

Spring 2024

Harvard Kennedy School
Harvard University

Advanced Microeconomic Policy Analysis II
API-110
Course Syllabus

Faculty:

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Office Hours:

TBD (see Canvas for most updated details)

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 Jie for a different time.

Teaching Fellow:

Shreya Dubey

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Office Hours: TBD (see Canvas for most updated details)

Course Assistants:

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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.

Instructor:

This course is taught by Professor Jie Bai.

Class Meetings and Review Sessions:

The course meets twice per week for lecture:

- Tuesday and Thursday, 10:30a – 11:45a ET
- Location: L140

There will also be a weekly review session offered by the Teaching Fellow; these sessions are identical:

- Friday, 01:30p – 02:45p ET **or** 3:00p – 4:15p ET, both in W436.

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.

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	20%
Midterm	30%
Final	50%

Examinations:

There will be a midterm examination on **Thursday, March 7** during class time and the final examination is scheduled for **Monday, May 6th from 09:00a – 12:00p**.

Problem Sets:

There will be a total of 8 Problem sets assigned generally every week (usually on a Thursday and due back on the Thursday a week later). Unless you make prior arrangements with the instructor, you must submit completed problem sets to Canvas prior to 10:00am on the due date. You can either upload pdfs of typed solutions or pictures of handwritten solutions. 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.

Problem Set Due Dates:

- Problem Set 1: Thursday, February 1st
- Problem Set 2: Thursday, February 8th
- Problem Set 3: Thursday, February 22nd
- Problem Set 4: Thursday, February 29th
- Problem Set 5: Thursday, March 28th
- Problem Set 6: Thursday, April 4th
- Problem Set 7: Thursday, April 18th
- Problem Set 8: Thursday, April 25th

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.

We are working with the Office of Course Materials to make the required texts available in a digital format. We will also assign a set of selected academic papers to read. Readings from academic journals can be accessed on the course website (Canvas) or through the Harvard Library. Any additional readings and supplementary notes will be posted to 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 Jie was 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 2023

Week	Day	Date	Topic
Week 1	Tues	23-Jan	Lecture 1
	Thurs	25-Jan	Lecture 2
Week 2	Tues	30-Jan	Lecture 3
	Thurs	01-Feb	Lecture 4
			<i>Problem Set 1 due @ 10:00 AM ET</i>
Week 3	Tues	06-Feb	Lecture 5
	Thurs	08-Feb	Lecture 6
			<i>Problem Set 2 due @ 10:00 AM ET</i>
Week 4	Tues	13-Feb	Lecture 7
	Thurs	15-Feb	Lecture 8
Week 5	Tues	20-Feb	Lecture 9
	Thurs	22-Feb	Lecture 10
			<i>Problem Set 3 due @ 10:00 AM ET</i>
Week 6	Tues	27-Feb	Lecture 11
	Thurs	29-Feb	Lecture 12
			<i>Problem Set 4 due @ 10:00 AM ET</i>
Week 7	Tues	5-Mar	Lecture 13
	Thurs	7-Mar	Midterm Exam (in class)
Week 8	Tues	12-Mar	No class (Spring Break)
	Thurs	14-Mar	No class (Spring Break)
Week 9	Tues	19-Mar	Lecture 14
	Thurs	21-Mar	Lecture 15
Week 10	Tues	26-Mar	Lecture 16
	Thurs	28-Mar	Lecture 17
			<i>Problem Set 5 due @ 10:00 AM ET</i>
Week 11	Tues	2-Apr	Lecture 18
	Thurs	4-Apr	Lecture 19
			<i>Problem Set 6 due @ 10:00 AM ET</i>
Week 12	Tues	9-Apr	Lecture 20
	Thurs	11-Apr	Lecture 21
Week 13	Tues	16-Apr	Lecture 22
	Thurs	18-Apr	Lecture 23
			<i>Problem Set 7 due @ 10:00 AM ET</i>
Week 14	Tues	23-Apr	Lecture 24
	Thurs	25-Apr	Lecture 25
			<i>Problem Set 8 due @ 10:00 AM ET</i>
Week 16	Mon	6-May	Final Exam (09:00a – 12:00p ET)

Course Outline

The course is divided into two parts. The first part covers game theory, and the second part 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.

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 4-5:

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.

*Bergquist, L.F. and Dinerstein, M., 2020. Competition and entry in agricultural markets: Experimental evidence from Kenya. *American Economic Review*, 110(12), pp.3705-47.

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.

Kreindler, G.E., 2018. The welfare effect of road congestion pricing: Experimental evidence and equilibrium implications.

Lecture 6:

Mixed Strategies and Further Applications:

- Corruption and Norms
- Development Traps and Coordination Games

*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 9-11:

- Repeated Games (G 2.3.A, MWG 12.D)
- Infinitely Repeated Games, Folk Theorem (G 2.3.B&Appendix, MWG 12.Appendix A)
- Applications: Implicit Cartels ; Relational Contract (G 2.3 C)

*Greif, A., 1993. Contract enforceability and economic institutions in early trade: The Maghribi traders' coalition. *The American economic review*, pp.525-548.

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

Davies, E. and Fafchamps, M., 2017. *When No Bad Deed Goes Punished: Relational Contracting in Ghana versus the UK* (No. w23123). National Bureau of Economic Research.

Lecture 12:

- Midterm review

Lecture 13:

- A Brief Introduction to Experimental/Behavioral Game Theory

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.

Midterm (during class time) – Thursday, March 7

I.C. Games of Incomplete Information & Information Economics

Lecture 14-15:

- Introduction to Information Economics (S 1, MWG 13.A)
- Static Bayesian Games (G 3.1.A-C; MWG 8.E)
- Applications of BNE: Lemons Problem (G 3.2.A)

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.

Lecture 16-17:

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

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

*Bai, J., 2016. Melons as Lemons: Asymmetric Information, Consumer Learning and Seller Reputation.

Lecture 18:

- 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.

Tyler, J.H., Murnane, R.J. and Willett, J.B., 2000. Estimating the labor market signaling value of the GED. *The Quarterly Journal of Economics*, 115(2), pp.431-468.

I.D. Adverse Selection and Self-Selection Contracts

Lecture 19-20:

- 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 21:

- 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 22-23:

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

Lecture 24:

- Application: Sharecropping

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.

Lecture 25:

- Final Review

Final Exam (09:00a – 12:00p ET) – Monday, May 6th