ECO-4400
Games and Decisions
Spring 2009

Professor: Tim Salmon
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Meeting Times: T-TH 9:30-10:45 AM
Location: BEL 203
Office Hours: T-TH 11:00-12:00 Noon

Course Description:
Game theory is a collection of tools used to study and model strategic decision making. These methods can be used to study optimal decision making in contexts ranging from those normally viewed as "games" such as poker to situations that economists are more concerned with that can include how to place a bid in an auction, how to set prices to draw business from a competitor etc. . . This class will begin by developing the formal tools of game theory and then alternate between showing interesting applications of that theory and developing additional theoretical tools. The types of applications that will be discussed will include a study of optimal auctions, pricing games, optimal contract design, and models of election games. The goal for this class is that by the end of it, students should be able to engage in complex strategic analysis of real world situations.

Prerequisites:

The only necessary prerequisite for this course is ECO-2023 (Principles of Microeconomics) but it is likely that ECO-4101 (Intermediate Micro Theory) will be helpful. Note that this class will make extensive use of mathematics. This will mostly be simple algebra and probability concepts but some basic calculus may be helpful. We will review some of these tools, but basic algebra skills will be assumed.

Course Text:

1. *Games, Strategies and Decision Making* by Joseph E. Harrington, Jr., Worth Publishers. ISBN: 978-0-7167-6630-8

Grading:
Grading for this course will consist of two midterm exams (20% each), one final exam (35%) and problem sets (25%). Numerical scores will be curved. Problem sets will likely be given out every other week.

Course Outline:

1. Introduction
    a. Motivation: Why study Game Theory? – Chapter 1
    b. Modeling Approaches: Normal Form vs. Extensive Form and overview of utility functions – Chapter 2
2. How to solve Normal Form Games

a. Dominant vs. dominated strategies – Chapter 3
b. Nash Equilibrium – Chapters 4 & 6
c. Mixed Strategies – Chapter 7

Mid-Term Exam I

3. How to solve Extensive Form Games
    a. Backwards induction – Chapter 8
    b. Equilibrium Refinements
    c. Repeated Games – Chapters 13 & 14
4. Information Theory
    a. Incomplete Information – Chapter 10
    b. Principal/Agent Problem
    c. Adverse Selection or the Lemons Problem – Chapter 11 & 12

Mid-Term Exam II

5. Mechanism Design and Auction Theory – Online Notes
6. Social Choice Theory or Models of Voting and Elections

Final Exam, Tuesday April 28th 10:00- Noon

HONOR CODE: Academic dishonesty as it relates to tests in this course will not be tolerated in any form. The Academic Honor system of the Florida State University is based on the premise that each student has the responsibility to:

Uphold the highest standards of academic integrity in the student's own work;
Refuse to tolerate violations of academic integrity;
Foster a high sense of integrity and social responsibility.

Put simply, cheating will not be tolerated. If an instance of academic dishonesty takes place, all students involved will receive a zero for that exam and the grade may not be dropped.

AMERICAN DISABILITIES ACT STATEMENT: Students with disabilities needing academic accommodations should:

Register with and provide documentation to the Student Disability Resource Center (SDRC);
Bring a letter to the instructor from SDRC indicating that you need academic accommodations. This should be done within the first week of class.