief project description (Maximum 3 Pages) | **Exam 2**<br>(Ch.7-11; Due:1/20)<br>**Project Task 2**<br>(Due: 1/24) |
| Week 7:<br>1/27 – 1/31 | Ch 15: Incentive-Based Regulation: Theory<br>Ch 16: Incentive-Based Regulation: Practice<br>Ch 17: Promoting Clean Technology: Theory<br>Guidelines of Term Paper will be posted | **In-Class Quiz 2**<br>(Ch. 13-15; Due: 1/28) |
| Week 8:<br>2/3 – 2/7 | Ch 18: Energy Policy and the Future<br>Ch 19: Poverty, Population and the Environment<br>Project Task 3: Draft Prospectus (Min. 5 – Max. 10 pages) | **Project Task 3**<br>(Due: 2/7) |
| Week 9:<br>2/10 – 2/14 | Ch 20: Environmental Policy in Low Income Countries<br>Ch 21: The Economics of Global Agreements<br>Review for Exam 3 (Chapter 16-21)<br>Guidelines of Presentation will be posted | **Term Paper**<br>(Due: 2/10)<br>**Exam 3**<br>(Ch. 16-21; Due: 2/14) |
| Week 10:<br>2/17 – 2/21 | Presentation of your final Project<br>Final Project and Presentation Slides Due | **Final Project and Presentation Slides**<br>(Due: 2/21) |

** In addition, we will go over a few papers on environmental and natural resource economics that employ the methods discussed in class.