



## Environmental Economics

### Spring 2019 – Syllabus

Monday, Wednesday, Friday  
11:30 – 12:20  
Althouse 207

Contact Information			
Professor	Nicola Tynan	Office	Althouse 219
Email	tynann@dickinson.edu	Office hours	Wednesday 12:30-2:00 Thursday 11:00-noon
Telephone	(717) 245-1596		Sign up at <a href="https://ttsu.me/Qc">https://ttsu.me/Qc</a>

### Course Description and Objectives

Environmental Economics is the study of human action and its relationship with the natural environment using the tools of economic analysis. This course provides an introduction to the conceptual frameworks that economists use to explain and evaluate the impact of human actions on the natural environment and to establish appropriate policies. We will apply the tools and frameworks of economic analysis to a variety of pollution problems at the local, national, and global levels.

#### Course Learning Goals

- Learn the basic concepts, tools and models of environmental economics.
- Engage with critical thinking about current environmental problems, such as water pollution, air pollution, or climate change, through the lens of an environmental economist.
- Develop the skills to discuss and assess the appropriate level and effectiveness of environmental policy in economic and societal terms.

This course is a Sustainability Connections (SCON) course and satisfies the sustainability requirement for the degree. As such it has the following learning goals:

- Think critically about a sustainability question, problem and/or potential solution, and
- Articulate connections between the field of study of the course and sustainability.

It also counts as SINE elective, INST sustainability and globalization elective, ENST society and environment elective, LAWP policy elective, and PMGT private sector policy elective.

*Prerequisites:* ECON 111 (Intro to Microeconomics)

### Logistics

My office hours are 12:30-2:00 on Wednesday and 11:00-12:00 on Thursday. Please use the "Time to Sign Up" link (<https://ttsu.me/Qc>) to sign up for a 15-minute meeting time. You can also just turn up - if you do that, this link will allow you to see if I am likely to be busy with other students.

In addition to office hours, I will make myself available for a few minutes after each class. Outside office hours, email is the best way to reach me. It typically takes me less than 8 hours to respond to email. If you cannot make office hours but need to meet, send an email and we can try to schedule a mutually convenient time.

## **Accommodating Students with Disabilities**

Dickinson values diverse types of learners and is committed to ensuring that each student is afforded equitable access to participate in all learning experiences. If you have (or think you may have) a learning difference or a disability – including a mental health, medical, or physical impairment – that would hinder your access to learning or demonstrating knowledge in this class, please contact Access and Disability Services (ADS). They will confidentially explain the accommodation request process and the type of documentation that Dean and Director Marni Jones will need to determine your eligibility for reasonable accommodations. To learn more about available supports, go to [www.dickinson.edu/access](http://www.dickinson.edu/access), email [access@dickinson.edu](mailto:access@dickinson.edu), call (717) 245-1734, or go to ADS in the Lower Level of Old West, Room 5.

If you've already been granted accommodations at Dickinson, please let me know as soon as possible so that we can meet soon to review your Accommodation Letter and complete your Blue Forms. If you will need test proctoring from ADS, remember that you will need to provide them with at least one week's notice.

## **Required Texts, Materials, and Web Sites**

### ***Required***

- Barry C. Field and Martha K. Field, *Environmental Economics: An Introduction*, 7<sup>th</sup> edition. McGraw-Hill, 2016, ISBN: 9780078021893.

The Field & Field text is a top environmental economics textbook. I have selected it because it is written clearly yet includes a lot of detailed analysis. Most chapters of the Field & Field text end with Questions for Further Discussion – some problems with correct answers and others just to think about. You should try to complete as many of these as you can. I will assign some of them on problem sets or use them for class discussion but it will help if you think through them in advance.

### ***Additional Readings***

I will assign a few articles to supplement the required text. Some of these are on the syllabus; others I will announce in class. All non-text readings will be made available in Moodle.

### ***Moodle***

You should check *Moodle* regularly. I will post all urgent notices, assignments, due dates, non-text readings, a copy of the syllabus, and some class notes here. If you have any difficulty accessing Moodle, please contact the Help Desk on x1000 or visit the lower level of the library.

### ***Resources for the Future***

Resources for the Future (RFF) is the oldest environmental and resource economics institute, established in 1952, long before the creation of the Environmental Protection Agency (EPA). You will find excellent environmental economics and policy research at the RFF web site at: <http://www.rff.org/Pages/default.aspx>. I encourage you to look here for research on topics you find of particular interest.

