

## Statistics 473: Game Theory

### Study Guide–Final

- Midterm 1 is on Monday May 6 10:30-12:30 .
  - The final will cover all of the material from the course, but will emphasize the material on extensive games of imperfect information and repeated games that we've covered since the last exam.
    - There is a week-by-week syllabus on the webpage:  
<http://www.math.uic.edu/~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.
    - The format of the exam will be similar to the midterms.
- Here are some key points from the last month of the course:

- A sequential equilibrium is made up of strategies for each player and beliefs for each information set containing more than one history such that:
  - *sequential rationality*: at each information set each player is acting optimally given the beliefs
  - *consistency of beliefs*: The beliefs must be consistent with the player’s strategies—though at an information set that is not reached using these strategies any beliefs are consistent.
- When considering infinitely repeated games we assign a discounting factor  $0 \leq \delta < 1$ . (Why?) Understand strategies and be able to decide for which  $\delta$  they give rise to Nash equilibria.
- Understand the statement of the Folk Theorem for both Prisoner’s Dilemma and general finite strategic games.
  - What is the feasible set?
  - What are the minmax payoffs?
  - Which elements of the feasible set can be obtained as discounted average payoffs when  $\delta \approx 1$ ?