



THE UNIVERSITY OF TEXAS AT DALLAS
School of Economic, Political and Policy Sciences

Course syllabus
Economics of Sustainability
Fall 2025
August 2025 (subject to updates)

Course overview

Course number: [ECON/IPEC/PPOL/PSCI 4324](#)
Course title: Economics of Sustainability
Professor: Elías Cisneros
Term: Fall 2025
Meetings: Tuesday and Thursday, 1:00 pm – 2:15 pm, [AD 2.216](#)

Contact information

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Office hours:	Mondays, 12–3 pm, by appointment only	Office hours:	Wednesday, 1–4 pm

1 General course information

Pre-requisites: No prerequisites

Course description: Sustainability can be described as a state in which the needs of the present generation can be met without compromising the ability of future generations to meet their own needs. This course offers a comprehensive examination of the sustainable utilization of natural resources. It introduces the analysis of optimal resource use and delves into the theoretical assessment of policies aimed at conserving the environment. Students will gain insight into key ecological and environmental economic principles and will have the opportunity to apply these concepts to real sustainability challenges.

Learning outcomes and objectives

1. Students will learn to assess the role of nature and resources for sustainable economic development.
2. Students will learn to develop analytical and research skills to critically evaluate empirical papers and draw meaningful conclusions from the findings.
3. Students will foster their ability to synthesize information, analyze complex problems, and formulate evidence-based arguments related to resources and sustainable development.
4. Students will be able to demonstrate critical thinking by developing a research question and writing a term paper.

2 Course grading

1. **Participation (20%):** Students are expected to actively participate in class each week. Students are expected to come to class prepared and have carefully read the assignments. Further, students are expected to attend every class session, and they will participate actively in the discussions during class. Students will have the option of (a) *problem sets* on the readings or opting into (b) *cold-calling*.
 - (a) **Problem sets track:** Each student must select *four* problem sets during the semester, which they solve and submit via eLearning. Each problem set is worth $\frac{1}{4}$ of the participation grade. A list of the problem sets is provided in section 4. Problem sets should be submitted before they are discussed in class, though not all problem sets will be discussed during class. This assignment requires a certain level of self-study. Presentations of the problem sets' solutions are encouraged!
 - (b) **Cold calling track (default):** Students will be called on at random during class sessions to answer questions or provide their thoughts on the topic at hand. A student who is cold-called and not present in class will lose 10% of the participation grade.
2. **First midterm exam (20%):** Students will take a non-cumulative exam. The exam will be held online. Exams contain multiple-choice questions, short-answer questions, and essay questions. This assignment does not allow Generative AI tools (see course policies below).
3. **Second midterm exam (20%):** Students will take a non-cumulative exam. The exam will be held online. Exams contain multiple-choice questions, short-answer questions, and essay questions. This assignment does not allow Generative AI tools (see course policies below).
4. **Main deliverable (40%):** For the main deliverable, students have three options: (a) a final exam, (b) a term paper, or a (c) a case study:
 - 4.1 **Final exam track (default):** A cumulative final exam on the last day of class. The Exam will contain multiple-choice questions, short-answer questions, and essay questions.
 - 4.2 **Term paper track:** Students select a topic and research question (RQ) of their choice, subject to instructor approval. The term paper should be designed as a **Comparative literature review** to examine two to three empirical papers. See more instructions in the *Assignments and Writing Guidelines* document (rw_assignment-guidelines.pdf). Paper's have to be selected in coordination with the instructor. Examples of topic areas include 'Pollution impacts on worker productivity in Indonesia' or 'Differential impacts of the increase in precipitation on the soybean sector in Brazil.' See section 7 for some topic and literature examples.

The paper should begin with a motivational introduction and provide an overview of the topic. Students should summarize the primary literature, discuss at least one central result with relevant technical details, incorporate additional contrasting literature, discuss its implications, and draw their own conclusions. Students are encouraged to ask any questions regarding this final assignment in office hours. Generative AI tools *may* be used in this assignment with the written permission of the instructor (see course policies below). To aid in interpreting empirical strategies and results, I recommend self-studying the methods. Some resources are:

 - Introductory videos: (a) [Linear Regression: Correlation and Causation](#), (b) [How to interpret Regression Tables](#), (c) [Instrumental Variables](#), (d) [Regression Discontinuity](#) (at least videos 1–3), (e) [Difference in Difference](#).
 - Book for beginners: Huntington-Klein, N. (2021): *The Effect: An Introduction to Research Design and Causality*, volume 1. New York: Chapman and Hall/CRC. ISBN 9781003226055, available online: <https://theeffectbook.net/>.
 - Another general introduction: Khandker, S. R., G. B. Koolwal, and H. A. Samad (2010): *Handbook on impact evaluation: quantitative methods and practices*. World Bank Publications, available online: [here](#).
 - 4.3 **Case study track:** Students may conduct a case study analysis that includes an original data analysis and write a report that connects to the class topics and literature. This option requires students to discuss their potential case study during office hours for previous approval. The report

must include at least two excerpts (i.e., Figures or Tables). Students must also submit their code (preferably in R) and input data for potential replication. For newcomers to R look up these resources: <https://rstudio-education.github.io/hopr/starting.html>. To get some ideas, please look at section 8.

