ECO 5346  Summer I, 2014
Sec 001  Klaus Becker

Game Theory

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OFFICE HRS: 1:00 - 1:50 pm Monday, Tuesday, Wednesday,
and by appointment


WEBSITE:    http://www.webpages.ttu.edu/kbecker/ECO5346/ECO5346%20Home.html
or
http://www.webpages.ttu.edu/kbecker/ (“click” on ECO 5346)

EXAMS:      Two exams will be given. A midterm exam and a comprehensive final exam.

HOMEWORKS: Several homework assignments will be given during the semester
(minimum of 5, maximum of 10). These homeworks will be graded and
may count for up to 20% of your grade for the course.

GRADING:    Your total score X, will be given by:
X = max {0.4Y₁ + 0.4Y₂ + 0.2Y₃, 0.6Y₁ + 0.4Y₂, Y₁}
where: Y₁ = score on the final (100 possible points)
        Y₂ = score on the midterm (100 possible points)
        Y₃ = score on the homeworks (100 possible points)

Students with Disability:

Any student who, because of a disability, may require special arrangements in order to meet the
course requirements should contact the instructor as soon as possible to make any necessary
arrangements. Students should present appropriate verification from Student Disability Services
during the instructor’s office hours. Please note instructors are not allowed to provide classroom
accommodations to a student until appropriate verification from Student Disability Services has
been provided. For additional information, you may contact the Student Disability Services
office in 335 West Hall or 806-742-2405  http://www.depts.ttu.edu/students/sds/
COURSE PURPOSE, CONTENT, and OBJECTIVES

Game Theory provides systematic way of analyzing problems of strategic behavior where one agent’s actions depend essentially on what other agents may do. Game Theory has been moving ahead very rapidly and the breadth and depth of its application to economics and other social sciences is spectacular. One course in Game Theory cannot cover everything, and this course does not do so. The objective of this course is to provide a rigorous and precise introduction to game theory and its applications in economics, business, political science, history, military science, sports, biology and so on.

Besides the textbook there are of course numerous other books dealing with game theory. A few of those are listed under the section Additional Readings below. Students are encouraged to take a look at some of these books, particularly if you intend to have a specialization in Industrial Organization.

Learning Outcomes/Objectives and Course Assessment

Learning outcomes/objectives: The essence of game theory is not a set of results - though that surely lies at its foundations - but rather a process - the way in which an argument is constructed, how a puzzle about human behavior is solved. To learn game theory means learning the logical argument that produces a solution, a conclusion, a resolution of a mystery. Therefore the primary objective of this course is to teach how to analyze situations of strategic interaction between agents. Of course in doing so the students will become familiar with the terminology and basic definitions of game theory as well as solution concepts employed in game theory to predict what the outcome of a specific game will be.

Assessment: The learning outcomes/objectives will be assessed by presenting students with certain questions/puzzles during the first week of the semester (first quiz or first homework). Similar questions/puzzles will be asked again at the end of the semester (last quiz or last homework). A comparison of the answers to these two set of questions - or better, the process by which the students come to an answer and the arguments put forward by the students will allow an assessment of how well the learning objectives have been achieved.
I Introduction

I.1. Introduction to Strategic Reasoning
I.2. Building a Model of a Strategic Situation
I.3. An Outline of the History of Game Theory

Readings: Chapters 1 – 3, and Chapter 5

II Games with Perfect Information

II.1. Weak and Strict Dominance
II.2. Dominance Solvability
II.3. Nash Equilibrium in Discrete Games
II.4. Nash Equilibrium in Continuous Games
II.5. Mixed Strategy Nash Equilibrium
II.7. Sequential Games

Readings: Chapter 4, Chapters 6 – 7, Chapter 9, Chapter 11, and Ch. 14

III Games with Imperfect Information

III.1. Sequential Games of Imperfect Information
III.2. Bayesian games

Readings: Chapter 17, Chapter 26, and Chapter 28

IV Games with Repeated Interaction

IV.1 Finitely Repeated Games
IV.2. Infinitely Repeated Games

Readings: Chapters 22 and 23

V Special Topics

V.1. Evolutionary Equilibrium
V.2. Coalition Games and the Core

Readings: TBA
**Additional Readings**


**Additional references to several articles will be given in class throughout the semester as specific topics are covered.**