Advanced Environmental Economics: AED ECON 7310

Professor Contact
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Course Description:
This course introduces students to core theoretical concepts and methodological approaches needed in the study of environmental economics.

This course will cover the basic concepts and methods underlying research on externalities, environmental valuation, program evaluation, and environmental issues in developing countries. There will be particular emphasis on the way in which applied researchers approach and solve problems. The course is divided into two modules: The first will introduce the foundational methods in environmental economics with an emphasis on valuation methods and the second -- program evaluation and advanced methods. Additional discussion and readings will focus on the intersections and complementarities between these sets of research methods. At the end of this course, you should have the theoretical foundation and methodological tools to evaluate and pursue research in the field of environmental economics and supplement core methods in development and regional economics.

Prerequisites:
This course is designed for second-year PhD students in agricultural, environmental and development economics, or related fields. It is assumed that students have completed at least one graduate-level course in microeconomic theory (ECON 8711, 8712 or equivalent) and econometrics (ECON 8731, 8732 or equivalent), and are comfortable with differential and integral calculus.

Learning Objectives: Upon completion of this course, students will be able to:
1. Apply theory and methods behind non-market valuation
2. Apply the concept of externalities and the methods needed to evaluate, design, and implement Pigouvian policy tools to mitigate externalities.

3. Have the theoretical and methodological tools to integrate contemporary issues and environmental economics research to inform policy debates.

**Assignments and Grading**

The grade will be determined by 4-6 homework assignments (50% grade), an extended research abstract (3-5 pages) due at the midpoint of the semester (20%), a full length proposal (10-12 pages) due at the end of the semester (20%), and class participation (10%). Class will meet regularly on Thursdays with a discussion of assigned papers. Members of the class will take on either the role of a discussant, note taker, or blogger highlighting an important contribution of an article. Participation grades will be based on preparedness for these discussions. In the homework problem sets, students will set up and solve econometric problems relating to environmental valuation and program evaluation. Note that most problems cannot be analyzed in just an hour or two.

To provide assistance with econometric issues and allow for hands-on training in applied environmental economics research, the class will meet as needed on Tuesdays to discuss methods and homework.

**Books and Readings:**

It is difficult to find a single textbook that addresses all the topics of the course in sufficient detail. Below are several books that are useful.

- Perman, Ma, McGilvray & Common (2003). *Natural Resource and Environmental Economics*.
Course Policies:
Accommodations for students with disabilities. Any student who needs an accommodation because of a disability should contact us privately to discuss your specific needs and the Office for Disability Services at 614-292-3307 in Pomerene Hall Room 150 to coordinate reasonable accommodations.

No Plagiarism. From the Code of Student Conduct, “Plagiarism is the representation of another's works or ideas as one's own; it includes the unacknowledged word for word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas”. Plagiarism is a violation of the Code of Student Conduct and is considered academic misconduct. It is our policy to follow the university recommendation that all incidences of academic misconduct be reported to the committee on academic misconduct for disciplinary action.

Tentative Course Outline (Subject to Changes)

Week #1: Brief History of Environmental and Natural Resource Economics
- Freeman (2002). “Environmental Policy Since Earth Day I: What Have We Gained?”

Week #2: Information and Heterogeneity

Week #3: Empirical Papers on Pigouvian Policy

Week #4: Tiebout Sorting and Reduced vs. Structural
- Banzhaf and Walsh (2005). “Do People Vote with their Feet?”

Week #5: Hedonic Models - Theory and Practice
- Kuminoff et al (2010). “Which hedonic models can we trust to recover the marginal willingness to pay for environmental amenities?”

Week #6: Hedonic Extensions - Methods and Solutions
- Kuminoff, Boyle and Zhang (2015). “Partial Identification of Amenity Demand Functions”

Week #7: Random Utility Sorting
Week #8 (October 10th; No Class Oct 12th): TBD

Week #9: Intro to Impact (Program) Evaluations


Week #10: Impact Evaluations in Practice


Week #11: Heterogeneity in Impact Evaluations


**Week #12: Ecosystem service valuation using revealed preferences**


**Week #13: Generalizability: Meta-analyses and benefit transfers**


**Week #14 (Nov. 21st only, no class Nov. 23rd): TBD**

**Week #15: Structural and reduced form models**


**Week #16: Frontiers of environmental economics in developing countries**


**Advanced topics of interest (TBD)**

**Extensions to structural Modeling**


**Matching estimators using complex survey data**


**Pure Characteristics Sorting**