## **Exams and Grading**

**Problem sets:** There will be eight problem sets during the semester due at the beginning of class on the date specified when distributed. Problem sets will focus on applying the tools of economic analysis to simplified environmental problems. Late problem sets be accepted only if I have not

yet posted the answers in Moodle. If accepted, late assignments will have the grade reduced by one letter grade, unless the late submission is made with prior arrangement with me or due to an emergency I consider acceptable. In completing problem sets, you may meet to discuss the problems, but all work you hand in must be your own – you should be able to explain your answers and answer similar questions on the exam.

**Exams:** There will be two exams, one in class on Friday 8 March and a final on Friday 10 May at 9AM. The first exam will focus on the conceptual frameworks, tools of economic analysis, and readings covered prior to the exam; the final exam will be comprehensive but weighted towards material covered after the first exam.

I use the following 10-point grading scale for exams and problem sets:

<b>A</b>	<b>92.5 – 100</b>		<b>C</b>	<b>72.5 - 76.4</b>
<b>A-</b>	<b>89.5 - 92.4</b>		<b>C-</b>	<b>69.5 - 72.4</b>
<b>B+</b>	<b>86.5 - 89.4</b>		<b>D+</b>	<b>66.5 - 69.4</b>
<b>B</b>	<b>82.5 - 86.4</b>		<b>D</b>	<b>62.5 - 66.4</b>
<b>B-</b>	<b>79.5 - 82.4</b>		<b>D-</b>	<b>59.5 - 62.4</b>
<b>C+</b>	<b>76.5 - 79.4</b>		<b>F</b>	<b>&lt; 59.4</b>

**Readings, discussion, and class participation:** Class discussion will focus on assigned readings. You are expected to have completed all assigned reading prior to coming to class. You will be asked to answer a few short questions on the readings and I will expect you to participate in class discussion. Each exam will include short essay questions relating to the assigned and discussed readings.

**Group project:** During the semester, you will work in groups of three students on an economic analysis of an environmental problem. Each group will create a Google Drive document explaining the problem and its history along with an economic analysis. Each group will give an 8-12 minute presentations of their research.

**Extra credit:** To encourage you to attend campus lectures and discussions outside your major, you may gain up to 2% of extra credit for attending up to two additional events relating to economic or environmental issues. Each event is worth 1% of extra credit. The submission in Moodle of a one-two page summary of or reflection on the event is required to obtain credit.

**Grade overview:** The table below gives a final grade breakdown to allow you to estimate your progress in the course:

<b>Assignment</b>	<b>Grade Share</b>	<b>Grade Share Breakdown</b>
Problem sets	32%	(4% each)
Exams	35%	(10% in class; 25% final)
Reading questions	8%	(1% each)
Group project & presentation	20%	
Class participation	5%	
<i>Extra credit opportunities</i>	2%	(1% each)

### Attendance and Classroom Etiquette

To keep up with the course, you should attend every class meeting. Participation counts towards your final grade and you need to be in class to participate. If absent for a legitimate reason, make sure you get notes from someone else in the class and from material posted to Moodle. I will not have time in class to re-cover material from earlier lectures. I expect you to remain for the full class period. In return, I will make sure that lectures finish on time.

***Phones, laptops, and calculators***

All cell phones must remain switched off during classes and exams. This is a courtesy to fellow students and allows you to participate fully in the class. If you have a special need to keep your cell phone on for emergency contact, please let me know. The only exception is for classes where a calculator is required; you may use your cell phone if you do not have a calculator. For exams, I will provide basic calculators but I recommend that you bring your own. You will not be allowed to use cell phones during exams.

You will not be allowed to use a laptop computer to take notes except with permission of the instructor. Research shows that taking notes by hand, possibly transferring them to a computer as a part of a review process, results in better recall and understanding of material.

