DEFAP 2012/13

ADVANCED MICROECONOMICS (2012/13)

PURPOSE:

This course is an introduction to advanced topics in microeconomics. Its objective is to equip the DEFAP students with tools which are essential to study economics of information and of strategic behaviour and for setting up and solving a wide range of economic problems within all fields of theoretical and applied economics. Familiarity with standard calculus, in particular optimisation theory, and with topics of Microeconomics is assumed.

COURSE DESCRIPTION:

The course consists of 6 lectures of two hours each and it is divided in three parts:

- lectures 1 - 2 are devoted to bargaining theories
- lectures 3 - 4 are devoted to repeated games and applications
- lectures 5 – 6 are devoted to reputational models.

Bargaining theories are analysed using axiomatic and strategic approaches, showing the connections between the two approaches and the consequences of incomplete information on efficiency of trading.
Then we turn to the analysis of dynamic games, covering finitely and infinitely repeated games, the folk theorem for repeated games, subgame perfection, and punishment strategies.
Finally we will face the problem of reputation building using repeated games with incomplete information, emphasizing the wide range of important economic problem that can be analyzed using these tools.

STRUCTURE:

The lectures will illustrate the main concepts through formal definitions and examples, with a particular attention to the calculus of solutions, few theorems and proof will be discussed in the lectures. There is one homework and a final examination. Your course grade will be based half on the homework and half on the final exam. Good class participation can improve your evaluation. I expect you to come to class prepared to respond intelligently to questions about the readings and assignments.

Textbooks:

1. Drew Fudenberg and Jean Tirole, *Game Theory*, MIT Press,1991.

2. Martin Osborne and Ariel Rubinstein, *Bargaining and Markets*, Academic Press, 1990.
3. Eric van Damme, *Stability and Perfection of Nash Equilibria*, Springer-Verlag, 1991
4. George Mailath and Larry Samuelson, *Repeated Games and Reputation: Long Run relationships*, Oxford University Press, 2006.
5. Lecture notes.

CONTENTS:

F&T = Fudenberg and Tirole, *Game Theory*;
O&R = Martin Osborne and Ariel Rubinstein, *Bargaining and Markets*;
VD = Eric van Damme, *Stability and Perfection of Nash Equilibria;*
M&S = Mailath and Samuelson, *Repeated Games and Reputation: Long Run relationships*.

Articles:

1. Abreu, D. (1988): "On the Theory of Infinitely Repeated Games with Discounting", *Econometrica*, 56, 383-96.
2. Abreu D., Pearce D. and E. Stacchetti (1990): "Toward a Theory of Discounted Repeated games with Imperfect Monitoring", *Econometrica*, 58, 1041-63.
3. BAGWELL, K. (1995): "Commitment and Observability in Games," *Games and Economic Behavior*, 8(2), 271-280.
4. Benoit, J.P. and V. Krishna (1985): "Finitely Repeated Games", *Econometrica*, 53, 905-22.
5. Benoit, J.P. and V. Krishna (1987): "Nash Equilibria of Finitely Repeated Games", *International Journal of Game Theory*, 16, 197-204.
6. Benoit, J.P. and V. Krishna (1993): "Renegotiation in Finitely Repeated Games", *Econometrica*, 61, 303-23.
7. Canning, D. (1989): "Bargaining Theories"*,* in *The Economics of Missing Markets Information and Games*, ed. by F. Hahn. Oxford: Clarendon Press.
8. ELY, J., D. FUDENBERG, and D. K. LEVINE (2005): "When is Reputation Bad?," Mimeo.
9. ELY, J. C., and J. VÄLIMÄKI (2003): "Bad Reputation," *Quarterly Journal of Economics*, 118(3), 785-814.
10. Farrel J. and E. Maskin (1989): "Renegotiation in Repeated Games", *Games and Economic Behavior*, 1, 327-60.
11. FUDENBERG, D., and D. M. KREPS (1987): "Reputation in the Simultaneous Play of Multiple Opponents," *Review of Economic Studies*, 54(4), 541-568.
12. Fudenberg D., Kreps D. and E. Maskin (1990): "Repeated Games with Long-Run and Short-Run Players", *Review of Economic Studies*, 57, 555-73.
13. FUDENBERG, D., and D. K. LEVINE (1989): "Reputation and Equilibrium Selection in Games with a Patient Player," *Review of Economic Studies*, 57(4), 759-778.
14. FUDENBERG, D., and D. K. LEVINE (1992): "Maintaining a Reputation when Strategies are Imperfectly Observed," *Review of Economic Studies*, 59(3), 561-579.

