UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Environmental Economics (blended)

2223-1-F7601M052-F7601M048M

Learning objectives

Goals of this Course:

1. Define the concept of Externality - Learn how/why economic activities can impact the environment
2. Illustrate the available instruments to regulate externalities
3. Understand when a free market is ideal for society versus when regulated market is desirable
4. Learn to apply basic economics reasoning to understand how markets can be regulated
5. Exploring the Economy – Environment interdependence and the Sustainability Problem
6. Reflect on the impact of tourism industry on the environment and their interconnections.

E-LEARNING OVERVIEW
Aim: reflect and apply concepts explained in "class" to relevant situations in nowadays world, using also case studies and additional readings
Format: short essays (FORUM/blog posts), recorded material on selected topics, group works and group presentations.
How / when: I will give you the details from time to time (on a weekly basis)

Contents

List of the Topics Covered:

1. Intro - What's environmental economics about?
2. The Sustainability Problem (pt1)
3. Markets and the Environment (pt1)
4. The Sustainability Problem (pt2)
5. Markets and the Environment (pt2)

6. Human Migration in the era of Climate Change
7. Student Presentations (1st Round)
8. Markets and the Environment (pt3)
9. Take-Home Individual Assignments
10. Environmental Policies (pt1)
11. Environmental Policies (pt2)
12. Environmental Policies (pt3)
13. Student Presentations (2nd Round)
14. The management of Natural Resources, Public Goods and the Tragedy of the Commons
15. Guest Lecture by Viviana
16. Cost-Benefit Analysis

Detailed program

ECOTOURS | Environmental Economics | Class 01

1. Intro - What's environmental economics about?
   • Defining Environmental Economics
   • Conventional Econ Models tend to overlook the role of environment / natural resources
   • Introducing the concept of "Externality" and the failure of market prices to incorporate them
   • Focusing on the Tourism Sector

Sources:
Key Reading:
? Turner, Pearce, and Bateman. "Environmental Economics" – Introduction, Chapter 1
Additional Readings:
o Ahmad N, Ma X. "How does tourism development affect environmental pollution?" Tourism Economics. March 2021. doi:10.1177/13548166211000480
o Laboratory for Oceanographic and Environmental Research (LOER) – Environmental Economics, Link
o Hsiang, Solomon, et al. "Estimating economic damage from climate change in the United States." Science 356.6345 (2017): 1362-1369. Link
o Lenzen, Manfred, et al. "The carbon footprint of global tourism." Nature Climate Change 8.6 (2018): 522-528. Link / Non-Technical summary here
o The Guardian "The world needs wildlife tourism. But that won't work without wildlife" Link
o United Nations Environment Program (UNEP) (2011) Tourism: investing in energy and resource efficiency. Link
Video:
o YouTube video: "The hidden cost of hamburgers" Link

ECOTOURS | Environmental Economics | Class 02

Online Seminar: the Sustainability Problem pt.1

Coverage:
2 Hour Online Seminar (WEBEX) – Lecture Slides and Open Questions to Students
Tuesday March 15 10am

Sources:
Key Readings:
? Perman et al. "Natural Resource and Environmental Economics" - Chapter 2 (Ch. 2: 2.1.3.2.1 "production function specification"; Ch. 2: 2.1.1 and 2.1.2)
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 3 (North-South divide Excluded) and Ch. 1 Box 1.3

Additional Readings:
o Ioannidis, A., Chalvatzis, K. J., Leonidou, L. C., & Feng, Z. (2021). Applying the reduce, reuse, and recycle principle in the hospitality sector: Its antecedents and performance implications. Business Strategy and the Environment, 30(7), 3394– 3410. https://doi.org/10.1002/bse.2809
o Ellen MacArthur Foundation, https://ellenmacarthurfoundation.org/circular-economy-diagram
o Jouni Korhonen, Antero Honkasalo, Jyri Seppälä, Circular Economy: The Concept and its Limitations, Ecological Economics, Volume 143, 2018, Pages 37-46, ISSN 0921-8009, https://doi.org/10.1016/j.ecolecon.2017.06.041
o Ekins, P., Domenech, T., Drummond, P., Bleischwitz, R., Hughes, N. and Lotti, L. (2019), "The Circular Economy: What, Why, How and Where"
Video:
Butterfly diagram animation https://www.youtube.com/watch?v=Lc-FQvPO89Y&t=146s

