Microeconomic Theory-II

M.Sc. in Economics Engineering, July–October 2026

Universidad Nacional de Ingeniería (UNI), Lima, Peru

https://felixmunozgarcia.com/econs-503/

Instructor: Felix Muñoz-Garcia
Professor of Economics
Washington State University

Lectures: July 22nd to October 8th, Wednesdays and Thursdays, 7–9pm (Lima time).

Office hours: Mondays, 7–8pm,

and by appointment.

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TAs:
Juan Cristopher Racuay Lingan
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Cesar Ramos
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Practice Sessions: July 22nd to October 8th,
Saturdays, 8–10am (Lima time).

Course Rationale

This course introduces students to game theory, economics of information, and contracts. Several applications will be discussed.

Course Objectives and Learning Outcomes

The main objective of the course is to make students be able to apply the tools of advanced microeconomic theory to understand and model strategic decision making. In addition, the topics learned in this course should prepare the student for a better understanding of the concepts he/she will learn in Ph.D. courses, such as Industrial Organization, Environmental Economics, Public Economics, and Experimental Economics.

Prerequisites

Intermediate Microeconomics and some college algebra and calculus are expected.

Required Text

- *Game Theory: An Introduction with Step-by-Step Examples*, Ana Espinola-Arredondo and Felix Muñoz-Garcia, Palgrave Macmillan, 2023.

The book is similar in structure to Tadelis, *Game Theory: An Introduction* (Cambridge University Press), or Osborne's *An Introduction to Game Theory* (Princeton University Press), so you can use either of these books if you have access to any of them. At the Master's level, however, I believe that Tadelis and Osborne can be difficult to follow in some chapters, especially if you did not have a complete course on Game Theory in your undergraduate studies, and that is why I recommend my book above, since it provides more step-by-step examples in all chapters.

Recommended Reading (Game Theory)

If your game theory background is relatively strong, here are some textbooks that might be useful:

- Drew Fudenberg and Jean Tirole. *Game Theory*. MIT Press, 1991.
- Michael Maschler, Eilon Solan, and Shmuel Zamir. *Game Theory*. Cambridge University Press, 2013.

Recommended Reading (Information Economics and Contract Theory)

- Inés Macho-Stadler and David Pérez Castrillo. *An Introduction to the Economics of Information: Incentives and Contracts*. Oxford University Press, 2001.
- Jean-Jacques Laffont and David Martimort. *The Theory of Incentives: The Principal-Agent Model*. Princeton University Press, 2002.

Recommended Reading (Mathematics)

- Carl P. Simon and Lawrence E. Blume. *Mathematics for Economists*. W. W. Norton, 1994.
- Michael Hoy, John Livernois, Chris McKenna, Ray Rees, and Anthanassios Stengos. *Mathematics for Economics*. MIT Press, 2022. Now in its fourth edition, but any edition should work.

Lectures

Lectures will be online, Wednesdays and Thursdays, 7–9pm (Lima time), from July 22nd to October 8th. Attendance is very important to your success in this class.

Zoom meeting link: `https://us02web.zoom.us/j/86412604467?pwd=NrHaOlZO2k3XcXxxkVn5ad4R05GCQt`
`1`.

Practice Sessions

Practice sessions will be run by the TAs, Juan Cristopher Racuay Lingan (`juancristopher030@gmail.com`) and Cesar Ramos (`cesarprh@gmail.com`), online on Saturdays, 8am to 10am (Lima time), from July 22nd to October 8th.

In these sessions the TAs will solve practice exercises related to the material covered in the previous lectures. The TAs are also in charge of grading the problem sets and exams.

Class Materials

All class materials (handouts, homework assignments, answer keys, etc.) will be posted on the course website: `https://felixmunozgarcia.com/econs-503/`.

A Game Theory tutor is also available at `https://felix-game-theory.netlify.app/`. You can choose a mode (practice or test), a starting difficulty (low, medium, or high) while taking into account that the tutor will increase the difficulty of the next question if your previous answers were correct, and the exercise style (only numerical or a mix of numerical and parametric exercises). You can choose a specific chapter or review all chapters (mixed practice), choose a timed mock exam, and receive feedback from your answers.

Grading

Your grade for the course will be based on:

- Problem sets (40%). They can be done in groups of 2 or 3 students.
- Midterm exam (25%).
- Final exam (35%).

If your final exam score is higher than your midterm score, the final exam score will replace the midterm score.

Exam Dates

- Midterm exam: Saturday, August 29th, 8–10am (Lima time).
- Final exam: Saturday, October 17th, 8–10am (Lima time).

Course Schedule

The course schedule is tentative and subject to change depending upon the progress of the class.

Legend for the textbooks: Espinola-Arredondo and Muñoz-Garcia (AM), Tadelis (T), Fudenberg and Tirole (FT), Maschler et al. (M), Muñoz-Garcia, *Advanced Microeconomic Theory* (FMG), and Mas-Colell, Whinston, and Green (MWG).

Week 1: Introduction and Dominance Solvable Games.
Recommended: AM: 1–2, T: 3–4. Optional: FT: 1.1 and 2, M: 3 and 4.1–4.7.

Week 2: Pure Strategy Nash Equilibrium and Applications.
Recommended: AM: 3–4, T: 5. Optional: FT: 1.2, M: 4.8–4.15.

Week 3: Mixed Strategy Nash Equilibrium and Applications. Zero-Sum Games.
Recommended: AM: 5, T: 6. Optional: FT: 1.3.1, M: 5.

Week 4: Extensive Form Games and Subgame Perfect Equilibrium.
Recommended: AM: 6, T: 7–8. Optional: FT: 3, M: 7.1–7.2.

Week 5: Applications of Extensive Form Games.
Recommended: AM: 6. Optional: M: 7.3–7.4.

Week 6: Midterm Exam: Saturday, August 29th, 8–10am (Lima time). Repeated Games and Applications-I.
Recommended: AM: 7, T: 10. Optional: FT: 4, M: 13.

Week 7: Repeated Games and Applications-II.
Recommended: AM: 7. Optional: FT: 5.

Week 8: Simultaneous Games under Incomplete Information and Applications.
Recommended: AM: 8–9, T: 12–14. Optional: FT: 6 and 7, M: 9.1–9.7.

Week 9: Signaling Games and Equilibrium Refinements.
Recommended: AM: 10–12, T: 16–17. Optional: FT: 8 and 11.2.

Week 10: Cheap Talk Games.
Recommended: AM: 13, T: 18. Optional: FT: 8.

Week 11: Adverse Selection and Screening.
Recommended: FMG: 10.4–10.6, and MWG: 13.

Week 12: Moral Hazard.
Recommended: FMG: 10.1–10.3, and MWG: 14.