

## **Microeconomics and Policy Analysis I**

**ENVP U8213**

**Fall 2019**

September 2, 2019

Subject to Change

### **Instruction Information**

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

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

Location: IAB 404

Office Hours: Tuesdays 4:30-5:30pm, Fridays 2-3pm, Location: Interchurch Center (SW corner of Claremont Av and W 120<sup>th</sup> Street), Suite 525.

Teaching Assistant: Vincent Bagilet (vincent.bagilet@columbia.edu)

Recitation Times: Wednesdays 2:10-4:00pm, IAB 404

Office Hours: Wednesdays 4:00-6:00pm, Lehman Library

Departmental Course Reader: Xiyue Zheng (xiyue.zheng@columbia.edu)

Office Hours: Monday 9-11am or 10-12pm, Lehman Library

### **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 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**

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

Optional

- **Lee S. Friedman.** *The Microeconomics of Public Policy Analysis*
- **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 CourseWorks. 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 intuition 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 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 2018 to be discussed with the instructor or the TA and be approved by October 30<sup>th</sup>. The second is a 15-minute project presentation, which will be given during the second to last week of the semester, and the third is an executive summary of the analysis, which briefly 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 a bibliography.

Students are strongly encouraged to utilize the office hours of the instructor as well as the teaching assistants is asking questions relating to the course material and going over key

concepts. Also, office hours are particularly useful to discuss brainstorm topics for the group project and seek guidance on the use of economic models and subsequent analysis.

### **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. Eight 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 Piazza and in class
- 20% based on 8 problem sets
- 20% based on the midterm
- 20% based on the final
- 20% based on the 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 3<sup>rd</sup>)      **Introduction to Economics**  
*Readings: P&R Chapter 1.1, 1.4*

- The themes of microeconomics
- Why study economics

Week 2 (Sept 10<sup>th</sup>)      **Supply and Demand I**  
*Readings: P&R chapter 1.2, 2.1-2.3, 4.4, 9.1*

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

- Week 3 (Sept 17<sup>th</sup>)     **Supply and Demand II**  
*Readings: P&R chapter 2.4-2.7,*
- Elasticities
  - Effect of government policies
  - **Problem set 1 due**
- Week 4 (Sept 24<sup>th</sup>)     **Consumer Theory**  
*Readings: P&R chapter 3.1-3.3, 3.5, 4.1, 4.2*
- Consumer preference and utility
  - Budget constraint and income and substitution effect
  - **Problem set 2 due**
- Week 5 (Oct 1<sup>st</sup>)       **Firm Theory**  
*Readings: P&R chapter 6, 7.1-7.4*
- Production theory
  - Diminishing marginal returns
  - Isoquant
  - Cost theory – cost minimization
  - Long run vs. short run cost
  - Isocost
  - Cost curves
  - **Problem set 3 due**
- Week 6 (Oct 8<sup>th</sup>)       **Analysis of Competitive Market**  
*Readings: P&R chapter 8, 9*
- Profit maximization
  - Market efficiency
  - Impact of government policies
  - **Problem set 4 due**
- Week 7 (Oct 15<sup>th</sup>)     **Midterm Exam**
- Week 8 (Oct 22<sup>nd</sup>)     **Analysis of Non-competitive Market I**  
*Readings: P&R chapter 10.1-10.4, 10.7*
- Market Power
  - Monopoly
  - **Form group of 3-4 for project**
- Week 9 (Oct 29<sup>th</sup>)     **Analysis of Non-competitive Market II**  
*Readings: P&R chapter 11 and 12.1, 12.2, 12.4*
- Price discrimination
  - Monopolistic competition
  - Oligopoly

- **Group project (a one-page proposal with the article) approved (Nov. 2<sup>nd</sup>)**
- **Problem set 5 due**

Week 10 (Nov 5<sup>th</sup>)     **Election Day-University Holiday (no class)**

Week 11 (Nov 12<sup>th</sup>)     **Market Failure and Economics of the Public Sector I**

*Readings: P&R chapter 18.1, 18.2*

- Externalities
- Public policies toward externalities
- **Problem set 6 due**

Week 12 (Nov 19<sup>st</sup>)     **Market Failure and Economics of the Public Sector II**

*Readings: P&R chapter 18.4-18.6*

- Public goods
- Common resources
- **Problem set 7 due**

Week 13 (Nov 26<sup>th</sup>)     **Group Presentations**

*Environmental policy applications and analysis: energy, water, land, agriculture, forests, fisheries, Transportation, air pollution, water pollution, waste....*

- **Problem set 8 due**
- **Executive summary due**

Week 14 (Dec 3<sup>rd</sup>)     **Final Exam**

### **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>