

# Economics 409: Firms, Markets and Competition

Yale University

Department of Economics

Fall 2016

Monday & Wednesday, 2:30 - 3:45 pm

Room: WLH 120

Office hours: Monday, 4 - 6 pm

(or by appointment)

**Evangelia Chalioti**

Office: 30 Hillhouse, Room 35

Email: [evangelia.chalioti@yale.edu](mailto:evangelia.chalioti@yale.edu)

Tel.: (203) 432 - 8320

## Course Description

This course introduces the major topics of industrial organization. It intends to provide students with a solid understanding of theoretical models of the effects of firms' decisions on market outcomes such as market prices, the type of products offered and social welfare. Topics include the benefits of monopoly; durable goods; price discrimination; bundling; asymmetric information and the Lemons problem; competition in quantities (Cournot) vs competition in prices (Bertrand); location models; brand proliferation; mergers; vertical integration; advertising; entry deterrence; innovation & intellectual property rights (IP); network effects; current policy issues on antitrust regulation.

This course will often motivate the analysis of economic concepts using case studies, empirical facts and consider simple economic models to explain individuals behavior. The primary tool for understanding firm, consumer or government choices is the maximization paradigm which assumes individuals behave as if they maximize an objective function; such function may represent the level of profits, happiness or social welfare. Thus, much of the course will be devoted to applying that paradigm to various settings. The goal is for the students to interpret the economic aspects of firm decisions and market structure. Academic objectives of this course: elaborate students' skills to use theoretical tools to formulate and solve economic problems; provide the students with an intuition into the features of particular markets; explore how economists approach and answer specific empirical questions, such as whether a particular industry is vertically integrated.

## Course website

This course uses **Yale Canvas** as the course website. Students registered for the course may log in at <http://canvas.yale.edu/>. This website will be used to post announcements, copies of all lecture notes, class handouts, problem sets, answer keys, and most readings. A sample of (next day's) lecture notes will also be available on Canvas before each class.

## Prerequisite

Basic and intermediate-level microeconomics (ECON 115 or equivalent; ECON 121) are the prerequisites for this class. You should also be familiar with basic calculus such as derivatives as well as with optimization problems such as profits and utility maximization. Prior knowledge on basic game theory - Nash equilibrium, subgame perfect Nash equilibrium, backward induction - is strongly recommended.

## Readings

The lecture notes will be posted over the course on the homepage to reflect the current lectures.

Main textbook for the lectures is:

- Church, Jeffrey and Roger Ware, *Industrial Organization: A Strategic Approach*, Irwin McGraw-Hill, 2000. Available in PDF format at [http://works.bepress.com/jeffrey\\_church/23](http://works.bepress.com/jeffrey_church/23)

Selected readings from recent research and case studies will also be assigned.

Supplementary books:

- Belleflamme, Paul and Martin Peitz, *Industrial Organization: Markets and Strategies*, Cambridge University Press, (4th printing 2012)

- Tirole, Jean, *The Theory of Industrial Organization*, MIT Press, 1992

- Shy, Oz, *Industrial Organization. Theory and Applications*. MIT Press. 1995.

- Symeonidis, George, *Industrial Economics. University of London Study Guide*, 1999

## Problem Sets

Six problem sets will be assigned (Dates: September 7, 14, 21; October 26; November 2, 9). They are a critical component of the course. Working through the problem sets (solving or at least trying to solve them) is the key to understanding the course material (and preparing for the midterm and final exam). Some exercises will also be discussed in class. We will not be granting extensions to problem sets, unless you have a letter from your college Dean. However, if no problem sets are missed, the lowest grade will be dropped.

Team work is encouraged in homework assignments. However, problem set solutions should be written up individually. To receive credit, you must clearly write your name as well as the names of the students you worked with. Identical write-ups will not be counted. You also need to show how you arrived at the mathematical solution and explain your steps.

## Attendance policy

Attendance to class is mandatory. It will help in mastering the course material and getting prepared for the exams, since presentation slides will be used as a text, problems will be solved and case studies will be discussed. An attendance sheet will be circulated in every class.

## Grading

There will be a midterm exam and a final exam. Details about the exams will be announced in class as well as on Canvas. The course grade will be the weighted average of the following:

Midterm exam (Wednesday, October 5, 2016): 30%

Problem sets: 20%

Case study: 10%

Attendance/participation: 10%

Final exam: 30%

- You (with your team) will present a case study on a topic related to the course (e.g., product innovation, knowledge spillovers, patent races, venture capital etc). This case study will be a descriptive study.

