

ECON 478 – Game Theory and Economics

Winter 2019 – Section 2

Instructor

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435L CTB

Office Hours: 12:30-1:50pm Thursday, or by appointment

Teaching Assistant/Grader

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Course Information

Prerequisites

ECON 378 – We will use concepts from probability theory to model risk and uncertainty.

ECON 380 – Lagrangians: They're not going away.

Content

Econ 478 is a rigorous introduction to game theory and its applications. Game theory is the study of strategic interactions between individuals and organizations. Important applications include imperfect competition, insurance markets, and bargaining. We will study both simultaneous and sequential move games, as well as games with imperfect information and games that are repeatedly played. For all of these types of games, we will discuss the Nash Equilibrium and, when appropriate, refinements of the Nash Equilibrium.

Learning Outcomes

Econ 478 students will be able to:

1. Demonstrate an understanding of the game theoretic method of analysis.
2. Define a Nash Equilibrium and discuss refinements of the Nash Equilibrium concept.
3. Think abstractly and rigorously about strategic interaction.

Text

An Introduction to Game Theory, by Martin J. Osborne

Readings and homework will be assigned from the textbook. Solutions to selected problems can be found at the author's website: <https://www.economics.utoronto.ca/osborne/igt/>

Assessment

Problem Sets

Homework problems will be assigned from the textbook and due once a week **at the beginning of the Tuesday lecture**. You are encouraged to work in groups, but each student must turn in their own copy of solutions. **No late work will be accepted**. Under special circumstances, and with my approval, you may email your homework (as an image attachment) to me before the deadline, and then turn in a hardcopy (unchanged from your email) after the deadline. Homework will be graded by giving 5 points for each problem the student puts a good-faith effort in solving, whether right or wrong. Another 1 to 5 points are possible question depending on the quality of the answer. At the end of the semester, your one lowest assignment will be dropped from the average. This will be weighted as 20% of the final grade.

In-class Quizzes

There will be periodic, random in-class quizzes. They may be given any time during the lecture. These quizzes will *not* be graded. However, completion of quizzes will be noted to track attendance, which may marginally affect your final grade. My goals for these quizzes are (1) to encourage attendance and attentiveness, (2) to provide feedback to me on student learning, and (3) to provide feedback to yourself on your own learning.

Course Engagement

You can earn up to 4 percentage points by doing each of the following:

- **Questionnaire.** Complete a brief online questionnaire about yourself during the first 2 weeks of the semester. This is just to help me get to know you a little better. The questionnaire can be found on Learning Suite under the “Exams” tab. 1% of the final grade.
- **Office Visit.** Come to my office at least once to talk with me before the second test. (You do not get more points for more visits.) You do not have to have a question about the class. I may ask you questions about yourself to get to know you. I prefer if you come during office hours. However, if that conflicts with your schedule or is otherwise inconvenient, I am happy to arrange another time. 1% of the final grade.
- **Mid-course evaluation.** Complete a mid-course evaluation. More details to follow. 1% of the final grade.
- **Course evaluation.** Complete BYU’s official student ratings for this course at the end of the semester. 1% of the final grade.

Tests and Final Exam

There will be two tests during the semester as well as a final exam. See the schedule below. All tests and exams will be closed book and closed notes. The tests are not cumulative; each test will only cover new material not previously tested. The final exam will be cumulative, with an emphasis on material covered after the second test. **Early tests and makeup tests are not offered**, except possibly because of official university travel. Conflicts due to official university travel should be disclosed at the beginning of the semester to facilitate appropriate planning. In the case of compelling, well-documented emergencies, I

reserve the right to drop a missed test and place greater weight on the others. Each test is weighted as 20% of the final grade. The final exam is weighted as 36% of the final grade.

Grade Policy

As stated above, the final grade will be calculated with the following weights:

- Problem Sets – 20%
- Course Engagement – 4%
- Tests – 40%
- Final Exam – 36%

Final letter grades will be determined by curve, with the average being about a B. The tests and final exam are not separately curved. Students who have put in the effort to attend lecture and complete the assignments do not normally get below a C-.

You are welcome to come to me with any questions regarding grading. **However, grades are not typically changed.** Grades will be posted on BYU Learning Suite throughout the semester.

Schedule

Topics and Readings

See Learning Suite for details, but the general order of topics will be:

- Simultaneous Move Games, Ch. 2 & 3
- Mixed Strategies, Ch. 4
- Sequential Move Games, Ch. 5, 6, & 7
- Imperfect Information, Ch. 9
- Repeated Games, Ch. 14
- Coalitions, Ch. 8 (if time allows)

Exams

	Time	Location
Test 1	2-3:15pm, Tuesday, 11 February	2111 JKB
Test 2	2-3:15pm, Tuesday, 18 March	2111 JKB
Final Exam	Wednesday, 24 April 11am – 2pm	2111 JKB

University Policies

Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others

and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Preventing and Responding to Sexual Misconduct

In accordance with Title IX of the Education Amendments of 1972, Brigham Young University prohibits unlawful sex discrimination against any participant in its education programs or activities. The university also prohibits sexual harassment—including sexual violence—committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires all university employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the Title IX Coordinator at t9coordinator@byu.edu or (801) 422-8692. Reports may also be submitted through EthicsPoint at <https://titleix.byu.edu/report> or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by Sexual Misconduct, including the university's Victim Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's Sexual Misconduct Policy, reporting requirements, and resources can be found at <http://titleix.byu.edu> or by contacting the university's Title IX Coordinator.

Student Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

The mission of Brigham Young University is to assist individuals in their quest for perfection and eternal life.