**Core Reading and Assignment Schedule**

<u>Week 1</u>	<u>Logistics; What is environmental economics?</u> <u>Terminology; History of US environmental regulation</u>
Jan 21	Introduction
Jan 23	Field & Field, Ch. 1 Fullerton & Stavins, "How Economists See the Environment" Rauch, "Ideas Change the World – And One Think Tank Quietly Did"
Jan 25	Field & Field, Ch. 2, Ch.14 (pp. 265-270)
<u>Week 2</u>	<u>History of US environmental regulation</u> <u>Basic tools of economics - a review</u>
Jan 28	Field & Field, Ch. 2, Ch. 15 (pp. 294-300)
Jan 30	Field & Field, Ch. 3 Krupnick, "The Economics of the 'Economic Argument for Environmental Protection'"
Feb 1	Field & Field, Ch. 3
<u>Week 3</u>	<u>Economic efficiency: externalities and public goods</u>
Feb 4	Field & Field, Ch. 4
Feb 6	Field & Field, Ch. 4
Feb 8	Field & Field, Ch. 4
<u>Week 4</u>	<u>Pollution control: marginal damages and marginal abatement costs</u>
Feb 11	Field & Field, Ch. 5
Feb 13	Field & Field, Ch. 5
Feb 15	Field & Field, Ch. 6
<u>Week 5</u>	<u>Frameworks of analysis: discounting and risk</u>
Feb 18	Field & Field, Ch. 6
Feb 20	Goulder & Stavins, "An Eye on the Future" Field & Field, Ch. 6
Feb 22	Pindyck, "Uncertainty in Environmental Economics" Project topics Arrow et al. "Is There a Role for Benefit Cost Analysis in Environmental, Health, and Safety Regulation?" Kelman, "Cost-Benefit Analysis: An Ethical Critique" and responses

<u>Week 6</u>	<u>Liability laws, property rights, comparative institutions</u>
Feb 25	Field & Field, Ch 10 Anderson, "Donning Coase-coloured glasses: a property rights view of natural resource economics"
Feb 27	Stavins, Ch. 2: The Problem of Social Cost
Mar 1	Janet Currie et al. "Something in the water: contaminated drinking water and infant health"

<u>Week 7</u>	<u>Measuring costs</u>
Mar 4	Field & Field, Ch. 7
Mar 6	Field & Field, Ch. 7
<b>Mar 8</b>	<b>In-class Exam</b>

### SPRING BREAK

<u>Week 8</u>	<u>Measuring costs; evaluating environmental policies; efficiency and fairness</u>
Mar 18	Field & Field Ch. 10
Mar 20	Field & Field Ch. 9 Graham, "The Evolving Role of the U.S. Office of Management and Budget"
Mar 22	Field & Field, Ch. 11, Ch.14 (pp. 273-281), Ch. 15 (pp. 303-308)

<u>Week 9</u>	<u>From standards to incentives</u>
Mar 25	Field & Field, Ch. 12, Ch. 14 (pp. 281-291)
Mar 27	Field & Field, Ch. 12
Mar 29	Field & Field, Ch. 12 James Boyd, "Water Pollution Taxes: A Good Idea Doomed to Failure?"

<u>Week 10</u>	<u>Incentive-based policies: transferable permits</u>
Apr 1	Field & Field, Ch. 13
Apr 3	Field & Field, Ch. 13, Ch.15
Apr 5	Stavins, "What Can We Learn from the Grand Policy Experiment? Lessons from SO <sub>2</sub> Allowance Trading" Sandel, "It's Immoral to Buy the Right to Pollute" with replies

<u>Week 11</u>	<u>Toxic and hazardous substances; state and local issues</u>
Apr 8	Field & Field, Ch. 16
Apr 10	Field & Field, Ch. 17
Apr 12	Field & Field, Ch. 17 Group research and preparation for presentation

<u>Week 12</u>	<u>Group Project Presentations</u>
Apr 15	Group Project Draft Due; Group Presentations
Apr 17	Group Presentations
Apr 19	Group Presentations

<u>Week 13</u>	<u>International issues: ozone depletion, climate change</u>
Apr 22	Feedback from group project draft and presentations Field & Field, Ch. 20
Apr 24	Field & Field, Ch. 20 Aldy et al. "Designing Climate Mitigation Policy"
Apr 26	Nordhaus, "Critical Assumptions in the Stern Review on Climate Change" Stern & Taylor, "Climate Change: Risk, Ethics, and the Stern Review" Metcalf, "Market-based Policy Options to Control U.S. Greenhouse Gas Emissions"
<u>Week 14</u>	<u>International environmental agreements, development and trade</u>
April 29	Field & Field, Ch. 19, Ch. 21
May 1	Pasurka, "Perspectives on Pollution Abatement and Competitiveness: Theory, Data, and Analyses"
May 3	Daly and Baghwati debate on trade and the environment <b>Group Project Due by 5pm</b>
Fri, May 10	<b>Final Exam at 9AM in Althouse 207</b>