

Game Theory
15210060
UNIVERSIDAD DEL ROSARIO
SEMESTRE 2012 - I

Professor: Çağatay Kayı.

E-Mail: kayi.cagatay@urosario.edu.co, cagatay.kayi@gmail.com.

Class Hours: Group 5: Fridays 14:00 - 15:00.

Lecture Hall: CLAUSTRO 221.

Office: Buhardilla 207.

Office Hours: Wednesdays 15:00 -17:00.

1 Introduction

In this course we study the basic elements of game theory. The foundation of game theory was laid in an article by John von Neumann (1928). The theory received widespread attention only after publication of the fundamental book of von Neumann and Morgenstern (1944, p.31), where the aim of Game Theory is described as follows:

“[W]e wish to find the mathematically complete principles which define “rational behavior” for the participants in a social economy, and to derive from them the general characteristics of that behavior. And while the principles ought to be perfectly general—i.e., valid in all situations—we may be satisfied if we can find solutions, for the moment, only in some characteristic special cases.”

Informally, game theory is a mathematical discipline that analyzes conflict situations. A conflict situation—the game—is a situation in which a certain number of individuals—the players—interact and thereby jointly determine the outcome. Each participating player has partial control over the situation, but never full control. Each player is endowed with certain individual preferences over the set of possible outcomes and strives to obtain the outcome that is most profitable to him. The aim of game theory is to prescribe which strategy each player in a game should play such that his partial influence on the situation is exploited in order to promote his interest optimally.

2 Evaluation

The evaluation depends on quizzes (30%), a midterm (35%) and a final (35%). There are four quizzes but the highest 3 quizzes will be the part of your grade. There are no make-up quizzes; if you miss one quiz, then other three quizzes will be your grade from the quizzes.

3 Literature

- OSBORNE, M.J. (2004), *An Introduction to Game Theory*, Oxford University Press.

4 Schedule

Week 1	<i>3 February 2012</i>	Introduction.
Week 2	<i>10 February 2012</i>	Strategic games.
Week 3	<i>17 February 2012</i>	Nash Equilibrium.
Week 4	<i>24 February 2012</i>	QUIZ 1. Iterated elimination of actions.
Week 5	<i>2 March 2012</i>	Best response functions.
Week 6	<i>9 March 2012</i>	QUIZ 2. Dominated actions.
Week 7	<i>16 March 2012</i>	Cournot's model of oligopoly.
Week 8	<i>23 March 2012</i>	MIDTERM.
Week 9	<i>30 March 2012</i>	Bertrand's model of oligopoly.
Week 10	<i>13 April 2012</i>	Electoral Competition.
Week 11	<i>20 April 2012</i>	Auctions.
Week 12	<i>27 April 2012</i>	QUIZ 3. Mixed strategy Equilibrium.
Week 13	<i>4 May 2012</i>	Extensive Games and Subgame Perfect Nash Equilibrium.
Week 14	<i>11 May 2012</i>	QUIZ 4. Backward Induction.
Week 15	<i>18 May 2012</i>	Ultimatum game and Stackelberg's model of oligopoly.
Week 16	<i>25 May 2012</i>	FINAL.