

**University of Redlands Department of Economics**  
**ECON-455-01: Environmental and Resource Economics**  
**Spring 2020**  
**Mondays and Wednesdays 9:30-10:50AM: Hall of Letters 213**

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**Office Hours: Tuesdays – 2:30 to 3:30; Wednesdays – 11:00 to noon; or by appointment**

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### **Course Description**

Welcome to Environmental and Resource Economics! Here we will discuss the mainstream economic approach to environmental problems and resource use, centering our exploration on the issue of climate change. You will learn generally how most economists approach problems of things like pollution, waste management and recycling, and land use, along with critiques of that approach. We will explore these issues from both theoretical and empirical perspectives.

### **Course Objectives**

By the end of this course, you should be able to:

- Understand the relationship between the economic system and environmental degradation, including the theory of externalities and the under-provision of public goods
- Conduct a basic environmental cost-benefit analysis and be able to identify the shortcomings of such an analysis
- Demonstrate a general understanding of environmental issues studied in class, such as pollution control, land use, energy use, and recycling
- Use basic models to analyze policies to reduce greenhouse gas emissions and other types of pollution, such as taxes, cap-and-trade systems, and direct regulation
- Discuss the unequal distribution of pollution and environmental protection and amenities, understanding the sources and dimensions of those inequalities

### **Required Text**

Tom Tietenberg & Lynne Lewis (2018) *Environmental & Natural Resource Economics*, 11<sup>th</sup> ed. Routledge: New York.

All other readings will be made available on the course Moodle page.

### **Assignments**

*Readings:* We have the lucky opportunity of a small group for this class. Knowing well the capabilities of almost all of you, I plan to run the course more like a graduate seminar than a traditional lecture course. In some cases (where I will note on the schedule below), the textbook readings will be useful more for developing background knowledge on a particular subject, especially for those students who may not have much coursework in environmental studies. In these cases, the textbook readings will be paired with some other reading/media that we will discuss more heavily in class. You will be expected to come to class having read all of the core materials, with your questions and comments noted.

*Research Paper/Presentation:* You will work with me over the course of the semester to develop some kind of project/paper that draws from and builds on material in the course. I will meet with you early in the semester to discuss what kind of project might be useful given your academic and career interests, but I will attempt to equalize the amount of work required to complete each project across students. At the end of the semester, you will present your work to the seminar.

*Exams:* There will be two take-home exams throughout the semester where you will be asked to work with and write about the material learned during that half of the semester.

*Homework:* A homework assignment will be due roughly every other week that will test your knowledge of the concepts and technical material discussed in class.

### Grading

Assignment	Percent of Grade
Final Paper	30%
Final Exam	20%
Midterm Exam	20%
Participation	15%
Homework	10%
Final Presentation	5%

Letter Grade	0-4 Scale	Percentage
A	4	95-100
A-	3.7	90-94
B+	3.3	85-89
B	3	80-84
B-	2.7	75-79
C+	2.3	70-74
C	2	65-69
C-	1.7	60-64
D+	1.3	55-59
D	1	50-54
F	0	0-50

### Class Policies

*Attendance:* In order to get the most out of the course, it is imperative for you to attend every class. Since we have a relatively small group, your presence and participation are vital for having a dynamic class. If your attendance becomes sporadic (more than a couple of classes missed), I will ask why you are not attending class, and I may file an Academic Status Report. Too many absences will negatively impact your participation grade. Additionally, frequently arriving late will have a negative impact on your participation grade.

*Academic Honesty:* Unless explicitly specified, all work you turn in for this course should be yours alone. When using ideas other than your own in your work, I expect you to include proper citations. If you have any questions about expectations or policies in this area, you may both refer to the University

Catalog (p. 17-24) and share any concerns you have regarding your own or anyone else's behavior. If a violation of academic honesty is found to have occurred, it will result in a loss of credit for the course.

The University Catalog is available in its entirety here: <http://www.redlands.edu/study/registrar-office/course-catalogs/>

*Laptops & Electronic Gadgets:* You may use laptops and tablets in class for taking notes or to refer to readings, though I reserve the right to revoke your privilege to use these if it becomes clear that you are using them for outside activities during class. I expect that you will not be using your phones during class, as well. If I see this, I may ask you to stop, and it will affect your participation grade. As we are such a small group, your engagement is vital (and lack of it will be obvious!).

*Academic freedom:* In this course, we will be discussing a number of politically charged issues, and it is inevitable that there will be a range of opinions, including my own. You will never be penalized in any way for disagreeing with me or challenging my views. Part of the learning process for all of us is having our existing beliefs and assumptions challenged over the course of the year. Being able to do this in a respectful and constructive way can allow us to grow intellectually.

