
ECO326H1S L0101: Advanced Economic Theory, Winter 2019
Instructor: David Walker-Jones, Department of Economics, University of Toronto

Course Description This is a class in game theory. Game theory analyzes the behavior of small groups of agents in strategic situations, i.e., situations where the actions of each of the agents may affect payoffs or incentives of the others. The class will be quite rigorous as one of its goals is to give you some idea about what people study in a formal economics graduate program. The main emphasis will be on learning formal concepts and methods how to approach and think about games. As illustrations, we will see a broad range of application from economics, political science, sociology, job search, dating, etc. At the end of the class, you will be able to:

- Describe a situation that you encounter in your work or life and that involves interaction of two or more people as a game.
- Identify key features of the game (number of players, actions, payoffs, whether the game has simultaneous or sequential moves, whether there is any incomplete or asymmetric information) and describe a formal model of the game.
- Analyze the game and predict what behavior or what actions are likely to be chosen.

Course Prerequisites It is your responsibility to check whether you have correct prerequisites for this class. The Department strictly enforces the prerequisites – if you do not have them you will be dropped, no exceptions. The calendar description of the class says

Prerequisite: ECO200Y1(70%)/ECO204Y1(70%)/ECO206Y1, ECO220Y1(70%)/ECO227Y1/(STA220H1(70%), STA255H1(70%))/(STA257H1,STA261H1)

Exclusion: ECO316H1, ECO326H5

Recommended Preparation: MAT223H1/MAT240H1, MAT235Y1/MAT237Y1/ECO210H1

Distribution Requirement Status: This is a Social Science course Breadth Requirement: Society and its Institutions (3)

Readings And Schedule The required text for this course is Martin J. Osborne, An introduction to game theory (Oxford University Press, New York, 2004).

Date	Topic	Readings
07-01	1. Games. Dominant strategies.	1,2.1-2.5, 2.9
14-01	2. Iterated elimination and rationalizability	12.1-4* (see comment below)

21-01	3. Nash equilibrium.	2.6-2.8, 3.1
28-01	4. Nash equilibrium - examples.	3.2, 3.5
04-02	5. Mixed strategies.	4.1-4.5, 4.9
11-02	Midterm	BI 131 10:10 am-1:00 pm
25-02	6. Extensive form games. Subgame perfection.	5.1-5.5, 6.1-6.2
04-03	7. Extensive form games - examples.	7.1-7.2, 7.6-7.7
11-03	8. Repeated games.	14.1-14.2,14.4-14.6,14.7.1,14.10.1
18-03	9. Games with incomplete information.	9.1-9.3
25-03	10. Games with incomplete information II.	9.4-9.5, 7.6
01-04	11. Auctions.	3.5, 9.6
TBA	Final exam.	

*In general, I encourage you to do the reading *before* the lecture. The only exception is the reading assigned for Lecture 2 (and denoted with asterisk) - the material in chapter 12 may be difficult to read before the lecture.

I will post the problem sets on the class website. Please check it often. Many of the problems will come from the textbook and many of them have online solutions. Some of the solutions that cannot be found online will be discussed during the tutorial after the lecture. You are responsible for all the material covered in class, the assigned readings, and the practice problems.

Grades

There will be one midterm, on February 11th, and the final exam on a date yet to be determined. The midterm will cover materials from Lectures 1-5. The final exam will be cumulative with an emphasis on the second half of the class. The course grade will be a weighted average between the midterm and the final exam, with 60% of the grade for the higher score of the two and 40% weight on the lower score. Additionally, you may have a chance to win minor points through participating in games in lecture. (I do not expect it to be more than 1% on average per student)

Regrades

I accept applications for re-grades if: (1) they are sent to me by email with the subject line "ECO 326 Regrade Request", (2) they clearly specify which questions were improperly marked and explain why, (3) they are submitted within one week after each exam or midterm is returned. In addition, I generally regrade the entire exams, not just individual questions. Your score may go up, go down, or remain unchanged.

Make-Up Midterm

You are required to attend the midterm. Should you need to miss a midterm:

(1) I need to be contacted before the exam via email. The email must have the subject line: "Missed ECO326 Midterm". The email must explain concisely (less than 100 words) why you are not able to take the exam, and what you have done to prepare for the midterm, or that you have not done anything. The email must end with the following sentence exactly as written "I understand that it is a punishable academic offence to present false or misleading information in support of my request for accommodation for missed term work". This sentence must then be followed by your FULL NAME and STUDENT NUMBER.

