

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL

POLI 891
GAME THEORY II
FALL 2010

Professor Anna Bassi

Email: anna.bassi@unc.edu

Webpage: <http://www.unc.edu/~abassi>

Office: Hamilton Hall 257

Phone: (919) 962-0404

Office hours: Monday 9.30am-11.30am.

SYLLABUS

MEETING TIMES AND VENUE Class meets on Thursdays for 2 hours and 30 minutes in Hamilton Hall, room 519. Each class starts at 1.30 pm.

OVERVIEW This course is designed for students who have already Game Theory I, but who desire greater proficiency in the more advanced topics. The course focuses on canonical games of incomplete information that are used widely in all fields of political science and political economy, e.g. signaling games, cheap-talk games, and wars of attrition. It will also introduce students to theoretical topics that are beginning to play a prominent role in recent contributions to the political science literature, e.g. principal agents models and Quantal Response equilibrium. The course is suitable for students who, in the course of their own research, wish to evaluate, critique, or otherwise engage formal-theoretic work, as well as those who anticipate using

game theoretic techniques themselves. Questions concerning the interpretation of models and the evaluation of models will be discussed extensively.

PREREQUISITES Game Theory I (Poli 789) or equivalent.

TEXTBOOKS **Required:** There is one required textbook for the course, which will be supplemented by several readings which will be posted on blackboard as the course progresses:

Game Theory Texts:

- Gibbons, Robert. 1992. *Game Theory for Applied Economists*. Princeton: Princeton University Press.
- Myerson, Roger. 1991. *Game Theory: Analysis of Conflict*. Cambridge: Harvard University Press.

Other required readings:

- Banks, Jeffrey S. 1990. "Equilibrium Behavior in Crisis Bargaining Games." *American Journal of Political Science*, vol. 34, no. 3, pp. 599-614.
- Banks, Jeffrey S. 1989. *Signaling Games in Political Science*. Harwood Academic Publishers..
- Banks, Jeffrey S. and Randall Calvert. 1992. "Coordination and Cheap Talk." *Games and Economic Behavior*.
- Cho, Koo and David M. Kreps. 1987. "Signaling Games and Stable Equilibria" *The Quarterly Journal of Economics* Vol. 102, No. 2, pp. 179-222
- Crawford, Vincent P. and Joel Sobel. 1992. "Strategic Information Transmission". *Econometrica*, Vol. 50, No. 6, pp. 1431-1451
- Kreps, David M. and Robert Wilson. 1982. "Sequential Equilibria, *Econometrica*, vol. 50, pp. 863-894.
- Gordon, Sanford, Gregory Huber and Dimitri Landa. 2005. "Challenger Entry and Voter Learning." *American Political Science Review*, vol. 101, no. 2, pp. 303-320.
- McKelvey, Richard; Palfrey, Thomas (1995), "Quantal Response Equilibria for Normal Form Games", *Games and Economic Behavior*, vol. 10, pp.6-38.
- McKelvey, Richard; Palfrey, Thomas (1998), "Quantal Response Equilibria for Extensive Form Games", *Experimental Economics*, vol.1, pp. 9-41

- Myerson, Roger B. 2007. "FUNDAMENTAL THEORY OF INSTITUTIONS: A LECTURE IN HONOR OF LEO HURWICZ."
<http://home.uchicago.edu/~rmyerson/research/hurwicz.pdf>

**COURSE
REQUIREMENTS**

You will be graded in this course on the basis of several factors.

- o First, there will be one midterm exam and one final exam which will constitute 70% of your grade (30% and 40% respectively). These are cumulative and will test concepts you should have learned from the assigned readings and the lectures.
- o In addition, homework assignments will typically be handed out every two or three weeks and will account for 20% of your final grade.

Summing up, grades will be computed on the following basis:

- Homework assignments 20%
- Midterm exam 30%
- Final exam 40%
- Attendance and participation 10%

**CLASSROOM
ATTENDANCE**

Class attendance is mandatory and part of a student's grade. Absences may be excused only in the case of documented serious illness, family emergency, religious observance, or civic obligation. If you will miss class for religious observance or civic obligation, you must inform your instructor no later than the first week of class.

