Game Theory Day 1
Homework
Please complete on a separate piece of paper.

1. Give three examples of game-like situations from your everyday life. Be sure in each case to identify the players, the nature of the interactions, the strategies available, and the objectives that each player is trying to achieve.

2. Give three examples of economic problems that are NOT games. Explain why they are not.

3. Scenario: The market for bagels in the Morningside Heights neighborhood of New York City consists of two bagel stores., Columbia Bagels (CB) and University Food Market (UFM). The interaction among them arises from the fact that CB's bagel sales depend on the price posted by UFM.

   a. By considering a few sample prices (40, 45, and 50 cents) and likely bagel sales at these prices, can you quantify how CB's sales revenue might depend on UFM's price? And vice versa?

   b. For your numbers what would be rational strategic price for CB if, say, UFM's bagels were priced at 45 cents? What if UFM raised its price to 50 cents?

4. Imagine another scenario that involves the logic of the Prisoners' Dilemma. Describe the possible outcomes.

5. Suppose the Prisoners' Dilemma were modified by allowing a third choice for each player – Partly Confess. Suppose further that the prison sentence in years in this modified game are as follows.

Prisoner A, B	Confess	Not	Partly
Confess	2, 2	0, 5	1, 3
Not	5, 0	½, ½	4, ¼
Partly	3, 1	¼, 4	1, 1

   a. Is it true that Prisoner A is better off confessing to the crime no matter what Prison B does?

   b. Is there any other outcome in this game – other than both players confessing 0 which is sensible? Your answer should informally explain why you find any other outcome sensible (if you do).