

Spring 2021

Dr. Kohlhasse
University of Houston

ECON 3363, Section 25357
ENVIRONMENTAL ECONOMICS
(class meets TTh 2:30-4:00pm synchronous via Zoom)

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email: jkohlhasse@uh.edu
hours: by appointment (send email request with course name and number in subject line)

my web page: <http://www.uh.edu/~kohlhasse/>
Blackboard Learn: <http://www.uh.edu/blackboard> (password access)

TA: Ryan McGregor, office hours via Teams held Wednesdays 4-5pm and also by appointment. Email: rpmcgregor@uh.edu (send email request with course name and number in subject line)

CLASS: The course is designed to teach students how to think about environmental issues using the framework of economics, especially microeconomics tools. We start with an analysis of market failures and externalities. Next we discuss potential policy approaches to environmental problems such as regulations, taxes, subsidies and marketable permits. We study methods to measure benefits and costs of environmental improvements. Then we apply these concepts to several applications including regional and local air quality and global climate change.

LEARNING OUTCOMES:

- Students will be able to use economic terminology and models of environmental issues appropriately and correctly.
- Students will be able to analyze and interpret quantitative data about the environment.
- Students will be able to organize and present material in a systematic framework based on environmental economics models.

LOGISTICS: Environmental economics is being taught for the first time as a synchronous class in Spring 2021. Students will attend each class period (TTh 2:30am-4:00pm CT) online synchronously using a video conferencing app. Supplemental course material will be posted on the class Blackboard site. The TA may offer office hours via Teams and a few synchronous/asynchronous sessions to review the problem sets.

What do you need to do to successfully participate in class? You should download video conferencing software to your devices. The class will start out using Zoom; and Microsoft Teams is also a possibility. You must have a stable internet connection, a webcam and a microphone attached to the device you are using so that you can participate synchronously and to be monitored while you take exams. You also should have a high-quality scanner to copy your exams and problem sets to upload to Blackboard or to email to the TA.

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PREREQUISITES:

The basic requirement is that you have taken an introductory microeconomics course at the college level or that you get permission from me. A course in intermediate microeconomics is highly recommended, but not absolutely necessary.

REQUIRED TEXT:

(FF) Barry C. Field and Martha K. Field, *Environmental Economics: An Introduction*, 8th edition, McGraw-Hill, 2021. Available in the following formats:

- Hardbound rental text: 9781260243062 (\$70)
- Looseleaf text (purchase): 9781260993172 (\$98)

COURSE EVALUATION: 25% Midterm 1 (Tues. March 2, 2021 online during class)
25% Midterm 2 (Thurs. April 1, 2021 online during class)
35% Final (Tues. May 13, 2021, 2-5pm, online)
15% Problem sets (3-4 assigned during term)

There are three exams: two midterms and a final. The final exam is comprehensive, but the midterms cover certain materials. Exams consist of short problems with discussion. The problem sets ask you to solve problems relating to the economics of environmental issues. You may do *problem sets in groups of one to two*. All group members receive the same grade. All answers for exams, quizzes and problem sets must be original to you and written in your own words.

COURSE POLICIES: All assignments are required and must be completed and turned in on time. Problems sets will be uploaded to Blackboard or emailed to the TA. **NO MAKEUP EXAMS! I will follow the UH excused absence as policy outlined above.** Any absence from an exam or quiz for medical reasons must be documented by your physician. Any other absence from an exam must be approved by me *in advance* in writing. Unapproved absence from any exam counts as a zero.

Classroom Conduct: I expect you to attend all classes and actively and politely engage in the discussions. I also expect you to arrive on time. Please turn off your mobile devices during class. Students are expected to abide by the University of Houston's Code of Student Conduct: (<http://www.uh.edu/dos/behavior-conduct/student-code-of-conduct/>)

Academic Honesty: To cultivate an environment of academic integrity, the University of Houston expects students to abide by the University's Undergraduate Academic Honesty Policy, found in the Undergraduate Catalog. <http://www.uh.edu/academic-honesty-undergraduate>. **All exams, quizzes and problem sets are covered by the UH Honesty policy.**

Counseling and Psychological Services: Counseling and Psychological Services (CAPS) -- www.uh.edu/caps-- are available for students having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS by calling 713-743-5454 during and after business hours for routine appointments or if you or somebody you know is in crisis. The "Let's Talk" program provides a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html

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Students with Disabilities: The College of Liberal Arts and Social Sciences, in accordance with 504/ADA guidelines, is committed to providing reasonable academic accommodations to students who request them. Students seeking accommodation must register with the Center for Students with Disabilities (CSD) 713-743-5400 and present approved documentation to me as soon as possible.

Required Information from the University of Houston

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Center for Students with DisABILITIES](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Syllabus Changes

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through announcements on Blackboard and via group emails to your [Exchange email account](#).

