



**NYU**

**ROBERT F. WAGNER GRADUATE  
SCHOOL OF PUBLIC SERVICE**

## **PADM-GP 2442**

### **Economic Policy Analysis**

**Spring 2020**

*Post-Covid-19  
UPDATE*

#### **Instructor Information**

- [Gernot Wagner](#)
- Email: [gwagner@nyu.edu](mailto:gwagner@nyu.edu)
- Office Address: Department of Environmental Studies, 285 Mercer Street.
- (Virtual) Office Hours: Wednesdays, 2:30-4:30 p.m. Please [sign up here](#). Alternatively, join me on a ~40-minute [morning run](#) (6 feet apart). If none of these times work, please [email me](#).

#### **Course Information**

- Class Meeting Times: Thursdays, 6:45-8:25 p.m.
- Class Location: Zoom. Please log on via NYU Courses.

#### **Course Prerequisites**

Formally, the prerequisites are [CORE-GP 1018 Microeconomics](#), [CORE-GP 1011 Statistical Methods](#), [PADM-GP 2902 Multiple Regression and Intro to Econometrics](#), and one of either [HPAM-GP 4830 Health Economics: Principles](#), [PADM-GP 2140 Public Economics](#), or [URPL-GP 2608 Urban Economics](#). Informally, the main prerequisite is that we speak the same language. Please talk to me after the first class if you don't meet the formal prerequisites, or if you have any other questions.

#### **Course Description**

How to make decisions in light of pervasive uncertainties? How to think about incentive structures faced by decision-makers, and think through unintended consequences of one's decisions?

Economics, for better or worse, is organized common sense. No more, also no less. This class makes use of the toolkit given to us by economics and applies them to real-world policy problems.

Given my own background, the class will focus on questions around climate, energy, and the environment, though not exclusively. In the end, we will pick examples based on how well they help us expand our toolkit and answer specific policy questions.

What to make of the precautionary principle? What can economics teach us that engineering can't? How to deal with constant learning, experimentation, and streams of new information?

Some of the questions we will be asking have clear answers. Many don't. The biggest question to us then often is in how far the tools economics gives us can provide objective policy advice, and at what point do normative judgments—politics—take over.

We will develop our toolkit around these and many other questions, looking to the policy world—and the news—for ideas. In doing so, we apply economic insights, some basic mathematical tools, statistical thinking, and econometrics, and borrow fundamental ideas from various other disciplines—all in the service of turning ourselves into better policy analysts and, ultimately, more astute decision makers.

## Course and Learning Objectives

The course has two goals:

- #1 to refine our policy toolkit to approach fundamental policy questions with vigor and rigor, and
- #2 to help us talk about the tools themselves and the results of our analyses in plain English, ultimately providing useful advice for decision-makers at every level.

Three problem sets and three brief (800-word) policy memos will reinforce class discussions. The latter will also ask you to pick a side. Think *Economist* leader: crisp, logical, and always with a well-justified point of view.

By the end of the course, you will be well prepared to apply fundamental economic tools to policy questions, and to do so without fear, favor, or jargon.

## Learning Assessment Table

Course Objective Covered	Corresponding Assignment
#1	Three problem sets
#2	Three policy memos
#1 and #2	In-class midterm exam
#1 and #2	Final exam

## Required Readings

There are lots of textbooks with “policy analysis” in the title. Granger Morgan’s [Theory and Practice in Policy Analysis](#) (Cambridge, 2017), for example, provides a good overview. Its short first chapter, “Policy Analysis: An Overview,” is on the readings for Week 1. Some parts will be on the syllabus throughout the semester and accessible via NYU Classes. (The [full book](#) is electronically available via NYU Libraries.)

Instead of a single textbook, we will rely largely on the primary literature—academic papers applying the concepts we develop here to important policy questions. All of those readings will be available online via the course website.

One other book I encourage you to consult throughout the semester is Edith Stokey & Richard Zeckhauser’s [Primer for Policy Analysis](#), published in 1978(!). (The book is still available for purchase, and it is on reserve at Bobst.) Its distinguishing characteristic: it teaches the *how* and *why*, not just the *what*. In fact, the *what*—many an example in the book—is often antiquated, given the publication date. We will use it as a basis to teach us *how* to think and develop and refine our toolkit.

