Syllabus

[cmcd.economia@fgv.br]

Course Name: Environmental Economics
Faculty:
Teaching Assistants: TBA

2027 FIRST SEMESTER

COURSE OUTLINE

This graduate-level course in Environmental Economics aims to provide students with a comprehensive understanding of contemporary issues in the field. Through a multidisciplinary approach, we will explore topics at the intersection of economics and natural sciences, emphasizing the application of diverse methodologies – e.g., IV, difference-in-differences, structural models, integrated assessment models, predictive models -- and types of data -- e.g., cross-section, panel, geospatial, time series. The course will also foster the development of critical scientific reading (including non-econ journals), comprehension, and presentation skills, culminating in the formulation of an independent research idea.

COURSE PROGRAM

- Global warming
- Renewables
- Deforestation
- Biodiversity
- Artic melting
- Sea level rise
- Environmental justice
- Pollution
- Water Markets

BIBLIOGRAPHY

Global warming

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- Burke, M., Hsiang, S. M., & Miguel, E. (2015). Global non-linear effect of temperature on economic production. *Nature*, *527*(7577), 235-239.
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Renewables

- ***Gonzales, L. E., Ito, K., & Reguant, M. (2023). The Investment Effects of Market Integration: Evidence From Renewable Energy Expansion in Chile. Econometrica, 91(5), 1659-1693.**
- Neidell, M., Uchida, S., & Veronesi, M. (2021). The unintended effects from halting nuclear power production: Evidence from Fukushima Daiichi accident. *Journal of Health Economics*, *79*, 102507.
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Deforestation

- Jayachandran S, De Laat J, Lambin EF, Stanton CY, Audy R, Thomas NE. 2017. Cash for carbon: a randomized trial of payments for ecosystem services to reduce deforestation. Science 357(6348):267–73
- ***Assunção, J., Gandour, C., & Rocha, R. (2023). DETER-ing Deforestation in the Amazon: Environmental Monitoring and Law Enforcement. American Economic Journal: Applied Economics, 15(2), 125-156.**
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Biodiversity

- ***Frank, E., & Sudarshan, A. (2023). The Social Costs of Keystone Species Collapse: Evidence From The Decline of Vultures in India. Working paper**
- ***Taylor, M. S. (2011). Buffalo hunt: International trade and the virtual extinction of the North American bison. American Economic Review, 101(7), 3162-3195.**
- Taylor, M. S., & Weder, R. (2023). *On the Economics of Extinction and Mass Extinctions* (No. w31952). National Bureau of Economic Research.
- Donn L Feir, Rob Gillezeau, Maggie E C Jones, The Slaughter of the Bison and Reversal of Fortunes on the Great Plains, *The Review of Economic Studies*, 2023; rdad060

- Taylor, C. A. (2021). Cicadian rhythm: Insecticides, infant health and long-term outcomes. Working paper
- Frank, E. G., & Wilcove, D. S. (2019). Long delays in banning trade in threatened species. *Science*, *363*(6428), 686-688.
- Ferris, A. E., & Frank, E. G. (2021). Labor market impacts of land protection: The Northern Spotted Owl. *Journal of Environmental Economics and Management*, *109*, 102480.
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Ice melting and Sea level rise

- Diebold, F. X., & Rudebusch, G. D. (2022). Probability assessments of an ice-free Arctic: Comparing statistical and climate model projections. Journal of Econometrics, 231(2), 520-534.
- ***Diebold, F. X., & Rudebusch, G. D. (2023). Climate models underestimate the sensitivity of Arctic sea ice to carbon emissions. Energy Economics, 126, 107012.**
- ***Desmet, Klaus, Robert E. Kopp, Scott A. Kulp, Dávid Krisztián Nagy, Michael Oppenheimer, Esteban Rossi-Hansberg, and Benjamin H. Strauss. 2021. "Evaluating the Economic Cost of Coastal Flooding." American Economic Journal: Macroeconomics, 13 (2): 444-86.**
- Chen, J., & Mueller, V. (2018). Coastal climate change, soil salinity and human migration in Bangladesh. Nature climate change, 8(11), 981-985.
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- Hsiao, A. (2022). Sea Level Rise and Urban Adaptation in Jakarta. Mimeo, 2022.