Other Recommended Information from the University of Houston

Resources for Online Learning

The University of Houston is committed to student success, and provides information to optimize the online learning experience through our [Power-On](#) website. Please visit this website for a comprehensive set of resources, tools, and tips including obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email

Email communications related to this course will be sent to your [Exchange email account](#) which each University of Houston student receives. The Exchange mail server can be accessed via Outlook, which provides a single location for organizing and managing day-to-day information, from email and calendars to contacts and task lists. Exchange email accounts can be accessed by logging into Office 365 with your CougarNet credentials or through Access UH. Additional assistance can be found at the [Get Help](#) page.

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on during lectures to ensure active participation in lectures. Webcams must also be turned on during exams to ensure the academic integrity of exam administration.

Course Delivery Formats and Final Exams

Synchronous Online Courses: This course is being offered in the Synchronous Online format. Synchronous online class meetings will take place according to the class schedule. There is no face-to-face component to this course. In between synchronous class meetings, there may also be asynchronous activities to complete (e.g., discussion forums and assignments). This course will have a final exam per the [University schedule](#). The exam will be delivered in the synchronous online format, and the specified date and time will be announced during the course. Prior to the exam, descriptive information, such as the number and types of exam questions, resources and collaborations that are allowed and disallowed in the process of completing the exam, and procedures to follow if connectivity or other resource obstacles are encountered during the exam period, may be provided.

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Other Helpful Information from the University of Houston

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>

Environmental Economics Course Details

Note: all readings are required unless marked “optional” with a superscript “T”

<u>TOPIC</u>	<u>TEXTBOOK/READING</u>
<i>I. Introduction</i>	
A. What is Environmental Economics?	ch. 1
B. Linking the Economy and the Environment	ch. 2
<i>II. Modeling Environmental Problems</i>	
A. Review of Market Models	ch. 3
B. Market Failures	ch. 4
Tragedy of the Commons, revisited	Frischmann (2018)
C. Economics of Environmental Quality	ch. 5
<i>III. Analytic Tools for Environmental Planning</i>	
A. Frameworks of Analysis	ch. 6
B. Assessing Benefits	ch. 7, Carson (2012)
Houston issues	Bishop (2017)
C. Assessing Costs	ch. 8
<i>III. Modeling Solutions to Environmental Problems</i>	
A. Criteria for Evaluating Environmental Policies	ch. 9
B. Decentralized Policies	ch. 10
C. Conventional Solutions: Command and Control Strategies	ch. 11
D. Economic Solutions: the Market Approach	
1. Charges (Taxes) & Subsidies	ch. 12
2. Market Trading Systems	ch. 13
	Schmalensee & Stavins (2013)
<i>V. Air Quality</i>	
A. Defining Air Quality Standards	ch. 15
Houston issues	Levin & Shelly (2015) ^T
	Forswall&Higgins (2005) ^T
B. Global Issues—Climate Change	ch. 18
i. Primer on Climate Change	CBO(2005), Stavins (2019)
	Stern (2007) ^T
ii. Economic Effects of Climate Change	Tol (2009)
iii. IPCC Assessment Reports	IPCC (2007) ^T

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	IPCC (2013) ^T
	IPCC-SR15-summary (2018)
	NCA-4-overview (2018)
iv. Treaties and Regulations	ch. 19
	UNFCC (2008) ^T
	UNFCC (2015) ^T
VI. <i>Other Topics (if time)</i>	
A. Water Issues	ch.14
B. State and Local Environmental Issues	ch. 15

***NOTE:** Journal articles and non-FF book chapters are posted on Blackboard; a few additional readings may be assigned during the course. As instructor, I reserve the right to alter the course topics, readings and policies during the course and will announce changes in class, post on Blackboard and send group emails to your UH exchange email address (ends in uh.edu). Students are expected to be aware of any of the changes presented by the instructor during the course.

REFERENCES FOR READINGS The following are available either online or via Blackboard. (additional articles may be added during the course)

Richard C. Bishop *et al*, "Putting a Value on Injuries to Natural Assets: the BP Oil Spill, *Science*, 2017, 356(6335):253-254.

Richard T. Carson, "Contingent Valuation: A Practical Alternative When Prices Aren't Available." *Journal of Economic Perspectives*, 2012, 26(4): 27-42.

