ESP 168a - Methods of Environmental Policy Evaluation
Fall Quarter 2016

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Description:

Methods of Environmental Policy Evaluation (5) Lecture--3 hours; discussion--1 hour; term paper. Prerequisite: Statistics 13; Economics 100 or Agricultural and Resource Economics 100A; Mathematics 16B or 21B; course 1; upper division standing. Evaluation of alternatives for solution of complex environmental problems; impact analysis, benefit-cost analysis, distributional analysis, decision making under uncertainty, and multi-objective evaluation.

Text:

There are required readings for most of the discussion sessions. These are listed below and will be posted on Canvas.

Suggested background readings are given for most lectures. Most of these are drawn from the books listed below, that are on reserve at Shields Library. These are not required, but will provide greater depth on topics of interest. Other background readings are posted on Canvas.


Assignments:
Case study readings for discussion section
3 problem sets
Mid-term (Thursday October 27th)
Group Project (2 written reports and oral presentation)

NOTE: THERE IS NO FINAL EXAM IN THIS COURSE
**Grading:**

Problem Set 1 (due October 4th) 10%
Problem Set 2 (due October 11th) 10%
Problem Set 3 (due October 20th) 10%
Class Participation (discussion section): 15%
Class Project/Term Paper and Presentation: 40%
Mid-Term (October 27th) 15%

**Late Policy:**

Do not turn in assignments late. Look at assignments early and plan ahead. Problem sets handed in late will automatically have 5 points deducted. Each additional day will mean 5 additional points deducted. Any work handed in more than a week late will not be graded.
Topics Covered, Required and Background Readings, and Assignments Due

WEEK 1 (September 19th – 23rd) ---------------------------------------------------------------
Thursday Lecture: Introduction to environmental policy analysis, steps in the policy analysis process, defining a problem, developing alternative solutions, predicting consequences, ranking outcomes, making a decision. **Problem Set 1 Assigned**
Background Reading
LDZ, Chapters 5 and 6, pp.86-144.

WEEK 2 (September 26th – 30th) ---------------------------------------------------------------
Monday Section: Model development examples, EXCEL review, graphing.

Tuesday Lecture: Models: Developing a model, types of models, data sources. Intro to class project.

Thursday Lecture: Models: Evaluating models, model ensembles and uncertainty, communicating results. Other ways of predicting policy consequences.
Background Reading:

WEEK 3 (October 3rd – 7th) -----------------------------------------------------------------------
Monday Section: Modeling Case Study: Projecting Water Scarcity and Stress
Required Reading:

Background Reading
LDZ, Chapter 11: Measuring Environmental Costs and Benefits, pp. 268-314

Thursday Lecture: Environmental valuation: Hedonic valuation and value of a statistical life (VSL). **Project groups finalized.**
Background Reading
LDZ, Chapter 12: Measuring the Value of Life and Health, pp. 315-340
WEEK 4 (October 10th-14th) __________________________________________________________

Monday Section: Estimating Environmental Benefits Case Study: The Mercury and Air Toxics Standard
Required Reading:
  - Executive Summary ES1-ES20
  - Section 4.7 Mercury Benefits Analysis Modeling Methodology 4-38 – 4-48
  - Section 5.4.4 Economic Valuation Estimates 5-39 – 5-49
  - Section 5.4.5 Hospital Admissions Valuation 5-49 – 5-59

Tuesday Lecture: Environmental valuation: Contingent valuation and travel-cost method.

Problem Set 2 Due.

Background Reading:
LDZ, Chapter 11: Measuring Environmental Costs and Benefits, pp. 268-314
BGVW, Chapter 14: Valuing Impacts Through Surveys, pp. 358-390


Background Reading:
BGVW, Chapter 7: Dealing with Uncertainty, pp. 156-191

WEEK 5 (October 17th-21st) __________________________________________________________

Monday Section: Dealing with Risk and Uncertainty: Planning for Adaptation to Climate Change

Required Readings

Tuesday Lecture: Risk and uncertainty: Decision-making under uncertainty, expected value calculations, robust decision-making, minimax, irreversibility and option values, diversification. Communicating uncertainty and risk.

Background Reading:
LDZ, Chapter 14: Risk, Uncertainty, and Environmental Policy, pp. 384-435.
BGVW, Chapter 8: Option Price and Option Value, pp. 192-212

Background Reading:
LDZ, Chapter 7: Policies to Address Efficiency Goals, pp. 145-180.

WEEK 6 (October 24th-28th) -----------------------------------------------

Monday Section: Midterm Review.

Tuesday Lecture: Life-cycle assessment.

Background Reading

Thursday Lecture: MIDTERM EXAM

WEEK 7 (October 31st – November 4th) -----------------------------------------------

Monday Section: LCA Case Study – Lifecycle Greenhouse Gas Emissions of Biofuels and the U.S. Renewable Fuel Standard

Required Reading:
- Browse through the EPA’s website on the Renewable Fuel Standard at https://www.epa.gov/renewable-fuel-standard-program
- Look in detail at spreadsheet describing the EPA’s LCA results for corn ethanol


Background Reading:

Thursday Lecture: Distributional impacts: International and inter-generational issues

Background Reading:
LDZ, Chapter 13: Discounting Environmental Benefits and Costs Over Time, pp. 341-384.
BGVW, Chapter 6: Discounting Future Benefits and Costs, pp. 120-155
Monday Section: Air Quality and Environmental Justice in the Bay Area

Required Reading

- Explore the EPA’s Environmental Justice screening tool: [https://eigs.epa.gov/mapper/](https://eigs.epa.gov/mapper/). Read how the EJ Index is calculated at [https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen](https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen). Use the screening tool to make a side-by-side map showing Oakland. On the left map plot the EJ Index for NATA Air Toxics Cancer Risk. On the right plot the Environmental Indicator for NATA Air Toxics Cancer Risk. Think about why these two maps are different. Use the Print Screen button to save and print a copy of the map.

- Communities for a Better Environment, “Cumulative Impacts in East Oakland: Findings from a Community-Based Mapping Study”.

- Bay Area Air Quality Management District, 2014. “Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area”. Read Methodology and Results (pp. 11-34)

- Bay Area Air Quality Management District, 2015. “Using the Product of Ranks to Calculate Disadvantage from CalEnviroScreen 2.0 Data”

Tuesday Lecture: Multi-Criteria Assessment.

Background Reading
LDZ, Chapter 10: Balancing Policy Goals, pp. 238-265

Thursday Lecture: Guest Lecture by Claire Jahns, Assistant Secretary of Natural Resources Climate Issues, California Natural Resources Agency.

WEEK 9 (November 14th – 18th) -------------------------------------------------

Monday Section: Time to work on projects


Thursday Lecture: Wrapping up: environmental policy analysis in practice

WEEK 10 (November 21st – 25th) -------------------------------------------------

Monday Section: Discussion of the Social Cost of Carbon

Required Reading


Tuesday Lecture: Project presentations.

Thursday Lecture: THANKSGIVING!!
WEEK 11 (November 28th – December 2nd) -------------------------------

Monday Section: Time to work on projects

Tuesday Lecture: Project presentations.

Thursday Lecture: Project presentations.

Final Projects Due: December 2nd