ECOTOURS | Environmental Economics | Class 03

3. Markets and the environment, pt. 1 – Refreshing Market Economy
   We introduce some key concepts of the economic analysis:
   • WTP and WTA
   • Demand and Supply curves
   • Equilibrium price and quantity
   • Discussing how predictions from economic theory are reflected in real-life
   Coverage:
   2 Hours in Class (Slides) March 18

Sources:
Key Readings:
Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 1 (box.14)
CORE Project. "The Economy" – Units 8.1, 8.2, 8.5 (only the first subsection) Note: unfortunately, our main textbook "Environmental Economics" is too quick in discussing the market mechanism. "The Economy" by the CORE Project can hence offer valuable help in better understanding the market mechanism and perfect competition. You can find this book here: https://core-econ.org/the-economy/
Additional Reading:
2nd edition of Principles of Economics, Economics and the Economy, 2e by Timothy Taylor, published in 2011 (available online)

ECOTOURS | Environmental Economics | Class 04

Online Seminar: the Sustainability Problem pt.2

Coverage:
2 Hour Online Seminar (WEBEX) – Lecture Slides and Open Questions to Students
Tuesday March 22 10am

Sources:
Key Readings:
? Perman et al. "Natural Resource and Environmental Economics" - Chapter 2 (Ch. 2: 2.2 "The Drivers of Environmental Impact")
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 3 (North-South divide Excluded)
Additional Readings:
o World Travel & Tourism Council (WTTC) (2020) Economic Impact Reports (2020). Available at: https://wttc.org/Research/Economic-Impact.
o Brookings (2001) Cutting Through Environmental Issues: Technology as a double-edged sword, available at https://www.brookings.edu/articles/cutting-through-environmental-issues-technology-as-a-double-edged-sword/

ECOTOURS | Environmental Economics | Class 05

5. Markets and the environment, pt. 2 – How Markets Work and How they Fail
   • Show that competitive markets are socially desirable in absence of externalities and/or issues of resources' exploitation (a market success!)
   • Generalize the example of the market for secondhand books and the experimental market: Markets where more than one item per person can be bought and sold (example: flight tickets)
   • What's behind WTA and WTP? Move from given WTA and WTP to an understanding of how, given the market price, buyers and sellers optimally choose how much quantity to demand and supply
   • Later: back to the environment!
   • Can we consider externalities within the framework of the demand and supply model?
   • Are markets characterized by externalities still inducing socially desirable outcomes?
   Coverage:
   2 Hours in Class (Slides) March 25
   Sources:
   Key Readings:
   o Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 5 (except 5.7)
   o CORE Project. "The Economy" – Units 8.4 (except last paragraph), 8.5 (except "A complete contract")

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6. Online Seminar 3: Human Migration in the era of Climate Change
   • Explore key features of the interplay between climate change and migration
   • Going through the main findings of the empirical literature, taking into consideration causes of heterogeneity in migratory responses
   • Digging Deeper into the Mechanisms through which the (indirect) effect of Climate Change on migration decisions operate
   Coverage:
   2 Hour Online Seminar (WEBEX) – Lecture Slides and Open Questions to Students
   Tuesday 29 March

Sources:
Key Reading: Human Migration in the Era of Climate Change Cristina Cattaneo, Michel Beine, Christiane J. Fröhlich, Dominic Kniveton, Inmaculada Martinez-Zarzoso, Marina Mastrorillo, Katrin Millock, Etienne Piguet, and Benjamin Schraven. Review of Environmental Economics and Policy 2019 13:2, 189-206
Additional Reading: Groundswell Report "Acting on Internal Climate Migration." World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/36248 License: CC BY 3.0 IGO."

