

# Game Theory

**MATH4807/5607W, Winter 2022**

[School of Mathematics and Statistics, Carleton University](#)

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## **Instructor:**

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## **General Information**

### **Textbook:**

The course textbook is "[Game Theory and Strategy](#)" by Philip D. Straffin and is available online at [the library](#). The textbook and the following books are available on library reserve

- "[Game theory: a playful introduction](#)" by Matthew DeVos and Deborah A. Kent,
- "[Game theory and the humanities](#)" by Steven J. Brams,
- "[Game theory](#)" by Guillermo Owen,
- "[Game theory](#)" by Drew Fudenberg and Jean Tirole,
- "[Game theory](#)" by Shmuel Zamir, Eilon Solan and Michael Maschler.
- "[Game theory A Multi-Leveled Approach](#)" by Hans Peters.
- "[Game Theory](#)" by Andrew McEachern.

Other books which the library has only physical copies of will hopefully be available once a return to campus is possible:

- [Games and decision making](#) by Charalambros D. Aliprantis and Subir K. Chakrabarti,

Tomas S. Ferguson's book, "[Game Theory](#)" is available online.

### **Prerequisites:**

[MATH 3801](#) or permission of the School.

**Classes:**

Tuesday 14:35-15:55, Thursday 14:25-15:55.

Room: NI3040 (once return to campus is possible)

**Office hours:** Tuesday 13:30-14:30 or by appointment.

**Classes begin:** Tuesday 2022-01-11 **Classes end:** 2020-04-12

**Term mark:** There will be three assignments and a term project. The tentative schedule is:

Item	Due Date	value
Homework 1	2022-01-25	25%
Homework 2	2022-03-03	25%
Homework 3	2022-04-12	25%
Project	last week(s) of classes	25%

The term project consists of an oral presentation to the class during last week(s) of classes and a short written essay due on 2022-04-12.

Emergencies recognized by the University Regulations with verifiable supporting documentation, will be the only excuses accepted for any missed term work. Students who miss writing a test or submitting an assignment should bring appropriate documentation and contact the instructor as soon as possible to make arrangements.

**Students from Univ. of Ottawa should contact Faculty of Graduate and Postdoctoral Affaires Carleton University (512 Tory Building) to obtain access to cuLearn.**

**Plagiarism and Cheating:**

**Plagiarism** is defined in the undergraduate calendar as an instructional offense that occurs when a student uses or passes off "as one's own idea or product, work of another without expressly giving credit". This includes plagiarism involving material lifted from the Internet. Plagiarism is a serious offense. The penalties for students who have been found to have plagiarized are a failed grade at the least sever and suspension, expulsion or notation on transcripts for serious or repeated cases. Plagiarism is just one form of **Cheating**. All forms of cheating are taken very seriously and will be dealt with swiftly and severely.

**Academic Accommodation** You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

- **Pregnancy obligation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the [Student Guide](#)
- **Religious obligation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the [Student Guide](#)
- **Students with disabilities** requiring academic accommodations in this course must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Documented disabilities could include but are not limited to mobility/physical impairments, specific Learning Disabilities (LD), psychiatric/psychological disabilities, sensory disabilities, Attention Deficit Hyperactivity Disorder (ADHD), and chronic medical conditions. Registered PMC students are required to contact the PMC, 613-520-6608, every term to ensure that I receive your Letter of Accommodation, no later than two weeks before the first assignment is due or the first in-class test/midterm requiring accommodations. If you only require accommodations for your formally scheduled exam(s) in this course, please submit your request for accommodations to PMC by the deadlines published on the [PMC website](#).

**List of Topics Covered:** One-person games, The Expected Value Principle, two-person zero-sum games, matrix games and linear programs, general two-person games, multistage games, game trees, utility theory, n-person games, Nash equilibrium, applications of game theory.

These topics are subject to change