

# ECON 573 Syllabus

Winter 2023

Instructor: Patrick Baylis



## Course information

- Mon/Wed 2:00pm-3:30pm, BUCH B318 (and/or online as necessary)
- Office hours: [www.patrickbaylis.com/office-hours](http://www.patrickbaylis.com/office-hours)
- Teaching assistant: Allen Peters

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## Course details

**Description:** This is a graduate-level course in environmental economics designed to help students understand how to analyze and conduct empirical research. The first half of the course will focus on conceptual treatments of externalities, public goods, and the policies of environmental regulation. The second half of the course will combine the study of current topics in the field with further instruction in research design and computational techniques. Every class will include a student presentation portion in which a pre-assigned student will analyze and present an empirical paper in the field. The course is suitable for both M.A. and Ph.D. students.

**Student learning outcomes:** This course has two broad goals: to introduce students to the theory and practice of modern environmental economics and to assist students in developing, presenting, and analyzing empirical research projects. More specifically, I will measure our success in the course by the extent to which you are able to do the following by the end of the course:

1. **Describe the core theoretical contributions** to environmental economics. Demonstrate the ability to solve theory-based problems and proofs and to develop variations on existing models.

2. **Understand, analyze, and apply the empirical research designs** used in environmental economics. Be able to articulate the identification assumptions required by different kinds of research designs and analyze the plausibility of those assumptions in existing research.
3. **Replicate existing research papers** using statistical software.
4. **Discuss and present** papers in the field of environmental economics. Articulate the central contributions of papers and distill the lessons of previous research as well possible areas for advancement or improvement.
5. **Develop a detailed research proposal** for an empirical research project to answer a question in the field.

**Related courses:** ECON 574 (*Special Topics in the Economics of Resource Use*, taught by **Katherine Wagner**), FRE 521R (*Advanced Food and Resource Economics*, taught by **Frederik Noack**)

**Prerequisites:** ECON 500 (*Microeconomics*), ECON 502 (*Macroeconomics*), ECON 526 (*Mathematics for Economics*), and ECON 527 (*Econometric Methods of Economic Research*).

Additionally, students should be aware that they need to use the statistical software R to complete the replication assignments in the course.

**Learning activities:** Students will learn the course material by completing the assigned readings, attending lecture, and completing the assessments.

**Course materials:** Reading assignments will be posted on Canvas. There is no textbook, but students may find the following texts useful for background:

- Phaneuf and Requate (2016): PhD-level textbook in environmental economics. I will draw on it for the early part of the course, but you don't need to buy it.
- Kolstad (2011): Advanced undergraduate textbook, useful for students unfamiliar with the field.

**Assessments:** Your grade will be determined by the following assessments:

- Participation (15%)
  - In-class participation and engagement
  - Guided discussion presentation
- Written assignments (40%)
  - Problem sets (2)
  - Replication exercises (2)
- Final paper (45%)
  - One-page proposal

- Presentation
- Final paper

Your final grade will be rounded to the nearest whole number and reported as a percentage per UBC Policy<sup>1</sup>

*Missed assignments:* Assignments must be turned in electronically via Canvas by the due date and time. Every day an assignment is late will reduce the grade percentage by 20 points.

*Academic concessions:* If you require an [in-term concession](#) (to turn in an assignment late, for example), you must contact Arts Advising as soon as you are aware of the need (i.e., before the work is missed except in extraordinary circumstances). Please review [their website](#) for concession criteria as well as the process to follow. Students in other Faculties should contact their Faculty advising office for direction. If you are granted a concession for a given assessments, I will reassign its weight to other assessments of the same type.

**UBC-wide policy statement:** UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available [here](#).

**Accommodations:** I am happy to make necessary accommodations for students who require it. Please contact Access and Diversity to obtain an Academic Accommodation Letter and provide it to me within the first two weeks of the term. See UBC Policy 73<sup>2</sup> for more details.

**Academic integrity:** I expect all students to exhibit academic integrity in accordance with UBC Policy<sup>3</sup>.

**PhD auditors:** VSE PhD students are invited to either take the course for full credit or, if they choose, to audit it instead. The price of admission is that the student participate in class and present one of the discussion papers. Please be in touch by email if this is something you are interested in.

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<sup>1</sup><http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,42,96,0>.

<sup>2</sup><http://www.universitycounsel.ubc.ca/files/2010/08/policy73.pdf>.

<sup>3</sup><http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,286,0,0>.

## Course schedule

This course is divided into two units. Below a rough schedule is given, but a detailed schedule, including readings, will be maintained on Canvas. Lectures are topically organized but may be spread over multiple class periods as necessary. Question marks “(?)” indicates topics that will be covered if time allows.

### Unit 1: Theory

- Market failures
- Theory of environmental policy
- Imperfect information
- Competitive output markets
- Noncompetitive output markets (?)
- Applied welfare analysis (?)

### Unit 2: Topics and Tools

- Empirical research design and R
- Regression discontinuity and evaluation environmental policies
- Differencing estimators and the health effects of pollution
- Fixed effects and the impacts of climate change
- Instrumental variables and cap and trade in practice
- Natural disaster economics (?)
- Migration and the environment (?)
- Environmental justice and spatial data (?)

## Acknowledgements, errata, and copyright

This course was designed with inspiration from courses taught by Ivan Rudik, Meredith Fowlie, Brian Copeland, James Saltee, and Wolfram Schlenker. Any errors are my sole responsibility, and I will be grateful to students who report them. I am the copyright owner for course material unless otherwise specified.

## References

Kolstad, Charles. 2011. *Intermediate Environmental Economics*. Oxford University Press.  
Phaneuf, Daniel J, and Till Requate. 2016. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge University Press.