5. **Main deliverable exemption:** Students will be exempt from the main deliverable (final exam/term paper/case study) if they fulfill the following criteria:

- **Problem set track:**
 - Have an *A grade* in both mid-term exams.
 - Submitted all *four problem sets* by Midterm exam 2
 - Submitted *two additional problem sets* between Midterm exam 2 and the end of class
- **Cold calling track:**
 - Have an *A grade* in both mid-term exams.
 - Maximum of *one absenteeism* when called before second midterm exam
 - Not absent when cold-called before the final exam

Grading scale: Your final letter grade will be determined by the percentage of points you achieve relative to the maximum number of points possible. The following scale will be used:

Grade	Range	Grade	Range	Grade	Range	Grade	Range	Grade	Range
A+	97-100%	B+	87-89%	C+	77-79%	D+	67-69%	F	< 60%
A	93-96%	B	83-86%	C	73-76%	D	63-66%		
A-	90-92%	B-	80-82%	C-	70-72%	D-	60-62%		

3 Texts & materials

Essential reading and material:

- *Chapters of main textbooks* (as indicated in the course outline):
 - Goodstein, E. S., J. Wong, and S. Polasky (2025): *Economics and the Environment*. Wiley, 10 edition. ISBN 978-1-394-30795-1, **Available online** via the UTD's [Eugene McDermott Library](#).
- *Papers* marked with a “*” in the course outline.
- *All material* used during class, e.g., lecture slides

Further complementary reading:

- Bluffstone, R. (2025): *Environmental Economics and Ecosystem Services*. Taylor & Francis, 1 edition. ISBN 781032311302

More advanced reading

- My favorite: Perman, R., Y. Ma, J. McGilvray, and M. Common (2011): *Natural resource and environmental economics*, volume Pearson Education Limited. Addison Wesley Longman, 4th edition

Recap on basic graph interpretation for economics:

- Saylor Academy (2012), Chapter 35: Appendix A: Graphs in Economics; [link](#)

4 Tentative schedule

Successful course participation requires reading all required readings – which are mostly Chapters from Goodstein et al. (2025). Additional readings are recommended.

Table 1: Tentative schedule

W	Date	Topics	Required reading	Additional reading
1	08/26	Syllabus, Introduction	Syllabus	
	08/28	4 Questions	Goodstein Ch. 1;	
2	09/02	Ethics and Economics	Goodstein Ch. 2	
	09/04	The Efficiency Standard	Goodstein Ch. 3, 4	Perman Ch. 4
3	09/09	Externalities		
	09/11	Efficient pollution		
4	09/16	Common and Public Goods		
	09/18	Measuring Benefits & Costs	Goodstein Ch. 5, 6	
5	09/23	(cont.)		
	09/25	(cont.)		
6	09/30	Mid-term exam I		
	10/02	Safety and Sustainability standards	Goodstein Ch. 7, 8, 9	
7	10/07	Natural Resources and Ecosystem Services	Goodstein Ch. 10	
	10/09	(cont.)		
8	10/14	Is More Better?	Goodstein Ch. 11	
	10/16	Political Economy of Env. Regulation	Goodstein Ch. 12	
9	10/21	Incentive-based regulation	Goodstein Ch. 15	
	10/23	(cont.)		
10	10/28	Promoting clean Technology	Goodstein Ch. 17	
	10/30	(cont.)		
11	11/04	Mid-term exam II		
	11/06	Research paper discussion	TBA	
12	11/11	Writing a term paper		
	11/13	Energy Policy and the Future	Goodstein Ch. 18	
13	11/18	Poverty, Population, and the Environment	Goodstein Ch. 19	
	11/20	Environmental Policy in LICs	Goodstein Ch. 20	
–	11/25	Fall break		
	11/27	Fall break		
14	12/02	The Economics of Global Agreements	Goodstein Ch. 21	
	12/04	(cont.)		
15	12/09	Recap & career talk		
	12/11	Final Exam / Final paper due		

