

# Game Theory and Applications

Economics 682  
Spring 2008

JAN EECKHOUT

456 McNeil, x8-2648, [eeckhout@ssc.upenn.edu](mailto:eeckhout@ssc.upenn.edu)

Office Hours: Tuesdays 9:15-10:15am or by appointment.

Course URL is linked from: [www.ssc.upenn.edu/~eeckhout/](http://www.ssc.upenn.edu/~eeckhout/)

The class will meet Thursdays 5:00-8:00pm in McNeil 410. I will post the class notes on the course web site. A tentative course outline is listed below. The course will be evaluated on the basis of four problem sets, one midterm and one final exam. The midterm is worth 40% of the grade, and the final 60%. Performance in the problem sets will be taken into account for tie break grades. The final is cumulative but with emphasis on the second half of the course.

Timetable.

Due dates problem sets: February 7, February 21, April 3, and April 17, at the start of class.

Midterm: March 6, 5:00-6:30pm.

Final: April 24, 5:00-7:00pm.

The main text used is:

- GIBBONS, ROBERT, *Game Theory for Applied Economists*, Princeton University Press, 1992 - HB144.G49 1992.

Other texts for further reference are

- MAS-COLELL, ANDREU, MICHAEL D. WHINSTON AND JERRY R. GREEN, *Microeconomic Theory*, Oxford University Press, 1995 - HB172.M6247 1995.
- FUDENBERG, DREW AND JEAN TIROLE, *Game Theory*, MIT Press, 2000 - HB144.F83 1991.
- OSBORNE, MARTIN J. AND ARIEL RUBINSTEIN, *A Course in Game Theory*, MIT Press, 1994 - HB144.O733 1994.
- MYERSON, ROGER B., *Game Theory. Analysis of Conflict*, Harvard University Press, 1997 - H61.25.M94 1991.

For a *popular* introduction to game theory, you can consult

- DIXIT, AVINASH AND SUSAN SKEATH, *Games of Strategy*, Norton, 1999 - HB144.DS9.

# Course Outline

1. Decision Theoretic Foundations
2. Static Games of Complete Information
  - (a) Games in Strategic Form
  - (b) Dominated Strategies
  - (c) Iterated Elimination of Dominated Strategies and Rationalizability
  - (d) Nash Equilibrium
  - (e) Mixed Strategies and Existence
  - (f) Correlated Equilibrium
3. Dynamic Games of Complete Information
  - (a) Extensive Form Games
  - (b) Backward Induction and Credible Threats
  - (c) Subgame Perfection
  - (d) Repeated Games
4. Games of Incomplete Information
  - (a) Static Games and Bayesian Nash Equilibrium
  - (b) The Revelation Principle
  - (c) Dynamic Games and Perfect Bayesian Equilibrium
  - (d) Signalling Games
  - (e) Cheap Talk
  - (f) Reputation
5. Cooperative Game Theory