Instructor: Sukwon Lee (sl2647@nyu.edu)
Office: 19 West 4th Street, #303
Office Hours: Thursdays 1:00-3:00 pm or by appointments

Course Description: Game theory provides general techniques for analyzing strategic situations in which two or more individuals make decisions that will influence one another’s payoff. Therefore, game theory can be applied to any field where there are more than two players’ strategic interactions such as politics, economics, business or even our everyday lives. The purpose of this course is to introduce students to game theory. In particular, along with learning basic techniques of game theory, this course stresses the importance of a correct understanding of the intuitions and concepts of game theory, which is fundamental to applying those concepts to whatever we want to analyze. And possibly how they can be used to address contemporary policy questions.

There are no prerequisites for this course, mathematical or otherwise. High school algebra would be sufficient. If needed, the instructor will explain mathematical concepts necessary to understand/solve the concepts/problems. As other mathematics related subjects, game theory is cumulative. So, please do not hesitate to ask questions. The class meets once a week in a lecture style. Class participation is encouraged.

The basic format of class is, for now, as follows. Game theoretic concepts and techniques will be presented in the first half of sessions, and then students will solve in-class problem sets on their own by active discussion and teaching each other. Thus, in the last half of class students will lead the class by themselves and the instructor will remain as an assistant.

The main text is:


The recommended texts are:


Course Requirements and Grading: The requirements for this course include four homework assignments and two examinations (a midterm and final). The midterm examination is in class on Thursday, Mar 26th. The final exam will be held in class on TBD. Written assignments must be your own work and handed in at the beginning of the class in which they are due (hard copies must be turned in). Attendance at class is both recommended and required. In my experience,
attendance has been a good predictor of students’ performance on exams. In addition, poor attendance will affect your participation grade (it is difficult to participate in class if you are not there).

Your final grade for this course is based on the following:

Class Attendance and Participation – 10%
Written Assignments – 25%
Midterm Exam – 30%
Final Exam – 35%

Late assignments will be penalized for each day they are late.

**Course Policies:** Cheating and other forms of academic dishonesty are serious offenses and will be dealt with accordingly. Students must comply with the New York University policy on academic integrity, which can be found online at [http://cas.nyu.edu/page/academicintegrity](http://cas.nyu.edu/page/academicintegrity).

In the interest of fairness, make-ups to examinations will only be possible in the most extenuating of circumstances. If you are ill or have a university-accepted excuse, you must notify me prior to the exam. You will need to bring in supporting documentation to be granted a make-up exam. After you provide this information and evidence, a decision will be made regarding a make-up.

Students who require disability-related accommodations are encouraged to contact the Moses Center. Please submit your approval letter to me as soon as possible to ensure the successful implementation of any requisite accommodations.

**Schedule:** The following schedule is tentative. If it takes more or less than the allotted time for a particular topic, we will adjust accordingly

**Course Introduction**

**January 30**  
Course introduction. Actions, Preferences, Payoff Functions.

Chapter 1

**February 6**  
Expected Utility (vNM Preferences).
pp.101-105
Recommended: Morrow Chapter 2.

February 13  Normal Form Games: Nash Equilibrium (Pure strategy)

Chapter 2 and 3.3

February 20  Nash Equilibrium (Pure strategy) continued

Chapter 2 and 3.3

February 27  Normal Form games: Nash Equilibrium (Mixed strategy)

Chapter 4.
Recommended: Morrow, pp. 81-88.

March 5  Extensive Form Games: Backward Induction and Subgame Perfection

Chapter 5
Recommended: Chapter 6 (for illustrations)

March 12  Extensive Form Games: Simultaneous Move games and some extensions

Chapter 7

March 19  No Class – Spring Break

March 26  Midterm

April 2  Repeated Games

Chapter 14
Recommended: Morrow Chapter.9
April 9  Bayesian Games (Normal Form)
Chapter.9.1-9.3, 9.5, 9.7

April 16  Bayesian Games (Extensive Form)
Chapter. 10.1-10.4

April 23  Finite Bargaining Games
Chapter. 6.1 and 16.1
Recommended: Morrow, pp.145-156

April 30  Signaling Games
Chapter.10.5-10.9
Recommended: Morrow, pp.222-237

May 7  Final Exam 4:00- 6:00 PM