Joel Sobel Spring 2003

1.4

## Economics 200F: Game Theory

**General:** This course will meet on Monday, Wednesday, and Friday from 12:30 to 1:50 in 300 Economics. I will be available immediately after class on most days and more generally by appointment.

I expect to have twenty class sessions over the quarter. I scheduled three meetings per week to accommodate because I will need to cancel a few class sessions. There will be no classes on April 7, 9, 11, 14, 16, and 30. At present, I plan to use all other dates through May 9 and then go back to a twice-per-week schedule.

**Contact information:** email: jsobel@ucsd.edu, UCSD office phone: 858.534.4367, web page for class material:

#### http://www.econ.ucsd.edu/%7Ejsobel/200F.html.

**Prerequisites, Expectations, and Objectives:** The course is an introduction to game theory aimed at technically confident students who have seen some game theory. Econ 200C provides sufficient exposure to game theory. Technical competence is a good substitute for technical confidence. Each come from successful experiences with mathematical reasoning.

The course should provide a deeper introduction to game theory than provided in the core; give students interested in working in topics that use game theory sufficient experience with basic ideas to follow game theoretic arguments in the literature, identify slimy modeling techniques, and solve their own games; and cover enough work at the "frontier" to suggest possible research problems. (Of course, it provides elective credit to future time-series econometricians who are forced to enroll.)

My lectures will vary in style. Sometimes I will provide complete details of mathematical results, but more often I will try to convey an understanding of what the results mean. Serious students should consult texts and readings for details and work problems to make sure that they can read and write technical arguments.

**Requirements and Grading:** There will be several problem sets and a final examination. To pass the course you must certainly make a serious and successful attempt at the problems. I am willing to negotiate the form of the final examination. Students can propose alternatives to an in-class exam (a take home, class presentations, or a research paper) on or before May 5. To be concrete, homework counts 35% of the grade and the final the remaining 65%.

I urge you to participate in class actively. Doing so will not have a direct influence on your grade, but it will make the class more useful and enjoyable for all. Texts and Reading The main reference for the course is:

(FT) D. Fudenberg and J. Tirole, Game Theory, MIT, 1991.

(FT) is the standard graduate resource for the course material. It should be available at fine bookstores everywhere. An alternative general reference is:

# (OR) M. Osborne and A. Rubinstein, A Course in Game Theory, MIT, 1994.

The next section lists some useful articles. Unpublished papers are available at the authors' websites. Older papers are available on JSTOR (http://www.jstor.org) or JET's webpage (http://www.academicpress.com/jet).

**Topics** I have divided the course into four topics. I have allocated only 15 of the available lectures to these topics. The last two or three weeks will be devoted to topics that are consistent with our joint interests and abilities.

Treat Fudenberg and Tirole's text as the basic reference source. Additional references are either classic treatments of important topics or interesting new work.

1. Solution Concepts (4 Lectures)

Basic Reference: FT, Chapters 1, 2, and 11, pages 1-63, 437-60.

Bernheim, B. D. 1984. "Rationalizable Strategic Behavior." *Econometrica* 52: 1007-28.

Cho, I. K. and D. Kreps 1987. "Strategic Stability and Uniqueness in Signalling Games." *Quarterly Journal of Economics* 102: 179-221.

Damme, E. van 1989. Stability and Perfection of Nash Equilibrium. Springer-Verlag.

Kohlberg, E. and J.-F. Mertens 1986. "On the Strategic Stability of Equilibria." *Econometrica* 54:1003–38.

Pearce, D. 1984. "Rationalizable Strategic Behavior and the Problem of Perfection." *Econometrica* 52: 1029–50.

2. Repeated Games (3 Lectures)

Basic Reference: FT, Chapter 5, pages 145-71, 182-97.

Abreu, D. 1988. "Towards a Theory of Discounted Repeated Games." *Econometrica* 56: 383–96.

Abreu, D., D. Pearce, and E. Stachetti 1988. "Towards a Theory of Discounted Repeated Games with Imperfect Monitoring." *Econometrica* 58: 1041–64.

Benoit, J. P. and V. Krishna 1985. "Finitely Repeated Games." *Econo*metrica 53: 890–904.

Fudenberg, D. and E. Maskin 1986. "The Folk Theorem in Repeated Games with Discounting or with Incomplete Information." *Econometrica* 54: 533–56.

# 3. Bargaining (4 Lectures)

Basic Reference: FT, Chapters 4 and 10, pages 113-17, 397-416.

Abreu, D. and D. Pearce 2000. "A behavioral model of bargaining with endogenous types."

http://www.princeton.edu/ ectheory/wp00S/00S15.pdf

Abreu, D. and F. Gul 2000. "Bargaining and reputation." *Econometrica* 68: 85–117.

Gul, F., H. Sonnenschein, and R. Wilson 1986. "Foundations of Dynamic Monopoly and the Coase Conjecture." *Journal of Economic Theory* 39: 155 – 90.

Rubinstein, A. 1982. "Perfect Equilibrium in a Bargaining Model." *Econo*metrica 50: 97–109.

Smith, L. and E. Stachetti 2002. "Aspirational Bargaining."

http://www-personal.umich.edu/ lones/ftp/aspire.pdf

Yildez, M. 2003. "Bargaining Without a Common Prior - An Immediate Agreement Theorem." *Econometrica*.

http://econ-www.mit.edu/faculty/myildiz/files/bwnFinal.pdf

### 4. Reputation (4 Lectures)

Basic Reference: FT, Chapter 9, pages 367-81.

Ely, J, D. Fudenberg, and D. Levine 2002. "When is Reputation Bad?"

http://www.kellogg.northwestern.edu/research/math/JeffEly/working/whenbad.pdf

Ely, J. and J. Välimäki 2003. "Bad Reputation." Quarterly Journal of Economics.

http://www.kellogg.nwu.edu/research/math/JeffEly/working/badrep6.pdf Fudenberg, D. and D. Levine. 1989. "Reputation and Equilibrium Selection in Games with a Patient Player." *Econometrica* 57: 759 – 78.

Kreps, D., P. Milgrom, J. Roberts, and R. Wilson. 1982. "Rational Cooperation in the Finitely Repeated Prisoners' Dilemma." *Journal of Economic Theory* 27: 245–52.

Kreps, D. and R. Wilson 1982. "Reputation and Imperfect Information." *Journal of Economic Theory* 27: 253–79.

P. Milgrom and J. Roberts 1982. "Predation, Reputation, and Entry Deterrence." Journal of Economic Theory 27: 280-312.

S. Tadelis 1999. "What's in a Name? Reputation as a Tradeable Asset." *American Economic Review.* 89: 548–63.