CBO (Congressional Budget Office), "Limiting Carbon Dioxide Emissions: Prices Versus Caps," March 15, 2005, pp. 1-5, available to download at <https://www.cbo.gov/sites/default/files/109th-congress-2005-2006/reports/03-15-pricevsquantity.pdf>

Clayton D. Forswall and Kathryn E. Higgins, "Clean Air Act Implementation in Houston: An Historical Perspective 1970-2005," Feb. 2005 report, Shell Center for Sustainability, Environmental and Energy Systems Institute. Available to download at: <https://scholarship.rice.edu/handle/1911/107669>

Brett Frischmann, "The Tragedy of the Commons, Revisited," *Scientific American, Observations*, November 19, 2018, available at <https://blogs.scientificamerican.com/observations/the-tragedy-of-the-commons-revisited/>

IPCC (Intergovernmental Panel on Climate Change), "Climate Change 2007: Synthesis Report Summary for Policy Makers," 2007, available to download from https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_spm.pdf

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IPCC (Intergovernmental Panel on Climate Change), “Climate Change 2013: Physical Science Basis, Technical Summary,” 2013, available to download from https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_TS_FINAL.pdf

IPCC (Intergovernmental Panel on Climate Change), “Summary for Policymakers,” in *Global Warming of 1.5°C*, an IPCC Special Report, 2018, 32pp, available to download from <https://www.ipcc.ch/sr15/>

Ilan Levin and Adrian Shelley, “Houston Smog Levels Up in 2015,” *Environmental Integrity Project News*, Dec. 18, 2015, available to download from <https://www.environmentalintegrity.org/news/houston-smog-levels-up-in-2015/>

National Climate Assessment-IV, “Overview,” *In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Volume II. U.S. Global Change Research Program, Washington, DC, USA, 2018, pp. 33–71, available to download from <https://nca2018.globalchange.gov/chapter/1/>

Richard Schmalensee and Robert Stavins., "The SO2 Allowance Trading System: The Ironic History of a Grand Policy Experiment" *Journal of Economic Perspectives*, Winter 2013, 27(1): 103-122.

Nicholas Stern, *The Economics of Climate Change: The Stern Review*,” published for the Treasury of the United Kingdom, 2007, by Cambridge University Press, draft version available to download from https://webarchive.nationalarchives.gov.uk/20100407172811/http://www.hm-treasury.gov.uk/stern_review_report.htm

Robert Stavins, “The Future of US Carbon-Pricing Policies,” from his blog *An Economic View of the Environment*, May 30, 2019, available at <http://www.robertstavinsblog.org/2019/05/30/the-future-of-u-s-carbon-pricing-policy/>

Richard S. J. Tol, "The Economic Effects of Climate Change." *Journal of Economic Perspectives*, 2009, 23(2): 29-51.

UNFCC (United Nations Framework Convention on Climate Change), *Kyoto Protocol Reference Manual*, 2008 available to download from https://unfccc.int/resource/docs/publications/08_unfccc_kp_ref_manual.pdf

UNFCC (United Nations Framework Convention on Climate Change), “Adoption of the Paris Agreement,” 2015, available to download from <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>

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SELECTED INTERNET SITES -- ENVIRONMENTAL ISSUES

Government Agency Sites

<https://www.epa.gov/>

Operated by the U.S. Environmental Agency. Extensive data on all aspects of U.S. environmental issues. If you append "region6" to the address you will reach the EPA's Region 6, which includes Texas.

<https://www3.epa.gov/enviro/myenviro/>

Operated by the USEPA, MyEnvironment provides access to a cross-section of environmental data for any geographical location in the U.S.

<https://www.tceq.texas.gov/>

Operated by the Texas Commission on Environmental Quality (before 9/02 known as Texas Natural Resource Conservation Commission, TNRCC). Data on Texas pollution problems. Contains Houston's Clean Air Plans (also called Houston's State Implementation Plans).

<http://www.greenhoustontx.gov/reports.html>

Operated by the City of Houston, "Green Houston" contains several reports on local environmental issues.

Environmental Activist Sites that contain some useful data

<https://rtk.rjifuture.org/>

Hosted by the Houston Chronicle. The Right-to-Know network (established in 1989 under the Community Right to Know Act). Has various data bases, including the Toxics Release Inventory (TRI), and provides links to other environmental web sites.

<http://www.cechouston.org>

Operated by the Citizen's Environmental Coalition of Houston (CEC). The CEC has over 120 members and includes environmental nonprofits, government agencies & elected officials from the Houston-Galveston area. Directory includes profiles of members.

<https://airalliancehouston.org/>

Air Alliance Houston is the result of a merger between the Galveston-Houston Association for Smog Prevention (GHASP) and Mothers for Clean Air. Excellent coverage of local air issues.

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Business-Sponsored Site that contains some useful data

<https://www.airqualityhouston.com/> On Air: Houston is an initiative of the Greater Houston Partnership, the local Chamber of Commerce. Contains reports about the Houston area's progress in meeting US air quality standards for 6 "criteria" air pollutants.

Environmental Blogs by Economics Professors

<https://www.env-econ.net/> An environmental economics blog written by Professors John Whitehead (Ohio State University) and Tim Habib (Appalachian State University).

<http://greeneconomics.blogspot.com/> Environmental and Urban Economics blog written by Prof. Matt Kahn of Johns Hopkins University.

<http://www.robertstavinsblog.org/author/rstavins/> Environmental economics blog written by Prof. Robert Stavins of Harvard University Kennedy School.