*Disability support:* If you have a physical, learning, or other disability that requires accommodation, you can let me know in the way that is most comfortable for you. I will do my best to work with you and the University to make any necessary accommodations. In order to arrange for accommodations, please contact the University's Office of Academic Success & Disability Services, Location: Armacost Library, Lower Level, website: <http://www.redlands.edu/student-life/academic-success-and-disability-services/disability-services/>

*Johnston Contracting:* I am very open to contracting the course with Johnston students, and it was designed with this in mind. I ask that you schedule a meeting with me well in advance of the contracting deadline so that we can speak about the contract. Please come prepared to discuss your learning goals for the course so that we can think of how best to contract with those in mind.

*Discrimination and sexual assault:* The University of Redlands is committed to providing a safe learning environment for all students that is free of all forms of discrimination, sexual misconduct, and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. The University of Redlands has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, no contact orders, and more. Please be aware all University of Redlands faculty members are "responsible employees," which means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must share that information with the Title IX Coordinator. Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

To report an incident, you can:

- Report online at: [www.redlands.edu/titleix](http://www.redlands.edu/titleix) --> Report
- Contact the Title IX Office at 909-748-8916
  - Title IX Coordinator, Pat Caudle, [pat\\_caudle@redlands.edu](mailto:pat_caudle@redlands.edu) or 909-748-8171
  - Deputy Title IX Coordinator, Erica Moorer, [erica\\_moorer@redlands.edu](mailto:erica_moorer@redlands.edu) or 909-748-8916

If you wish to speak to someone confidentially (meaning not filing with the Title IX Office), you can contact any of the following on-campus resources:

- Counseling Service (<http://www.redlands.edu/student-life/health-and-psychological-services/counseling-center/> ,909-748-8108)
- Crisis Line: 909-748-8960
- Chaplain’s Office (<http://www.redlands.edu/student-life/campus-diversity-and-inclusion/religious-diversity/>, 909-748-8368)

## Class Schedule

<b>Jan. 6</b>	Introduction: Current Thinking on Sustainability
	<b>Traditional Approaches to Environmental Problems in Economics</b>
<b>Jan. 8 &amp; 13</b>	Market Failures <ul style="list-style-type: none"> <li>• T&amp;L Chapter 2</li> </ul>
<b>Jan. 15</b>	CBA & The Discount Rate <ul style="list-style-type: none"> <li>• T&amp;L Chapter 3</li> <li>• My blog post: <a href="#">“How I Would Weaken EPA’s Climate Rules,”</a> February 2, 2017.</li> </ul>
<b>Jan. 20</b>	Valuation <ul style="list-style-type: none"> <li>• Carson et al. (2003) “Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill.” <i>Environmental and Resource Economics</i> 25, p. 257-286.</li> <li>• T&amp;L Chapter 4</li> </ul> <b>HW1 Due</b>
	<b>Climate Change</b>
<b>Jan. 22</b>	Introduction to Climate Change <ul style="list-style-type: none"> <li>• David Wallace-Wells (2019) <i>The Uninhabitable Earth</i> (excerpts)</li> <li>• Greta Thunberg, <a href="#">Speech to Assemblée Nationale</a>, Paris, July 23, 2019.</li> </ul>
<b>Jan. 27</b>	Integrated assessment models (IAMS) I: An Introduction <ul style="list-style-type: none"> <li>• William Nordhaus (2017) “Revisiting the social cost of carbon,” <i>PNAS</i>, 114(7), p. 1518-1523.</li> <li>• Download Excel version of DICE-2016R from <a href="https://sites.google.com/site/williamdnordhaus/dice-rice">https://sites.google.com/site/williamdnordhaus/dice-rice</a> for class</li> </ul>
<b>Jan. 29</b>	IAMS II: Critiques <ul style="list-style-type: none"> <li>• Nicholas Stern (2013) “The Structure of Economic Modeling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models,” <i>Journal of Economic Literature</i> 51(3): 838-859.</li> </ul>
<b>Feb. 3 &amp; 5</b>	Air Pollution Control <ul style="list-style-type: none"> <li>• T&amp;L Chapter 14 &amp; Appendix</li> <li>• Schmalensee and Stavins (2013) “The SO<sub>2</sub> Allowance Trading System: The Ironic History of a Grand Policy Experiment,” <i>Journal of Economic Perspectives</i>, 27(1), p. 103-122.</li> <li>• B: T&amp;L Chapter 15</li> </ul> <b>HW2 Due Feb. 3</b>
<b>Feb. 10</b>	International Climate Agreements I – A Simulation & History <ul style="list-style-type: none"> <li>• Class simulation on international climate agreements</li> <li>• Robin Hahnel, <i>Green Economics</i>, Ch. 8</li> </ul>