Notes: Goodstein refers to the Goodstein et al. (2025); Perman refers to Perman et al. (2011)

Problem sets:

- Applications 3.2, 3.3
- Two out of Applications 4.1, 4.2, 4.3, 4.4, 4.5, 4.6
- Two out of Applications 5.1, 5.2, 5.3, 5.4, 5.5
- Two out of Applications 6.1, 6.2, 6.3
- Applications 7.1, 7.2
- Applications 8.2, 8.3
- Two out of Applications 10.1, 10.2, 10.3
- One of Application 15.1, 15.2
- Application 17.1
- Application 18.1
- Application 22.1

5 Course policies

Class Materials The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Attendance The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected regardless of modality. Students who fail to attend class regularly are inviting scholastic difficulty. Regular class participation is expected regardless of course modality. Participation includes in-person attendance, and engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Participation Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Recordings The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those, not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Academic Dishonesty Policy Cheating and plagiarism will not be tolerated. I strongly encourage you to review the University's policies regarding academic honesty: [UT Dallas Syllabus Policies and Procedures, Academic Dishonesty](#).

The emergence of generative AI tools¹ (such as ChatGPT and DALL-E) has sparked large interest among many students and researchers. The use of these tools for brainstorming ideas, exploring possible responses to questions or problems, and creative engagement with the materials may be useful for you as you craft responses to class assignments. While there is no substitute for working directly with your instructor, the potential for generative AI tools to provide automatic feedback, assistive technology and language assistance is clearly developing. Course assignments may use Generative AI tools if indicated in the syllabus. AI-generated content can only be presented as *your own work* with the instructor's *written permission*. Include an acknowledgment of how generative AI has been used after your reference or Works Cited page. [TurnItIn](#) or other methods may be used to detect the use of AI. Under UTD rules about due process, referrals may be made to the Office of Community Standards and Conduct (OCSC). Inappropriate use of AI may result in penalties, including a 0 on an assignment.

¹“Generative AI is a broad term that refers to a type of artificial intelligence (AI) application that is designed to use a variety of machine learning algorithms to create new content (text, images, video, music, artwork, synthetic data, etc.) based on user input that was not explicitly programmed into the AI application. Generative AI systems are “trained” by using complex algorithms to learn from an existing large corpus of datasets (often consisting of millions of examples) and to analyze patterns, rules and statistical structures from the sample data to be used in generating new content that is similar in style and characteristics to the original training datasets.” (ASU, 2023, <https://provost.asu.edu/generative-ai>)

Sickness If you have been **exposed**, have **symptoms** or are **positive**, note that if you have a serious illness or get very sick with COVID that prevents you from attending class, you will need to consider whether you can continue in this class or others. While I will help make course materials available, you must keep up with all course deadlines and exams and you are expected to attend this class in person. I will NOT asynchronously record class for those who cannot attend — you will need to get class notes from another student. With that being said, if you must miss class due to **COVID positivity or another illness** for one week, this will not be overwhelmingly detrimental to your grades as long as you do not miss an exam. See notes on excused absences as well in this syllabus.

6 Resources for students

Accessibility Resources Accessibility Resource Center Accommodations: If you have a certified disability from UT Dallas OSA and are in need of accommodations for this class, please contact me ASAP via email and provide me a copy of your documentation so we may discuss how to best facilitate you in the course. It is very important for students with OSA accommodations to **give prior notice** to instructors of assessment accommodations, and I ask for a two-week notice in advance as a minimum so that I can make sure that you are fully accommodated.

Disabilities Policy Please find the disability policy here: <https://go.utdallas.edu/syllabus-policies>. It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the [AccessAbility Resource Center \(ARC\)](#) is required. If you are eligible to receive accommodation and would like to request it for this course, please discuss it with me and allow one-week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact ARC for a confidential discussion. ARC is located in the Administration Building, AD 2.224. They can be reached by phone at 972-883-2098, or by email at studentaccess@utdallas.edu.

Sharing confidential information Students considering sharing personal information in email, in person, or within assignments or exams should be aware that faculty members and teaching associates/assistants and graduate/research assistants are required by UT Dallas policy to report information about sexual misconduct to the UT Dallas Title IX Coordinator. Per university policy, Sexual Misconduct Policy – UTDBP3102, faculty have been informed that they must identify the student to the UT Dallas Title IX Coordinator. Students who wish to have confidential discussions of incidents related to sexual harassment or sexual misconduct should contact the Student Counseling Center (972-883-2575 or the 24/7 Crisis Hotline at 972-UTD-TALK or 972-883-8255), the, a health care provider in the Student Health Center (972-883-2747), a clergyperson (or other legally recognized religious advisor) of their choice, or an off-campus resource (e.g., rape crisis center, doctor, psychologist). Students who are sexually assaulted, harassed, or are victims of sexual misconduct, domestic violence, or stalking, are encouraged to directly report these incidents to the UT Dallas Police Department at 972-883-2222 or to the Title IX Coordinator at 972-883-5202. Additional information and resources may be found at <https://www.utdallas.edu/institutional-initiatives/title-ix/resources/>.

