

GAME THEORY AND STRATEGY
WINTER 2018-2019
DR. CINAR
GB 522
SYLLABUS

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PURPOSE OF THE COURSE: The purpose of the course is to guide students in recognizing, analyzing, and solving problems in the business world by applying game theory. The course requires some quantitative skills and knowledge of principles of microeconomics.

We start by examining decision making under uncertainty and how risk profiles of players affect decision outcomes. We then proceed to topics such societal efficient outcomes and strategies to avoid the most inefficient outcome, Prisoner's Dilemma. An important application of the course material is on the topic of environment and common resources. Tragedy of Commons is the misuse of an environmental resource to the point of exhaustion and we show how to use common resources most efficiently. We discuss Principal-Agent problems and Auction Mechanism Designs with respect to maximizing efficiency for all parties and the society.

The course examines win-win strategies with special attention to social, ethical and environmental impact/considerations in playing business 'games'. Many readings will be used from current publications to study efficient outcomes in real time business cases. You are given a list of topics in the bottom of this syllabus as suggestions for group games. In all, please note that you will be asked to calculate societal efficiencies and gains after you find your Nash Equilibriums.

Office Hours: Tuesdays 2:00 pm-4:00 pm, Thursdays 4:00 pm -5:30 pm and by appointment.

Main Textbook: Roy Gardner, *Games for Business and Economics*, 2nd edition, John Wiley

and Sons. I will also be using notes in class. You will also be purchasing a case study (cost \$4 to \$7) for your final project.

GRADE: There are two group projects, one for midterm problems, one for the final. You will also be graded by your contributions within the group. Therefore, not everyone in the group will get the same course grade.

50% Group Midterm; 5 % of this grade of this grade is within group grading.
50%, Final Group Project; 5 % of this grade is within group grading.

You will not consult with anyone outside your group for midterm or final.
Your group will be meeting with me on your final project as we progress in the course. I need **at least 2 people in the group** to consult on the final project.

Attendance Policy: This is a blended course, with one online class. It is vigorous and requires effort. Therefore, you are required to attend classes when we have face to face classes and are required to do the online lectures in a timely manner.

Phone/Laptop Policy: For your concentration and learning outcomes, phones and laptops are not allowed in the classroom. Please turn them off when entering class.

Academic Integrity: Academic Integrity and professional behavior are expected at all times. Please note that you are subject to the School of Business Administration Honor Code, stated at the website
http://www.luc.edu/sba/pdfs/honor_code.pdf

Suggested Problems: Some suggested end of chapter problems from Gardner are listed at the end of this syllabus. Answers are posted on Sakai.

Notes on the course structure:

Roy Gardner's *Games for Business and Economics* is the required text. You are primarily responsible for the required readings and lecture material. You are **strongly** urged to work in groups and to solve the suggested end-of-chapter problems.

SUGGESTED PROBLEMS; GARDNER

The following suggested problems will help you understand game theory and will also help you do your exams. The solutions are posted in Sakai under resources. Please do the problems promptly after we go over the chapters. **Bold, underlined problems are very important.** Since the solutions are already posted, these problems are not going to be discussed in class unless you have specific questions.

CHAPTER 1

1.3, 1.4, 1.5

CHAPTER 2

2.1, 2.2, **2.5, 2.6**, 2.9, 2.10, 2.11 (and 2.7 optional for fun)

CHAPTER 3

3.1, 3.2, 3.3, 3.4, 3.7, 3.8, **3.9**, 3.10

CHAPTER 4

4.1, 4.4, 4.5, 4.7, 4.8, 4.9, 4.10

CHAPTER 5

5.1, 5.2, 5.3, 5.4, 5.6, 5.7, **5.8, 5.10**

CHAPTER 6

6.7, 6.9, 6.10, 6.11

CHAPTER 7

7.1, 7.2, **7.6, 7.7, 7.8, 7.9, 7.10**

CHAPTER 8

(Concepts Only)

CHAPTER 9

(Concepts only)

CHAPTER 10

10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.9, 10.10

CHAPTER 11

11.1, **11.2, 11.5, 11.7, 11.10**