

Econ 8747: Industrial Organization Theory

Fall 2014

Professor Yongmin Chen

Office: Econ 112

Classroom: ECON 5

Class Time/Location: 11:00-12:15 AM. TR; ECON 5

Office Hours: 9:30-10:30 and 3:30-5:30 PM on Tuesday

Course Description: Industrial organization studies the behavior of firms and the functioning of markets, as well as the role of public policy in promoting efficiency. The course will cover selected topics in industrial organization theory. Recommended textbooks include: (1) *The Theory of Industrial Organization* by Jean Tirole, MIT Press, and (2) *Industrial Organization: Contemporary Theory and Practice* by Pepall, Richards, and Norman. A good source for references is the *Handbook of Industrial Organization, Vol. 1, 2, and 3*. *HIO3* (2007, Mark Armstrong and Robert Porter edits) surveys the major developments in IO since Tirole.

Grading: Grades are based on homework and class participation (30%), a midterm exam (40%), and a term paper (30%). You are encouraged to form study groups to discuss homework and lecture materials. Requirements for the term paper will be discussed later.

The course materials are arranged by topics (the topics are listed below), and each topic is usually covered in several classes. For homework, you are encouraged to work out the various exercise problems in Tirole, and I will also ask you to write short reviews for papers (each review is about 2-3 pages long, double spaced).

A tentative course schedule is attached. There can be changes to this schedule during the semester, which will be announced in class. It is your responsibility to update information about the course according to announcements made in class.

Course Schedule:

1. Introduction

2. Monopoly Pricing: Single Product

- Monopoly pricing: an overview
- Price discrimination
- Differential pricing
- Dynamic pricing (learning consumer demand, durable-good pricing, ...)
- Other topics

Readings: Tirole Ch. 1

- Maskin, E., and J. Riley, “Monopoly with Incomplete Information”, RAND (1984), 171-196.
- Varian, H., “Price Discrimination and Social Welfare”, AER (1985), 870-875.
- Armstrong, Mark, “Recent Developments in the Economics of Price Discrimination”, 2006.
- Bagwell and Riordan, “High and declining prices signal product quality”, AER, 1991.
- Iñaki Aguirre, Simon Cowan and John Vickers, “Monopoly Price Discrimination and Demand Curvature”, AER, 2010.
- Weyl, E. Glen and Michal Fabinger. 2013. "Pass-Through as an Economic Tool: Principles of Incidence under Imperfect Competition." *Journal of Political Economy*, 121(3): 528-583.
- Chen, Y. and M. Schwartz. 2013. “Differential Pricing When Costs Differ: A Welfare Analysis”. Working paper.

Assignment 1: (1) Exercise 1.1-1.9 in Tirole; (2) Review Weyl and Fabinger (2013)

3. Monopoly product bundling

Readings:

- McAfee, McMillan, and Whinston, “Multiproduct Monopoly, Commodity Bundling, and Correlation of Values”, QJE (1989), 371-384.
- Chen, Y. and M. Riordan, “Profitability of Product Bundling”, *International Economic Review*, 2013.
- Chen, Y and T. Zhang, “Interpersonal Bundling”, working paper, 2014, *Management Science*, forthcoming.

Assignment 2: Discuss product bundling in the telecommunications industry

3. Product Differentiation and Price Competition

- A Historical Overview
- Spatial Models of Product Differentiation
- The Representative Consumer Approach
- Discrete Choice Models
- Applications: Evaluating Horizontal Mergers

Readings: Ch. 5, 6, 7 in Tirole

- Hotelling, H. (1929). "Stability in Competition", *Economic Journal*, vol. 39, pp. 41-57.
- Salop, S.C. (1979). "Monopolistic competition with outside goods", *Bell Journal of Economics*, vol. 10, pp. 141-156.

- Chen, Y. and M. Riordan (2007), “Price and Variety in the Spokes Model”, *Economic Journal*, 897-921.
- Perloff, J.M. and Salop, S.C. (1985). "Equilibrium with product differentiation", *Review of Economic Studies*, vol. 52, pp. 107-120.
- “Horizontal Merger Guidelines”, FTC and DOJ, 2010.

