The course covers core topics in industrial organization, such as competition and market structure, product differentiation, entry and exit, vertical relationships, cartel, mergers, and consumer dynamics. We use microeconomics and game theory to analyze how firms and consumers behave in strategic environments and analyze how market structures are determined. In addition, we put a special emphasis on empirical aspects of economic models in IO; i.e., identification of demand and supply, merger evaluations, detection of cartels, and estimation of entry-exit models. We use econometrics and statistical software to conduct empirical exercises.

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:


You do not need to buy any of these textbooks. I will distribute class slides every week. Additional readings for each topic are listed below.

Lectures. Lectures will be held Tuesdays and Thursdays from 1:30-3:20PM at MEB 242.

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. Each week, class notes are posted on the course website at [https://sites.google.com/site/yuyasweb/teaching/competition](https://sites.google.com/site/yuyasweb/teaching/competition). Homework assignments and notifications are also available there.

Exam and Grading. There will be one midterm exam, three problem sets (both analytical and empirical exercises) and one final exam. Each of these exams and problem sets accounts for 20% of the course grade.
**Homework assignments.** There will be three problem sets. Students are encouraged to work as a group, but each student should write her/his own answer.

**Due dates for assignments:**
- Homework I  Tuesday, April 23
- Homework II  Thursday, May 16
- Homework III  Thursday, June 6

**Office Hours.** 12:00-1:30 pm on Tuesdays.

**Outline Schedule (subject to change)**

**Part I: Preliminary**

- Lecture 1 (Apr. 2)  Introduction and review of intermediate microeconomics (technology, cost, demand, etc) and game theory
- Lecture 2 (Apr. 4)  Review of basic econometrics, STATA

**Part II: Market structure and organization**

- Lecture 3 (Apr. 9)  Monopoly
- Lecture 4 (Apr. 11)  Oligopoly I: Cournot and Bertrand competition (homogenous products)
- Lecture 5 (Apr. 16)  Oligopoly II: Measuring conduct parameters
- Lecture 6 (Apr. 18)  Oligopoly III: Product differentiation (vertical and horizontal differentiation)
- Lecture 7 (Apr. 23)  Oligopoly IV: Product differentiation (location models)

**Part III: Merger analysis**

- Lecture 8 (Apr. 25)  Estimating discrete choice models
- Lecture 9 (Apr. 30)  Concentration, merger
- Lecture 10 (May. 2)  Midterm exam
- Lecture 11 (May. 7)  Merger simulation/evaluation I
- Lecture 12 (May. 9)  Merger simulation/evaluation II
Lecture 13 (May. 14) Case study: Airline mergers, Amazon/Whole Foods

Part IV: Advanced topics

Lecture 14 (May. 16) Vertical relationships
Lecture 15 (May. 21) Estimation of entry-exit models
Lecture 16 (May. 23) Price sensitivity and consumer’s inventory behavior
Lecture 17 (May. 28) Theory of cartels and collusions
Lecture 18 (May. 30) Detecting cartels
Lecture 19 (Jun. 4) Review session
Lecture 20 (Jun. 6) Q&A session

Readings.

1. Introduction and review of intermediate microeconomics (technology, cost, demand, etc) and game theory
   - Class notes.

2. Review of econometrics
   - Class notes.

3. Monopoly
   - Class notes.

4. Oligopoly I
   - Class notes.

5. Oligopoly II

6. Oligopoly III
   - Class notes.

7. Oligopoly IV
• Class notes.

8. Estimating discrete choice models
• Class notes.

9. Concentration, merger
• Shy (1995), Chapter 8.
• Belleflamme and Peitz (2010), Chapter 15.

10. Midterm exam
• In the usual time and classroom

11. Merger simulation/evaluation I
• Class notes.
• Davis and Garces (2009), Chapter 8.

12. Merger simulation/evaluation II
• Class notes

13. Case study: Airline mergers, Amazon/Whole Foods
• Class notes

14. Vertical relationship
• Class notes
• Tirole (1988), Chapter 4.

15. Estimation of entry-exit models
16. Price sensitivity and consumer’s inventory behavior

- Class notes

17. Theory of cartels and collusions

- Class notes.
- Belleflamme and Peitz (2010), Chapter 14.

18. Detecting cartels