(2) I will need a documented, valid excuse. An example of a documented, excused absence is an original note from a doctor that states you are physically unable to attend the final. The only accepted note is a fully completed University of Toronto Medical Certificate completed by a qualified medical doctor (e.g., not an acupuncturist, chiropractor, or other health care professional) and with the doctor's OHIP registration number.

When both (1) and (2) are satisfied, you will be able to take the make-up midterm. Make-up tests will be scheduled at a date and time chosen by the professor with as little as one business days' notice by email. Should you miss the midterm without satisfying one of the two above conditions, or should you miss the make-up midterm, you will automatically get 0 points for the midterm.

Any absence during the final exams is dealt according to the standard university procedures.

Drop Dates

Please make sure you check the calendar to make sure you're aware of the add/drop deadlines and the associated penalties:

http://www.artsci.utoronto.ca/current/course/timetable/1819_fw/2018_fall_dates

Email Policy

I will try to respond to emails within 2 business days. However, I do not respond to emails that ask a question that can be answered by looking at the syllabus or course website.

Some questions cannot be answered adequately over email, so I will ask you to see me in office hours. In general, any question that needs a detailed or complicated answer should be asked in person. Questions on grading will only be answered during office hours. This is an upper year course, so you should be comfortable interacting with me in person.

Academic Integrity

I take any attempts to cheat (either actively or by assisting/facilitating cheating) very seriously. Any student caught or suspected will be referred to OASI and will be subject to penalties as prescribed by the University.

Academic Integrity is central to a UofT education. We take it seriously and so should you. Your degree has value because of what you learn in your courses and your grades are a reflection of this. When you cheat you do not acquire this knowledge. When your employers realize this it impacts your career and the careers of your fellow students as it affects UofT's reputation with employers. For the writing assignments, when we come up with new ideas we draw on contributions people have made. We must properly acknowledge them. You'd want others to do the same for your work. If you have any questions or need clarifications, please don't hesitate to ask. Better safe than sorry.

We expected you to have read the University of Toronto's Code of Behavior on Academic Matters. Please see: <http://www.artsci.utoronto.ca/osai> for more details.

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Religious Accommodation

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Students with Disabilities or Accommodation Requirements

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <http://www.studentlife.utoronto.ca/as/new-registration>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Accommodation for Personal Reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or accommodation. They may be able to provide you with a College Registrar's letter of support to give to your instructors, and importantly, connect you with other resources on campus for help with your situation.

Quercus Info

This course uses the University's learning management system, Quercus, to post information about the course. This includes posting readings and other materials required to complete class activities and course assignments, as well as sharing important announcements and updates. The site is dynamic and new information and resources will be posted regularly as we move through the term, so please make it a habit to log in to the site on a regular, even daily, basis. To access the course website, go to the U of T Quercus log-in page at <https://q.utoronto.ca>. Once you have logged in to Quercus using your UTORid and password, you should see the link or "card" for ECO326. You may need to scroll through other cards to find this. Click on the ECO326 link to open our course area, view the latest announcements and access your course resources. There are Quercus help guides for students that you can access by clicking on the "?" icon in the left side column. **SPECIAL NOTE ABOUT GRADES POSTED ONLINE:** Please also note that any grades posted are for your information only, so you can view and track your progress through the course. No grades are considered official, including any posted in Quercus at any point in the term, until they have been formally approved and posted on ROSI at the end of the course. Please contact me as soon as possible if you think there is an error in any grade posted on Quercus.

HOW TO SUCCEED IN THIS COURSE

- **Put in the time, consistently:** Attending lectures is crucial. Plan to spend 8-10 hours per lecture on this course¹. Last minute cramming leads to superficial understanding which gets exposed in the tests. Regular practice over a longer time period leads to deeper learning that lasts beyond the final exam.
- **Use the time effectively:** Form a study group. As you solve problems, focus on the concepts not the procedure. Ask why do we get this? What if some elements were different? What are the similarities/differences with what you've seen before? Write out your reasoning, etc. Get help early in office hours.
- **Know what we are looking for on the exams:** Problem solving is an important learning outcome and an essential job skill. It is what you do when you use your conceptual knowledge to answer a question you *haven't seen* before. The emphasis is *on how you approach the question and the quality of your reasoning*. Memorization and matching patterns will not help you.
- **Take ownership of your learning:** Remember you are taking this course to make you a better economist. Make your effort count. **Read the material before class and come to lecture ready to actively participate and problem solve.** Sometimes it may be a little tedious, but, when you actively engage with the material, you will become a good economist and have fun along the way. I look forward to learning with you this year!

¹ A full time student should spend 40-50 hours a week on coursework. With 5 courses this works out to 8-10 hours a course. Over summer this doubles due to the accelerated pace.