

## Economics 373 (L01)

### Game Theory and Strategic Thinking for Social Sciences

Instructor:	L. Vojtassak	Lecture Location:	EDC 388
Phone:	403 220 6550	Lecture Days/Time:	MWF 14:00 – 14:50
Email:	<a href="mailto:lvojtass@ucalgary.ca">lvojtass@ucalgary.ca</a>		
Office:	SS336		
Office Hours:	M 15:00 – 15:50, F 9:00 – 9:50	Winter 2024	

#### Course Description:

An introduction to the principles of game theory utilizing a non-mathematical and intuitive approach. The principles of strategic thinking are illustrated by application and examples in economics and other social sciences.

#### Course Learning Outcomes:

The objective is to develop the ability of students to reason strategically and to understand how game theory can be used to explain social interaction. By the end of the course students are supposed to be

1. Able to build a model of a strategic situation with simultaneous moves;
2. Able to recognize many of such strategic situations in their lives, and in the environment around;
3. Able to use concept of best response and dominant strategies in equilibrium thinking;
4. Able to assess the equilibrium from the efficiency point of view;
5. Able to model and analyze strategic situation in games where representative player is one of many players of one or few types and apply it to (asymmetric) public goods problems;
6. Able to understand expected utility approach, how to use it and its implication in analysis of the individual attitude toward the risk;
7. Able to build and solve strategic situation where the actions are chosen randomly and use this concept in the equilibrium thinking of the evolutionary games;
8. Able to build a model of a strategic situation with sequential moves, analyze subgame perfect equilibrium and assess its optimality;
9. Able to understand how to use credible promises and threats in a clever way of manipulating the world to own advantage and apply it in individual situations, common pool problems, firms' positioning strategies;
10. Able to solve repeated "prisoners' dilemma" type games with not efficient equilibrium and suggest alternative strategies with credible promises and threats in richer strategy space that would support more efficient outcome.

#### Course Outline:

1. Introduction to games and strategic thinking	1, 2, 3.1 – 3.3, 4
2. Prisoner's dilemma games and Nash equilibrium	4, 5, 11,
3. Uncertainty, asymmetric information and credibility	4, 9, 11, appendix 7

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|---|-------------|
| 4. Mixed strategies and evolutionary games      | 4, 7, 9, 12 |
| 5. Sequential move games and backward induction | 3, 4, 8, 11 |
| 6. Repeated games                               | 3, 10       |

**Prerequisites/corequisites:**

Economics 201.

**Required Textbook(s):**

Dixit, A., Skeath, S., and McAdams, D. (2020). *Games of Strategy*. 5th Edition. WW Norton.

**Recommended Textbook(s):**

Dixit, A., Skeath, S., and Reiley, D. (2015). *Games of Strategy*. 4th Edition. WW Norton.

Dixit, A., and Nalebuff, B. (1993). *Thinking Strategically: The Competitive Edge In Business Politics And Everyday Life*. 4<sup>th</sup> Edition. WW Norton.

Dutta, P. (1999). *Strategies and Games*. The MIT Press.

Carmichael, F. (2005). *A Guide to Game Theory*. Prentice Hall.

**Required Access to Technology(s):**

A cellphone in the class for TopHat activities.

**Desire2Learn:**

This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at <http://d2l.ucalgary.ca> through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

**Grade Determination**

5 tests, 4 best counts	12.5% each	<b>50%</b>	January 24, February 5, February 26, March 11, March 27, 2024
Participation		<b>15%</b>	Games and discussions during lectures
Final Examination		<b>35%</b>	
		100%	

**Examination Details:**

Tests and exam will not involve multiple choice questions.

Communicating calculators, cellphones, textbooks, course notes, and other electronic devices will not be allowed during the writing of tests or final examinations. Students are reminded that simply being able to access their cellphone during an exam is academic misconduct.

**Grading Policies:**

The official grading system will be used. See <http://www.ucalgary.ca/pubs/calendar/current/f-1-1.html>.

Students must receive a passing grade on the final exam to pass the course. Students committing academic misconduct during the final exam will not receive a passing grade for the course. If a student's letter grade on the final exam exceeds their midterm(s) letter grade, the weight of the midterm(s) is (are) transferred to the final exam. The student must have written the midterm(s) or provided supporting documentation for the absence(s).