An excellent example of just such a book focused on the *how* in a slightly different domain is Jordan Ellenberg’s [How not to be wrong: The Power of Mathematical Thinking](#) (Penguin, 2014). It looks to mathematics, not economics, as a guide, but it serves as a good template for what we are after in this course: apply rigorous thinking to important, every-day questions.

This is not a drill. It’s not a course taught in a vacuum, to give you abstract tools for hypothetical scenarios. It’s about real-world questions, using real-world tools. That also implies that there is no one-size-fits-all approach. Reading amounts vary by topic, week, and type of material.

Use your judgment.

If the report is 150 pages long, skim it.

If it’s a non-technical, 5-page article, study it.

If it’s a dense, technical paper, [focus](#) on the main results presented in abstract, introduction, and conclusion—and the general way of approaching the particular problem. Don’t internalize footnote 18 from the technical appendix. (Yes, that “focus” link leads to a *Science* article on “How to (seriously) read a scientific paper.” Take a look.)

In short, beginning with week 2 of the course, come prepared to class having done the readings for the day. We will work through examples and refine our thinking in class discussions. That is eminently more doable, if we all have the same basis for discussion.

## Assessment Assignments and Evaluation

<i>Type</i>	<i>Description</i>	<i>%</i>
<b>Problem sets</b>	Three problem sets, 5% each.	15%
<b>Short essays</b>	Three short essays, 5% each.  You might call them “policy memos.” You might call them “op-eds.” Either way, these three short essays have a point of view, they are well argued, and they come in at just around 800 words (sans bibliography). Make sure to use proper citations of materials, including those from the syllabus.	15%
<b>Midterm exam</b>	Exam with numerical problems and (brief) essay questions, mimicking the structure of the course—including problem sets and short essays.	20%
<b>Final exam</b>	Exam with numerical problems and (brief) essay questions, mimicking the structure of the course—including problem sets and short essays.	40%
<b>Participation</b>	Actively engage with the readings and participate in class discussions.  Bonus points for anyone able to point to recent news stories or other readings relevant to the topic at hand. Please post them, by 9:00 p.m. the night before each class, on NYU Classes.	10%
<b>Total</b>		<b>100%</b>

All written assessments are individual. Discuss the topic with each other; join up in reading groups; come to office hours alone or in groups to discuss details; but submit your own, individual problem sets and essays.

Problem sets are due at the beginning of class, 6:45 p.m. sharp, in class (25 West 4th Street, Room C-09) on February 13<sup>th</sup> and February 27<sup>th</sup>, and (electronically, via NYU Classes) on April 16<sup>th</sup>. Essays are due via NYU Classes by 6:45 p.m. on March 5<sup>th</sup>, April 9<sup>th</sup>, and May 7<sup>th</sup>.

If you need more time, you will need to optimize in light of the following time-grade tradeoff: You will lose ½ point (out of a possible 5 for each assignment, problem set or essay) immediately, and another ½ point for each additional 24 hours the assignment is late.

To request a regrade on any assignment, send me an email with your full (scanned) assignment attached, explaining your request within 1 week of receiving the graded assignment. I will regrade the entire assignment—grades may increase or decrease as a result.

## Overview of the Semester

- Week 1
  - *Date:* 30 January 2020
  - *Topic:* Economic policy analysis overview, and a bit of game theory
  - *Tools/concepts:* 2x2 games, Nash Equilibrium, Subgame Perfect Equilibrium, Prisoners' Dilemma
- Week 2
  - *Date:* 6 February 2020
  - *Topic:* Benefits and costs of climate change Aka Why benefit-cost analysis (should) reign(s) supreme
  - *Tools/concepts:* Expected utility theory, benefit-cost analysis (BCA), cost-effectiveness, benefit-cost ratios
- Week 3
  - *Date:* 13 February 2020
  - *Topic:* A closer look at the (very) long run
  - *Tools/concepts:* Net present value (NPV), discounting
  - *Deliverable:* Problem set 1 due by 6:45 p.m. in class
- Week 4
  - *Date:* 20 February 2020
  - *Topic:* A serious look at econometrics Aka The high costs of high temperatures
  - *Tools/concepts:* (Using and interpreting) Multi-regression analysis
- Week 5
  - *Date:* 27 February 2020
  - *Topic:* It's not over 'til the fat tail zings Aka Limits to benefit-cost analysis
  - *Tool/concept:* BCA under (deep) uncertainty
  - *Deliverable:* Problem set 2 due by 6:45 p.m. in class
- Week 6
  - *Date:* 5 March 2020
  - *Topic:* Repeat after me: the precautionary principle has no place in policymaking
  - *Tools/concepts:* Risk aversion, errors of commission vs. omission, decision-making under uncertainty
  - *Deliverable:* Essay 1 due by 6:45 p.m. via NYU Classes
- Week 7: in-class MIDTERM EXAM
  - *Date:* 12 March 2020
- SPRING BREAK – NO CLASS on March 19<sup>th</sup>, 2020
- Week 8
  - *Date:* 26 March 2020
  - *Topic:* Covid-19

