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**Environmental Economics**

**Economics 475**

**Fall 2022 – Syllabus**

**Monday and Wednesday**

**5:00pm - 6:15pm in Car Barn 204**

**INSTRUCTOR INFO**

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|  | **Professor:**  **Please call me:**  **Office:**  **Office hours:**  **Email:** | Wes Austin, PhD  Dr./Prof. Austin  Zoom or MS Teams  By appointment  [wes.austin@georgetown.edu](mailto:wes.austin@georgetown.edu) |
| A person smiling for the camera  Description automatically generated with medium confidence | **Professor:**  **Please call me:**  **Office:**  **Office hours:**  **Email:** | Bryan Parthum, PhD  Dr./Prof. Parthum (“Par-thumb”)  Zoom or MS Teams  By appointment  [bryan.parthum@georgetown.edu](mailto:bryan.parthum@georgetown.edu) |

**Teaching Assistants:**  Yagmur Menzilcioglu ym406@georgetown.edu

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**COURSE DESCRIPTION**

This course will cover advanced theory and applications underlying environmental economics and examples from real-world scenarios. The foundations of microeconomic theory lie in the decisions of consumers and producers, but these decisions are often made under incomplete information or incomplete markets. We will first build an understanding of how markets fail, then continue with methods frequently used to measure these failures, and then we conclude with policy tools that are designed to correct the markets. The course relies on published literature for case studies and replication of approaches (done in the R programming language). The goal of this course is to establish a good understanding of environmental-economic issues and start to build a tool kit such that you will leave with the ability to contribute to discussions related to environmental policy by using economic theory and empirical methods.

**LEARNING OBJECTIVES**

**LO 1.** Explain the theoretical foundation of environmental economics.

**LO 2.** Identify several methods used to measure environmental benefits.

**LO 3.** Propose a method that could be used to correct a specific market failure.

**LO 4.** Describe the history of environmental policy and its outcomes.

**LO 5.** Assess the efficiency and unintended consequences of an environmental policy.

**CONTACTING US**

We will make class announcements and provide additional information to students through email (using your university email address). You can expect that we will respond to your emails within 48 hours. Office hours will be conducted virtually and must be arranged via email ahead of time.

**COURSE MATERIALS**

**Textbook:** Markets and the Environment; Keohane and Olmstead (K&O)

*eTextbook:* $28.99 ; *Paperback (used)* $9.95 – [Amazon link here](https://www.amazon.com/Markets-Environment-Foundations-Contemporary-Environmental-dp-1597260479/dp/1597260479/ref=mt_other?_encoding=UTF8&me=&qid=)

We have carefully chosen a book that we believe does an excellent job of covering the underlying theory that will be discussed in this course at the best price we could find. This is the only required purchase for this course! The book will serve as a critical foundation for the topics we will cover, and it will not be possible to complete the course without it (or without reading it!). Other GU instructors have also used this book, so reach out to other students if needed, either edition (first/second) will work great! Please have the book available by the second week of classes.

The rest of the material will be distributed through the course website (Canvas). Things that will be posted include, but are not limited to, additional readings, videos, podcasts, homework assignments, and grades.

***Recommended books for the interested reader****.* Not required and will not be used *directly* in the course, but the topics will be discussed. This is a list of books that we (your instructors) enjoyed reading and believe serve as great complements and extensions to the material we do cover. Read throughout the semester, or after:

1. [The Spirit of Green](https://www.amazon.com/Spirit-Green-Economics-Collisions-Contagions/dp/0691214344/ref=sr_1_1?crid=3EGC8Y7N69XXY&keywords=the+spirit+of+green&qid=1660147514&s=books&sprefix=the+spirit+of+green%2Cstripbooks%2C54&sr=1-1): The Economics of Collisions and Contagions in a Crowded World, by Bill Nordhaus (Nobel Prize in Economics, 2018)
2. [Small Is Beautiful](https://www.amazon.com/Small-Beautiful-Economics-Mattered-Perennial/dp/0061997765/ref=sr_1_1?crid=2KX3RH1JHJTUI&keywords=small+is+beautiful&qid=1660147817&s=books&sprefix=small+is+beautiful%2Cstripbooks%2C49&sr=1-1): Economics as if People Mattered, by Ed Schumacher
3. [Governing the Commons](https://www.amazon.com/Governing-Commons-Evolution-Institutions-Collective/dp/1107569788/ref=sxin_10_mbs_w_global_sims?content-id=amzn1.sym.167d0880-9da0-400b-938e-4382731a4102%3Aamzn1.sym.167d0880-9da0-400b-938e-4382731a4102&crid=2KX3RH1JHJTUI&cv_ct_cx=small+is+beautiful&keywords=small+is+beautiful&pd_rd_i=1107569788&pd_rd_r=cfc3e90c-87b2-4815-80d5-ded97a4b8c26&pd_rd_w=H6Sh2&pd_rd_wg=2jHZa&pf_rd_p=167d0880-9da0-400b-938e-4382731a4102&pf_rd_r=X256WZCDV6F8QFY7ATMT&qid=1660147880&s=books&sprefix=small+is+beautiful%2Cstripbooks%2C49&sr=1-1-9e7645f9-2d19-4bff-863e-f6cdbe50f990), by Elinor Ostrom (Nobel Prize in Economics 2009)
4. [Toxic Communities](https://nyupress.org/9781479861781/toxic-communities/), by Dorceta Taylor

