

Economics 550 (CRN: 11177)
Game Theory for Economists
Fall 2021

Instructor: Dr. Daniel Rondeau, BEC 342, E-mail: rondeau@uvic.ca
Office Hours: Thursdays 13:30 – 15:00 or by appointment
Classes: T-Th 16:30 – 17:50, CUN 146
Lab: Wednesdays 17:30 - 18:20 BEC160
webpage: <http://web.uvic.ca/~rondeau/econ450> (Use your Uvic NetLinkID)
Brightspace: <https://bright.uvic.ca/d2l/home/171091>

Course Overview:

Game Theory is concerned with how individuals make decisions when they are aware that the actions of others affect their wellbeing, and that their actions affect the welfare of others. This interaction among decision-makers who behave purposefully, but whose individual interests can often be at odds with those of others result in “*strategic*” decisions.

Any situation involving strategic interaction between economic agents can be thought of as a “game”, and the agents involved as “players”. During the course, we will examine several types of games categorized mainly according to two criteria: 1) whether a game is “static” or “dynamic”; and 2) whether or not players have “complete” or “incomplete” information about the circumstances of the game. We will play simplified representations of more complex games, and whenever possible, we will relate our simplified games to identifiable elements of observable economic situations. This will allow us to look at strategic interactions in the context of simple childhood games (e.g. tic-tac-toe, rock-paper-scissors), in games often used by economists to isolate basic incentives (e.g. chicken, prisoner’s dilemma, beauty contest), as well as in a selection of economic situations such as auction bidding, bargaining, imperfect markets, voluntary funding of public goods, voting, agenda manipulation, sports contests and many others.

At the end of the course, students should be able to categorize games according to the primary criteria described above as well as secondary criteria; apply the appropriate solution method to solve for the game's equilibrium; understand how some equilibria can be affected by policy actions; and have developed insights on the important but difficult task of testing theory against human behavior.

Course Outline

1. Introduction
2. Static Games with Complete Information
(Recommended supplementary reading Gibbons Ch. 1 also B&F Chapters 1, 2, 4, 5 and 10)
3. Dynamic Games with Complete Information
(Recommended supplementary reading Gibbons Ch. 2 (also B&F Chapters 6, 7 and 9)
4. Static Games with Incomplete Information
(Recommended supplementary reading Gibbons Ch. 3 (also B&F Chapters 13 and 14)
5. Dynamic Games with Incomplete Information
(Recommended supplementary reading Gibbons Ch. 4 (also B&F Chapter 15)

Text and Course Material

There is no required text for the course. However, the supplementary reading is strongly recommended. It is drawn from

- Robert Gibbons, Game Theory for Applied Economists. Princeton University Press, 1992; and,
- Bierman and Fernandez, Game Theory with Economic Applications, Second Edition, published by Addison-Wesley. This is a more chatty text than Gibbons.

All lecture notes are available on the course web page and updated as the semester proceeds.

Grading:

Grading for the course will be based on two mid-term examinations, a final examination, lab participation and a term paper. Students are encouraged to share with the class examples of strategic situations they encounter in everyday life or read about in papers, etc.

The weight of each element in the final grade will be:

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| Lab Attendance* | 5% |
| Best of two mid-terms (October 19 and November 18) | 20% |
| Worst of two mid-terms (October 19 and November 18) | 15% |
| Term paper (see course page for guidelines) | 25% |
| - 3 points for proposal due no later than October 16 | |
| - 22 points for full paper, due no later than December 6 at 3:00pm | |
| Final Exam (cumulative) if in person (3 hours) | 35% |

OR (should the final exam be forced online due to pandemic restrictions)**

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|---|-----|
| - Written final (cumulative, format to be determined) | 25% |
| - 15 minute oral examination via zoom | 10% |

The term paper deadline is firm. Late submissions incur a 20% penalty per day. Plan ahead.

* Grades for lab attendance are assigned negatively: students who miss a lab lose one point. There are typically 8 labs during the semester. Missing 5 or more results in a grade of zero on attendance.

