

ECON573: Graduate Environmental Economics

Syllabus (Spring 2018)

Last updated: February 15, 2018

1 Course overview

Instructor: Patrick Baylis

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Office hours: Tuesdays 2:00-3:30pm, Iona 113

Location: Buchanan D219

Time: Tuesdays and Thursdays, 12:30-1:50pm

2 Course details

Description: This is a graduate-level course in environmental economics. The first part of the course will focus on conceptual treatments of externalities, public goods, and pollution regulation. The second part will cover standard applied econometric approaches in the field, and the third part will center on students beginning their own empirical research project. Every class will include a discussion section in which students will be expected to participate in critically analyzing papers in the field. The course is suitable for both M.A. and Ph.D. students.

Prerequisites: ECON500 (Microeconomics), ECON502 (Macroeconomics), ECON526 (Mathematics for Economics), and ECON527 (Econometric Methods of Economic Research).

Additionally, students will benefit from expertise in some kind of statistical software (Stata or R are best, although Python and Matlab are also acceptable). Unfortunately, time constraints mean that neither the course nor office hours can cover data skills, although I am happy to provide external learning resources.

Canvas: Course material will be posted on Canvas, including lecture slides and assignments. All assignments will be handed in and returned through Canvas.

Readings: There is no textbook, but students may find the following texts useful for background:

- Charles Kolstad et al. 2011. "Intermediate Environmental Economics". *OUP Catalogue* (This is undergraduate textbook but may be useful for students unfamiliar with the field)

- Joshua D Angrist and Jörn-Steffen Pischke. 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press

Lectures: I will present the bulk of the course material in lecture. Slides will be available by midnight the day before lecture at the latest, although I reserve the right to make last-minute changes.

Course grading rubric: Students' final grades will be composed of the following elements and will be reported as a percentage per UBC Policy¹:

1. Participation and attendance (**15%**)
2. Four assignments (**40%**)
 - (a) Two problem sets (10% each)
 - (b) Replication exercise (10%)
 - (c) Referee report (10%)
3. Final paper (**45%**)
 - (a) Presentation (10%)
 - (b) First draft of final paper (5%)
 - (c) Final draft of final paper (30%)

There will be no midterm or final.

I am happy to make any necessary accommodations for those 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 73² for more details.

Participation: Participation in class is expected of all students. Throughout the course, the last 20-30 minutes of every class will be discussion-based. Students are expected to have read the assigned readings in advance and to come prepared to contribute.

Assignments: Assignments will be assigned and returned through Canvas. The two problem sets will focus on developing a theoretical and intuitive understanding of the foundations of the field, the replication exercise will ask students to reproduce the results of a published paper, and the referee report will require students to review on an unpublished working paper for possible publication.

Final paper: For the final paper in the course, students will design an original research project in the field of environmental economics. The paper will propose a research question, articulate the place of the question within the literature, describe the empirical strategy and data required to answer the question, and present preliminary descriptive statistics and results if the data are available.

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

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

Academic integrity: I expect all students to exhibit academic integrity in accordance with UBC Policy³.

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

3 Course schedule

This course is divided into three units. Below a rough schedule is given, but a detailed schedule, including required readings, will be maintained on Canvas. Lectures are topically organized but may be spread over multiple class periods as necessary.

Unit 1: Theoretical tools

1. Introductory lecture
2. Review of welfare economics and externality theory
3. Public goods theory
4. Incidence and equity
5. Compliance and enforcement
6. Behavioral economics and consumer choice

Unit 2: Empirical tools

1. Causal inference, counterfactuals, and the “gold standard” of randomized experiments
2. Difference-in-differences estimators
3. Matching estimators and regression-based adjustments
4. Fixed effects estimators
5. Instrumental variables estimators
6. Regression discontinuity estimators

Unit 3: Empirical applications (we will cover these as time allows)

1. Electricity markets - Supply
2. Electricity markets - Demand
3. Gas prices, fuel economy, consumer demand
4. Oil and natural gas
5. Energy efficiency
6. Climate change
7. Pollution and health

4 Acknowledgements, errata, and copyright

This course was designed with inspiration from courses taught by Meredith Fowlie (UC-Berkeley), Brian Copeland (UBC), James Sallee (UC-Berkeley), and Wolfram Schlenker

(Columbia). Any errors are my sole responsibility, and I will be grateful to students who report them. I am the copyright owner for course material (lectures, slides, assignments, exams) unless otherwise specified.