API-110: Advanced Microeconomic Policy Analysis II
Course Syllabus

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OHS: Mondays, 3-5 pm (sign up at https://www.timetrade.com/book/VTKV6 or contact my assistant)
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Course aims and objectives

API-110 is the second half of the two-semester sequence in advanced microeconomic analysis for MPA/ID students. The aim of this course is to further equip students with the tools of modern microeconomic theory helpful in analyzing issues in international development.

The first half of the course is devoted to game theory, an important toolkit for analyzing strategic interactions. The second half is devoted to the analysis and design of contractual arrangements, institutions and markets to meet desirable criteria while accounting for participants’ incentives. The course will combine theoretical discussions of the concepts, and their applications to both abstract problems and real policy questions. By the end of the course, students should have a sound understanding of the theoretical concepts, they should be able to apply them to go from a real-life policy problem to its game formulation, and derive its solution.

Prerequisite: API-109 or equivalent. This course is intended for first-year MPA/ID students and other students need permission to attend it.

Logistics

The course meets Monday and Wednesday (8:40 – 10:00 am) in L-140. Two review sections are offered every week on Fridays (10:10 – 11:30 pm, and 11:40 – 1:00 pm; students need only attend one) in L-140.

In addition, course assistants will hold weekly office hours to help with the homework and other basic questions. Students are encouraged to consult the Teaching Fellow or me for more advanced questions.

Note the following exceptions:
There will be a pre-class game session in Malkin Penthouse from 8:00-8:30 am on the first day of class, January 26. Instructions will be posted on the course page the day before. Please review them before coming to Malkin Penthouse.

- There will be no class on Monday Feb 16 (Presidents’ day)
- There will be no class on Monday March 9 (week before spring recess).

Requirements and grading

The course requirements include the completion of 9 problem sets (the last one being joint with PED-102), a midterm exam and a final exam. Additionally, participation and contribution to class discussion is highly encouraged. Effective class participation is one that enriches everyone’s understanding of the material. Keep your questions and comments brief and make sure they are related to the topic being discussed. The final grade for the course will be based on the following weights:

- Problem Sets 10%
- Participation 5%
- Midterm 25%
- Final 60%

The final distribution of course grades will correspond roughly to the School’s recommended grade distribution.

Problem sets

There will be a total of 9 problem sets during the semester with the following due dates:

- PS1 Wed, Feb 4
- PS2 Wed, Feb 18
- PS3 Wed, Feb 25
- PS4 Wed, March 4
- PS5 Friday, March 27
- PS6 Wed, April 1
- PS7 Wed, April 8
- PS8 Wed, April 15
- PS9 Wed, April 22 (joint with PED-102)

Problem sets will be posted on the course page one week before their due dates. They should be turned in by 8:35am on the due-date in the course Drop Box (second floor of Littauer, behind the big Forum screen). Late problems will not be graded and will not receive any credit.

Exams

There will be a closed-book midterm examination given in class on Wednesday, March 11th, 2015. The final examination is scheduled for Friday, May 8th, 2015 from 9am-noon.

Readings

The course is based on the following textbooks (available at the Harvard Coop and on reserve at the KSG library) as well as journal articles available on the course page.

Microeconomic Theory, by Andreu Mas-Colell, Michael Whinston and Jerry Green, Oxford University Press, 1995

For a different and/or complementary treatment and/or further applications of the material in the course, you may find the following texts (on reserve at the KSG library) useful:

- Bardhan, P and C. Udry. Development Microeconomics 1999
- Camerer, Colin, Behavioral Game Theory: Experiments in strategic interaction
- Fudenberg, Drew and Jean Tirole. Game Theory 1991
- Kreps, David Game Theory and Economic Modeling 1990
- Laffont, JJ, Regulation and development, 2005
- Rasmusen, E. Games and Information: An Introduction to Game Theory 2001
- Kreps, David. A Course in Microeconomic Theory 1990
- Salanié, The economics of contracts, 2000
- Tadelis, Steven, Game Theory: An Introduction, 2013

Academic integrity

You are expected to abide by the school’s Academic Code. In particular, while you are encouraged to study with other students and discuss questions on the homework assignments, the work you submit should be yours and reflect your own understanding of the material.

Etiquette

Class will start promptly at 8:40am. Please be in class, in your assigned seat, at that time. Repeated late arrival will be reflected negatively in your participation grade. If you must arrive late for an unavoidable reason, please let the instructor know in advance. More generally, you are expected to refrain from any behavior that may be disruptive and compromise your classmates’ learning.

Tentative Schedule

Date: Dec 16, 2014 (subject to change)

I. GAME THEORY

Lecture 1 – Monday, Jan. 26, 2015, 8-8:30 am Malkin Penthouse, followed by 8:40-10 am L-140

- Playing Games
- Introduction to course

Pre-class assignment: Please read the instructions for the decentralized market game that will be posted on Sunday Jan 25, in the morning, on the course platform
I.A. Static Games of Complete Information

Lecture 2 – Wednesday, Jan. 28, 2015
- Definition of a game
- Normal Form Representation
- Dominant Strategies, Iterated Elimination
- Nash Equilibrium (NE)

Readings:
G 1.1.A-C, MWG 8 B-D

Lecture 3 – Monday, Feb. 3, 2015
- Examples

Readings:
G 1.2.A, G 1.2.B and G 1.2.D

Lecture 4 – Wednesday, Feb. 4, 2015
- Mathematical aspects: mixed strategies, existence, number, ...