** Should we have to revert to online course delivery and examinations, the final exam will be followed by a 15 minute oral examination via zoom, during which the concepts examined during the written final exam will be tested again to ensure the integrity of final grades. Students can be expected to explain and elaborate on their written exam answers and articulate orally an understanding of course concepts.

Percentage grade translates to a UVic letter grade as follows:

90-100: A+; 85-89: A; 80-84: A- Grades of A+, A and A- are given to exceptional, outstanding and excellent performance. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.

77-79: B+; 73-76: B; 70-72: B- Grades of B+, B and B- are given for very good, good and solid performance. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.

65-69: C+; 60-64: C; Grades of C and C+ are given for satisfactory, or minimally satisfactory performance. These grades indicate a satisfactory performance and knowledge of the subject matter. Note that a grade of C or better is required in econ 203 in order to obtain an economics degree.

50-59: D; A grade of D indicates a marginal performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.

0-49: F (Fail); Unsatisfactory performance. Wrote final examination and completed course requirements.

N: Did not write examination or complete course requirements by the end of the term.

No E grade will be awarded in this course.

Students who have questions or concerns regarding their grade should come to office hours. All concerns must be brought to my attention no later than one week after the graded material was returned to the student. After one week the assigned grade is final.

Exams cannot be retaken and no extra graded work can be done to improve your grade.

Accommodations for students with delayed arrivals due to pandemic restrictions

- 1) lab attendance requirements for labs missed during this period will be waved. No mark will be lost for missing those labs.
- 2) Students whose arrival in Victoria is being prevented or who will be in quarantine should email me to indicate the time they expect to join class.
- 3) Lab attendance requirements for labs missed during this period will be waved. The first exam is on October 19. Anyone joining the course before that date will be able to study with the material posted to the course page and will be expected to write the exam on October 19th. If a student cannot be in Victoria for the first midterm, a make up exam will be scheduled for a later date after their arrival. Because of the flagrant and rampant violations of academic integrity I observed last year as Chair of the Department, no examination will be done online (unless the course must be turned entirely to online delivery because of the pandemic).
- 4) **IT IS NOT POSSIBLE TO TAKE THIS COURSE FULLY REMOTELY. STUDENTS WHO ANTICIPATE BEING UNABLE TO JOIN THE COURSE IN PERSON BEFORE THE SECOND MIDTERM (NOVEMBER 23) SHOULD NOT TAKE THE COURSE.** Students must be in Victoria to take the second midterm exam in person on November 23 and must to take the final exam in person.

Laboratory:

Many computer-mediated economic games will be played in the laboratory sessions scheduled during the Semester. There will be a lab almost every week starting with the second week of classes. The data from these games will be used in class but always in a way that maintain your privacy. Laboratory sessions are essential parts of the course and all students are expected to attend. Attendance will be kept and will count for 5% of the course grade (one point lost for each lab missed, up to 5).

Term Paper

The term paper is an individual project analyzing a strategic situation of the student's choice. This can span any area of economics. Ideal topics will pose a fairly narrow research question and seek to begin the process of answering this question by conducting a detailed review of relevant literature and present the student's own interpretation and analysis. Students must have their topic approved by submitting a one page proposal describing the research question and a preliminary list of bibliographic. This is an opportunity to begin exploring a topic that interests you from the perspective of game theory.

Exercises

There are at least 100 problems and their solutions posted on the course web page. **IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOU CAN DO THESE PROBLEMS ON YOUR OWN - WITHOUT LOOKING AT THE SOLUTION FOR HELP - YOU WILL NOT HAVE A SOLUTION SET AT THE EXAMS!!** Game theory is challenging because all problems are somewhat different and many require being clever at finding a path to their solution. It is impossible to pass this course without becoming an effective problem solver. Start early.

Other Matters

All Departmental, Faculty and University Policies applicable to this course are in effect and to be respected. Most are contained in the University Calendar and specific department policies presented here:

<https://www.uvic.ca/socialsciences/economics/undergraduate/home/course%20policies/index.php>

Use of Electronic devices

Electronic devices are great, but their proliferation has resulted in an increasing number of classroom disruptions. Be considerate. Get into the habit of turning the bells and whistles off, even the vibrating modes, when you arrive on campus. That all important message is only a little over one hour away – at most!

