

Spring 2020

Harvard Kennedy School
Harvard University

Advanced Microeconomic Policy Analysis II
API-110
Course Syllabus

Faculty:

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Office Hours:

Mondays, 2:45 PM – 4:45 PM (Gabriel Kreindler, 27JAN – 05APR)

- Sign-up link: <https://my.timetrade.com/book/FSR4Q>

Mondays, 3:30 PM – 5:30 PM (Jie Bai, 06APR – 15MAY)

- Sign-up link: <https://my.timetrade.com/book/71DPL>

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 Preston for a different time.

Teaching Fellow:

Elizabeth Spink

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Office Hours: Mondays, 2:45-4:45p, O-401 (unless announced)

Course Assistants:

Joao Alcantara

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Anais Anderson

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Office Hours: Tuesdays, 6:00-8:00p, L-380

Conceptual Office Hours: TBD (as needed)

Course Description: 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, information economics, contract theory, and touch on experimental/behavioral economics.

Audience: The course is intended for first year MPA/ID students. Students not in the MPA/ID program will be admitted only with the permission of the instructors and only under exceptional circumstances.

Instructors: The first part of the course is taught by Gabriel Kreindler and the second part by Prof. Jie Bai.

Class Meetings and Review Sessions:

The course meets twice per week for lecture:

- Monday and Wednesday, 1:15pm-2:30pm
- Room: Littauer 140

There will be two review sessions (students only need to attend one) offered on Fridays by the Teaching Fellow:

- Review Session 1: Friday 1:15 PM – 2:30 PM in Littauer 140
- Review Session 2: Friday 2:45 PM – 4:00 PM in Littauer 140

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

Note the following exceptions:

Class day/time changes:

The class that would normally fall on April 1st has been tentatively rescheduled to take place on Friday, March 27th in L-140 from 11:45a-1:00p. This change has been reflected in the schedule below.

Class on April 29th has been tentatively rescheduled to take place from 12:30-2:30p in Littauer 150. This will be a combined lecture with DEV-102. This change has been reflected in the schedule below.

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	15%
Midterm	35%
Final	50%

Examinations: There will be a midterm examination on **Monday, March 9th, 2020** during class time in Littauer 140 and the final examination is scheduled for **Friday, May 8th, 2020** from 9am-12n (location TBD).

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). Unless you make prior arrangements with the instructors, you must submit completed problem sets in hard copy to the MPA/ID course drop box **by 10:10am on the due date**. Do not bring assignments to lecture. Problem sets turned in after that will be considered late and will not receive any credit.

Problem sets are graded on a “check+/check/check–/no credit” basis and are primarily intended for completion. Earning a “check–” or better gives you full credit. Sloppy, half-hearted, or incomplete work is unlikely to receive credit. We will drop your lowest problem set grade in calculating your final grade. For students with borderline scores on the exams, consistent good performance on the problem sets could help to bump up a grade.

Discussion and the exchange of ideas are essential to academic work. You may work in small groups (four or fewer students) on the problem sets, but please do the write-ups individually. We do not expect to see identical answers from different students. You should ensure that any written work you submit for evaluation is the result of your work and that it reflects your own approach and understanding of the topic. If you choose to collaborate with others, please identify other group members on your write-up.

Due Dates:

- Problem Set 1: February 5, 2020 (Wednesday)
- Problem Set 2: February 12, 2020 (Wednesday)
- Problem Set 3: February 26, 2020 (Wednesday)
- Problem Set 4: March 4, 2020 (Wednesday)
- Problem Set 5: April 1, 2020 (Wednesday)
- Problem Set 6: April 8, 2020 (Wednesday)
- Problem Set 7: April 15, 2020 (Wednesday)
- Problem Set 8: April 22, 2020 (Wednesday)

Readings:

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

- *Game Theory for Applied Economists* by Robert Gibbons (G), Princeton University Press, 1992.
- *The Economics of Contracts* by Bernard Salanie (S), MIT Press, 2nd edition, 2017.

The texts are available at the Harvard Coop and are placed on reserve at the HKS library. We will also assign a set of selected academic papers to read. Readings from academic journals can be accessed on the course website or through the Harvard Library. Any additional readings and supplementary notes will be posted on the Canvas.