<b>Feb. 12</b>	<p>International Climate Agreements II -- Paris</p> <ul style="list-style-type: none"> <li>Tom Kompas, Pham Van Ha, and Tuong Nhu Che (2018) "The Effects of Climate Change on GDP by Country and the Global Economic Gains from Complying with the Paris Climate Accord," <i>Earth's Future</i> 6, p. 1153-1173.</li> </ul> <p><b>HW 3 Due</b></p>
<b>Feb. 17</b>	<p>Public Lands and Conservation I</p> <ul style="list-style-type: none"> <li>T&amp;L Chapter 13</li> <li>Paul C. Sutton, Sophia L. Duncan, and Sharolyn Anderson (2019) "Valuing Our National Parks: An Ecological Economics Perspective," <i>Land</i> 8(54).</li> </ul>
<b>Feb. 19</b>	<p>Public Lands and Conservation II</p> <ul style="list-style-type: none"> <li>Guest Speaker: Pete Nelson, Defenders of Wildlife (GRG 161)</li> </ul> <p><b>Take home midterm due at 9:30AM</b></p>
<b>March 2</b>	<p>Deep Decarbonization</p> <ul style="list-style-type: none"> <li>Johan Rockström et al. (2017) "A roadmap for rapid decarbonization" <i>Science</i> 355(6331), 1269 -1271 (March 24).</li> <li>Timothée Parrique et al. (2019) <i>Decoupling Debunked</i>, European Environment Bureau, Brussels (excerpts).</li> </ul>
<b>March 4</b>	<p>Environmental Social Justice</p> <ul style="list-style-type: none"> <li>Zwickl, Ash, and Boyce (2014) "Regional Variation in Environmental Inequality: Industrial Air Toxics Exposure in U.S. Cities," <i>Ecological Economics</i> 107, 494-509.</li> <li>B: T&amp;L Chapter 19</li> </ul>
<b>March 9</b>	<p>Energy: An Introduction</p> <ul style="list-style-type: none"> <li>California Energy Commission (2018) "<a href="#">Tracking Progress</a>," December.</li> <li>Covert, Greensone, and Knittel (2016) "Will We Ever Stop Using Fossil Fuels?" <i>Journal of Economic Perspectives</i> 30(1), P. 117-138.</li> <li>B: T&amp;L Chapter 7</li> </ul>
<b>March 11</b>	<p>Resource Extraction I</p> <ul style="list-style-type: none"> <li>T&amp;L Chapters 5 and 6 (including Appendices)</li> </ul> <p><b>HW4 Due</b></p>
<b>March 16</b>	<p>Resource Extraction II</p> <ul style="list-style-type: none"> <li>Heal and Schlenker (2019) "Coase, Hotelling, and Pigou: The Incidence of a Carbon Tax and CO2 Emissions," <i>CEEP Working Paper Series</i>, Working Paper Number 6. Columbia SIPA Center for Environmental Economics and Policy, New York.</li> </ul>
<b>March 18</b>	<p>How do Firms Actually Make Decisions about Sustainability?</p> <ul style="list-style-type: none"> <li>Reksten, Bali Swain, and Floro (2020)</li> </ul>
<b>March 23</b>	<b>Peer review of paper drafts/meetings with Prof. Reksten</b>
<b>March 25</b>	<p>Mobile Source Air Pollution</p> <ul style="list-style-type: none"> <li>Greene and Welch (2017) "The Impact of Increased Fuel Economy for Light-Duty Vehicles on the Distribution of Income in the U.S.: A Retrospective and Prospective Analysis," The Howard H. Baker Jr. Center for Public Policy, University of Tennessee, White Paper 2:17.</li> <li>B: T&amp;L Chapter 17</li> </ul> <p><b>HW5 Due</b></p>

<b>March 30</b>	<p>Land Use and Sprawl</p> <ul style="list-style-type: none"> <li>• Wen Hao Lee and Dorina Pojani (2018) "How do sprawl and inequality affect well-being in American cities?" <i>Cities</i>, March.</li> <li>• B: T&amp;L Chapter 10</li> </ul>
<b>April 1</b>	<p>Solid Waste and Recycling</p> <ul style="list-style-type: none"> <li>• Bell, Huber, and Viscusi (2017) "Fostering Recycling Participation in Households through Single-Stream Programs," <i>Land Economics</i> 93(3), p. 481-502.</li> <li>• B: T&amp;L Chapter 8</li> </ul>
<b>April 6</b>	<b>Project presentations</b>
<b>April 8</b>	<b>Project presentations</b> <b>Papers due in class</b>
<b>April 13</b>	<b>Take home final due at noon</b>