ECO 288

Game Theory

Fall 2017

Instructor: Paulo Barelli, email: paulo.barelli@rochester.edu

TA: Jihwan Do, email: econ.jihwando@gmail.com

Time and Location: TR 9:40 - 10:55, Hylan 202

Office Hours: R 1:00 - 2:00, Harkness 214

Recitations: F: 4:00 - 5:00, Hylan 202

TA's Office Hours: M 4:00 - 5:00, Harkness 207

Textbook: *Game Theory for Applied Economists*, Robert Gibbons, Princeton University Press, 1992, and *Strategy: An Introduction to Game Theory*, Joel Watson, W.W. Norton & Company, 2013.

Game theory is a systematic study of strategic situations. It is a theory that helps us analyze economic and political strategic issues, such as behavior of individuals in a group, competition among firms/buyers in markets, platform choices of political candidates, and so on. We will develop the basic concepts and results of game theory, including simultaneous and sequential move games, repeated games and games with incomplete information. The objective of the course is to enable you to analyze strategic situations on your own. The emphasis of the course is on theoretical aspects of strategic behavior, so familiarity with mathematical formalism is recommended.

Course Organization:

I will use Blackboard to post material and announcements. I will provide notes with a summary of the material covered in class so you will have a concise source to follow the lectures without worrying too much about taking notes. This means that the textbooks listed above are not mandatory. On the other hand, some of you may appreciate obtaining material from more than one source, I would certainly encourage you to do so. So you do well to have access to either or both of the textbooks.

Class participation is rewarded. There are several forms of participation: mostly I'd like you to ask and answer questions in class, and to engage in discussions, including during recitations and office hours; but I also take note of those of you that for whatever reason do not speak up all that often but yet show commitment to mastering the material. In addition, I will run short quizzes by the end of some random lectures. I will keep track of your participation record, including your score on quizzes, and assign points accordingly.

Homework assignments will be posted weekly, and due in class. The TA's recitations are primarily aimed at providing examples and applications of the material covered in class with a view to aid you in solving the homework questions. Solutions to the homework and exam questions will be posted.

If you are registered for the W section (ECO 288W), *please come see me by the second week of classes* so I can give you the guidelines for the required research paper.

There will be three midterm exams and a final exam. The final exam (scheduled by the registrar) will be on December 20th, at 4:00 PM, in class. The final exam is cumulative. Midterms are not (the material for

midterm 2, for instance, is everything covered since midterm 1.) The midterms will be right after the end of each broad topic, as outlined below. I will announce the dates of the midterms as the course progresses; you can expect one midterm per month, for September, October, and November, during the third of fourth week of the month.

Last, but not least: honesty is taken very seriously in this institution and in this course in particular. All assignments and activities associated with this course must be performed in accordance with the University of Rochester's Academic Honesty Policy. More information is available at: www.rochester.edu/college/honesty.

Outline:

- Weeks 1-2: Dominance and Iterated Dominance

- Weeks 2-4: Nash Equilibrium and some extensions

- First Midterm

- Weeks 5-7: Bayesian Games

- Second Midterm

- Weeks 8-11: Extensive Form Games and Repeated Games

- Third Midterm

- Weeks 12-14: Perfect Bayesian and Sequential Equilibria

Grading:

Class participation	15%
Homework	15%
Midterm 1	15%
Midterm 2	15%
Midterm 3	15%
Final	25%.