Environmental justice

- ***Tanaka, Shinsuke, Kensuke Teshima, and Eric Verhoogen. 2022. "North-South Displacement Effects of Environmental Regulation: The Case of Battery Recycling." American Economic Review: Insights, 4 (3): 271-88.**
- Heblich, S., Trew, A., & Zylberberg, Y. (2021). East-side story: Historical pollution and persistent neighborhood sorting. *Journal of Political Economy*, *129*(5), 1508-1552.
- Hernandez-Cortes, D., & Meng, K. C. (2023). Do environmental markets cause environmental injustice? Evidence from California's carbon market. Journal of Public Economics, 217, 104786.
- Christensen, Peter, Ignacio Sarmiento-Barbieri, and Christopher Timmins. "Housing Discrimination and the Toxics Exposure Gap in the United States: Evidence from the Rental Market." The Review of Economics and Statistics (2020): 1-37.
- Curci, F., & Masera, F. (2023). Flight from Urban Blight: Lead Poisoning, Crime, and Suburbanization. Review of Economics and Statistics, 1-45.

Pollution

- ***Dias, M., Rocha, R., & Soares, R. R. (2023). Down the River: Glyphosate Use in Agriculture and Birth Outcomes of Surrounding Populations. Review of Economic Studies, rdad011.**
- Calzada, J., Gisbert, M., & Moscoso, B. (2023). The hidden cost of bananas: The effects of pesticides on newborns' health. Journal of the Association of Environmental and Resource Economists, 10(6), 1623-1663.

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- Burke, M., Childs, M. L., de la Cuesta, B., Qiu, M., Li, J., Gould, C. F., ... & Wara, M. (2023). The contribution of wildfire to PM2. 5 trends in the USA. Nature, 1-6.

Water markets (time allowing)

- ***Rafey, W. (2023). Droughts, deluges, and (river) diversions: Valuing market-based water reallocation. American Economic Review, 113(2), 430-471.**

GRADING

30% - Presentation of one paper

A brief presentation (~15 min) of a paper on environmental economics. Check with me first about the paper you have chosen.

40% - Presentation of a research idea

The idea is a brief presentation (15~20 minutes) where you will be asked to present something new, related with environmental economics, that interests you. Could be the sketch of a model, a data set, a correlation, a newspaper's article that made you angry. My objective is to provide an environment for the student to receive feedback.

30% - Participation in class

CONTACT

Date	Content	Recommended reading
1	Where are we with environmental economics? Climate Change	-
2	Climate Change	Nordhaus, W. D. (1992). An optimal transition path for controlling greenhouse gases. Science
3	Renewables	Gonzales, L. E., Ito, K., & Reguant, M. (2023). The Investment Effects of Market Integration: Evidence From Renewable Energy Expansion in Chile. Econometrica
4	Deforestation	Assunção, J., Gandour, C., & Rocha, R. (2023). DETER-ing Deforestation in the Amazon: Environmental Monitoring and Law Enforcement. American Economic Journal: Applied Economics
5	Deforestation Biodiversity	Frank, E., & Sudarshan, A. (2023). The Social Costs of Keystone Species Collapse: Evidence from The Decline of Vultures

6	Melting ice in the poles and sea level rise Presentation of a paper	Diebold, F. X., & Rudebusch, G. D. (2023). Climate models underestimate the sensitivity of Arctic sea ice to carbon emissions. Energy Economics
7	Melting ice in the poles and sea level rise Presentation of a paper	Desmet, Klaus, Robert E. Kopp, Scott A. Kulp, Dávid Krisztián Nagy, Michael Oppenheimer, Esteban Rossi-Hansberg, and Benjamin H. Strauss. 2021. "Evaluating the Economic Cost of Coastal Flooding." American Economic Journal: Macroeconomics
8	Environmental Justice Presentation of a paper	Tanaka, Shinsuke, Kensuke Teshima, and Eric Verhoogen. 2022. "North-South Displacement Effects of Environmental Regulation: The Case of Battery Recycling." American Economic Review: Insights
9	Environmental Justice Presentation of a paper	-
10	Pollution Presentation of a paper	Heblich, S., Trew, A., & Zylberberg, Y. (2021). East-side story: Historical pollution and persistent neighborhood sorting. Journal of Political Economy
11	Pollution Presentation of a research idea	Dias, M., Rocha, R., & Soares, R. R. (2023). Down the River: Glyphosate Use in Agriculture and Birth Outcomes of Surrounding Populations. Review of Economic Studies, rdad011.
12	Presentation of a research idea	
13	Presentation of a research idea	-
14	Water	Rafey, W. (2023). Droughts, deluges, and (river) diversions: Valuing market-based water reallocation. American Economic Review, 113(2), 430-471.

