



**FACULTY OF LIBERAL ARTS & PROFESSIONAL STUDIES  
DEPARTMENT OF ECONOMICS**

**GAME THEORY IN ECONOMICS  
ECON 4130**

Fall 2020  
MONDAY, 11:30 AM – 2:30 PM

**(Tentative)**

**Instructor:** Selçuk Özyurt

E-mail : ozyurt@yorku.ca (Always include “ECON 4130” in the subject line)  
Review Sessions : Mondays from 12:00 PM to 1:00 PM  
Virtual Office Hours : Mondays from 1:00 PM to 2:00 PM

**Teaching Assistant:** TBA

e-mail : TBA  
Virtual Office Hours : TBA

**Course Description and Objective:**

This course is an undergraduate level introduction to game theory and strategic thinking. It introduces the theory of non-cooperative games with emphasis on economic applications. Game theory is the study of multi-person decision problems where action of each decision maker (player) influences payoffs of others. In such environments, optimal decision may require strategic thinking; how one’s action will influence the incentives of other players and whether others are aware of this interconnection.

Success in this course requires strong analytical and logical thinking and the habit of drawing conclusions based on qualitative information. Although the course requires a working knowledge of calculus (e.g. functions of one or several variables, derivatives), probability (e.g. random variables, probability distributions, conditional probabilities, expectations) and optimization, we will review, to some extent, each notion before using it.

At the end of the course, students should be able to

- formulate any strategic interaction as a game form,
- understand solution concepts in normal and extensive form games, and
- develop analytical and problem-solving skills to analyze games.

This course is also a good preparation for students who are interested in pursuing graduate work in economics and finance.

### **Course Textbooks:**

#### Main textbook:

“*Strategy: An introduction to Game Theory*” by Joel Watson.

We will cover (as time permits) all chapters of this textbook.

#### Additional (suggested) textbooks:

“*An Introduction to Game Theory*” by Martin Osborne

“*Game Theory for Applied Economists*” by Robert Gibbons

### **Course Regulations:**

This will be a remotely delivered course and there will be no in-person interactions. There will be both synchronously (live) and asynchronously delivered content. All Lectures will be delivered asynchronously (recorded videos) through eClass (with a link to YouTube). I will run weekly review sessions and virtual office hours synchronously through Zoom. Lecture videos will be posted every Monday (after 6:00PM). You will have a week to go over the lecture videos on your own pace. On Mondays, I will hold 1-hour review session from 12:00PM to 1:00PM, where I will review the materials that were posted a week earlier, solve extra problems, and answer your questions. I will also hold virtual office hours on Mondays from 1:00PM to 2:00PM, where students can meet me individually and ask their questions. Review sessions and virtual office hours on Zoom will also be recorded. Recorded review sessions will be posted on eClass for you to review later on your own pace. Recorded virtual office hours, however, will NOT be posted on eClass, and be shared (upon request) only with the participating students. Students must make an appointment for virtual office hours. More information about virtual office hours and Zoom connections are provided on the eClass website of the course.

During review sessions on Zoom, students do not have to appear on videos. However, if you plan to ask a question or talk to me during virtual office hours, then you will need a microphone and stable internet connection. In case you cannot participate to a review session or virtual office hours, but have questions to be answered, you can e-mail me your questions. Please see the e-mailing policy on eClass website of the course for further detail.

Your final course grade will be calculated with your total score from weekly quizzes and/or problem sets (assignments in short) according to the following scheme:

100 – 90	A+
90 – 80	A
80 - 75	B+
75 - 70	B
70 – 65	C+
65 – 60	C
60 – 55	D+
55 – 50	D
50 – 40	E
40 – 0	F

You should expect at least one assignment every week throughout the semester. The total workload of this course should not exceed a regular course workload with 4-6 problem sets, two midterms, and a final exam. Some assignments will have more/less weight than others. Nevertheless, the lowest 25% (e.g., 3 out of 12 or 4 out of 16) of these assignments will be dropped out of calculation. Assignments will be delivered and submitted on eClass and you will have 48- or 96-hours window to submit your answers. Once you start a quiz, you will have 30 minutes to 2-hour time frame to complete the quiz (depending on the difficulty of questions). However, you will have full 96 hours (4 days) for problem sets. Questions in assignments may include (1) multiple choices (2) open-ended essays, (3) derivations/proofs, and (4) problem solving.

Other than assignments, no extra credit or additional work will be offered, and grades cannot be negotiated. All assignments are open book. **Collaboration is permitted in problem sets but not in quizzes.** In fact, I strongly advise you to work on problem sets as groups. Each group can submit one problem set. However, you MUST work on and answer quiz questions alone, without getting any help from somebody else. If you miss an assignment for any reason, then you will simply get 0 point from that assignment, and there will be no make-up for any missed assignments.

Some assignments (mostly quizzes) will be completed online via eClass. However, some others will require you to type your answer and upload the pdf document on eClass. In such instances you must type your answers via scientific typing software, such as Word, Scientific Workplace, or LaTeX. I strongly advise you to learn LaTeX, which is a freely available software for scientific writing. **Handwritings will not be accepted after the first three weeks.**

### Important Dates

Wednesday, Sept. 9 – Fall 2020 semester begins

**Monday, Sept. 14 – Our first class**

Tuesday, Sept. 22 – Last day of ADD without permission

Tuesday, Oct. 6 – Last day of ADD with permission

**Monday, Oct. 12 – No class (Thanksgiving/ Reading week)**

Friday, Nov. 6 – Last day of DROP

**Monday, Dec. 7 – Our last class**

Tuesday, Dec. 8 – Fall 2020 semester ends

## **Important Course Information**

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage (see Reports, Initiatives, Documents) - <http://secretariat-policies.info.yorku.ca>

- Senate Policy on Academic Honesty and the Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

I wish you a nice and fulfilling semester!