- *Tools/concepts*: Compound growth, externalities, decision-making under uncertainty
- Week 9
  - *Date*: 2 April 2020
  - *Topic*: How to make decisions with few or no data?
  - *Tools/concepts*: Risk/disaster management
- Week 10
  - *Date*: 9 April 2020
  - *Topic*: Rebound Effect: Can CAFE standards lead to more driving?
  - *Tool/concept*: Engineering vs. economic thinking, price elasticity
  - *Deliverable [changed due date from April 2<sup>nd</sup>]*: Essay 2 due by 6:45 p.m. via NYU Classes
- Week 11
  - *Date*: 16 April 2020
  - *Topic*: Energy Paradox: Why don't we all use CFLs and drive hybrids?
  - *Tools/concepts*: Limits to the 'rational' model
  - *Deliverable*: Problem set 3 due by 6:45 p.m. in class
- Week 12
  - *Date*: 23 April 2020
  - *Topic*: Green Paradox: Can environmental policy lead to more pollution?
  - *Tool/concept*: Time (in)consistency in policymaking
- Week 13
  - *Date*: 30 April 2020
  - *Topic*: How to decide when deciding is hard? Alternative decision criteria
  - *Tool/concept*: minimax, maximin, no-regret, etc.
- Week 14
  - *Date*: 7 May 2020
  - *Topic*: Policymaking for posterity aka Your Analysis Toolkit for Policy
  - *Tools/concepts*: Decision-making under risk and uncertainty
  - *Deliverable*: Essay 3 due by 6:45 p.m. via NYU Classes
- Week 15: FINAL EXAM (exact date to be announced via Albert)

\* Note that only the best 3 of the first 4 essays submitted will count toward your grade.

## Detailed Course Overview

### WEEK 1: Economic policy analysis overview, and a bit of game theory

#### Readings

1. Morgan, Granger, [\*Theory and Practice in Policy Analysis\*](#), Cambridge University Press, 2017, pp. 1-13: chapter 1, "Policy Analysis: An Overview."

2. Fabre, Adrien and Gernot Wagner, "[Risky geoengineering option can make ambitious climate mitigation agreement more likely](#)," *NYU Wagner Research* paper (9 December 2019).

#### Recommended Reading

1. Ellenberg, Jordan. *How Not to be Wrong: The Power of Mathematical Thinking* (Penguin, 2014): p. 1-20.

### **WEEK 2: Benefits and costs of climate change Aka Why benefit-cost analysis (should) reign(s) supreme**

#### Readings

1. Auffhammer, Maximilian. "[Quantifying economic damages from climate change](#)." *Journal of Economic Perspectives* 32(4), 2018: pp. 33-52.
2. Gillingham, Kenneth and Jim Stock. "[The Cost of Reducing Greenhouse Gas Emissions](#)." *Journal of Economic Perspectives* 32(4), 2018: pp. 53-72.

#### Recommended Reading (for a BCA refresher)

1. Morgan, Granger, [Theory and Practice in Policy Analysis](#), Cambridge University Press, 2017, pp. 51-92: chapter 3, "Benefit-Cost Analysis."

### **WEEK 3: A closer look at the (very) long run**

#### Reading

1. Morgan, Granger, [Theory and Practice in Policy Analysis](#), Cambridge University Press, 2017, pp. 51-92: chapter 7, "Preferences over Time and Across Space."