No electronic device other than a basic non-scientific calculator will be allowed during exams.

E-mail correspondence

As per Department of Economics guidelines: Emails should be limited to critical matters, such as inability to attend class, an exam, or prolonged illness, and should include the course name and number in the subject line. Questions on course material should be asked during office hours or in class. The standard format for writing a letter must be used. This means it should start off with a salutation (e.g. Dear...), include full sentences and conclude with a signature that includes your name (e.g. "Sincerely, *your full name*"). Text message lingo should not be used.

Academic Integrity

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts. A student who is found to have engaged in unethical academic behavior, including the practices described in the Policy on Academic Integrity (https://www.uvic.ca/calendar/future/undergrad/index.php#/policy/Sk_0xsM_V) in the University Calendar, is subject to penalty by the University.

Attendance

Students are expected to attend all classes and labs in which they are enrolled (Attendance Policy - <http://web.uvic.ca/calendar/FACS/UnIn/UARE/index.html>). Class attendance will not be monitored. Note that courses that are not formally dropped while the student does not write tests will result in a fail grade, while such students may also be required to withdraw, and will be required to pay the tuition fee for the course.

An instructor may refuse a student admission to a lecture or laboratory because of lateness, misconduct, inattention or failure to meet the responsibilities of the course. Students who are absent because of illness, accident or family affliction should report to their instructors as soon as possible.

Students who write a test must submit the question sheets, answers, as well as scrap paper, if any before leaving the room. Failure to do so may result in an N grade for the course.

Academic concession

A student whose academic performance is affected by injury, family or personal affliction, or illness should immediately consult with University Counseling Services, University Health Services, or another health professional, and may request, directly from the course instructor, deferral or substitution of a test or assignment which is due during the term. This request must be accompanied by supporting documentation from the health professional and must specifically cover the date of the missed examination or assignment deadline. It should normally be dated on or before the exam/deadline date and be submitted to the instructor within 10 days of this date.

If the student considers requesting deferral or substitution of a test or assignment which is due during the term students should also (a) to contact the instructor no later than the time or due date of the test or assignment, (b) to supply the instructor with both a phone number and an email address. Contact the instructor by either by email (rondeau@uvic.ca) or leaving a voice mail message (250-472-4423). Students (as well as the instructor) are expected to get back to emails regarding the case within 24 hours. Students who do not stick to these rules will find their options run out very fast.

All work for which a Concession is approved must be completed before course grades are submitted by the instructor. If makeup tests are assigned, they will be scheduled by the Department according to its make up exam schedule. Students must be registered for these tests by their instructors in order to be permitted to take them.

If the request for deferral or substitution of term work is denied, a student may appeal as described under Appeals (<http://web.uvic.ca/calendar/FACS/UnIn/UARE/Appe.html>).

Academic concession for work that will be completed after course grades are submitted by the instructor In the event of a missed final examination, or submission of an assignment after grades are submitted by the instructor, students must submit a Request for Academic Concession (RAC) to Undergraduate Records with the required official documentation from a health professional within 10 working days of the end of the examination period.

Travel plans

Students are advised not to make work or travel plans until after the examination timetable has been finalized. Students who wish to finalize their travel plans at an earlier date should book flights that depart after the end of the examination period. There will be no special accommodation if travel plans conflict with the examination.

Students with a disability

The University aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of its classes and curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of a course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way.

Students with disabilities seeking academic accommodation are expected to contact the Resource Centre for Students with a Disability (<http://rcsd.uvic.ca/>) as early as possible to avoid a delay in service, to initiate the process of determining and arranging appropriate academic accommodation in individual situations.

In order to receive course-based and exam-based accommodations, instructors must be notified of student needs. For example, if a student requires additional time on exams, assistance with note-taking or a substitute assignment, the instructor needs to be informed.

At the start of the term follow the instructions provided by the RCSD order to ensure that you are registered and that you will be accommodated come exam time.

Policy on inclusivity and diversity

The University of Victoria is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members.