MAKEUPS

Make-up exams will not be available for students who fail to notify your instructor in advance of missing an examination, nor for students without an acceptable explanation. If you have a valid reason for a makeup exam, inform your instructor a.s.a.p. A valid reason is a medical emergency, a death or serious illness in the family, and, quite frankly, very little else. In all cases, you will be expected to bring in proof.

**ACADEMIC
INTEGRITY**

A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgment of the work and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned.

Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, examinations and assessments - whether online or in class); presenting, as one's own, the ideas, words or calculations of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; using unauthorized aids in preparing work for evaluation (e.g. unauthorized formula sheets, unauthorized calculators, unauthorized programs or formulas loaded into your calculator, etc.); and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code. Sanctions shall include, but are not limited to, a letter sent to the Dean of Students of the University; a grade of 0 on the assignment or exam; a grade of F for the course.

**COURSE
OUTLINE**

WEEK 1 (8/26)

Review of Static Games of Incomplete Information

Bayesian Equilibrium

Reading Assignments:

- ❖ Gibbons, ch. 3

WEEK 2 (9/2) NO CLASS APSA MEETINGS

WEEK 3 (9/9)

Sequential Games of Incomplete Information

- Perfect Bayesian equilibrium

Reading Assignments:

- ❖ Gibbons, pp173-183
- ❖ Gordon, Sanford, Gregory Huber and Dimitri Landa. 2005. "Challenger Entry and Voter Learning." American Political Science Review, vol. 101, no. 2, pp. 303-320.
- ❖ Banks, Jeffrey S. 1989. Signaling Games in Political Science. Harwood Academic Publishers, Chs. TBA.

WEEK 4 (9/16)

Costly Signaling Games

- Perfect Bayesian equilibrium

- Signaling Games: pooling and separating equilibria

- The Intuitive Criterion

Reading Assignments:

- ❖ Gibbons, pp183-210, 233-244
- ❖ Cho, Koo and David M. Kreps. 1987. "Signaling Games and Stable Equilibria" The Quarterly Journal of Economics Vol. 102, No. 2, pp. 179-222

WEEK 5 (9/23)

Signaling Games and Cheap Talks

- Perfect Bayesian equilibrium

- Informative, partially informative and non-informative cheap talk games

-examples with discrete and continuous strategy space

Reading Assignments:

- ❖ Gibbons, pp183-210, 233-244

- ❖ Banks, Jeffrey S. and Randall Calvert. 1992. “Coordination and Cheap Talk.” Games and Economic Behavior.
- ❖ Crawford, Vincent P. and Joel Sobel. 1992. “Strategic Information Transmission”. Econometrica, Vol. 50, No. 6, pp. 1431-1451

WEEK 6 (9/30)

Sequential Equilibrium and further Refinements to Perfect Bayesian equilibrium

Reading Assignments:

- ❖ Kreps, David M. and Robert Wilson. 1982. “Sequential Equilibria, Econometrica, vol. 50, pp. 863-894.

WEEK 7 (10/7):

Midterm exam

WEEK 8 (10/14)

Mechanism Design

- Revelation principle

Reading Assignments:

- ❖ Gibbons, pp164-168
- ❖ Myerson, Roger B. 2007. “FUNDAMENTAL THEORY OF INSTITUTIONS:A LECTURE IN HONOR OF LEO HURWICZ.”

WEEK 9 (10/21) FALL BREAK

WEEK 10 (10/28)

Mechanism Design

- Incentive Compatibility and Mechanism Design
- Auctions

Reading Assignments:

- ❖ Myerson, ch. 6 (pp.)

WEEK 11 (11/4)

Principal Agent: adverse selection

Reading Assignments:

TBA

WEEK 12 (11/11)

Principal Agent: moral hazard

Reading Assignments:

TBA

WEEK 13 (11/18)

Quantal Response Equilibrium

Reading Assignments:

- ❖ McKelvey, Richard; Palfrey, Thomas (1995), "Quantal Response Equilibria for Normal Form Games", *Games and Economic Behavior*, vol. 10, pp.6–38.
- ❖ McKelvey, Richard; Palfrey, Thomas (1998), "Quantal Response Equilibria for Extensive Form Games", *Experimental Economics*, vol.1, pp. 9–41

WEEK 14 (11/25) THANKSGIVING

WEEK 15 (12/2)

Voting

Reading Assignments:

- ❖ Handouts

DECEMBER, 6TH : TAKEHOME FINAL EXAM