#### Recommended Reading

1. Dasgupta, Partha. "[Discounting climate change](#)." *Journal of risk and uncertainty* 37(2-3), 2008: pp. 141-169.

### **WEEK 4: A serious look at econometrics Aka The high costs of high temperatures**

#### Readings

1. Burke, M., Hsiang, S.M. and Miguel, E. "[Global non-linear effect of temperature on economic production](#)." *Nature*, 527 (7577), 2015: p.235. [Read with an eye toward the analysis deployed, not necessarily the actual results.]
2. Carleton, T.A., and S.M. Hsiang. "[Social and economic impacts of climate](#)." *Science* 353, no. 6304 (2016): aad9837.

## Recommended Reading

1. Hsiang, S.M.. "[Climate econometrics](#)." *Annual Review of Resource Economics* 8 (2016): pp. 43-75.

## WEEK 5: It's not over 'til the fat tail zings Aka Limits to benefit-cost analysis

### Readings

1. Wagner, Gernot and Martin L. Weitzman, [Climate Shock: the economic consequences of a hotter planet](#), Princeton University Press, 2015: chapter 3, "Fat Tails."
2. Wagner, Gernot. "[Why Oil Giants Figured Out Carbon Costs First](#)." *Bloomberg Green Risky Climate* column, 22 January 2020.

### Recommended Readings

1. U.S. Office of Management and Budget, [Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis](#), August 2016 update. [Don't read in detail. Look at the gist, and the summary tables.]
2. Ricke, Katharine, Laurent Drouet, Ken Caldeira and Massimo Tavoni, "[Country-level social cost of carbon](#)," *Nature Climate Change* (24 September 2018).
3. Daniel, Kent D., Robert B. Litterman, and Gernot Wagner. "[Declining CO2 price paths](#)." *Proceedings of the National Academy of Sciences* 116(42), 2019: pp. 20886-20891.

## WEEK 6: Repeat after me: the precautionary principle has no place in policymaking

### Readings

1. Zeckhauser, Richard J. and Gernot Wagner. "[The Implications of Uncertainty and Ignorance for Solar Geoengineering](#)." In: *Governance of the Deployment of Solar Geoengineering*. Cambridge, Mass.: Harvard Project on Climate Agreements, edited by Robert N. Stavins and Robert C. Stowe, p. 107-11 (February 2019).

### Recommended reading

1. Wagner, Gernot and Martin L. Weitzman, [Climate Shock: the economic consequences of a hotter planet](#), Princeton University Press, 2015: chapter 5, "Bailing out the planet," and chapter 6, "007."



## WEEK 7: in-class MIDTERM EXAM

## WEEK 8:

### Readings

1. Wagner, Gernot. "[Compound Growth Could Kill Us – or Make Us Stronger.](#)" *Project Syndicate*, 18 March 2020.
2. The News (please post anything particularly interesting in the Forum)

## WEEK 9: How to make decisions with few or no data? Guest lecture by Chad Briggs, University of Alaska Anchorage

### Reading

1. Briggs, Chad M. and Miriam Matejova, [Disaster Security: Using Intelligence and Military Planning for Energy and Environmental Risks](#), Cambridge University Press (May 2, 2019); chapter 6: "Beyond Scenarios: Wargames, Simulations, and Net Assessment" (35 pages).
2. Briggs, Chad M., Moneeza Walji, and Lucy Anderson. "[Environmental health risks and vulnerability in post-conflict regions.](#)" *Medicine Conflict and Survival* 25, no. 2 (2009): 122-133.

## WEEK 10: Rebound Effect: Can CAFE standards lead to more driving?

### Readings

1. Gillingham, Ken, David Rapson, and Gernot Wagner. "[The Rebound Effect and Energy Efficiency Policy,](#)" *Review of Environmental Economics and Policy* 10(1), 2016: pp. 66-88.
2. Hughes, Jonathan E., Christopher R. Knittel, Daniel Sperling. "[Evidence of a Shift in the Short-Run Price Elasticity of Gasoline Demand.](#)" *Energy Journal* 29 (1), 2008.

### Recommended Reading

1. Revkin, Andrew C. "[Another Round on Energy Rebound.](#)" *New York Times DotEarth* blog, 24 October 2014.

## WEEK 11: Energy Paradox: Why don't we all use CFLs and drive hybrids?

### Readings

1. Allcott, Hunt, and Nathan Wozny. "[Gasoline prices, fuel economy, and the energy paradox.](#)" *Review of Economics and Statistics* 96(5), 2014: pp. 779-795.