Readings:
G 1.3, MWG 8.D, MWG 8.F.

Lecture 5 – Monday, Feb. 9, 2015
- Theoretical and behavioral foundations for NE

Readings:
MWG 8D, 8F
Camerer, Colin (2003), Behavioral game theory, Chapter 1, Princeton University Press. (COURSE PAGE)
Milgrom, Paul and John Roberts (1991), Adaptive and sophisticated learning in normal form games, Games and Economic Behavior, 3(1), 82-100

Lecture 6 – Wednesday, Feb. 11, 2015
- Applications: team production, problem of the commons, norms

Readings:
I.B. Dynamic Games of Complete Information

Lecture 7 – Wednesday, Feb. 18, 2015
- Extensive & Normal Form Representations, notion of strategy
- Backward induction
- Subgame perfect equilibrium

Readings:

Lecture 8 – Monday, Feb. 23, 2015
- Examples

Readings:
G 2.1.B, G. 2.2.B, MWG 12 appendix B


Lecture 9 – Wednesday, Feb. 25, 2015
- Repeated Games
- Infinitely Repeated Games, Folk Theorem

Readings:
G 2.3.A., G2.3.B. & appendix, MWG 12 appendix A


Lecture 10 – Monday, Mar. 2, 2015
- Applications

Readings:
Cardenas, Juan-Camilo (2007), Wealth Inequality and Overexploitation of the Commons. Field Experiments in Colombia, Chapter 8, in Jean-Marie Baland, Pranab Bardhan and Samuel Bowles (eds), Inequality, Collective Action and Environmental sustainability, Princeton University Press. (COURSE PAGE)


**I.C. Static Games of Incomplete Information**

*Lecture 11 – Wednesday, Mar. 4, 2015*

- Types and beliefs
- Bayesian Nash equilibrium (BNE)

**Readings:**
G 3.1., G.3.2.B & appendix

*** Midterm (in class) – March 11th (Wednesday) ***

*Lecture 12 – Monday, Mar. 23, 2015*

- Examples of BNE

**Readings:**
G.3.2.C, BD 7.4.1-2.

**I.D. Dynamic Games of Incomplete Information**

*Lecture 13-14 – Wednesday March 25 and Monday, March 30, 2015*

- Perfect Bayesian Equilibrium (PBE)
- Signaling games, cheap talk, herding

**Readings**


*Lectures 15 – Wed, Apr. 1, 2015*

- Application: disclosure of information

**Readings**
BD 5.1
II. DESIGNING INCENTIVE-COMPATIBLE CONTRACTS, INSTITUTIONS AND MARKETS

Lecture 16 – Monday, Apr. 6, 2015

- Changing the game
- Mechanisms versus games
- Incentive compatibility: Hidden information, hidden action
- The revelation principle

Readings:
G 3.3.


Estache, Antonio and Liam Wren-Lewis (2009), Toward a theory of regulation for developing countries: Following Jean-Jacques Laffont’s lead, Journal of Economic Literature, 47(3), 729-770

II.A. Incentives and information

Lecture 17 – Wednesday, Apr. 8, 2015

- Adverse selection: screening
- Dynamic adverse selection
- Bilateral adverse selection

Readings:
BD 2.1., 2.2. , 9.1., 7.1, 7.2, 7.3.1.-2 , MWG 14.C.


Lectures 18 – Monday, Apr. 13, 2015

- Moral hazard
- Multi-tasking and effort substitution
- Moral hazard in teams

Readings:
BD 4.1., 4.2., 8.1

**Lecture 19 – Wednesday, Apr. 15, 2014**

- Incomplete Contracts
- Hold-up problem, renegotiation

**Readings:**
BD 11.1 and 11.2

**II.B. Market design**

**Lecture 20 – Wednesday, Apr. 20, 2015**

- Designing markets versus mechanism design

**Readings:**
Roth, Alvin (2002), *The Economist as Engineer: Game theory, experimentation and computation as tools for design economics*, *Econometrica*, 70(4), 1341-1378 (COURSE PAGE)

**Lecture 21 – Wednesday, Apr. 22, 2015**

- Helping market participants learn and accounting for learning

**Readings:**

**Lecture 22 – Monday, Apr. 27, 2015**

- Understanding incentives and strategic complexity, and their consequences

**Readings:**
Abdulkadiroglu Atila, Parag Pathak, Alvin Roth and Tayfun Sonmez (2006), Changing the Boston School Mechanism: Strategyproofness as equal access, mimeo (COURSE PAGE)

Calsamiglia, Caterina and Maia Güell (2014), The illusion of choice: Evidence from Barcelona, mimeo (COURSE PAGE)

Pathak, Parag and Tayfun Sönmez (2013), School admission in Chicago and England: Comparing mechanisms by their vulnerability to manipulation, American Economic Review, 103(1), 80-106. (COURSE PAGE)

Pre-class assignment: Please prepare the mini-case “School Choice” posted on the course platform before coming to class.

Lecture 23 – Wednesday, Apr. 29, 2015

- Course wrap-up, final review

Final Exam - Friday, May 8th, 2015 from 9am-noon.