Suggested papers for presentation:

Dugoua, E. (2023). Induced innovation and international environmental agreements: evidence from the ozone regime. Review of Economics and Statistics, 1-45.

Akesaka, M., & Shigeoka, H. (2023). “Invisible Killer”: Seasonal Allergies and Accidents (No. w31593). National Bureau of Economic Research.

Jarvis, S., Deschenes, O., & Jha, A. (2022). The private and external costs of Germany’s nuclear phase-out. Journal of the European Economic Association, 20(3), 1311-1346.

Karp, L., & Traeger, C. (2024). Taxes versus quantities reassessed. Journal of Environmental Economics and Management, 102951.

Gazze, L., Persico, C., & Spirovska, S. (2024). The long-run spillover effects of pollution: How exposure to lead affects everyone in the classroom. Journal of Labor Economics, 42(2), 357-394.

Hansen-Lewis, J., & Marcus, M. M. (2022). Uncharted waters: Effects of maritime emission regulation (No. w30181). National Bureau of Economic Research.

Oliveira, R., & Barreto, Yuri (2024). From Fields to Futures: The Lasting Effects of Crop Diseases on Education and Earnings.

Ipapa, G. (2024) The Hidden Costs of Recycling: Lead Exposure and Student Learning.

Cassidy, A., Meeks, R. C., & Moore, M. R. (2023). Cleaning up the Great Lakes: Housing market impacts of removing legacy pollutants. Journal of Public Economics, 226, 104979.

Henneman, L., Choirat, C., Dedoussi, I., Dominici, F., Roberts, J., & Zigler, C. (2023). Mortality risk from United States coal electricity generation. Science, 382(6673), 941-946.

Schlüter, M., Brelsford, C., Ferraro, P. J., Orach, K., Qiu, M., & Smith, M. D. (2023). Unraveling complex causal processes that affect sustainability requires more integration between empirical and modeling approaches. Proceedings of the National Academy of Sciences, 120(41), e2215676120.

Xing, J., Hu, Z., Xia, F., Xu, J., & Zou, E. (2023). Urban forests: Environmental health values and risks (No. w31554). National Bureau of Economic Research.

Hausman, C., & Stolper, S. (2021). Inequality, information failures, and air pollution. Journal of Environmental Economics and Management, 110, 102552.

Qiu, M., Ratledge, N., Azevedo, I. M., Diffenbaugh, N. S., & Burke, M. (2023). Drought impacts on the electricity system, emissions, and air quality in the western United States. Proceedings of the National Academy of Sciences, 120(28), e2300395120.

Taylor, M. S., & Mayer, F. (2023). International Trade, Noise Pollution, and Killer Whales (No. w31390). National Bureau of Economic Research.

Taylor, C. A., & Druckenmiller, H. (2022). Wetlands, flooding, and the clean water act. American Economic Review, 112(4), 1334-1363.

Alix-Garcia, J., & Millimet, D. L. (2023). Remotely incorrect? Accounting for nonclassical measurement error in satellite data on deforestation. Journal of the Association of Environmental and Resource Economists, 10(5), 1335-1367.

Young, J. S., & McCarty, T. J. (2023). Adapting network theory for spatial network externalities in agriculture: A case study on hemp cross-pollination. American Journal of Agricultural Economics, 105(4), 1267-1287.

Berazneva, J., & Byker, T. S. (2022). Impacts of Environmental Degradation: Forest, Loss, Malaria, and Child Outcomes in Nigeria. Review of Economics and Statistics, 1-46.

Schlüter, M., Brelsford, C., Ferraro, P. J., Orach, K., Qiu, M., & Smith, M. D. (2023). Unraveling complex causal processes that affect sustainability requires more integration between empirical and modeling approaches. Proceedings of the National Academy of Sciences, 120(41), e2215676120.

Xing, J., Hu, Z., Xia, F., Xu, J., & Zou, E. (2023). Urban forests: Environmental health values and risks (No. w31554). National Bureau of Economic Research.

Läpple, D., & Osawe, O. W. (2023). Concern for animals, other farmers, or oneself? Assessing farmers' support for a policy to improve animal welfare. American Journal of Agricultural Economics, 105(3), 836-860.