**Applications of Environmental Economics**

**CY Cergy Paris Université & ESSEC**

**2025-2026**

**Lecturer:**
**Lutz Sager, ESSEC Business School**
sager@essec.edu

**Short Description:**

This graduate course will cover recent advances in and challenges for research in the field of environmental economics. The aim is to equip students with a conceptual understanding of topics at the frontier of the field as well as the cutting-edge methodologies used to answer them. Topics will include environment and health, climate change impacts and policy, local pollution, environmental inequality, the effectiveness of environmental policy, and more.

**Course objective:**

Students will get to know methods ranging from causal inference for policy evaluation, distributional analysis, spatial data analysis, spatial equilibrium models, input-output modeling, and more.

**Session format:**

A substantial portion of class time will be designated to discussing recent research papers in these areas. Students are required to read these papers before each class to actively participate in discussions. Discussions of some papers will be led by students themselves.

**Course evaluation:**

Two elements contribute equally to the overall grade:

- Continuous assessment based on class participation and presentations (50%)
- A final exam (50%)

Each student will be assigned at least one paper to present in detail and to moderate class discussions. All students are encouraged to participate in discussions and will be graded based on their contribution.

**Course Outline:**

| | |
|---|---|
| *Chatper 1* | *Environment and Health*<br><br>*Learning Objective: Understand crucial interplay between human health and environmental quality, and recent dvelopments concerning new data and methods to measure health effects.*<br><br>*Papers:*<br>• *Barwick, P. J., Li, S., Rao, D., & Zahur, N. B. (2024). The healthcare cost of air pollution: evidence from the world's largest payment network. Review of Economics and Statistics, 1-52.*<br>• *Deryugina, T., Heutel, G., Miller, N. H., Molitor, D., & Reif, J. (2019). The mortality and medical costs of air pollution: Evidence from changes in wind direction. American Economic Review, 109(12), 4178-4219.*<br>• *Carleton, T., Jina, A., Delgado, M., Greenstone, M., Houser, T., Hsiang, S., ... & Zhang, A. T. (2022). Valuing the global mortality consequences of climate change accounting for adaptation costs and benefits. The Quarterly Journal of Economics, 137(4), 2037-2105.*<br>• *Cohen, F., & Dechezleprêtre, A. (2022). Mortality, temperature, and public health provision: evidence from Mexico. American Economic Journal: Economic Policy, 14(2), 161-192.*<br><br>*Further Reading:*<br>• *Graff Zivin, J., & Neidell, M. (2013). Environment, health, and human capital. Journal of economic literature, 51(3), 689-730.* |
| | |
| *Chapter 2* | *Environment and Productivity*<br><br>*Learning Objective: Get acquainted with recent dvelopments on measuring the impact of environmental quality on productivity.*<br><br>*Papers:*<br>• *Park, R. J., Goodman, J., Hurwitz, M., & Smith, J. (2020). Heat and learning. American Economic Journal: Economic Policy, 12(2), 306-339.*<br>• *Zivin, J. G., & Neidell, M. (2012). The impact of pollution on worker productivity. American Economic Review, 102(7), 3652-3673.*<br><br>*Further Reading:*<br>• *Aguilar-Gomez, S., Dwyer, H., Graff Zivin, J., & Neidell, M. (2022). This is air: The "nonhealth" effects of air pollution. Annual Review of Resource Economics, 14(1), 403-425.* |
| | |

| | |
|---|---|
| *Chapter 3* | *Climate Economics*<br><br>*Learning Objective: Learn basic frameworks for economic analysis of climate change, including recent methodological debates.*<br><br>*Papers:*<br>• *Burke, M., Hsiang, S. M., & Miguel, E. (2015). Global non-linear effect of temperature on economic production. Nature, 527(7577), 235-239.*<br>• *Hänsel, M. C., Drupp, M. A., Johansson, D. J., Nesje, F., Azar, C., Freeman, M. C., ... & Sterner, T. (2020). Climate economics support for the UN climate targets. Nature Climate Change, 10(8), 781-789* |
| | |
| *Chapter 4* | *Environmental Policy Evaluation*<br><br>*Learning Objective: Get to know key approaches to empirical policy evaluation as currently applied in environmental economics research.*<br><br>*Papers:*<br>• *Andersson, J. J. (2019). Carbon taxes and CO2 emissions: Sweden as a case study. American Economic Journal: Economic Policy, 11(4), 1-30.*<br>• *Sager, L., & Singer, G. (2025). Clean identification? The effects of the Clean Air Act on air pollution, exposure disparities, and house prices. American Economic Journal: Economic Policy, 17(1), 1-36.*<br>• *Dechezleprêtre, A., Nachtigall, D., & Venmans, F. (2023). The joint impact of the European Union emissions trading system on carbon emissions and economic performance. Journal of Environmental Economics and Management, 118, 102758.* |
| | |
| *Chapter 5* | *Environment and Inequality*<br><br>*Learning Objective: Learn about recent developments in research linking environmental policy and economic inequality..*<br><br>*Papers:*<br>• *Hausman, C., & Stolper, S. (2021). Inequality, information failures, and air pollution. Journal of Environmental Economics and Management, 110, 102552.*<br>• *Feindt, S., Kornek, U., Labeaga, J. M., Sterner, T., & Ward, H. (2021). Understanding regressivity: Challenges and opportunities of European carbon pricing. Energy Economics, 103, 105550.*<br>• *Sager, L. (2019). Income inequality and carbon consumption: Evidence from Environmental Engel curves. Energy Economics, 84.*<br><br>*Further Reading:*<br>• *Drupp, Kornek, Meya, Sager (2025). The Economics of Inequality and the Environment. Journal of Economic Literature.* |

| | |
|---|---|
| *Chapter 6* | *Environment and Experiments*<br><br>*Learning Objective: Explore the role of experimental economics in furthering environmental economics research..*<br><br>*Papers:*<br>• *Gosnell, G. K., List, J. A., & Metcalfe, R. D. (2020). The impact of management practices on employee productivity: A field experiment with airline captains. Journal of Political Economy, 128(4), 1195-1233.*<br>• *Baylis, P., Greenstone, M., Lee, K., & Sahai, H. (2024). Is the demand for clean air too low? Experimental evidence from Delhi. Working Paper.* |
| | |
| *Chapter 7* | *Environmental and Geography*<br><br>*Learning Objective: Understand the crucial role of spatial analysis and how it can complicate/enrich standard economic approaches.*<br><br>*Papers:*<br>• *Heblich, S., Trew, A., & Zylberberg, Y. (2021). East-side story: Historical pollution and persistent neighborhood sorting. Journal of Political Economy, 129(5), 1508-1552.*<br>• *Holland, S. P., Mansur, E. T., Muller, N. Z., & Yates, A. J. (2016). Are there environmental benefits from driving electric vehicles? The importance of local factors. American Economic Review, 106(12), 3700-3729.*<br><br>*Further Reading:*<br>• *Balboni, C., & Shapiro, J. S. (2025). Spatial Environmental Economics. NBER Working Paper, (w33377).* |