Advanced Microeconomic Policy Analysis II
API-110
Course Syllabus

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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 tools of modern microeconomic theory helpful in analyzing issues in international development. Topics covered will include game theory, the economics of information, contract theory, and touch on experimental/behavioral economics.

The course meets twice a week for lecture:
• Monday and Wednesday 11:45 AM – 1:00 PM
• Room: L-140

There will be two review sessions (students need only attend one) offered on Fridays by the Teaching Fellow:
• Review Section 1: Friday 11:45 AM – 1:00 PM in L 130
• Review Section 2: Friday 2:45 PM – 4:00 PM in L 382

In addition, course assistants will hold weekly office hours (timing TBD) 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:

Class time changes: There will be no class on March 6th. Instead there will be class (Mid-term review) on March 3rd (2:45 PM – 4:00 PM, Land). As a result, there will be no TF review section on March 3rd, but instead the TF will offer midterm reviews on Sunday March 5th 1:15 PM –2:30PM and 2:45 PM – 4:00 PM (L140). You need only attend one session.
There will be no class on April 17th. Instead there will be class on April 14th (2:45 PM – 4:00 PM in Land). As a result, there will be no TF review section on April 14th; the review session will be held on April 17th (at class time/location).

Office Hours: Monday 4:00 PM – 6:00 PM.
You can sign up for office hours online at http://officehours.ordercubed.com/akhwaja/. Students are encouraged to sign up either in small groups or alone. If you are unable to attend office hours or they are full, please contact our assistant for a different time.

Prerequisites: API-109 or its equivalent. For equivalent courses, the same pre-requisites as in API-109 apply.
Grading:
Grades for the course will be assigned based on:

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

Problem Sets: There will be a total of 8 Problem sets assigned generally every week (usually on a Wednesday and due back on the Wednesday a week later). Problem sets should be turned in anytime by 10:10 am on the due-date in the course drop box. Problem sets turned in after that will be considered late and will not receive any credit. In rare cases, exceptions may be made if arranged with me in advance.

Due Dates:
- Problem Set 1: February 1st, 2017 (Wednesday)
- Problem Set 2: February 8th, 2017 (Wednesday)
- Problem Set 3: February 15th, 2017 (Wednesday)
- Problem Set 4: March 1st, 2017 (Wednesday)
- Problem Set 5: March 29th, 2017 (Wednesday)
- Problem Set 6: April 5th, 2017 (Wednesday)
- Problem Set 7: April 12th, 2017 (Wednesday)
- Problem Set 8: April 21st, 2017 (Friday)

Examinations: There will be a midterm examination given in class on Wednesday, March 8th, 2017 and the final examination is scheduled for Friday, May 5th, 2017 from 3PM-6PM.

Teaching Fellow:
Selcuk Ozyurt
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Course Assistants:
Hector Cordero Luna hector_cordero@hks17.harvard.edu
Regina Legarreta Rivero Regina_Legarreta_Rivero@hks17.harvard.edu
Jared Goodman jared_goodman@hks17.harvard.edu

Readings:
In addition to the texts used in API-109 (MWG in particular), the following are required for this course:

- The Economics of Contracts by Bernard Salanie (S), MIT Press, 1999. The texts are available at the Harvard Coop and are placed on reserve at the KSG library.
- The students may also want to consult the following optional texts placed at the KSG library reserve:

  - Fudenberg, Drew Game Theory 1991
  - Kreps, David Game Theory and Economic Modeling 1990
  - Dutta, P. Strategies and Games 1999
  - Rasmusen, E. Games and Information: An Introduction to Creative Theory 2001
  - Hart, O. Firms, Contracts and Financial Structure 1995
  - Kreps, David. A Course in Microeconomic Theory 1990
  - Varian, H. Microeconomic Analysis 1992
  - Bardhan, P and C. Udry. Development Microeconomics 1999
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I. Game theory

Lecture 1:
- Formal Description of Games
- Playing Games

Lecture 2:
- Normal Form Representation
- Dominant Strategies, Iterated Elimination
- Nash Equilibrium (NE)


Lecture 3:
Applications of NE
- Bertrand Competition
- Cournot Competition
- Tragedy of the Commons
- Team Production


Lectures 4-5:
- Mixed Strategies
- NE existence


Lecture 6:
Further Applications
- Corruption
- Norms and Reputation


I.B. Dynamic Games of Complete Information

Lecture 7:
- Perfect Information Games, Backward Induction
- Extensive & Normal Form Representation
- Randomization

Lecture 8:
- Subgame Perfect Nash Equilibrium (SPNE)
- Stackelberg Competition
- Bank Runs


Lecture 9:
- Repeated Games
- Infinitely Repeated Games, Folk Theorem


Lecture 10:
- Group-Lending, Guilds/Coalitions


Lecture 11:
- Experimental/Behavioral Game Theory I


Lecture 12:
- Mid-term Review

Midterm (in class) – March 8th (Wednesday)
I.C. Static Games of Incomplete Information

Lecture 13:
• Static Bayesian Games
  \( (G \text{3.1}.A-B, MWG \text{8}.E) \)
• Bayesian Nash Equilibrium (BNE)
  \( (G \text{3.1}.C, MWG \text{8}.E) \)
• BNE Applications
  \( (G \text{3.2}.A, MWG \text{8}.E) \)


I.D. Dynamic Games of Incomplete Information

Lecture 14:
• Perfect Bayesian Equilibrium (PBE)
  \( (G \text{4.1}, MWG \text{9}.C) \)


Lectures 15-16:
• Signalling
  \( (G \text{4.2}.A) \)
• Signalling Application: Job-Market
  \( (G \text{4.2}.B, S \text{4.2}, MWG \text{13}.C) \)


II. Economics of Information & Contract Theory

Lecture 17:
• Introduction: hidden information, hidden action,
  Principal-Agent framework
  \( (S \text{1}, MWG \text{13}.A, 14.A) \)
• Screening/Adverse Selection
  \( (S \text{2.1-2}, MWG \text{14}.C) \)


Lecture 18:
• Screening Application: A Model of Red-Tape

Lectures 19-20:
- MH Application: Share-cropping


Lecture 21: Applications to Development
- Field Interventions
- Student Topics

Lectures 22: Experimental – Behavioral Game Theory II (TBD)

Lectures 23:
- Dynamic complete contracts - overview \((S 6.1, 6.4.5, 6.5 \text{ conclusion only})\)
- Incomplete Contracts \((S 7.1)\)
- Property Rights, Theory of the Firm \((S 7.2)\)
- Incomplete Contracts - Application \((S 6.1, 6.4.5, 6.5 \text{ conclusion only})\)


Lecture 24:
- Final Review, Endnotes