Introduction to Game Theory

**Class location/time:** KTH 109/Tuesday 13:30 – 14:20, Thursday 12:30 – 14:20

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**Course Objectives**
This course introduces the basic concepts of game theory. The emphasis is on the unifying perspective that game theory offers to questions in economics, other disciplines, and everyday life. The course covers a wide range of applications of game theory across different areas in economics, political science, biology, sociology, and other disciplines. It will enable us to consider numerous social interactions as strategic games and to use game-theoretic concepts in order to predict outcomes of these interactions.

**Course Materials**


**Supplementary books:**

**Tentative Course Outline**

**Defining games:** players, rules, objectives, game matrices and trees, strategies, incomplete information

**Concepts:** rationality, utility maximization, efficiency, expected utility, strategic dominance, best response, Nash equilibrium, backward induction, sub-game perfection

**Applications:** markets, auctions, collective actions, voting, lobbying, public good provision

**Textbook Chapters (as the course proceeds):**
1 Introduction
2 Nash Equilibrium: Theory
3 Nash Equilibrium: Illustrations
4 Mixed Strategy Equilibrium
5 Extensive Games with Perfect Information: Theory
6 Extensive Games with Perfect Information: Illustrations
9 Bayesian Games
8 Coalitional Games and the Core

**Evaluation**

**Final grades** will be based on: the mid-term exams (60%) and the final exam (40%). There will be two mid-term in-class exams. Each mid-term exam is worth 30% of your final grade. The dates of the mid-term exams are:
- February 8 and March 8.

There will be two in-class problem-solving sessions to help you better prepare for the mid-term exams. The dates of the sessions are:
- February 1 and March 1.
The final exam is worth 40% of your final grade. The final exam is administered during the final exam week and is comprehensive. The final exam is scheduled by the Registrar, and missed final exams will be dealt with under the Registrar's rules.

Missed exams: if you have a valid and verified reason not to take the midterm exam, you must notify the instructor within the time frame specified by the university policies. In this case, you will have to take the make-up midterm exam (usually within 7 days since the date of the missed exam). The format of the make-up exam is identical to the format of the missed exam. Because the weight of each mid-term exam is 30%, in the case of missing the mid-term exam you must come the Faculty Office and submit supporting documentation. Filling up the MSAF form only is NOT sufficient for missing mid-term exams.

Grading: The grades are based on the cumulative distribution of scores at the end of the semester with the following percentiles: A – 20-25%, B – 25-30%, C – 25-30%, D – 10-15%, F – 10-15%. These numbers are approximate. “+”s, “−”s, and minor adjustments (for example, because some students drop the class before the end of the semester, many students receive similar scores, etc.), if needed, will be taken into account at the end of the semester.

NOTE: The grading scheme is fixed. All requests about changing it, for example, using the standard grading system, reallocating the weights of exams, dropping the lowest score, providing extra work, etc. will be DISREGARDED.

Calculators
Only university approved calculators will be permitted in the mid-term and the final exams.

Photo ID
You will be required to show your university photo ID at all tests and the exam.

COURSE MODIFICATION WARNING
The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

ACADEMIC DISHONESTY
Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at http://www.mcmaster.ca/academicintegrity/

FACULTY OF SOCIAL SCIENCES E-MAIL COMMUNICATION POLICY
Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student’s own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student’s responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.

Last updated: January 3, 2018