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# SI 563. Game Theory

## Fall Term 2008

### Syllabus

#### **Required Text:**

*Strategy: An Introduction to Game Theory* (2<sup>nd</sup> Edition) by Joel Watson, Norton Publishing. Selected chapters (pdf) are posted on ctools, under Resource/Watson.

#### **Course Description:**

This is a standard course in "game theory," designed with the School of Information MSI students as the primary audience. This course is the pre-requisite for several ICD courses. To be well-prepared for management, policy and analysis in the information professions you need to first have a solid grounding in game theory and its applications to problem solving. Thus, the primary objective is to teach you a set of useful theories and how to apply them to solve problems. The emphasis is on method and application. You will, consequently, be expected to do a lot of problem-solving homework. It is essential to practice the skills if you want to learn how to use them (and to succeed in the course).

#### **Course Requirements:**

There will be approximately 6 homework assignments. I strongly encourage you to form "**partnerships**" of two or three students to work on your homework problems. Partnerships can turn in a single homework, signed by all members. Assignments are due at the beginning of your assigned lecture period (Thursday 1:10pm), unless otherwise specified. Assignments should be submitted in hard copy.

We will return graded assignments in your mailboxes no later than two weeks after the original due date. An answer key for the assignment will be posted to CTools on the Thursday following the assignment due date.

There will be an in-class final exam on 10/16/2008. It is closed-book, closednotes, but you will be allowed to have a 2-sided "cheat sheet" and a non-graphical calculator. I will post sample exams from past years. The final exam will be one hour and 20 minutes long, held during regular lecture hours in the regular classroom. You are responsible for attending the exam. No make-ups will be held except for students with a medical excuse from a doctor.

#### **Basis for Course Grades**

**Homework 60%:** In order to receive credit for a homework assignment, you must turn it in on time. One point will be deducted from your total for every 24 hours of delay.

**Final Exam 40%:** There will be no make-up final except for students with a medical excuse from a doctor.

**Distribution of grades:** Students above the median will receive A+, A, and A-, while those below the median will receive B+ or below.

**Course Schedule:**

<b>Week #</b>	<b>Dates</b>	<b>Lecture Topic</b>	<b>Readings</b>	<b>Homework</b>
1	Sep. 2, 4	Introduction; Representing games	Ch. 1-5	
2	Sep. 9, 11	Dominance; Nash Equilibrium	Ch. 6, 7, 9-12	Representation
3	Sep. 16, 18	SPNE; Bargaining	Ch.14-16, 18, 19	Dominance; Nash
4	Sep. 23, 25	Repeated games and reputation	Ch. 22, 23	SPNE; Bargaining
5	Sep. 30, Oct. 2	Information: Bayesian Nash Equilibrium	Ch. 24-27	Repeated games
6	Oct. 7, 9	Information: Perfect Bayesian Equilibrium	Ch. 28, 29	Bayesian Nash Equilibrium
7	Oct. 14, 16	Review; Final exam		