ECONS 424 – STRATEGY AND GAME THEORY

SPRING 2026

Instructor: Felix Munoz-Garcia
Number of credits: 3 credits.

Lectures: Hulbert Hall 23,
Mondays, Wednesdays, Fridays, 10:10-11:00a.m.

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Office hours: Fridays 10:00-11:00a.m., and by appointment.

Course Rationale

This course analyzes the strategic behavior of firms, consumers, but also political parties and individuals in their everyday interaction. The focus of the course will mainly be applied, although some basic general principles will be discussed to address these strategic situations in a more rigorous manner.
Different examples, ranging from business and industrial organization to politics, international trade, and biology, will be used, showing the importance and usefulness of the concepts discussed in class.

Course Objectives and Learning Outcomes

The main goal of the course is to make you apply the tools of game theory in order to examine interactive decision problems, i.e., situations whereby each agent's actions have payoff consequences on other agents. In particular, by the end of this course you will be able to:

- Construct the structure of interactive decision problems,
- Analyze which are the available strategies for each player, and
- What is the amount of information known by a player before she makes her move.
- Predict and describe how a certain game is going to be played by the players involved (i.e., their equilibrium behavior), and how firms or institutions behave when facing an strategic interaction.
- Model economics and business topics covered in other courses using the formal tools that game theory provides.

As a by-product, you will learn to view social interactions as strategic games, to use game theoretic concepts to predict behavior in these interactions and to conceive of ways in which altering the game affects social outcomes.

WSU Learning Goals:

This course will contribute to the following WSU learning goals: critical and creative thinking, and quantitative reasoning.

Prerequisites:

Intermediate Microeconomics with Calculus (EconS 301) or Intermediate Microeconomics without Calculus (EconS 305) is required. Some high-school algebra is also expected.

Required Text:

- *Games, Strategies and Decision Making.* Joseph Harrington Jr. Worth Publishers. (Second edition) 2014. You can find it at the Washington State University bookstore (Bookie).

Recommended Reading:

1. What about some non-technical reading (let's start with some fun!):
   - *The Art of Strategy.* Avinash Dixit and Barry J. Nalebuff. Norton Publishers. 2008.
   - *Beautiful Game Theory: How Soccer Can Help Economics,* Ignacio Palacios-Huerta, Princeton University Press, 2016.
2. Some game theory books:
   - *Games of Strategy.* Avinash Dixit, Susan Skeath and David H. Reiley Jr. Norton Publishers. 2009. (Very verbal).
   - *An Introduction to Game Theory.* Martin Osborne. Oxford University Press. 2004. (Combines verbal explanations with some rigor).
   - *Strategy. An Introduction to Game Theory.* Joel Watson. Norton Publishing. 2nd edition. 2008.
   - *Strategy and Game Theory: Practice Exercises with Answers.* Felix Munoz-Garcia and Daniel Toro-Gonzalez. Springer Verlag, 2nd edition, 2019. (Detailed answer keys to standard exercises in game theory.)
   - *Game Theory for Applied Economists.* Robert Gibbons. Princeton University Press. 1992. (Similar in style to Watson, but it is short!)

- *Game Theory: An Introduction with Step-by-Step Examples.* Ana Espinola-Arredondo and Felix Munoz-Garcia. Palgrave McMillan Publishers. 2023. (Mostly for upper undergraduates, so highly recommended for most of you).
- *Behavioral Game Theory, Experiments in Strategic Interaction.* Colin F. Camerer. Princeton University Press. 2003.

3. Applications of Game Theory to Political Science and Environmental Economics:
    - *Special Interest Politics.* Gene M. Grossman and Elhanan Helpman. MIT Press. 2002.
    - *Game Theory and the Environment.* Nick Hanley and Henk Folmer. Edward Elgar Publishers. 1999.
    - *Environmental Policy and Market Structure.* C. Carraro (Editor), Y. Katsoulacos (Editor), A. Xepapadeas (Editor). Springer. 1996.

Lectures:

Lectures will be held in Hulbert 23 (ground floor), on Mondays, Wednesdays, and Fridays, 10:10-11:00am.

Attendance Policy:

Students are expected to attend class and participate in class activities. To be engaged is a key for students' success in the class.

Class materials:

All class materials (handouts, additional readings, homework assignments, answer keys, etc.) will be posted on the course website: https://felixmunozgarcia.com/econs-424/.

Grading:

Your grade for the course will be based on:
- Problem sets (40%),
- Two midterms (Midterm #1 take-home, Midterm #2 take-home) (20% each), and
- Final exam (20%).

Exam dates:
- *Midterm #1*: Wednesday, February 25th
- *Midterm #2:* (Take-home exam). Posted on Monday, March 30th, at noon, and to be submitted on Wednesday, April 1st, at the beginning of class. If you have questions while working on the exam,

please send them to me via email at fmunoz@wsu.edu, on March 30th, before midnight. You can work in groups, but each student must write and submit his/her own exam.

- *Final Exam*: TBA.

Make-up exams will only be given if you have a note from a doctor indicating that you were unable to take the exam at the scheduled time.

DESCRIPTION OF COURSE REQUIREMENTS

Homework:
Homework assignments will be posted on the course website. Make sure you give yourself enough time to complete the problem sets. You are encouraged to work in groups, although each student must submit his/her own homework assignment.