- All exams will be based on lectures, class discussions, problem sets and readings assigned during the course. The final exam will be cumulative.

- Curving is minimal. However, if the grade of the midterm exam is lower than that of the final, the final exam will be used as a make-up (so as to help a student's grade). It will weight 20% and the final exam 40%.

- You are required to inform me of any known conflict as soon as possible but no later than two weeks before the date of examination.

- If you need to miss an exam or assignment, please obtain a "Dean's excuse" and email me before the assignment is due or the exam date. Otherwise, the missed assignment or exam will result in a failing grade.

## Remarks

- Lectures are not self-contained. It is not expected that you will be able to follow a lecture if you have gaps in your knowledge from prior lectures.

- It is not expected that understanding the lecture notes will prepare you to perform well in the exams. Successfully completing the problem sets *and* reading the covered sections of the textbooks are necessary components for such preparation.

- Academic Integrity: Violations of academic integrity as given in "Undergraduate Regulations" will be taken seriously. See <http://yalecollege.yale.edu/campus-life/undergraduate-regulations>.

## Students assistance

If you receive services through the Resource Office on Disabilities and require accommodations for this class (note taking assistance, extended time for tests, etc.), please, make an appointment with me as soon as possible to discuss your approved accommodation needs but not later than September 14. I will hold any information you share with me in the strictest confidence.

If you need help with your writing skills, you can contact the Yale College Writing Center. See <http://writing.yalecollege.yale.edu/writing-yale>.

## Lectures

The lectures are the core elements of the course. Following is a sketch of topics we are likely to cover (some modifications are likely along the way).

⇒ The required readings for each class will be listed in the last slide of the lecture notes.

Required readings: \*\*\*, Recommended: \*\*, Optional: \*

### Perfect competition and Monopoly

- *Production costs; Market equilibrium; Deadweight loss; Market power; Competitive fringe*

\*\*\*Church & Ware; CH. 2, Sec. 3.1, Sec. 4.2

### Monopoly price discrimination

- *Non-linear pricing; Types of price discrimination; Bundling*

\*\*\*Church & Ware; CH. 5

\*\*Belleflamme & Peitz; CH 8, 11

\* Walter, O. Y. (1971), "A Disneyland Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly", *Quarterly Journal of Economics*, Vol. 85 (1), pp. 77-96.

\* Varian, H. R. (1985), "Price Discrimination and Social Welfare", *American Economic Review*, Vol. 75 (4), pp. 870-875.

\* Verboven, F. (1996), "International Price Discrimination in the European Car Market", *RAND Journal of Economics*, Vol. 27 (2), pp. 240-268.

### Durable goods

\*\*\*Church & Ware; CH. 4

\*\*Belleflamme & Peitz; CH 10

### Static models of Oligopoly

- *Competition in quantities (Cournot); Best-responses; Efficient number of competitors; Free-entry equilibrium; Competition in prices (Bertrand); Capacity constraints*

\*\*\*Church & Ware; CH. 7 (review of game theory), CH. 8

\*\*Belleflamme & Peitz; CH 3, Sec. 4.2

\* Chapiro, C. (1989), *Handbook of Industrial Organization*, Chapter 6: Theory of oligopoly behavior, Vol 1, pp. 326-414.

\* Bresnahan, T. F. (1981), "Duopoly Models with Consistent Conjectures", *American Economic Review*, Vol. 71 (5), pp. 934-945.

**Dynamic models of Oligopoly**

- *Stackelberg equilibrium; Collusion*

\*\*\*Church & Ware; CH. 9 (review of game theory), CH. 10, Sec. 13.2

\*\*Belleflamme & Peitz; Sec. 4.1

**Product differentiation**

- *Monopolistic competition; Address models; Hotelling's linear city; Salop's cyclical city; Localized competition; Brand proliferation; Welfare effects*

\*\*\*Church & Ware; CH. 11

\*\*Belleflamme & Peitz; Sec. 5.2

\* Shaked, A. and J. Sutton (1982), "Relaxing Price Competition Through Product Differentiation", *Review of Economic Studies*, Vol. 49 (1), pp. 3-13.

\* Salop, S. C. (1979), "Monopolistic Competition with Outside Goods", *Bell Journal of Economics*, Vol. 10 (1), pp. 141-156.

