

**NORTHWESTERN UNIVERSITY
DEPARTMENT OF ECONOMICS**

Economics 349: Industrial Organization
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Spring 2024

Industrial organization is the branch of Microeconomics that studies the functioning of markets with few competitors. The presence of a small number of market participants generates situations of strategic interdependence. The course uses Microeconomics and basic Game Theory to study firm behavior and social welfare. We will cover tools to analyze the market as well as how US antitrust laws place limits on firms' behavior and market outcomes.

Readings: Class notes covering everything I expect you to know are posted. If you are interested in a different take, you can read: Pepall, Richards and Norman, *Industrial Organization: Contemporary Theory and Applications*, 2005, 3rd edition, Thomson-Southwestern (there is a new edition, either is fine) or Waldman and Jensen, *Industrial Organization: Theory and Practice* (4th Edition), Pearson. These texts offer additional applications and examples but are **not** required.

For additional readings on Game Theory see: R. Gibbons, *Game Theory for Applied Economists*. For further readings on legal cases: J. Kwoka and L. White, *The Antitrust Revolution*. We will mention several current cases, extensively covered online. These are optional readings.

Grading: will be based on class participation, a midterm exam (during lecture-time 4/30), a final exam during the last day of classes (5/28) and problem sets in the following proportions: midterm 30%, final 45%, and homework 25%. Class participation will bump your grade up if you are above median. For example, if your composite grade for homework, midterm and final is above the median among students in the A- range, an above median participation will bring your grade to an A. Tests and most problem sets will involve problem solving. The **best** way to prepare for the tests is to take these problem sets seriously.

NEW: A few problem sets will involve empirical work, uploading data, and running regressions with the goal of linking the theory to real world applications.

Goal of the class are: 1) Exposing you to how markets are analyzed, for the purpose of antitrust enforcement, or strategic decisions by firms. The analytic approach of problem solving (as oppose to readings) is meant to put into practice the framework for market analysis. In other words, to present situations where you identify the necessary ingredients to study a market, and assumptions that deliver a prediction. 2) Take the first steps into the empirical application of the tools presented.

Disclaimer: There is overlap with other classes. Some of you already have experience coding in R or Stata, and some of you have seen some of the games we will analyze. Others have no exposure to data work, or games in oligopolistic industries. The former might be bored at times, the latter have more to learn, but will need to work harder to keep up. It is not a hard class, but it does happen that students get complacent during the easy stretches or after an easy midterm. Avoid that, you learn less, and end up disappointed with your own performance.

1. Introduction

Industrial Organization: PRN Chapter 1.

What is a firm? and Cost Structure. PRN Chapter 4.1.

Monopoly and Competition: Efficiency implications.

Competition and Monopoly: PRN Chapter 2 (excluding 2.3.2).

Industry Structure: Concentration Measures and Evidence. PRN Chapters 3, 4.1 and 4.3

Benefits of Competition and Indicators of Market Power:

Council of Economic Advisors 2016

https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf

2. Durable Goods Monopoly

Market Definition: PRN Chapter 3.1 and Case: Alcoa in Breit and Elzinga, page 177-86.

Coase Conjecture: Notes.

3. Price Discrimination: PRN Chapters 6.1 (first degree), 6.2 (second degree), 5-5.3 and 5.5 (third degree) and 8.1 (Tie-in sales and bundling).

4. Economic Theories of Oligopoly Pricing

i. Static Games. PRN 9.1-3 and Gibbons Ch 1 (pp 1-12).

ii. Static Price Competition

a. Homogeneous Goods: PRN 9.4-5, 10.1 or Gibbons 1.2.A.

b. Differentiated Goods: PRN 10.2-3 and Ch 7 or Gibbons 1.2.B

iii. Sequential and Repeated Games. PRN 11, Gibbons 2.1, 2.2 and 2.3 (skip the complex applications).

iv. Dynamic Price Competition:

a. First Mover Advantage

b. Repeated Interaction

i. Price Fixing: PRN 14.

Christopher Rowland, "Investigation of generic 'cartel' expands to 300 drugs," Washington Post (Dec. 9, 2018)

"Does Entry Remedy Collusion? Evidence from the Generic Prescription Drug Cartel" Amanda Starc and Thomas G. Wollmann pp 2-7

Harrington, Joseph (2006) "Behavioral Screening & the Detection of Cartels" pp1-12

Nathan Miller, "Strategic Leniency and Cartel Enforcement" pp750-762 AER

Case: Rapid Price Communication and Coordination: The Airline Tariff Publishing Case (1994) (in Kwoka and White).

ii. Introduction to Antitrust Policy. PRN Ch 1 (Appendix), Ch 16. Breit and Elzinga: Part I and Part II (skim pages 9-60).

Cartel: Practice and Policy. PRN 14 and 15.

Case: Practices that Facilitate Cooperation: The Ethyl Case (in Kwoka and White).

5. Strategic Behavior:

Product Differentiation PRN 7

Entry Deterrence: PRN 12.2-4.

Entry Deterrence: PRN 13 (pages 310-25). Case: Strategic Capacity Preemption: Du Pont (in Kwoka and White).

Entry Deterrence: Brand Proliferation. Case: Breakfast Cereals.
Predatory Pricing: Breit and Elzinga pages 305-317. Case: Matsushita (in Breit and Elzinga or Kwoka and White).

6. Contracts: Most-Favored-Customer Clauses. PRN 13.3.
Case: United Shoe Machinery, Breit and Elzinga.
Case: Frame-Wilson v Amazon

7. Horizontal mergers.
Merger Guidelines DOJ: <https://www.justice.gov/atr/horizontal-merger-guidelines-0>
AT&T Complaint 2011
T-mobile Complaint 2019
US v ABInBev/GrupoModelo complaint 2013
US v American/USAirways Complaint 2013

8. Vertical Price Restraints and Vertical Mergers: PRN 8, Vertical Non-Price Restraints PRN 9
Ticketmaster-Live Nation,
DOJ CIS Comcast-NBCU (2011) pp1-39
Comcast-NBCU 2009
AT&T-TWInc decision pp 1-4, 55-61, 109-117.

9. Network Markets and Two-sided Markets: PRN 24
US v Microsoft complaint (1998): pp1-13 &41-42
KW: Microsoft, 6th ed Case 20, 7th ed case 22
EC Decision “COMP/C-3/37.792 — Microsoft,” 24 May 2004:
Amex: <https://equitablegrowth.org/supreme-court-decision-on-credit-cards-undermines-competition-celebrates-price-increases-and-will-contribute-to-economic-inequality/>
Platform steering: <https://siepr.stanford.edu/publications/working-paper/platform-annexation>

10. Information: The Market for Lemons.

11. Auction Markets: PRN 25

Tentative schedule

<u>Date</u>	<u>Lecture</u>	<u>Subject</u>
3/28	Lecture 1	Introduction, Review: Monopoly, Competition and Efficiency.
4/2	Lecture 2	Durable goods and Market Definition.
4/4	Lecture 3	Durables (cont.)
4/9	Lecture 4	Price Discrimination.
4/11	Lecture 5	Price Discrimination.
4/16	Lecture 6	Introduction to Game Theory.
4/18	Lecture 7	Static Competition: Homogeneous Goods.
4/23	Lecture 8	Static Competition: Differentiated Goods.
4/25	Lecture 9	Dynamic Games.
4/30	Lecture 10	Midterm
5/2	Lecture 11	Repeated Games