Statistics 473: Game Theory
Study Guide–Midterm 1

• Midterm 1 is on Tuesday February 26.

• The midterm will cover Chapters 2–4 on strategic games, Nash equilibria, applications to oligopoly and auctions, mixed strategies and the supplementary material on zero-sum games. Notes on the later material can be found on the web at:

$$\text{http://www.math.uic.edu/}\sim\text{marker/stat473-S13/zero-sum.pdf}$$

• There is a week-by-week syllabus on the webpage:

$$\text{http://www.math.uic.edu/}\sim\text{marker/stat473-S13/wtw.html}$$

• A good way to study for the exam is to work on the "Practice Problems" on the webpage. These problems have complete solutions on the author's website.

• ***Most*** of the exam will be similar to the problem sets and practice problems, but there will also be several short answer questions like the ones below.

Sample Short Answer Questions

1) a) Give a complete definition of the concept of *Nash equilibrium* in a strategic game with two players.

b) Give a complete definition of when Player 1's mixed strategy α strongly dominates a pure strategy a.

2) Decide if the following statements are TRUE or FALSE. If FALSE, give an example showing its FALSE.

a) In a strategic game every Pareto optimal outcome is a Nash equilibrium.

b) A pure Nash equilibrium will never use a weakly dominated pure strategy.

c) A pure strategy Nash equilibrium in a zero-sum game must be maxmin solution.