**GRADES**

Grading will be three part:

1. Reflection Posts and Case Studies 25%
2. Midterms (two) 25% each (50% total)
3. Final Exam 25%

Your final grade will be the maximum of the averages of:

(1) + (2) *or*  (1) + (3) *or* (1) + (2) + (3)

This means that if you do better (on average) on your midterms than on the final, your final will be dropped—and vice versa. **NOTE:** Reflection Posts and Case Studies will not be dropped.

Letter grades are as follows and are rounded to the nearest integer (i.e., 0.495 becomes 1):

A+ (95-100), A (87-94), A- (85-86),

B+ (82-84), B (77-81), B- (75-76),

C+ (72-74), C (67-71), C- (65-66),

D+ (62-64), D (57-61), D- (55-56),

F (0-55) – don’t do this

**ACCOMMODATIONS**

Any student who feels that they may require an accommodation in this course, based on the impact of a disability, should contact us as soon as possible to arrange for a meeting to coordinate all accommodations. Any student who wishes to seek accommodation should also be sure to directly contact Disability Support Services (DSS) for more information (*https://academicsupport.georgetown.edu/disability*).

**COURSE CALENDAR**

**Readings and Videos:** These are to be completed *before* class on the day they are listed. For example, K&O Ch. 2-3 should be read before coming to class on August 29th.

**Homework:** All homework assignments are due by Sunday at midnight on the week or the week after they are listed. One exception is Case Study #4, which is due on a Monday to accommodate Thanksgiving break.

**Midterms:** Midterms will be on the Wednesday class of the week that they are listed.

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| Week | Date | Topic | Readings/Videos | Exams/  Homework |
| **Module 1: How Markets Fail** | | | | |
| 1 | Aug 24 | Recap of Economic Theory, Markets, and Willingness to Pay |  | Buy Textbook  K & O: Ch. 1 |
| 2 | Aug 29 | Why Aren’t Markets Perfect? | K & O: Ch. 2-3  [Hausman Video](https://youtu.be/xxtElseSkZM) |  |
| 2 | Aug 31 | Market Failures: Examples and in Practice | K & O: Ch. 4-5  [Auffhammer Video](https://youtu.be/BNdS1o2GoPQ) |  |
| 3 | Sep 6\*  (Tues) | Positive vs. Normative methods and their role in Environmental Economics | [McGartland (2021)](https://www.journals.uchicago.edu/doi/full/10.1086/715623)  [Cook (2022)](https://bryanparthum.github.io/papers/journal_articles/Cook%202022%20-%20Kaldor-Hicks%20Neoliberalism.pdf) | Ref. Post #1 on  [Podcast #1](https://soundcloud.com/resourcesradio/sensing-air-pollution-exposure-in-new-york-city-schools-with-beia-spiller) or  [Podcast #2](https://soundcloud.com/resourcesradio/people-parks-and-policy-with-rffs-margaret-walls)  (Due Sep 10) |
| **Module 2: Measuring Environmental Benefits** | | | | |
| 3 | Sep 7 | Econometrics, Treatment Effects, and their place in Environmental Economics | [First 10 min of Olmstead Video](https://www.youtube.com/watch?v=9B65ghY7vB4) |  |
| 4 | Sep 12 | Using Distance to Measure the Value of Public Land and Open Space (Travel Cost) | [Hanauer and Reid (2017)](https://bryanparthum.github.io/papers/journal_articles/Hanauer_and_Reid_2017_JEM_travel_cost.pdf) | Case Study #1  Travel Cost or Hedonics  (Due Sep 24) |
| 4 | Sep 14 | Voting with Your Feet – and Why it Doesn’t Always Work (Hedonics) | [Kuwayama et al. (2022)](https://bryanparthum.github.io/papers/journal_articles/Kuwayama_et_al._2022_JPE-water_quality_rec_and_hedonics.pdf)  and quickly read:  [Christensen and Timmins (2022)](https://www.nber.org/system/files/working_papers/w24826/w24826.pdf) |  |
| 5 | Sep 19 | Constructing Hypothetical Markets when They Don’t Exist (Stated Preferences) | [Parthum and Ando (2020)](https://bryanparthum.github.io/papers/papers/Parthum_Ando_2020.pdf) |  |
| 5 | Sep 21 | Using Expenditures to Estimate Benefits of the Environment (Defensive Behavior) | [Shogren and Stamland (2005)](https://bryanparthum.github.io/papers/journal_articles/Shogren%20and%20Stamland%202005%20-%20Defensive%20Behavior%20and%20VSL.pdf) |  |
| 6 | Sep 26 | How Can We Estimate the Total Damages from Climate Change? | [Nordhaus (2017)](https://www.pnas.org/doi/epdf/10.1073/pnas.1609244114) | Case Study #2  DICE 2016  (Due Oct 9) |
| 6 | Sep 28 | Incorporating the Environment into Economic Accounts (Natural Capital) | K & O: Ch. 11  [Solow Monograph](https://www.resources.org/common-resources/almost-practical-step-toward-sustainability/) |  |
| 7 | Oct 3 | Review of Modules 1 and 2 | Study Review Material |  |
| 7 | Oct 5 | Midterm Covering Material from  Modules 1 and 2 | Study! | **Midterm #1** |