15. Fudenberg D., Levine D. and E. Maskin (1994): “The Folk Theorem in Repeated Games with Imperfect Public Information”, *Econometrica*, 62, 997-1039.
16. Fudenberg D. and E. Maskin (1986): “The Folk Theorem in Repeated Games with Discounting or with Incomplete Information”, *Econometrica*, 54, 533-54.
17. GHOSH, P., and D. RAY (1996): “Cooperation in Community Interaction Without Information Flows,” *Review of Economic Studies*, 63(3), 491-519.
18. Green E.J. and R.H. Porter (1984): “Noncooperative Collusion under Imperfect Price Competition”, *Econometrica*, 52.
19. Harsanyi J. and R. Selten (1972): “A Generalized nash Solution for Two-Person Bargaining Games with Incomplete Information”, *Management Science*, 18, 80-106.
20. Kalai, E. (1977): “Nonsymmetric Nash Solutions and Replications of 2-Person Bargaining”, *International Journal of Game Theory,* 6, 129-133.
21. Kalai, E. and M. Smorodinsky (1975): “Other Solutions to Nash’s Bargaining Problem”, *Econometrica,* 43, 513-518.
22. Kandori, M. (1992): “Social Norms and Community Enforcement”, *Review of Economic Studies*, 59.
23. Kihlstrom, R.E., A.E. Roth and D. Schmeidler (1981): Risk Aversion and Solutions to Nash’s Bargaining problemi” in *Game Theory and Mathematical Economics*, ed. By O. Moeschlin and D. Pallaschke. Amsterdam: North Holland.
24. KREPS, D. M., P. MILGROM, J. ROBERTS, and R. WILSON (1982): “Rational Cooperation in the Finitely Repeated Prisoners' Dilemma,” *Journal of Economic Theory*, 27(2), 245-252.
25. KREPS, D. M., and R. WILSON (1982b): “Reputation and Imperfect Information,” *Journal of Economic Theory*, 27(2), 253-279.
26. Mc Donald, I.M. and R. Solow (1981): “Wage Bargaining and Employment”, *American Economic Review*, 71, 896-908.
27. MILGROM, P. R., and J. ROBERTS (1982): “Predation, Reputation, and Entry Deterrence,” *Journal of Economic Theory*, 27(2), 280-312.
28. Nash J. (1950): “The Bargaining problem”, *Econometrica*, 18, 155-162.
29. Rubinstein A. (1979): “Equilibrium in Supergames with the Overtaking Criterion”, *Journal of Economic Theory*, 21, 1-9.
30. Rubinstein A. (1982): “Perfect equilibrium in a Bargaining Model”, *Econometrica*, 50, 97-109.
31. Rubinstein A. (1985): “A Bargaining Model with Incomplete Information about Time Preferences”, *Econometrica,* 53, 1151-1172.
32. Sabourian, H. (1989): “Repeated Games: a Survey”*,* in *The Economics of Missing Markets Information and Games*, ed. by F. Hahn. Oxford: Clarendon Press.
33. SCHMIDT, K. (1993): “Reputation and Equilibrium Selection in Repeated Games with Conflicting Interests,” *Econometrica*, 61, 325-351
34. Van Damme, E. (1989): “Renegotiation-Proof Equilibria in Repeated Prisoners’ Dilemma”, *Journal of Economic Theory*, 47, 206-17.

LOCATION: TBA

LECTURES:

1 . Bargaining Theory
   a. The Axiomatic Approach
   b. Nash's Axioms
   c. Nash's Theorem
   d. Alternative approaches.

   O&R chapter 1 and 2.
   Nash 1950; Kihlstrom, Roth and Schmediler 1981; McDonald and Solow 1981; Harsany and Selten 1972; Kalai 1977; Kalai and Smorodinsky 1975.

2 . Bargaining Theory
   a. The Strategic Approach
   b. A Game of Alternating Offers
   c. The Results
   d. The Relation between the Axiomatic and the Strategic Approach
   e. Bargaining with Incomplete Information

   O&R chapters 2, 3 and 4.
   Rubinstein 1982; Canning 1989; Binmore 1987; Shaked and Sutton 1984; Shaked 1987; Rubinstein 1985; Myerson and Satterthwaite 1983; Cramton 1987; Gul and Sonneschein 1988.

3 . Finitely and Infinitely Repeated Games with Observable Actions
   a. The Model
   b. The Folk Theorem for Infinitely Repeated Games
   c. Characterization of the Equilibrium Set
   d. The Folk Theorem for finitely repeated games

   F&T chapter 5; VD chapter 8.1 - 8.7.
   Rubinstein 1979; Fudenberg-Maskin 1986; Sabourian 1989; Abreu 1988 ; Benoit-Krishna 1985; Benoit-Krishna 1987

4 . Pareto Perfection and Renegotiation-Proofness in Repeated Games
   a. Introduction
   b. Pareto Perfection in Finitely Repeated Games
   c. Renegotiation-Proofness in Infinitely Repeated Games

   F&T chapter 5,
   Van Damme 1989; Farrell-Maskin 1989; Benoit-Krishna 1993.

5. Repeated games with incomplete information
   a. Reputation and commitment
   b. Games with a single long-run player, private information and endogenous length.

   F&T chapter 9, M&S chapters 15 and 16.
   Kreps and Wilson 1982; Kreps, Milgrom, Roberts and Wilson 1982; Fudenberg and Kreps 1987; Milgrom and Roberts 1982; Bagwell 1995; Friedman 1953; Datta 1996; Ghosh and Ray 1996.

6. Reputation models and application
   a. Reputation effects in a repeated simultaneous move game with a single long-run player and public information

b. Reputation effects in a repeated simultaneous move game with a single long-run player when actions are imperfectly observed
c. Reputation effects in a repeated game with sequential moves
d. Bad reputation

M&S chapters 17 and 18
Fudenberg and Maskin 1986; Fudenberg and Levine 1989; Fudenberg and Levine 1992; Schmidt 1993; Eli and Välimäki 2003; Ely, Fudenberg and Levine 2005.