Grading scale:

A	91-100	C-	55-59
A-	85-90	D+	50-54
B+	80-84	D	45-49
B	75-79	D-	40-44
B-	70-74	F	0-39
C+	65-69		
C	60-64		

Note: Grades will not be curved.

Course Schedule:
The course schedule is tentative. Legend for the textbooks in the recommended readings section: Harrington (H), and Watson (W). The legend for the textbooks on the optional readings is Espinola-Arredondo (AM) and Tadelis (T).
- As discussed in class, you are encouraged to read at least one of the recommended readings. If you are a Masters student or considering a graduate program in the future, I strongly recommend you to read some of the optional readings.

1. **Week 1**:
    a. Introduction and Dominance solvable games.
    b. *Recommended readings:* H: 1-3, W: 2-7.
    c. *Optional readings (Masters):* AM: 1-2, and T: 1-4.
2. **Week 2**:
    a. Pure strategy Nash equilibrium and applications-I.
    b. *Recommended readings:* H: 4-6.
    c. *Optional readings (Masters):* AM: 3, and T: 5.
3. **Week 3**:
    a. Monday, January 15th is Martin Luther King Jr. Day (Holiday)
    b. Pure strategy Nash equilibrium and applications-II
    c. *Recommended readings:* H: 4-6.
    d. *Optional readings (Masters):* AM: 4.

4. **Week 4**:
    a. Mixed strategy Nash equilibrium and applications.
    b. *Recommended readings:* H: 7, W: 11.
    c. *Optional readings (Masters):* AM: 4, and T: 6.
5. **Week 5**:
    a. Zero-sum games.
    b. *Recommended readings:* W: 12, H: section 7.6.
    c. *Optional readings (Masters):* AM: 4.
6. **Week 6** (February 11th – 15th):
    a. Extensive form games and subgame perfect equilibrium.
    b. *Recommended readings:* H: 8-9, W: 14-15.
    c. *Optional readings:* AM: 5, and T: 7-8.
7. **Week 7**:
    a. Monday, February 19th is Presidents Day (Holiday).
    b. Applications of extensive form games.
    c. *Recommended readings:* W: 16, 18, 19.
    d. *Optional readings:* AM: 5.
8. **Week 8**:
    a. Infinitely repeated games and its applications-I.
    b. *Recommended readings:* W: 22-23.
    c. *Optional readings:* AM: 6, and T: 10.
9. **Week 9**:
    a. Infinitely repeated games and its applications-II.
    b. *Recommended readings:* H: 13-14.
    c. *Optional readings:* AM: 6.
10. **Week 10**:
    a. Spring break, March 17th to 21st.
11. **Week 11**:
    a. Simultaneous games under incomplete information and its applications - I.
    b. *Recommended readings:* W: 24, 26-28.
    c. *Optional readings (Masters):* AM: 8, and T: 12.
12. **Week 12**:
    a. Simultaneous games under incomplete information and its applications - II.
    b. *Recommended readings:* W: 24, H: 10.
    c. *Optional readings (Masters):* AM: 9, and T: 13-14.
13. **Week 13**:
    a. Signaling games-I.
    b. *Recommended readings:* W: 29.
    c. *Optional readings (Masters):* AM: 10, and T: 16.
14. **Week 14**:
    a. Signaling games-II.
    b. *Recommended readings:* W: 29, H: 11.
    c. *Optional readings (Masters):* AM: 11, and T: 17.
15. **Week 15**:
    a. Cheap talk games.
    b. *Recommended readings:* H: 12.
    c. *Optional readings (Masters):* AM: 13, and T: 18.
16. **Week 16**:
    a. Equilibrium refinements: The "Intuitive Criterion."

b. Recommended readings: Handouts and AM: 12.
17. **Week 17**:
   a. Final Exams' week.

Disability Resource Accommodation:
Reasonable accommodations are available for students who have a documented disability. Please notify the instructor the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to not be available. All accommodations must be approved through the Disability Resource Center (DRC) in Administration Annex 205, 335-1566, http://www.drc.wsu.edu/

Academic Honesty:
WAC 504-25-015. Academic dishonesty, such as cheating, plagiarism, fabrication, and fraud, is prohibited. See http://www.conduct.wsu.edu/default.asp?PageID=343 for more information and specific definitions of academic dishonesty.

As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the University community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication. Washington State University reserves the right and the power to discipline or to exclude students who engage in academic dishonesty. To that end, the University has established the following rules defining prohibited academic dishonesty and the process followed when such behavior is alleged. These rules incorporate Washington State University's Academic Integrity Policy, the University-wide document establishing policies and procedures to foster academic integrity. This policy is applicable to undergraduate and graduate students alike, as it pertains to dishonesty in course work and related academic pursuits. In cases of dishonesty in research and original scholarship, the University's Policy and Procedural Guidelines for Misconduct in Research and Scholarship may take precedence over the policies and procedures contained herein.

Academic dishonesty includes cheating, plagiarism, and fabrication in the process of completing academic work. These standards should be interpreted by students as general notice of prohibited conduct. They should be read broadly, and are not designed to define misconduct in exhaustive forms.

Campus Safety Plan:
Can be found at http://safetyplan.wsu.edu and http://oem.wsu.edu/emergencies, contains a comprehensive listing of university policies, statistics and information related to campus safety, emergency management and the health and welfare of the campus community.

Disclaimer: This syllabus is subject to change to facilitate instructional and/or student needs.