Mental health services In addition, I am sensitive to the fact that there is great anxiety and mental health challenges that our students are facing with the ongoing changes brought upon by the current public health crisis regarding COVID-19. This is a gentle reminder that you have mental health services available to you on campus. Students who experience any distress from the sensitive class materials that are covered in this course are encouraged to seek self-care via the on-campus services provided:

- Student Counseling Center Phone: 972-883-2575 Location: Student Services Building SSB 4.600 (limited physical hours— call for an appointment) If needing support or in crisis, please call 24 hours per day 972-UTD-TALK, text “Home” to 741741

The Galerstein Gender Center has compiled a short list that might help support our womxn and LGBT+ campus communities at UT Dallas during this difficult time: <https://www.utdallas.edu/gendercenter/>

[covid-19-resources/](#) In addition, the Galerstein Gender Center is here for all students who need help: email gendercenter@utdallas.edu if they can assist you.

Resources for student success UTD has a constellation of resources aimed at helping students. Please find them here: <https://go.utdallas.edu/academic-support-resources> or see the UTD Student Resource Guide 2023 on eLearning. One example is the [Graduation Help Desk](#) which supports undergraduate students, faculty and staff to develop solutions to complex academic *and* non-academic issues (online appointments or write to graduationhelpdesk@utdallas.edu). Have a look at the [Comet Cupboard](#) which is a UT Dallas food pantry initiative dedicated to helping students in need. Also, take notice of the [Student Counselling Center](#) (972-883-2575).

Further UT Dallas Syllabus Policies and Procedures The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

7 Additional reading list

You can search and download the papers via [JSTOR](#) or [Google Scholar](#). Make sure you have the correct paper.

Payments for environmental services

- Jayachandran, S., J. De Laat, E. F. Lambin, C. Y. Stanton, R. Audy, and N. E. Thomas (2017): Cash for carbon: A randomized trial of payments for ecosystem services to reduce deforestation. *Science* 357 (6348): 267–273, [link](#).
- Alix-Garcia, J. M., K. R. E. Sims, and P. Yañez-Pagans (2015): Only one tree from each seed? Environmental effectiveness and poverty alleviation in Mexico’s payments for ecosystem services program. *American Economic Journal: Economic Policy* 7 (4): 1–40, [link](#).

Pollution and health

- Greenstone, M. and R. Hanna (2014): Environmental regulations, air and water pollution, and infant mortality in india. *American Economic Review* 104 (10): 3038–72
- He, G., S. Wang, and B. Zhang (2020): Watering Down Environmental Regulation in China*. *The Quarterly Journal of Economics* 135 (4): 2135–2185

Sustainable development

- Cai, X., Y. Lu, M. Wu, and L. Yu (2016): Does environmental regulation drive away inbound foreign direct investment? evidence from a quasi-natural experiment in china. *Journal of Development Economics* 123: 73–85

Resource conflicts

- Aragón, F. M. and J. P. Rud (2013): Natural resources and local communities: Evidence from a peruvian gold mine. *American Economic Journal: Economic Policy* 5 (2): 1–25
- Mamo, N., S. Bhattacharyya, and A. Moradi (2019): Intensive and extensive margins of mining and development: Evidence from sub-saharan africa. *Journal of Development Economics* 139: 28–49

Resource curse

- Pelzl, P. and S. Poelhekke (2021): Good mine, bad mine: Natural resource heterogeneity and dutch disease in indonesia. *Journal of International Economics* 131: 103,457
- Angrist, J. D. and A. D. Kugler (2008): Rural windfall or a new resource curse? coca, income, and civil conflict in colombia. *The Review of Economics and Statistics* 90 (2): 191–215
- Smith, B. (2015): The resource curse exorcised: Evidence from a panel of countries. *Journal of Development Economics* 116: 57–73

Mines and conflict

- Berman, N., M. Couttenier, D. Rohner, and M. Thoenig (2017): This mine is mine! how minerals fuel conflicts in africa. *American Economic Review* 107 (6): 1564–1610
- Humphreys, M. (2005): Natural resources, conflict, and conflict resolution: Uncovering the mechanisms. *Journal of Conflict Resolution* 49 (4): 508–537

