

ESP 168B: Environmental Policy Evaluation (Every year winter quarter)

The objective of the course is to provide students with an in-depth discussion on the pros and cons of evaluating the effect of policy/regulatory interventions using impact evaluation techniques. Topics will include development of causal chains, sample selection (random and non-random designs), internal vs. external validity, development of counterfactuals, and methods of evaluation. The methods will include randomized control trials, regression discontinuity, matching, difference in difference, and synthetic control estimates. We will investigate these methods in the context of evaluating the effectiveness of environmental policy and natural resource management. Applications include poverty alleviation, vehicle use restrictions, air pollution, protected area management, fishery management, toxic regulations, water conservation, and electricity and energy use.

Week 1:

- Lecture 1: Intro. to course + Intro to Impact Evaluation (IE)
- Lecture 2: Monitoring & Evaluation + Internal & External Validity

Week 2

- Lecture 3: Elements and structure of a causal chain
- Lecture 4: Causal inference and counterfactual

Week 3

- Lecture 5: Counterfeit counterfactual (Before/after and Enroll/Non-enroll)
- Lecture 6: Randomized control trials(RCTs): Randomized assignment

Week 4

- Lecture 7: RCTs: Randomized offering and promotion
- Lecture 8: RCTs: Additional considerations (sample size, spillover, multiple treatment arms)

Week 5:

- Lecture 9: Additional considerations (spillover, treatment arms) + Review
- Lecture 10: Exam

Week 6:

- Lecture 11: Additional considerations (imperfect compliance & instrumental variables) + Observational Studies
- Lecture 12: Regression discontinuity design (RDD)

Week 7:

- Lecture 13: Difference in difference (DnD)
- Lecture 14: Matching methods (Propensity score)

Week 8:

- Lecture 15: Review of RCT and observational methods
- Lecture 16: *Discussion of papers on public policy*

Week 9:

- Lecture 17: *Discussion of papers on conservation management*
- Lecture 18: *Discussion of papers on electricity and energy*

Week 10:

- Lecture 19: *Discussion of papers on pollution control and transportation*
- Lecture 20: *Discussion of papers chosen by students*