Overview:
This course introduces students to one of the most important areas of decision theory, the analysis of strategic choice. The fundamental concepts of rational choice will be thoroughly explained and integrated into a broad overview of noncooperative game theory. Specific topics will include static and dynamic games, games with finite and continuous action spaces, repeated games, and Bayesian games. Common solution concepts will be introduced and motivated from first principles. Applications to a variety of substantive fields will be discussed. The prerequisite for the workshop is a semester of college-level calculus or comparable mathematical knowledge.

Texts:
The following texts are the required texts for this class:


You are further encouraged to consult other game theory texts in doing your readings on particular topics specified below. The texts that I particularly recommend are the following:


Assignments:
Students will be assigned regular homeworks that will be due in class the following day. The homeworks will count for 50% of the grade. In addition, there will an in-class final exam, which will count for 50% of the grade as well.
Schedule of topics and readings:

1. Preferences and utility representations

2. Static Games of Complete Information
   Games in Normal Form
   Osborne 2.1-2.5
   Dominance, Weak Dominance, and Rationalizability
   Osborne Ch. 12
   Gibbons 1.1B
   Nash Equilibria in Pure Strategies
   Osborne 2.6-2.10; 3.3
   Gibbons 1.1C
   Mixed Strategy Nash Equilibria
   Osborne Ch. 4
   Gibbons 1.3A
   Equilibrium Existence
   Gibbons 1.3B

3. Dynamic Games of Complete Information
   Games in Extensive Form
   Osborne 5.1-5.3
   Subgame Perfection and Backward Induction
   Osborne 5.4-5.5; 6.1, 6.3; 7.3, 7.4
   Gibbons 2.1A, 2.2A, 2.4A and B
   Application
   Finitely and Infinitely Repeated Games
   Osborne: Ch. 14; 15.1-15.3
   Gibbons 2.3A and B
   Bargaining
   Osborne: 16.1

4. Static Games of Incomplete Information
   Incomplete Information Games as Imperfect Information Games
   Gibbons 3.1B
   Belief Updating
   Bayesian Equilibrium
   Osborne: 9.1-9.3, 9.5
   Gibbons 3.1C
   Harsanyi’s Purification Theorem
   Gibbons 3.2A
Application: Jury Theorems
       Osborne 9.7

5. *Applied Game Theoretic Models: Interpretations*
   Ariel Rubinstein, “Comments on the Interpretation of Game Theory.”