Students may also want to consult the following optional texts:

Theory:

- Fudenberg, Drew *Game Theory* 1991
- Kreps, David *Game Theory and Economic Modeling* 1990
- Hart, O. *Firms, Contracts and Financial Structure* 1995
- Kreps, David. *A Course in Microeconomic Theory* 1990
- Varian, H. *Microeconomic Analysis* 1992

Application/Development:

- Wydick, Bruce. *Games in Economic Development* 2007
- Basu, K. *Analytic Development Economics* 1998
- Ray, Debraj. *Development Economics* 1998
- Bardhan, P and C. Udry. *Development Microeconomics* 1999
- Meier, G and Stiglitz. *Frontier of Development Economics: The Future in Perspective* 2001

Credits:

This course draws on materials from previous API-110 course taught by Asim Khwaja and materials that Gabriel and Jie were fortunate to encounter at MIT, Yale and Harvard. We are especially grateful to Dirk Bergemann, Glen Ellison, Robert Gibbons, Bengt Holmstrom, Johannes Horner, Maciej Kotowski, Juuso Toikka, and Muhamet Yildiz.

Spring Schedule 2020

	Day	Date	Topic
Week 1	Mon	27-January	Lecture 1
	Wed	29- January	Lecture 2
	Fri	31-January	<i>REVIEW – 1:15-2:30p ONLY</i>
Week 2	Mon	3-February	Lecture 3
	Wed	5-February	Lecture 4 <i>1st problem set due 10:10am</i>
	Fri	7-February	<i>REVIEW</i>
Week 3	Mon	10-February	Lecture 5
	Wed	12-February	Lecture 6 <i>2nd problem set due 10:10am</i>
	Fri	14-February	<i>REVIEW</i>
Week 4	Mon	17-Feb	<i>President's Day - NO CLASS</i>
	Wed	19-Feb	Lecture 7
	Fri	21-Feb	<i>REVIEW</i>
Week 5	Mon	24-Feb	Lecture 8
	Wed	26-Feb	Lecture 9 <i>3rd problem set due 10:10am</i>
	Fri	28-February	<i>REVIEW</i>
Week 6	Mon	2-March	Lecture 10
	Wed	4-March	Lecture 11 <i>4th problem set due 10:10am</i>
	Fri	6-Mar	<i>REVIEW</i>
Week 7	Mon	9-Mar	Midterm Exam – During class time
	Wed	11-Mar	Lecture 12
	Fri	13-Mar	<i>No Review (Spring Break begins)</i>
Week 8	Mon	16-Mar	<i>Spring Break – NO CLASSES</i>
	Wed	18-Mar	
	Fri	20-Mar	
Week 9	Mon	23-Mar	Lecture 13
	Wed	25-Mar	Lecture 14
	Fri	27-Mar	Lecture 15 – <i>11:45a-1:00p, L-140</i>
	Fri	27-Mar	<i>REVIEW</i>

Week 10	Mon	30-Mar	Lecture 16
	Wed	1-April	<i>No Lecture (rescheduled to March 27th)</i>
			5th problem set due 10:10am
Fri	3-April	<i>REVIEW</i>	
Week 11	Mon	6-Apr	Lecture 17
	Wed	8-Apr	Lecture 18
			6th problem set due 10:10am
Fri	10-Apr	<i>REVIEW</i>	
Week 12	Mon	13-Apr	Lecture 19
	Wed	15-Apr	Lecture 20
			7th problem set due 10:10am
Fri	17-Apr	<i>REVIEW</i>	
Week 13	Mon	20-Apr	Lecture 21
	Wed	22-Apr	Lecture 22
			8th problem set due 10:10am
Fri	24-Apr	<i>REVIEW</i>	
Week 14	Mon	27-Apr	Lecture 23
	Wed	29-Apr	Lecture 24 – 12:30-2:30p in Littauer 150 <i>*Combined lecture with DEV-102*</i>
			<i>REVIEW (Last day of classes)</i>
Week 15	Fri	8-May	Final Exam – 9am-12n – Location TBD

Course Outline

The course is divided into two parts. The first part (Lecture 1-16) covers game theory, and the second part (Lecture 17-24) introduces contract theory. Students are highly encouraged to read the textbook chapters and starred (*) readings before or after each class. Sometimes we will focus on particular sections of the journal articles; students will be notified in such cases. Other listed readings are optional and are intended for students who are interested in delving deeper into a particular topic.