## Recommended Reading

1. McKinsey, "[Unlocking energy efficiency in the U.S. economy](#)," 2009: Executive summary.

## WEEK 12: Green Paradox: Can environmental policy lead to more pollution?

### Readings

1. Jensen, Sverre, Kristina Mohlin, Karen Pittel, and Thomas Sterner, "[An Introduction to the Green Paradox: The Unintended Consequences of Climate Policies](#)," *Review of Environmental Economics and Policy* 9(2), 2015: pp. 246-265.
2. Harstad, B. "[Buy coal! A case for supply-side environmental policy](#)." *Journal of Political Economy*, 120(1), 2012: pp. 77-115.

## WEEK 13: How to decide when deciding is hard? Alternative decision criteria

### Reading

1. Heal, Geoffrey, and Antony Millner. "[Reflections: Uncertainty and decision making in climate change economics](#)." *Review of Environmental Economics and Policy* 8.1 (2014): 120-137.

### Recommended Reading

1. Millner, Antony, Simon Dietz, and Geoffrey Heal. "[Scientific ambiguity and climate policy](#)." *Environmental and Resource Economics* 55.1 (2013): 21-46.

## WEEK 14: Policymaking for posterity aka Your Analysis Toolkit for Policy

### Readings

1. Wagner, Gernot, and Richard J. Zeckhauser. "[Climate policy: hard problem, soft thinking](#)." *Climatic Change* 110.3-4 (2012): 507-521.

### Recommended Reading

1. Summers, Lawrence, and Richard Zeckhauser. "[Policymaking for posterity](#)." *Journal of Risk and Uncertainty* 37(2-3), 2008: pp. 115-140.

## NYU Classes

All announcements, resources, and assignments will be delivered through the NYU Classes site.

This is the first time this course is offered at NYU Wagner, and it is my first time teaching this course. All that implies (likely) syllabus updates throughout the semester. Please watch out for announcements sent via NYU Classes.

## Academic Integrity

Academic integrity is a vital component of Wagner and NYU. All students enrolled in this class are required to read and abide by [Wagner's Academic Code](#). All Wagner students have already read and signed the [Wagner Academic Oath](#). Plagiarism of any form will not be tolerated and students in this class are expected to report violations to me. If any student in this class is unsure about what is expected of you and how to abide by the academic code, you should consult with me.

## Henry and Lucy Moses Center for Students with Disabilities at NYU

Academic accommodations are available for students with disabilities. Please visit the [Moses Center for Students with Disabilities \(CSD\) website](#) and click on the Reasonable Accommodations and How to Register tab, or call or email CSD at (212) 998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu) for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance.

## NYU's Calendar Policy on Religious Holidays

[NYU's Calendar Policy on Religious Holidays](#) states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Please notify me in advance of religious holidays that might coincide with exams to schedule mutually acceptable alternatives.

## Acknowledgments

This syllabus has benefitted greatly from [Richard Zeckhauser's](#) long-running [Analytics Frameworks for Policy](#) course at Harvard Kennedy School.

Parts of this class have evolved from climate and energy economics and policy classes I have taught at various institutions, including Columbia, NYU Stern, and Harvard. Its first incarnation was largely based on Snorre Kverndokk and Knut Einar Rosendahl's Energy Economics class taught at Johns Hopkins in Spring 2009 and has benefitted greatly from Richard Zeckhauser's Analytic Frameworks for Policy class at Harvard, as well as from his mentorship and guidance over the years. Prior iterations have also taken some cues from Bill Hogan's Energy Policy Analysis class at Harvard, Paul Joskow's former Energy Economics class at MIT, Erin Mansur's former Energy Economics & the Environment class at Yale, and Jim Stock's U.S. Energy Revolution and its Implications seminar at Harvard, and valuable feedback from, among others, Joe Aldy, Ken Gillingham, Matt Kahn, Katherine Rittenhouse, Steve Salant, Rob Stavins, Thomas Sterner, Marty Weitzman, Matthew Zaragoza-Watkins, participants in an

[OurEnergyPolicy.org](http://OurEnergyPolicy.org) discussion forum, and students at Columbia, Harvard, and NYU who have taken versions of this course in the past. Thank you to all.

Anything seems off? Please [let me know](#).