\* D'Aspremont, C., Gabszewicz, J. J. and J-F. Thisse (1979), "On Hotelling's 'Stability in competition'", *Econometrica*, Vol. 47 (5), pp. 1145-1150.

**Strategic investment: cost-reduction & entry deterrence**

- *Investment & product market competition; Strategic effects; Strategic accommodation*

\*\*\*Church & Ware; Sec. 13.3, CH. 14, 15, Sec. 16.1, 16.2 (CH. 20, 21)

\*\*Belleflamme & Peitz; CH 16

\* Fudenberg, D. and J. Tirole (1984), "The Fat Cat Effect, the Puppy Dog Ploy and the Lean and Hungry Look", *American Economic Review*, Vol. 74 (2). pp. 361-6

\* Dixit, A. (1980), "The Role of Investment in Entry-Deterrence", *Economic Journal*, Vol. 90 (357), pp. 95-106

\* Bulow, J. I., Geanakoplos, J. and P. D. Klemperer (1985), "Multimarket Oligopoly: Strategic Substitutes and Complements", *Journal of Political Economy*, Vol. 93 (3), pp. 488-511

\* Schmalensee, R. (1978), "Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry", *Bell Journal of Economics*, Vol. 9 (2), pp. 305-327

**Advertising**

- *Advertising & competition; Informative advertising; Persuasive advertising*

\*\*\*Church & Ware; CH 17

\*\*Belleflamme & Peitz; CH 6

\* Gabaix, X., and D. Laibson (2006), "Consumer Myopia, Shrouded Attributes, and Information Suppression in Competitive Markets", *Quarterly Journal of Economics*, Vol. 121 (2), pp. 505-540.

\* Lancaster, K. (1990), "The Economics of product variety: a survey", *Marketing Science*, Vol.9 (3), pp.189-203.

\* Bagwell, K. (2007), Handbook of Industrial Organization, Chapter 28: The Economic Analysis of Advertising, Vol. 3, pp. 1701-1844.

\* Becker, G.S. and K.M. Murphy (1993), "A Simple Theory of Advertising as a Good or Bad", Quarterly Journal of Economics, Vol. 108 (4), pp. 941-964.

\* Akerberg, D. A. (2001), "Empirically Distinguishing Informative and Prestige Effects of Advertising", Rand Journal of Economics, Vol. 32 (2), pp. 316-333.

### **Vertical integration**

- *Double marginalization; Vertical restraints; Exclusive dealing*

\*\*\*Church & Ware; CH 22

\*\*Belleflamme & Peitz; CH 17

\* Rey, P. and J. Tirole (2003), "A Primer on Foreclosure", mimeo.

\* Salop, S. and D. Scheffman (1983), "Raising Rivals' Costs", American Economic Review, Vol. 73 (2), pp. 267-271.

\* Hart, O. and J. Tirole (1990), "Vertical Integration and Market Foreclosure", Brookings Papers on Economic Activity: Microeconomics, pp. 205-286.

\* Mortimer, J. H. (2008), "Vertical Contracts in the Video Rental Industry", Review of Economic Studies, Vol. 75 (1), pp. 165-199.

### **Horizontal mergers**

- *Herfindahl Index; Mergers in differentiated markets; Underlying effects of mergers*

\*\*\*Church & Ware; CH 23

\*\*Belleflamme & Peitz; CH 15

\* Department of Justice, Horizontal Merger Guidelines,

[http://www.usdoj.gov/atr/public/guidelines/horiz\\_book/hmg1.html](http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html)

\* S. Berry, S. and J. Waldfogel (2001), "Do Mergers Increase Product Variety? Evidence from Radio Broadcasting", Quarterly Journal of Economics, Vol. 116 (3), pp. 1009-1025.

### **Innovation & Intellectual Property (IP)**

- *Patents; Copyrights; Trademarks; Patent races; Knowledge spillovers; Venture capital*

\*\*\*Scotchmer; CH 3, 5 (CH. 4)

\* Besen, S. and L. Raskind (1991), "An Introduction to the Law and Economics of Intellectual Property", Journal of Economic Perspectives, 5 (1), pp. 3-27.

\* Qiu, L. (1997), "On the Dynamic Efficiency of Bertrand and Cournot Equilibria", Journal of Economic Theory, Vol. 75 (1), pp. 213-229.