Economics 212
Honors Game Theory

Andrew Postlewaite

Fall, 2013

- This is an honors game theory class; permission is necessary to enroll.

- Department policies: Students are responsible for making sure, at the beginning of the term, that they can attend the exams. Registering for a course means that you certify that you will be present for the exam (unless one of the explicitly stated exceptions found in the policies arises.) All policy procedures may be found in the Undergrad Drop Down menu under Departmental Policies.

- The instructor is Professor Andrew Postlewaite (room 458 McNeil building, phone: 898-7350, office hours: Friday 1:30-2:30 or by appointment). The grader for the course is Ekim Muyan (McNeil 479; muyan@sas.upenn.edu). The class will meet Tuesdays and Thursdays 12:00 - 1:30 in McNeil 169.

- Problem sets will be assigned periodically and will be a nontrivial part of your grade.

- There will be a midterm exam around fall break. The midterm will count approximately 40% and the final 60% in determining the final grade for the course. There will be no makeup exam for the midterm. The grade for anyone who does not take the midterm and has a valid excuse will be based on the final exam. The final exam is scheduled for 12:00 Wednesday December 18.

- The textbook for the course is *An Introduction to Game Theory* by Osborne (O).

The coverage of game theory is pretty standard and there are many other textbooks that you can look at for additional detail. The lectures follow the treatment of the topics in textbook fairly closely. Below is a list of the topics and order in which we will treat them. There will be deviations from this, but hopefully it will be helpful.

Rational Choice

(O) 1.2

Games with Perfect Information

(O) Chapter 2
Ex 14.1, 16.1, 18.2, 19.1, 20.2, 33.1, 39.1

More on Nash Equilibria

(O) Sections 3.1 - 3.4

Mixed Strategy Equilibria

(O) Section 4.1 - 4.3.3

Ex 114.4, 143.1

Extensive Games with Perfect Information

(O) Chapter 5
Ex 155.2, 176.3

More on Extensive Games with Perfect Information: Examples

(O) Chapters 5, 6

6.1 Ultimatum game
6.2 Stackelberg
(O) Chapter 7
Ex 207.1, 210.3
Section 7.3

Repeated Games

(O) Chapter 14
14.2.1 Discounting
14.3 Repeated games
14.4 Finitely repeated Prisoner's Dilemma
14.5 - 7 Infinitely repeated Prisoner's Dilemma
Ex 429.1
14.8 "Folk Theorem"
Ex 433.1
14.9 One-shot deviation principle

14.10, 11 Subgame perfect equilibria in infinitely repeated Prisoner's Dilemma

Bargaining

(O) Chapter 16

16.1,2 Extensive form for bargaining
Ex's 468.1, 473.1, 479.1

16.3 Axiomatic bargaining
Ex 489.1

Games with Imperfect Information

(O) Chapter 9

9.1 Introduction to imperfect information
Ex 273.1, 276.1

9.2 Bayesian games

Ex 282.1

9.3 Examples of Bayesian games

9.4 Cournot with imperfect information

9.6 Auctions

Ex 299.1(G) Chapter 3

Dynamic Games with Imperfect Information
(G) Chapter 3

(O) Chapter 10

10.1-3 Introduction

Ex 314.2, 315.1, 319.1, 322.1

10.4 Beliefs and sequential equilibrium

Ex's 327.2-4, 330.1, 331.1

10.5 Signalling games

10.7 Education as a signal

10.8 Information transmission

10.9 Agenda Control

Cooperative Games
(O) Chapter 8