

Microeconomics II (PhD)

Course outline

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Aim of the course

Microeconomics intends to analyze the behavior of individual economic agents and their interactions under different institutional arrangements. In this course we discuss a few topics in game theory, contract theory, and market design. First, we give a quick overview of basic game theory definitions and equilibrium concepts. Games of complete information might be an start to modelling strategic interactions but in order to make our models more realistic we need to step into the world of incomplete information games (Bayesian games). Here we first consider auctions. Then we consider the more general problem of designing mechanisms that could convince agents to do what the designer wants. Our exploration in to mechanism design is not very deep and we only discuss the key concepts in this literature (like revelation principle). An important category of incomplete information games is the signalling games. We review a few examples of signalling games and discuss solution concepts and refinements. For the last part of this course we cover a few topics in contract theory involving the basic principal-agent problem and then extending it to multi-party contracting environments like menu auctions.

Topics

1. A review of elementary game theory
2. Repeated games
3. Static games of incomplete information
4. Auctions
5. Mechanism design
6. Dynamic games of incomplete information

7. Principal-Agent model
8. Multi-party contracting

Lectures

Sunday and Tuesday: 11-12:30, Class 4.

Office hours: By appointment only.

Contact: m.vesal AT sharif DOT edu

Classes

Starts from second week.

Teacher responsible: TBA.

Time and location: TBA.

Evaluation

- Assignments (10%), Quizzes (10%), Midterm exam (30%), Final exam (50%),
- Exams will be closed book with no notes allowed.
- Assignments: These are crucial elements of our course and you must submit all assignments before the start of the classes.

References

Market design: Auctions and Mechanism Design

- Krishna, Vijay, *Auction Theory*, Elsevier Inc. (2009).
- Klemperer, Paul, *Auctions: Theory and Practice*, Princeton University Press (2004).
- Klemperer, Paul (ed.), *The Economic Theory of Auctions*, Edward Elgar (2004).
- Klemperer, Paul, "What Really Matters in Auction Design", *Journal of Economic Perspectives* 16(1) 2002, pp.169-189.
- Roth, Alvin, "The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics", *Econometrica* 70(4) 2002, pp. 1341-78.

Dynamic games of incomplete information

- Kreps, David M. and Robert Wilson, “Reputation and imperfect information”, *Journal of Economic Theory* 27 1982, pp. 253-79.
- Milgrom, Paul and John Roberts, “Predation, Reputation, and Entry Deterrence”, *Journal of Economic Theory* 27 1982, pp. 280-312.
- Milgrom, Paul and John Roberts, “Price and Advertising Signals of Product Quality”, *Journal of Political Economy* 94(4) 1986, pp. 796-821.
- Spence, Michael, “Job Market Signaling”, *Quarterly Journal of Economics* 87(3) 1973, pp. 355-74.
- Spence, Michael, “Competitive and Optimal Responses to Signals: An Analysis of Efficiency and Distribution”, *Journal of Economic Theory* 7 1974, pp. 296-332.

Principal agent model

- Besley, Timothy, *Principled-Agents? The Political Economy of Good Government*, Oxford University Press (2006).
- Bolton, Patrick and Mathias Dewatripont, *Contract Theory*, The MIT Press (2005).
- Laffont, Jean-Jacques and David Martimort, *The Theory of Incentives: The Principal-Agent Model*, Princeton University (2002).
- Salanie, Bernard, *The Economics of Contracts: A Primer*, The MIT Press (2005).

Multi-party contracting

- Bernheim, Douglas B. and Michael D. Whinston, “Menu Auctions, Resource Allocation, and Economic Influence”, *Quarterly Journal of Economics* 101(1) 1986, pp. 1-32.
- Dixit, Avinash, Grossman, Gene M. and Elhanan Helpman, “Common Agency and Coordination: General Theory and Application to Government Policy Making”, *Journal of Political Economy* 105(4) 1997, pp. 752-769.
- Grossman, Gene M. and Elhanan Helpman, “Protection for Sale”, *American Economic Review* 84(4), pp. 833-850.
- Segal, Ilya, “Contracting with Externalities”, *Quarterly Journal of Economics* 114(2) 1999, pp. 337-388.

General References

- Jehle, Geoffrey A. and Philip J. Reny, *Advanced Microeconomic Theory*, Prentice Hall (2011).
- Mas-Colell, A., Whinston, M. D., and J. R. Green, *Microeconomic Theory*, Oxford University Press (1995).
- Fudenberg, D. and J. Tirole, *Game Theory*, The MIT Press (1991).
- Osborne, M. J., *An Introduction to Game Theory*, Oxford University Press (2004).
- Harsanyi, J., Games with Incomplete Information, Nobel Lecture (1994).