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7. Markets and the environment, pt. 3 – Modelling Externalities
   • Market failure: investigation of two types of negative externalities from production
   ? How to graphically illustrate externalities
   ? Effects on quantity produced
   ? Effects on surplus
   • Brief overview of other types of externalities
   ? Positive externalities from production
   ? Positive and negative externalities from consumption
   • Is the economic theory on externalities accurate in practice?
   Coverage:
   2 Hours in Class (Slides) April 08

Sources:
Key Reading:
Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 5, 6
Additional Reading:
Figini , Castellani, Vici (2007). Estimating tourist externalities on residents: A choice modeling approach to the case

of Rimini. FEEM Nota di Lavoro 76.2007
Video:
How noise pollution is ruining your hearing https://www.youtube.com/watch?v=z4Da0kuYnMI

ECOTOURS | Environmental Economics | Class 08

8. Environmental policies, pt. 1 (MARKET REGULATION) / the Coase Theorem
   • Is it possible for policymakers to modify consumption and supply decisions to achieve the efficient outcome?
   • How invasive should be market regulation?
   • What are the available tools policymakers can use? A Potential Solution: the Coase theorem

Coverage:
2 Hours in Class (Slides) May 06
2 Online Pills - Applications of the Coase Theorem, with particular attention to the Tourism Industry

Sources:
Key Reading:
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapter 10, 13
? CORE Project. "The Economy" – Units 12.1, 12.2
Additional Readings:
o Tatyana Deryugina, Frances Moore, Richard S.J. Tol, Environmental applications of the Coase Theorem, Environmental Science & Policy, Volume 120, 2021, Pages 81-88, https://doi.org/10.1016/j.envsci.2021.03.001
o Hojman, D. E., & Hiscock, J. (2010). Interpreting suboptimal business outcomes in light of the Coase Theorem: Lessons from Sid-mouth International Festival. Tourism Management, 31(2), 240-249.
o Bayer, Patrick, and Michaël Aklin. "The European Union emissions trading system reduced CO2 emissions despite low prices." Proceedings of the National Academy of Sciences 117.16 (2020): 8804-8812. https://doi.org/10.1073/pnas.1918128117
Video:
The EU Emissions Trading System explained
https://www.youtube.com/watch?v=yfNgsKrPKsg

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9. Environmental policies, pt. 2 The Pigouvian Tax
   • Focus is still on monetary incentives to solve externality problems: Pigouvian tax
   • Application of the “polluter pays principle”: it makes the party responsible for producing pollution responsible for paying for the damage done to the natural environment
   • How to design it properly?
   • What its impacts?
   • What are its limitation?
   Coverage:
   2 Hours in Class (Slides) May 13
   Online Pills : 1 Video

Sources:
Key Reading:
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapters 10 (except 2), 11, 12
? CORE Project. "The Economy" – Unit 12.3.1 (the math is not mandatory, but read if you can)
? Video summarizing monetary incentives: https://www.youtube.com/watch?v=xxtElseSkZM
Additional Readings: (Pills)
o Palmer, Teresa, and Antoni Riera. "Tourism and environmental taxes. With special reference to the “Balearic ecotax”." Tourism Management 24.6 (2003): 665-674.
o Piga, Claudio AG. "Pigouvian taxation in tourism." Environmental and Resource Economics 26.3 (2003): 343-359.

ECOTOURS | Environmental Economics | Class 10

10. Environmental policies, pt. 3: Command and Control (CAC) Approach
    - What are the most common tool in practice?
    - Why economists prefer market mechanisms?
    - Why policy makers often prefer the CAC approach?
    - Some Examples

Coverage:
2 Hour Online Seminar (Slides) Via Webex / May 17
Readings:
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapters 10.1, 12, 14 [note that I provide a slightly different discussion of command-and-control; you should know both the content in the book and the content of the slides]
Videos on Flint:
• Flint's water crisis, explained in 3 minutes: https://youtu.be/NUSiLOwkrIw
• Lead: Last Week Tonight with John Oliver (HBO): https://youtu.be/GUizvEjR-0U

ECOTOURS | Environmental Economics | Class 11

11. The management of natural resources / Public Goods and Tragedy of the Commons
    - Learn about the characteristics of private and public goods
    - Explore the relationship between Public Goods and Economic Efficiency
    - Natural Resources, The free Rider Problem and the Tragedy of the Commons

    Coverage:
    2 Hours in Class (Slides) May 27

Sources:
Key Reading:
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapters 1.3, 5.7, 15, 16
? Perman et al. “Natural Resource and Environmental Economics” - Chapter 4.9

Additional Readings:
o Hardin, G. (1968). The tragedy of the commons. Science, 162(3859), 1243-1248.
o Boyd, R., Richerson, P. J., Meinzen-Dick, R., De Moor, T., Jackson, M. O., Gjerde, K. M., ... & McLean, A. R. (2018). Tragedy revisited. Science, 362(6420), 1236-1241.
o Ostrom, E. (2008). The challenge of common-pool resources. Environment: Science and Policy for Sustainable Development, 50(4), 8-21.

