ECON 404 A: Industrial Organization & Price Analysis
Spring Quarter 2019

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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:

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 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. 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.
   - Shy (1995), Chapter 2.

2. Review of econometrics
   - Class notes.

3. Monopoly
   - Class notes.
   - Gil, R. and Wes Hartmann (2009) "Empirical Analysis of Metering Price Discrimination: Evidence from Concession Sales at Movie Theaters," *Marketing Science* 28 (6), pp. 1046-1062.

4. Oligopoly I
   - Class notes.

5. Oligopoly II
   - Wolfram, C. (1999) "Measuring Duopoly Power in the British Electricity Spot Market," *American Economic Review* 89 (4), pp. 805-826.

6. Oligopoly III
   - Class notes.

- Shy (1995), Chapter 7.

7. Oligopoly IV
   - Class notes.

8. Estimating discrete choice models
   - Class notes.
   - Train, K. *Discrete Choice Methods with Simulation*, 2009, Second Edition, Cambridge University Press, available at http://elsa.berkeley.edu/books/choice2.html
   - Nevo, A. "A Practitioner's Guide to Estimation of Random-Coefficients Logit Models of Demand," Journal of Economics & Management Strategy, Vol. 9(4), pp. 513-548.

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
    - Ivaldi, M., and Verboven, F. (2005) "Quantifying the Effects from Horizontal Mergers in European Competition Policy," *International Journal of Industrial Organization* 23, pp. 669-691.

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
    - Bresnahan, T., and Reiss, P. (1991) "Entry and Competition in Concentrated Markets," *Journal of Political Economy* 99(5), pp. 977-1009.
    - Berry, S. and Reiss, P (2007) "Empirical Models of Entry and Market Structure," Chapter 29 in *Handbook of Industrial Organization*, vol. 3, Mark Armstrong and Robert Porter, eds. North-Holland Press.

16. Price sensitivity and consumer's inventory behavior

- Class notes
- Hendel, I., and Nevo, A. (2010) "A Simple Model of Demand Anticipation," *Working Paper.*

17. Theory of cartels and collusions

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

18. Detecting cartels

- Harrington, J. (2008) "Detecting Cartels," in *Handbook in Antitrust Economics*, Paolo Buccirossi, editor (MIT Press), available at http://www.econ2.jhu.edu/People/Harrington/DetectingCartels-10.8.05.pdf
- Porter, R. H. (1983) "A Study of Cartel Stability: The Joint Executive Committee, 1880-1886." *Bell Journal of Economics* 14, pp. 301-314
- Ellison, G. (1994) "Theories of Cartel Stability and the Joint Executive Committee." *Rand Journal of Economics* 25, pp. 37-57.