As per the Writing Across the Curriculum Statement in the Calendar, writing and grading thereof will be a factor in the evaluation of student work. [See https://www.ucalgary.ca/pubs/calendar/current/e-2.html](https://www.ucalgary.ca/pubs/calendar/current/e-2.html).

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES/TESTS/EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the quizzes/tests/exams because of documented illness, family emergency, religious observance, or university-sanctioned event will have the weight shifted to the final examination; otherwise a grade of zero will be assigned.

The final examination will be comprehensive, scheduled by the Registrar, held in a classroom, and last 2 hours. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam <https://www.ucalgary.ca/pubs/calendar/current/g-3-4.html>. Under no circumstance will this be accommodated by the Department.

Any student work which remains undistributed after the last day of classes will be available to students through the instructor's office during the instructor's office hours.

**Reappraisal of Grades:**

*For Reappraisal of Graded Term Work, see Calendar I.2*

<http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

*For Reappraisal of Final Grade, see Calendar I.3*

<http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

**Academic Misconduct and Intellectual Honesty:**

Academic Misconduct refers to student behavior that compromises proper assessment of students' academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

*Statement of Intellectual Honesty, see Calendar K.3*

<https://www.ucalgary.ca/pubs/calendar/current/k-3.html>

*Plagiarism and Other Academic Misconduct*

<https://ucalgary.ca/student-services/student-success/learning/academic-integrity>

**Academic Accommodations:**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services. SAS will process the request and issue letters of accommodation to instructors. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their instructor. The full policy on Student Accommodations is available at

<https://www.ucalgary.ca/legalservices/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf> and <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>.

**Freedom of Information and Protection of Privacy (FOIP) Act:**

Personal information is collected in accordance with FOIP. Assignments can only be returned to the student and will be accessible only to authorized faculty and staff. For more information, see <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/faq-privacy-faculty-members.pdf> and <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/faq-privacy-students.pdf>

**Internet and Electronic Communication Device Information:**

The use of cell phones for any purpose in class is prohibited. Computers and tablets may be used for note taking only unless otherwise authorized by the instructor.

**Copyright Legislation:**

See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf>. Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

**Recording of Lectures:**

Recording of lectures is prohibited, except for audio recordings authorized as an accommodation by SAS or an audio recording for individual private study and only with the written permission of the instructor. Any unauthorized electronic or mechanical recording of lectures, their transcription, copying, or distribution, constitutes academic misconduct. See <https://www.ucalgary.ca/pubs/calendar/current/e-6.html>.

**Instructor Intellectual Property:**

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

**Important Dates:**

Please check: <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>.

**Student Organizations:**

Faculty of Arts Students' Association (F.A.S.A.):

Economics Department Representative

Office: SS 803, E-mail: [econrep@fasaucalgary.ca](mailto:econrep@fasaucalgary.ca) and Web: [www.fasaucalgary.ca](http://www.fasaucalgary.ca).

Society of Undergraduates in Economics: <https://www.ucalgarysue.com/>.

Society of Undergraduates in Economics is a student run organization whose main purpose is to assist undergraduate economics students to succeed both academically and socially at the University of Calgary. Services include access to the exam bank, career events such as Industry Night and information

sessions, mentorship programs, and social events for members. They invite you to join by contacting SUE at [sue@ucalgarysue.com](mailto:sue@ucalgarysue.com)

**Faculty of Arts Program Advising and Student Information Resources:**

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580, or email them at [artsads@ucalgary.ca](mailto:artsads@ucalgary.ca). You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate>, which has detailed information on common academic concerns, including program planning and advice.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Tower.

**Student Support and Resources:**

- See <https://www.ucalgary.ca/registrar/registration/course-outlines> for information on campus mental health resources, the Student Ombuds Office, Student Success Centre, Safewalk, and Emergency Evacuation and Assembly.
- Online writing resources are available at <https://ucalgary.ca/student-services/student-success/writing-support>.

**Notes:**

1. Students are responsible for all assigned material, e.g., supplementary material posted on D2L, regardless of whether or not the material was covered in class.
2. Please note that the following types of emails will receive no response: emails not addressed to anyone in particular; emails where the recipient's name is not spelled correctly; anonymous emails; emails in which the sender has not identified which course and section he/she is taking; and, emails involving questions that are specifically addressed on this course outline.