The course seeks to give students an overview of important topics in game theory and contract theory. However, some topics may not be covered in the depth that they ought to be. The following lectures touch on topics that are more advanced and/or may be of particular interest to some students (they may be skipped if time doesn't allow). Materials covered in these lectures would not be tested.

- Lecture 11: Behavioral game theory; learning and evolutionary foundations
- Lecture 22: Incomplete contracts

Note: The list of topics and the pace are subject to change. Students will be notified in advance if that happens.

I. Game Theory

Lecture 1:

- Introduction, Formal Description of Games (MWG 7.A-B)
- Playing Games

Aumann, R.J., 2008. "Game Theory." *The New Palgrave Dictionary of Economics*, 2nd Edition.

I.A. Static Games of Complete Information

Lecture 2-3:

- Normal Form Representation (G 1.1.A)
- Dominant Strategies, Iterated Elimination (G 1.1.B, MWG 8.B)
- Nash Equilibrium (G 1.1.C, Appendix 1.1.C, MWG 8.D)

Lecture 4:

Applications of NE:

- Cournot Competition (G 1.2.A, MWG 12.C)
- Bertrand Competition (G 1.2.B, MWG 12.C)
- Tragedy of the Commons (G 1.2.D)

Burgess, R., Hansen, M., Olken, B.A., Potapov, P. and Sieber, S., 2012. "The Political Economy of Deforestation in the Tropics." *The Quarterly Journal of Economics*, 127(4), pp.1707-1754.

*Hardin, G., 1968. "The Tragedy of the Commons." *Science* 162: 1243-48.

Ostrom, E., 1999. "Coping with Tragedies of the commons." *Annual Review of Political Science*, 2(1), pp.493-535.

Lecture 5:

- Mixed Strategies (G 1.3.A)

Lecture 6:

Recap and Further Applications:

- Corruption and Norms
- Development Traps and Coordination Games

Tabellini, G., 2008. "The Scope of Cooperation." *Quarterly Journal of Economics*, 123, 905-950.

Fisman, R. and Miguel, E., 2007. "Corruption, Norms, and Legal Enforcement: Evidence From Diplomatic Parking Tickets." *Journal of Political Economy*, 115(6), pp.1020-1048.

*Murphy, K.M., Shleifer, A. and Vishny, R.W., 1989. "Industrialization and the Big Push." *Journal of Political Economy*, 97(5), pp.1003-1026.

I.B. Dynamic Games of Complete Information

Lecture 7-8:

- Perfect Information Games, Backward Induction (G 2.1.A)
- Extensive & Normal Form Representation (G 2.4.A, MWG 7.C-D)
- Subgame Perfect Nash Equilibrium (SPNE) (G 2.2 A, G 2.4.B, MWG 9.A-B)
- Application: Stackleberg Competition (G 2.1.B)
- Application: Bank Runs (G 2.2.B)

*Diamond, D. and Dybvig, P., 1983. "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy*, Vol. 91, No. 3., p. 401-419.

Lecture 9-10:

- Repeated Games (G 2.3.A, MWG 12.D)
- Infinitely Repeated Games, SDP, Folk Theorem (G 2.3.B&Appendix, MWG 12.Appendix A)
- Application: Implicit Cartels (G 2.3 C)

Green, Edward J and Robert H. Porter, 1984. "Noncooperative Collusion Under Imperfect Price Information." *Econometrica*, Vol. 52, No. 1, pp. 87-100.

Lecture 11:

- Mid-term Review

Midterm (during class time) – Monday, March 9th – Littauer 140

Lecture 12:

- A Brief Introduction to Experimental/Behavioral Game Theory
- Learning and Evolutionary Foundations

Camerer, C., 1997. "Progress in Behavioral Game Theory." *Journal of Economic Perspectives*, Vol. 11, No. 4. p. 167-188.

