

Concordia University  
Concordia Institute for Information Systems Engineering

INSE 6441—Game Theory and Mechanism Design

Winter 2017

This document gives important information about the course, which may be subject to change during the semester. Information about the course, lecture notes, additional reading material will be available on the course webpage: <https://users.encs.concordia.ca/~jiayuan/gt17/>. Announcements, assignments, important deadlines, and updates, will be communicated on Moodle. Please consult Moodle and the webpage regularly for updates.

## 1 Prerequisites

Undergraduate probability, calculus, and linear algebra.

## 2 Course Description

This is a first course in game theory, with applications, and a project.

Reference books:

1. Game Theory, D. Fudenberg and J. Tirole.
2. Game Theory: Analysis of Conflict, R. Myerson.
3. Microeconomics Theory, Andreu Mas-Colell, Michael D. Whinston, Jerry R. Green.

### 2.1 Topics

The required reading for the course and an approximate timetable are shown below. Students will benefit greatly by reading the relevant section of the textbook and lecture notes before coming to class. We may vary the order in which the material is presented to accommodate class progress.

1. Strategic Form and Nash Equilibrium (Chapter 1 of FT)
2. Extensive Form (Chapter 3 of FT)
3. Bayesian Games (Chapter 6 of FT)
4. Mechanism Design (Chapter 7 of FT)
5. Equilibrium Refinements (Chapter 8 of FT)

### 2.2 Attendance

Students are responsible for all material presented in lectures. Lecture notes are not meant to be complete.

## 3 Grading

- Assignments (10%)
- Project (30%)
- Term Test (30%)
- Final Exam (30%)

If the mark for the final exam (as a percentage out of 100) is higher than the term test mark (as a percentage out of 100) then the weight of that term test will be shifted to the final exam. Thus students will benefit from better performance on the final exam.

The marks in this course are “curved.” There is no standard relationship between numerical percentages and the final letter grades. In the event of extraordinary circumstances beyond the Universitys control, the content and/or evaluation scheme in this course is subject to change.

### 3.1 Assignments

There will be two assignments that will be posted on the course webpage. The instructor will announce a time and place to submit your solutions. Late assignments will not be accepted.

While discussion of the assigned problems among students is encouraged, each student must solve the assignment problems independently. Students should be aware of the Universitys Code of Conduct (Section 17.10.3 of the Undergraduate Calendar) concerning cheating, plagiarism, and the possible consequences of violating this code. A signed Expectations of Originality form, available from the course website, must be completed, signed, and submitted to the instructor no later than the second week of classes. Solutions to assignments must start with the students name and I.D. number, the course number and section number, the instructors name, the assignment number, and the date of submission. Furthermore, on each submitted assignment you must write the following statement: “I certify that this submission is my original work and meets the Facultys Expectations of Originality,” together with your signature.

### 3.2 Research Project

You may choose to be the project alone or in pairs. The topic of the research project must be a problem in the area of supply chains. The output of the research project will be a report and a presentation. This report can either provide a solution to the problem or give a survey of other works solving this problem. A research topic proposal should be submitted before Oct. 8, 2015. The project will be marked based on the group performance and each individuals contribution to the project. Projects are submitted through Concordia Moodle.