AEC 653: Empirical Environmental & Resource Economics
Winter 2017       TR 10:00 – 11:20 AM       Strand Ag. Hall 263

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Office Hours: MW 12:30-1:30; TR 3:00 – 4:00; or by email appointment
Course Canvas Site: https://oregonstate.instructure.com/courses/1624736

Prerequisites: AEC 513; AEC 525
Students must be comfortable with a first-year Ph.D. level treatment of micro theory and econometrics. Past graduate training in environmental economics, econometrics, and experience with statistical software and programming will be useful, but are not required.

Course Description: This course introduces empirical methods at the current frontiers of research in environmental and resource economics. General topics include the identification of non-market values, revealed and stated preference methods, environmental policy evaluation, land-use modeling, and climate econometrics.

Course Objectives: My objectives for this course are to:

1. Familiarize students with the contemporary themes in environmental and resource economics research and in my sub-field of non-market valuation.

2. Provide students with a solid foundation in the recent advances in the empirical methods related to the valuation of environmental goods and services.

3. Increase students’ ability to define empirical environmental and resource economic problems, analyze information, and develop research questions.

4. Provide students with a foundation for conducting applied research in environmental and resource economics (e.g. Ph.D. dissertation)
Learning Outcomes: Upon successful completion of this course, a student will be able to:

1. Pursue research on a range of topics in environmental and resource economics and non-market valuation and, for those seeking employment in academia, teach a similar course to this one in the future.

2. Explain the economic models of non-market valuation and have the foundational knowledge to understand the challenges and apply the methods to environmental and resource issues.

3. Describe and critically evaluate the empirical evidence relevant to the application of economic models to environmental and natural resource issues.

4. Frame and discuss environmental and resource issues and policy in terms of economic theory and empirical evidence.

Learning Resources: The readings for this course are primarily journal articles. There are no required textbooks for this course, but I provide the following list of useful references:

- *Handbook of Environmental Economics, Vol 1-3*
- Freeman, *Measurement of Environmental and Resource Values*
- Bockstael & McConnell, *Environmental & Resource Valuation w/ Revealed Preferences*
- Phaneuf & Requate, *A Course in Environmental Economics: Theory, Policy, Practice*
- Cameron and Trividi, *Microeconometrics: Methods and Applications*
- Manski, *Identification for Prediction and Decision*
- Train, *Discrete Choice Methods with Simulation*
- Angrist and Pischke, * Mostly Harmless Econometrics*  

Evaluation

Class and Seminar Participation: 15%
This course is designed to provide seminar-style discussion of journal articles at the frontier of research in environmental and resource economics. For this to be successful, active participation in class discussion is necessary and expected. Additionally, the AEC department has an Environmental Working Group that meets approximately 3 Wednesdays at noon during the quarter. I expect students to attend each seminar and be prepared to discuss the work presented the next day in class.

Student Lecture: 25%
Each student will be assigned a set of 2 to 3 empirical papers to lead a discussion on their assigned topic for an in-class lecture. The format for this lecture is at your discretion and we will discuss in
class some potential options. Potential papers are indicated in the reading list below with an asterisk (*).

**Problem Sets: 20 %**

One to two problem sets will be given addressing relevant econometric questions associated with the assigned readings. These will require running models and simulations in Stata and/or Matlab software. Students may use the software of their choosing but solutions and discussion will use Stata and Matlab exclusively. These may be completed in small groups but each student is responsible for handing in their own assignment.

**Quarter-long Assignment: 40 %**

There are four interrelated assignments that are organized around the theme of how environmental economics is used to inform decisions about public policy. You will first need to choose one of the following revealed preference frameworks for predicting the benefits of an environmental policy to study:

1. Equilibrium sorting framework
2. Hedonic property value framework
3. Recreation demand framework

**Assignment #1—Analytical Framework (Fri. January 27th @ 5PM)**

Prepare an analytical summary of your chosen revealed preference framework. It must include a conceptual model of how consumers’ preferences for an environmental policy affect their choices in a housing or recreation market and an econometric model that uses market outcomes to infer consumer preferences.

**Assignment #2—Empirical Application & Policy Assessment (Fri. February 17th @5PM)**

Prepare a brief review that contrasts the data, empirical models, and results of a few assigned articles that apply your chosen framework. Second, provide a critical assessment of the way your framework is used by economists in academia and/or government to assess the benefits of prospective policies, using assigned articles and government reports.

**Assignment #3—Validation and Research Question (Tues. March 14th @ 10 AM)**

Propose a research question and then develop a research design for testing the validity of your revealed preference framework to answer your question.

**Assignment #4— In-Class Presentation (Last week of class March 14th & 16th)**

Prepare a 15 minute conference-style presentation summarizing the work you have completed on this assignment with a focus on Assignment #3.
Course Outline & Reading List: This is a general course outline and reading list subject to additions and subtractions. Please reference the Canvas site for PDFs of the assigned readings.

Readings with authors in bold (and listed first) are required while all others are highly recommended. Readings with an asterisk (*) indicate potential papers for student lectures.

Part I: Identification of Nonmarket Values

Foundations of Nonmarket Valuation

Bocksteal and McConnell: Chapters 2 and 3


Empirical Identification of Nonmarket Values


Part II: Housing Market Models

Phanuef D.J. and T. Requate. “Chapter 18 Property Value Models” from their forthcoming new textbook. *provides a good review for housing market models.*

Hedonic Models


Sorting Models


**Quasi-experiments and Policy Evaluation**


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**Part III: Recreation Demand Modeling**


Parsons, G.R., A. J. Plantinga, and K. J. Boyle. 2000. Narrow choice sets in a random utility model of

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**Part IV: Climate Change Economics**


Part V: Land Use Modeling


Part VI: Stated Preference Methods