Rabin, M., 1993. "Incorporating Fairness into Game Theory and Economics." *American Economic Review*, Vol. 83, No. 5, p. 1281-1302.

Kandori, M., G. Mailath, and R. Rob., 1993. "Learning, Mutation, and Long-Run Equilibria in Games." *Econometrica*, 61, 29-56.

Ellison, G., 1993. "Learning, Local Interaction and Coordination." *Econometrica*, 61, 1047-1071.

I.C. Games of Incomplete Information & Information Economics

Lecture 13:

- Introduction to Information Economics (S 1, MWG 13.A)
- Akerlof's Lemon Model, Signals of Quality (MWG 13.B)

*Stigler, G.J., 1961. The Economics of Information. *Journal of Political Economy*, 69(3), pp.213-225.

*Akerlof, G., 1970. "The Market for "Lemons": Quality Uncertainty and the Market Mechanism." *Quarterly Journal of Economics*, Vol. 84, No. 3. p. 488-500.

Wolinsky, A., 1983. "Prices as Signals of Product Quality." *The Review of Economic Studies*, 50(4), pp.647-658.

Nelson, P., 1974. "Advertising as Information." *Journal of Political Economy*, 82(4), pp.729-754.

Lecture 14-15

- Signaling Games (G 4.2.A)
- Perfect Bayesian Equilibrium (G 4.1, MWG 9.C)

Lecture 16:

- Job Market Signaling (G4.2.B, S 4.2, MWG 13.C)

*Spence, M., 1973. "Job Market Signaling." *The Quarterly Journal of Economics*, 87(3), pp.355-374.

I.D. Adverse Selection and Self-Selection Contracts

Lecture 17-18:

- Principal-Agent framework (S 1, MWG 13.A, 14.A)
- Adverse Selection (S 2.1-2.2)
- Screening, Monopolistic Pricing (MWG 14.C)

Stiglitz, J and Weiss, A. 1981. "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, Vol. 71, No. 3, p. 393-410.

Stiglitz, J.E., 1975. "The Theory of "Screening," Education, and the Distribution of Income." *The American Economic Review*, 65(3), pp.283-300.

Stiglitz, J.E., 1977. "Monopoly, Non-linear Pricing and Imperfect Information: the Insurance Market." *The Review of Economic Studies*, pp.407-430.

Mirrlees, J.A., 1971. "An Exploration in the Theory of Optimum Income Taxation." *The Review of Economic Studies*, 38(2), pp.175-208.

Lecture 19:

- Application: A Model of Red-Tape

*Banerjee, A., 1997. "A Theory of Misgovernance," *Quarterly Journal of Economics*, Vol. 112(4), p. 1289-1332.

I.E. Moral Hazard and Incentive Contracts

Lecture 20:

- Moral Hazard (S 5.1-2, MWG 14.B)

Lecture 21:

- Application: Share-cropping

Banerjee, A.V., Gertler, P.J. and Ghatak, M., 2002. "Empowerment and Efficiency: Tenancy Reform in West Bengal." *Journal of Political Economy*, 110(2), pp.239-280.

Foster, A and M. Rosenzweig, 1994. "A Test for Moral Hazard in the Labor Market: Contractual Arrangements, Efficiency and Health," *Review of Economics and Statistics*, Vol. 76, pp. 213-27.

I.F. Incomplete Contracts, Applications and Final Review

Lecture 22:

- Incomplete Contracts (S 7.1)
- Application: Scope of Government (S 6.1, 6.4.5, 6.5 conclusion only)

*Hart, O., Shleifer, A. and Vishny, R.W., 1997. "The Proper Scope of Government: Theory and an Application to Prisons." *The Quarterly Journal of Economics*, 112(4), pp.1127-1161.

Besley, T and Ghatak, M 2001. "Government versus Private Ownership of Public Goods," *Quarterly Journal of Economics*, Vol. 116, No. 4, p.1343 – 1372.

Lecture 23:

- Final Review

Lecture 24:

- Students' topics – combined lecture with DEV 102

Final Exam (9a-12n) – Friday, May 8th – Location TBD