Resource curse and government

- Caselli, F. and G. Michaels (2013): Do oil windfalls improve living standards? evidence from brazil. *American Economic Journal: Applied Economics* 5 (1): 208–38
- Gallego, J., S. Maldonado, and L. Trujillo (2020): From curse to blessing? institutional reform and resource booms in colombia. *Journal of Economic Behavior and Organization* 178: 174–193

Water scarcity and conflict

- Unfried, K., K. Kis-katos, and T. Poser (2022): Water scarcity and social conflict. *Journal of Environmental Economics and Management* 113: 102,633

Resource discoveries

- Arezki, R., V. A. Ramey, and L. Sheng (2016): News shocks in open economies: Evidence from giant oil discoveries*. *The Quarterly Journal of Economics* 132 (1): 103–155
- Toews, G. and P.-L. Vézina (2022): Resource discoveries, fdi bonanzas, and local multipliers: Evidence from mozambique. *The Review of Economics and Statistics* 104 (5): 1046–1058

Forest, illegal crops, and conflict

- Prem, M., S. Saavedra, and J. F. Vargas (2020): End-of-conflict deforestation: Evidence from colombia’s peace agreement. *World Development* 129: 104,852
- Prem, M., J. F. Vargas, and D. Mejía (2023): The Rise and Persistence of Illegal Crops: Evidence from a Naive Policy Announcement. *The Review of Economics and Statistics* 105 (2): 344–358

Resources and ethnic identity

- Berman, N., M. Couttenier, and V. Girard (2023): Mineral resources and the salience of ethnic identities. *The Economic Journal* 133 (653): 1705–1737

Short-term economic effects from natural and climate shocks

- Joseph, I.-L. (2022): The effect of natural disaster on economic growth: Evidence from a major earthquake in haiti. *World Development* 159: 106,053
- Cavallo, E., A. Powell, and O. Becerra (2010): Estimating the Direct Economic Damages of the Earthquake in Haiti. *The Economic Journal* 120 (546): F298–F312

Long-term economic effects from natural and climate shocks

- Gignoux, J. and M. Menéndez (2016): Benefit in the wake of disaster: Long-run effects of earthquakes on welfare in rural indonesia. *Journal of Development Economics* 118: 26–44
- Dell, M., B. F. Jones, and B. A. Olken (2012): Temperature shocks and economic growth: Evidence from the last half century. *American Economic Journal: Macroeconomics* 4 (3): 66–95, [link](#).

Pollution impacts on cognitive performance

- Carneiro, J., M. A. Cole, and E. Strobl (2021): The effects of air pollution on students’ cognitive performance: Evidence from brazilian university entrance tests. *Journal of the Association of Environmental and Resource Economists* 8 (6): 1051–1077
- Heissel, J. A., C. Persico, and D. Simon (2022): Does pollution drive achievement? the effect of traffic pollution on academic performance. *Journal of Human Resources* 57 (3): 747–776

Pollution impacts on health

- Chen, S., P. Oliva, and P. Zhang (2018): Air pollution and mental health: Evidence from china. Working Paper 24686, National Bureau of Economic Research
- Tanaka, S. (2015): Environmental regulations on air pollution in china and their impact on infant mortality. *Journal of Health Economics* 42: 90–103

Additional papers

Another interesting source for US-based environmental analyses is the [USEPA NCEE Working Paper Series](#). Nonetheless, there is evidence that recently papers on climate change have been taken off the website. E.g., [Kopitz et al. \(2025\)](#)

8 Case study projects

Case studies based on articles in *The Economist* are a great starting point to replicate analyses and conduct a case study. An analysis could, for example, use a regional subset or create alternative projection methods. Check out [The Economist’s GitHub page](#). Articles are available on eLearning if not freely available.

- “Cheap fixes could help 450m people stand taller and think quicker”. ([Article](#) [GitHub](#)).
- “Our Big Mac index shows how burger prices differ across borders”. ([Article](#), [GitHub](#)).
- “Productivity has grown faster in western Europe than in America” ([Article](#), [GitHub](#))
- “How cynical leaders are whipping up nationalism to win and abuse power” ([Article](#), [GitHub](#))
- “A different way to measure the climate impact of food” ([Article](#), [GitHub](#)).
- “Globalisation has marginalised many regions in the rich world” ([Article](#), [Follow up article](#), [GitHub](#)).

Further ideas may include:

- Research and report on cities’ and counties’ (lawn and) tree protection regulations, e.g., in the DFW area.
- Systematic bibliography overview on a specific topic (e.g., gig economy, the political economy of deforestation, heat shocks and crime, climate shocks and mobility).