ECOTOURS | Environmental Economics | Class 12

12. Cost-Benefit Analysis

    Coverage:
    2 Hours in Class (Slides) June 10

Sources:
Key Reading:
? Turner, Pearce, and Bateman. "Environmental Economics" – Chapters 7, 8, 9

Additional Readings:
o Bishop, R. C., Boyle, K. J., Carson, R. T., Chapman, D., Hanemann, W. M., Kanninen, B., ... & Scherer, N. (2017). Putting a value on injuries to natural assets: The BP oil spill. Science, 356(6335), 253-254.
o Johnston, R. J., Boyle, K. J., Adamowicz, W., Bennett, J., Brouwer, R., Cameron, T. A., ... & Vossler, C. A. (2017). Contemporary guidance for stated preference studies. Journal of the Association of Environmental and Resource Economists, 4(2), 319-405.

ECOTOURS | Environmental Economics | Class 13

13. Bonus Class by Viviana on Ecological Economics

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14. Student Presentations - Part 1

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15. Student Presentations - Part 2

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16. Written Take-Home Assignment - 1

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17. Written Take-Home Assignment - 2

Prerequisites

None

Teaching methods

Course style: blended e-learning
11 in person classes (recorded via WEBEX once per week) + *Online Activities*
Prerequisites: None
Semester: Second Term

Online Activities:

- Online Seminars: Lecture Slides and Open Questions to Students (via WEBEX)
- Individual Take-Home Assignments
- Online Group Presentations of Research Papers (in presence)
- Some recorded materials that students will watch by themselves (PILLS)
  2 meetings per week (usually): Friday in presence AND Tuesday online
  For Group-Work activities Students will be divided in 5 Groups (randomly selected)

Assessment methods

Exam – Written Individual:
Standard Format:
2 Open Questions (10 (+1) points each) + 10 Quiz-Multiple Choice Questions (1 point each / mistake is counted as

zero i.e. no “penalty”)
For those who attend:
the final grade will be a combination between activities during the course presentations/assignments – (Max 6 (+1) Points) and the Final Exam. Structure of the Individual Written Exam: 2 open questions (10 (+1) points each) and 4 Multiple Choice Questions (1 point each / mistake is counted as zero i.e. no “penalty”). The exam will NOT cover the material presented in class by students (No Chapter 6 and Green Nudges, as well as the 2 papers presented in Class on Sustainability), the material covered in the second seminar on Sustainability (Online Seminar 2), the Bonus Lecture by Viviana and the topic “Climate Change and Migration” (online seminar 3).
For those who do not attend:
it will follow the standard format. It also covers the second seminar on sustainability (Online Seminar 2) as well as the material presented in class by students during the presentations (Chapter 6, the paper on Green Nudges and the 2 papers presented in Class on Sustainability). The exam will NOT cover the topic "Climate Change and Migration" (online seminar 3) and the Bonus Lecture by Viviana.

Additional Readings will not be part of the Exam

Textbooks and Reading Materials

Readings:
• Main Textbook: “Environmental economics” by Turner, Pearce, Bateman, hard copy available at unimib library
• Alternative Textbook for some selected topics: “Natural Resource and Environmental Economics”, by Perman, Ma, Common, Maddison, McGilvray 4th Edition (available as ebook at unimib library)

Additional readings will be provided throughout the course

Materials:
• Slides, list of readings, recorded classes
• All materials will be made available on Moodle under “Materials to stream or download”
• All in-person meetings in class will be recorded and made available online.
• Slides and material of the Course will typically be uploaded the day before the lecture

Semester

Second term

Teaching language

English

Sustainable Development Goals

AFFORDABLE AND CLEAN ENERGY | INDUSTRY, INNOVATION AND INFRASTRUCTURE | SUSTAINABLE CITIES AND COMMUNITIES | CLIMATE ACTION