Economics 104: Game Theory, Spring 2011
Problem Set 1

(O) Questions:

(1) Exercise 6.1 (Alternative Representations of Preferences)

(2) Exercise 18.1 (Hermaphroditic fish)

(3) Exercise 27.1 (Variant of Prisoner's Dilemma with altruistic preferences)

(4) Exercise 27.2 (Selfish and altruistic social behavior)

(5) Exercise 30.1 (Variants of Stag Hunt)

(6) Exercise 31.1 (Extensions of Stag Hunt)

(7) Exercise 34.2 (Voter Participation)

(8) Exercise 38.2 (Dividing Money)

(9) Exercise 42.2 (A Joint Project)

(10) Exercise 47.2 (Nash Equilibrium and Weakly Dominated Actions)

(OR) Questions:

Example 18.6 (A location game): Each of n people chooses whether or not to become a political candidate, and if so which position to take. There is a continuum of citizens, each of whom has a favorite position; the distribution of favorite positions is given by a density function f on $[0, 1]$ with $f(x)$ attracts the votes of those citizens whose favorite positions are closer to his position than to the position of any other candidate; if k candidates choose the same position then each receives the fraction $1/k$ of the votes that the position attracts. The winner of the competition is the candidate who receives the most votes. Each person prefers to be the unique winning candidate than to tie for first place, prefers to tie for first place than to stay out of the competition, and prefers to stay out of the competition than to enter and lose.

(11) Exercise 19.1: Formulate this situation as a strategic game, find the set of Nash equilibria when $n = 2$, and show that there is no Nash equilibrium when $n = 3$.