

**Microeconomics and Policy Analysis I**  
**ENVP U8213.001**  
**Fall 2016**  
September 12, 2016

**Instruction Information**

Instructor: Professor Guo Dong (guodong@columbia.edu)

Lecture Time: Mondays 2:10-4:00pm

Location: IAB 404

Office Hours: Mondays 4:30-6:00pm, IAB 1321

Teaching Assistant: Tianbo (Alice) Zhang (tz2218@columbia.edu)

Recitation Times: Tuesdays 9:00-10:50am, IAB 404

Office Hours: Mondays 1:00 - 2:00pm and Fridays 11:00 - 12:00pm

Departmental Research Assistant: Alejandro Cajas (alejandro.cajas@columbia.edu)

Office Hours: Wednesdays 2:00-4:00pm

**Course Description**

The objective of Microeconomics and Policy Analysis I is to ensure that students are able to use an economic framework to analyze environmental policy choices. Students will be expected to understand, apply and critique micro-economic models that inform environmental policy. By the end of the semester, students will be expected to use economic concepts fluently to advocate various public policy positions.

We will begin with the big picture; how did economics evolve, what is a capitalist economy, and how do we think about it. We will then focus on tools for understanding core institutions such as markets, individual workers and consumers, and firms. We describe simple supply-demand relationships and apply these to economic problems. We introduce the concepts of opportunity cost and choice, which are fundamental to an economic framework for environmental policy. We then examine basic tools used by economists. We examine in detail the underlying theory of consumers and producers necessary to derive supply and demand relationships. This detailed analysis facilitates an intelligent application and critique of these basic economic tools.

We will incorporate environmental examples throughout the class, but this is not a class on environmental economics. It will introduce you to microeconomics more generally, and give you a view of the economy interacting with lots of other political, social, and environmental factors.

## Textbook

### Required

- **Pindyck and Rubinfeld.** *Microeconomics*. 8<sup>th</sup> edition.

### Optional

- **William D. Nordhaus.** *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*.
  - An update and informal view on the economics of climate change.

In addition, the course will draw on texts, articles and other readings on reserve or on CourseWorks.

## Course Expectation

Students are expected to have done the readings for each lecture before class. Students are also required to attend weekly lectures and recitations. Students will be expected to contribute to class discussions, both in person during lectures and recitations and online in Coursework. Contributing to class discussions means enhancing the quality of the class experience for yourself and others. It involves making relevant, useful and non-obvious comments, or posing pertinent questions, in clear and succinct language. Although there will be problem sets and tests, the emphasis of this course is on building strong economic intuitions rather than technical skills. As in policy analysis, teamwork is an essential element of success in the class.

Given the nature of the ESP program and the relationship between economics and environmental policy, hands-on experience with environmental policy analysis will be useful for the students. Students will form teams of 3-4 and provide an in-depth analysis of an environmental policy issue using the economics concepts and tools learned in class. There will be four deliverables. The first is a project topic in the form of a newspaper or magazine article from 2016 to be approved by November 7th. The second is a 15-minute project presentation, which will be held during the last two classes of the semester. The third is an executive summary of the analysis, and the fourth is a policy memo, which explains the importance of the topic, literature review, key questions/issues analyzed with relevant economics models, sources of information and data that are available or needed, and bibliography.

## Evaluation

Weekly attendance of lectures and recitations, as well as active participation in class and in CourseWorks discussions are required. This will account for 20% of the final grade. Four problem sets account for 20% of the final grade. Students are encouraged to work together, however, problem sets must be submitted individually. There will be one midterm and one final

exam, each counting for 20% of the grade. The final group project (maximum four students per group) will count for 20%.

- 20% based on weekly participation on CourseWorks discussion board and in class
- 20% based on 4 problem sets
- 20% based on the midterm
- 20% based on the final
- 20% based on policy memo and presentation (including the executive summary)

The overall grade will be weighted as above.

SIPA policy dictates that a core course such as this one must have a GPA of between 3.2 and 3.4, with the goal of 3.3, a B+. As such, the overall grade will be curved appropriately, with B+ considered a good grade that signifies confidence in your ability to conduct independent work in a professional environment with quality.

A grade of B therefore signifies minor problems that need improvement, and B- signifies significant issues requiring improvement. A and A- are reserved for work that distinguishes itself by going above and beyond a simply correct answer.

### **Course Outline (subject to change)**

Week 1 (Sept 12<sup>th</sup>)     **Introduction to Economics**  
*Readings: P&R Chapter 1*

- Why study economics
- Economic assumptions and models
- Introduction to markets

Week 2 (Sept 19<sup>th</sup>)     **Supply and Demand**  
*Readings: P&R chapter 2 and 4*

- Introduction to demand and supply
- Elasticities
- Consumer and producer surplus

Week 3 (Sept 26<sup>th</sup>)     **Consumer Theory**  
*Readings: P&R chapter 3*

- Consumer preference and utility
- Budget constraint and income and substitution effect

- **Problem set 1**

Week 4 (Oct 3<sup>rd</sup>)      **Firm Theory I**  
*Readings: P&R chapter 6*

- Production theory
- Diminishing marginal returns
- Isoquant
- **Problem set 1 due**

Week 5 (Oct 10<sup>th</sup>)      **Firm Theory II**  
*Readings: P&R chapter 7*

- Cost theory – cost minimization
- Long run vs. short run cost
- Isocost
- Cost curves
- **Problem set 2**

Week 6 (Oct 17<sup>th</sup>)      **Analysis of Competitive Markets**  
*Readings: P&R chapter 8 and 9*

- Profit maximization and competitive supply
- Market efficiency
- Impact of government policies
- **Problem set 2 due**

Week 7 (Oct 24<sup>th</sup>)      **Midterm**

Week 8 (Oct 31<sup>st</sup>)      **Analysis of Non-competitive Market I**  
*Readings: P&R chapter 10 and 11*

- Monopoly
- Pricing with market power
- **Form group of 3-4 for project**

Week 9 (Nov 7<sup>th</sup>)      **Academic Holiday (no class)**

Week 10 (Nov 14<sup>th</sup>)      **Analysis of Non-competitive Market II**  
*Readings: P&R chapter 12 and 13*

- Monopolistic competition
- Oligopoly

- Game theory
- **Group project topic approved**
- **Problem set 3**

Week 11 (Nov 21<sup>st</sup>)    **Market Failure and Economics of the Public Sector I**  
*Readings: P&R chapter 18*

- Externalities
- Public policies toward externalities
- **Problem set 3 due**
- **Problem set 4**

Week 12 (Nov 28<sup>th</sup>)    **Market Failure and Economics of the Public Sector II**  
*Readings: P&R chapter 18*

- Public goods
- Common resources

Week 13 (Dec 5<sup>th</sup> and 6<sup>th</sup>)    **Group Presentations**  
*Environmental policy applications and analysis: energy, water, land, agriculture, forests, fisheries, Transportation, air pollution, water pollution, waste....*

- **Problem set 4 due**
- **Executive summary due**

Week 14 (Dec 12<sup>th</sup>)    **Final**

Week 15 (Dec 19<sup>th</sup>)    **Group Project memo due**

### **Academic and Professional Conduct**

The program and its faculty will not tolerate academic dishonesty. You should properly cite ideas in your papers that are not originally yours at all times.

The Code of Academic and Professional Conduct provides information on proper citations, plagiarism policies, and outlines SIPA's expectations of academic and professional conduct for its students, faculty, and staff. Read the Code of Academic and Professional Conduct, and the Dean's Discipline Policy and Procedures:

<https://sipa.columbia.edu/students/policies/academic-policies-and-regulations>