

ECON 404 A: Industrial Organization and Price Analysis
Spring 2021

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The course covers core topics in industrial organization, such as competition and market structure, product differentiation, entry and exit, cartel, and consumer dynamics. This course also discusses several empirical and numerical methods used in economics and then applies them to the analysis of recent antitrust issues. Specifically, we learn estimation of demand and supply, and computation of equilibrium of oligopolistic models. Then, we apply these methods to simulating mergers, which were recently proposed or already took place in the US and Europe. We evaluate the welfare impact of these mergers. To perform these analyses, we use STATA and MATLAB, but prior knowledge of these software is not required.

Reading. There is **no required textbook** for this course. During the lectures, I will mainly use models and real world examples from the following five textbooks:

1. Paul Belleflamme and Martin Peitz, *Industrial Organization: Markets and Strategies*, 2010, Cambridge University Press.
2. Jean Tirole, *The Theory of Industrial Organization*, 1988, The MIT Press.
3. Oz Shy, *Industrial Organization: Theory and Applications*, 1995, The MIT Press.
4. Peter Davis and Eliana Garces, *Quantitative Techniques for Competition and Antitrust Analysis*, 2009, Princeton University Press.
5. Luis Cabral, *Introduction to Industrial Organization*, 2000, The MIT Press.

You do **not** need to buy any of these textbooks. I will distribute class slides every day. Additional readings for each topic are announced later.

Lectures. Lectures will be held on Zoom, Mondays and Wednesdays from 8:30am-10:20am.

Prerequisite. Students are assumed to know intermediate microeconomic theory. I will review analytical tools such as calculus and basic game theory in the first lecture, and basic econometrics in the second lecture. For more specific/advanced concepts, I will cover them when needed.

Materials. For each lecture, class notes are posted on Canvas. Homework assignments and notifications are also available there.

Exam and Grading. There will be two midterm exams, three problem sets (both analytical and empirical exercises) and one final exam. Each problem set accounts for

10% of the course grade, each midterm exam accounts for 20% of the course grade, and the final exam accounts for 30% of the course.

Due dates for problem sets.

Problem set I: Wednesday, April 14

Problem set II: Monday, May 3

Problem set III: Monday, May 24

Office Hours. After class or by appointment.

Outline Schedule (subject to change)

- Lecture 1 (Mar. 29) Introduction and review of intermediate microeconomics (technology, cost, demand, etc) and game theory
- Lecture 2 (Mar. 31) Review of basic econometrics, STATA session
- Lecture 3 (Apr. 5) Monopoly
- Lecture 4 (Apr. 7) Oligopoly I: Cournot/Bertrand competition (homogenous products)
- Lecture 5 (Apr. 12) Oligopoly II: Product differentiation (the location model, vertical and horizontal differentiation, discrete choice models).
- Lecture 6 (Apr. 14) Oligopoly III: measuring conduct
- Lecture 7 (Apr. 19) Review session for Midterm 1
- Lecture 8 (Apr. 21) Midterm 1
- Lecture 9 (Apr. 26) Concentration, types of merger
- Lecture 10 (Apr. 28) Oligopoly IV: entry model
- Lecture 11 (May 3) Oligopoly V: detecting collusion
- Lecture 12 (May 5) Demand Estimation I: homogenous products
- Lecture 13 (May 10) Demand Estimation II: discrete choice models
- Lecture 14 (May 12) Review session for Midterm 2
- Lecture 15 (May 17) Midterm 2
- Lecture 16 (May 19) Demand Estimation III: consumer dynamics
- Lecture 17 (May 24) Concentration, types of merger
- Lecture 18 (May 26) Merger simulation/evaluation
- Memorial Day (May 31)
- Lecture 19 (Jun. 2) Review Session for Final Exam

Final Exam (between Jun. 5 and 11) exact date: TBD