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| Week | Date | Topic | Readings/Videos | Exams/  Homework |
| **Module 3: Environmental Policy and Regulation** | | | | |
| 8 | Oct 10 | Mid-semester Holiday – No Class |  |  |
| 8 | Oct 12 | Economics of Environmental Regulation 1 | K & O: Ch. 8 |  |
| 9 | Oct 17 | Economics of Environmental Regulation 2 | K & O: Ch. 9  [Carbon Trading Podcast](https://www.resources.org/resources-radio/building-a-carbon-trading-system-in-new-york-city-with-danielle-spiegel-feld/) |  |
| 9 | Oct 19 | Clean Air Act | [Hernandez-Cortes et al. (2022)](https://www.nber.org/papers/w30198) (*optional*) [Chay and Greenstone (2005)](https://www.jstor.org/stable/10.1086/427462) | Ref. Post #2  (Due Oct 23) |
| 10 | Oct 24 | Clean Water Act | [Keiser and Shapiro (2019)](https://academic.oup.com/qje/article/134/1/349/5092609) |  |
| 10 | Oct 26 | Safe Drinking Water Act | [Allaire et al. (2018)](https://www.pnas.org/doi/abs/10.1073/pnas.1719805115)  [Fedinick et al. (2022)](https://www.nrdc.org/sites/default/files/watered-down-justice-report.pdf) | Case Study #3 – PFAS NPDWR  (Due Nov 6) |
| 11 | Oct 31 | Hazardous Wastes – CERCLA and RCRA | [Hazardous Chemical Waste Video](https://www.youtube.com/watch?v=F4udLhOdPro) |  |
| 11 | Nov 2 | Regulating Cars | [Killeen and Levinson (2017)](https://bryanparthum.github.io/papers/journal_articles/Killeen%20and%20Levinson%202017%20-%20Fuel%20Economy%20and%20Emissions%20Standards.pdf)  [Transportation Justice Podcast](https://www.resources.org/resources-radio/driving-toward-justice-transportation-and-equity-with-regan-patterson/) |  |
| 12 | Nov 7 | Review of Module 3 | Study Review Material |  |
| 12 | Nov 9 | Midterm Covering Material from  Module 3 | Study! | **Midterm #2** |
| **Module 4: The Frontier of Environmental Economics and Policy** | | | | |
| 13 | Nov 14 | Environmental Justice Analysis in Regulation 1 | [Banzhaf et al. (2019)](https://www.aeaweb.org/articles?id=10.1257/jep.33.1.185)  [EJ Technical Guidance Ch. 2-4](https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf) |  |
| 13 | Nov 16 | Environmental Justice Analysis in Regulation 2 | [Hernandez-Cortes and Meng (2020)](https://www.nber.org/papers/w27205)  (*optional*) [Steam Electric ELG Ch. 14](https://www.epa.gov/sites/default/files/2020-08/documents/steam_electric_elg_2020_final_reconsideration_rule_benefit_and_cost_analysis.pdf) | Case Study #4 -Bivariate Mapping  (Due Nov 28) |
| 14 | Nov 21 | Market-based Instruments in Practice | K & O: Ch. 10  [Borenstein and Kellogg (2022)](https://www.nber.org/papers/w30263) |  |
| 14 | Nov 23 | No Class, Federal Holiday | No Class |  |
| 15 | Nov 28 | So, What’s Next?  Inflation Reduction Act, Bipartisan Infrastructure Law, and WV vs. EPA | K & O: Ch. 12  [WV vs. EPA Video](https://www.rff.org/events/rff-live/climate-change-and-the-supreme-court-west-virginia-v-epa/)  [IRA Video](https://www.rff.org/events/rff-live/inflation-reduction-act/) |  |
| 15 | Nov 30 | Review of Module 1 and 2 | Final Study Guide 1 |  |
| 16 | Dec 5 | Review of Module 3 and 4 | Final Study Guide 2 |  |
| 16 | Dec 10 | FINALS WEEK - 4:00 PM-6:00 PM | Study! | **Final Exam** |