

## Economics 373(L01)

### Game Theory and Strategic Thinking for Social Sciences

Instructor: L. Vojtassak  
Phone: 403 220 6550  
Email: lvojtass@ucalgary.ca

Lecture Location: ICT 114  
Lecture Days/Time: TR 9:30 – 10:45

Office: SS 336  
Office Hours: MF 15:00 – 15:50  
TR 11:00 – 11:50

Winter 2020

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#### 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:**

Chapter references in the following outline are to the textbook

		Chapters
Jan 14 – 21, 2020	1. Introduction to games and strategic thinking	1, 2, 3.1 – 3.3, 4
Jan 23 – Feb 6, 2020	2. Prisoner's dilemma games and Nash equilibrium	4, 5, 11,
Feb 11 – March 3, 2020	3. Uncertainty, asymmetric information and credibility	4, 11, appendices 7 and 8,
March 5 – March 17, 2020	4. Mixed strategies and evolutionary games	4, 7, 8, 12
March 19 – April 7, 2020	5. Sequential move games and backward induction	3, 4, 9, 11
April 9 – April 14, 2020	6. Repeated games	3, 10

**Prerequisites/corequisites:**

Economics 201 and 203.

**Required Textbook(s):**

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

**Books on Reserve:**

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.

**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 and Final Examination Details:**

4 Tests	17.5% each	<b>70%</b>	Jan 30, Feb 25, March 17, and March 31, 2020
Final Examination		<b>30%</b>	
		<b>100%</b>	

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

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

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) such as a medical note or statutory declaration.

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).

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.

Tests and exams **WILL NOT** involve multiple choice questions.

Programmable 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.

Test 3 and 4 will be written on originally scheduled dates. These tests will be written home and will be closed book. Students are reminded that simply being able to access any help is academic misconduct. Students will be given extra time for D2L submission.

The final examination will be comprehensive, an open-book, take-home exam. The exam will be available on D2L 24 hours before the end of the Registrar's scheduled final exam time. Students will hand in their exam in pdf format on D2L prior to the end of the scheduled completion time of their final exam. The final was scheduled by the Registrar's Office from 8:30-10:30 on April 20, the exam will be available on D2L at 10:30 on April 19 and is to be submitted on D2L before 10:30 on April 20. If a student cannot write their final exam during this interval, they need to apply for a deferred exam at [www.ucalgary.ca/registrar/exams/deferred\\_final](http://www.ucalgary.ca/registrar/exams/deferred_final). Under no circumstance will this be accommodated by the Department.

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.

**Reappraisal of Grades and Intellectual Honesty:**

*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>

*Statement of Intellectual Honesty, see Calendar K.4*

<http://www.ucalgary.ca/pubs/calendar/current/k-4.html>

*Plagiarism and Other Academic Misconduct, see Calendar K.5*

<http://www.ucalgary.ca/pubs/calendar/current/k-5.html>

**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 <http://www.ucalgary.ca/policies/files/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 <http://www.ucalgary.ca/legalservices/files/legalservices/faq-students.pdf> and [http://www.ucalgary.ca/legalservices/files/legalservices/faq-faculty\\_0.pdf](http://www.ucalgary.ca/legalservices/files/legalservices/faq-faculty_0.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 [www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf](http://www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.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>.

**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 [societyofundergradsineconomics@gmail.com](mailto:societyofundergradsineconomics@gmail.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 Library Block.

**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.

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