Further Readings:

- Anderson, S.P., de Palma, A. and Thisse, J-F. (1992). *Discrete Choice Theory of Product Differentiation*, Cambridge: The MIT Press.
- Chen, Y. and M. Riordan (2008), “Price-Increasing Competition”, *RAND*.
- *Deneckere, R. and C. Davidson (1985), “Incentives to form coalitions with Bertrand competition,” *RAND Journal of Economics*, 473-486.
- Shaked and Sutton (1982), “Relaxing Price Competition through Product Differentiation”, *Review of Economic Studies*, 3-13.
- Stole, Lars, “Price Discrimination in imperfectly competitive markets.” *HIO* 3.

Assignment 3: (1) Exercise 5.1-5.9; 7.1-7.3 in Tirole; (2) Review a recent article on product differentiation or discuss a horizontal merger case in the U.S.

Planning for Term Paper

4. Dynamic Models of Oligopoly

- Strategic Behavior: Ideas and Applications
- Dynamic Price Competition
- Dynamic Pricing Based on Consumer Purchase Histories
 - A Model of Ex-post Differentiation due to Consumer Switching Costs (Chen, 1997)
 - A Model of Ex ante Differentiation due to Heterogeneous Consumer Preferences (Fudenberg and Tirole, 2000)

Readings: Ch. 6 in Tirole

- Bulow, Jeremy, John Geanakoplos, and Paul Klemperer (1985), “Multimarket Oligopoly: Strategic Substitutes and Complements,” *Journal of Political Economy*, 488-511.
- Klemperer, Paul, “The Competitiveness of Markets with Switching Costs”, *RAND* (1987), 138-150.
- Joseph Farrell and P. Klemperer, “Competition in Markets with Switching Costs and Lock-In”, *HIO* 3.
- Chen, Y. “Paying Customers to Switch”, *JEMS* (1997), 877-897.
- Taylor, Curtis, “Supplier Surfing: Competition and Consumer Behavior in Subscription Markets”, *RAND*, 2003
- Fudenberg, D and J. Tirole, “Consumer Poaching and Brand Switching,” *RAND* (2001), 634-657

Assignment 4: (1) Exercise 6.1-6.10 in Tirole; (2) Discuss targeted pricing practices by businesses

Proposal for Term Paper

5. Vertical Mergers

Readings

- Michael Riordan and Oliver Williamson, “Asset specificity and economic organization”, IJIO, 1985.
- Ordoover, J.A., G. Saloner, and S. Salop, “Equilibrium Vertical Foreclosure,” AER, Vol. 80 (1990), pp. 127-142.
- Chen, Y. “On Vertical Mergers and Their Competitive Effects,” RAND, 2001.
- Chen, Y. “Vertical Disintegration,” JEMS, 2005.
- Chen and Riordan, “Vertical integration, exclusive dealing, and ex post cartelization”, RAND, 2007.
- Hart and Tirole, “Vertical integration and market foreclosure”. Brookings Papers on Economic Activity, 1990.
- Nocke, Volker, and Lucy White, “Do Vertical Mergers Facilitate Upstream Collusion,” AER, 2007.
- Ray and Tirole, “A primer on foreclosure.” HIO 3.

Assignment 5: Discuss Vertical Merger Policy and Practice.

Exam

6. Innovation and Intellectual Property Rights

A. Overview

- Basic Questions for the Economic Analysis of Innovation
- Some Statistics about Innovation Inputs and Outputs
- Analytical Framework

B. Market Structure and Innovation Incentive

- The Schumpeterian View (1942)
- Arrow’s Analysis (1962): Process Innovation
- Preempting Monopoly: Gilbert and Newbery (1982)
- Product Innovation: When is Arrow’s Ranking Reversed?
- Vertical Organization and Innovation Incentive
- Exclusive Contracts and Innovation

C. Intellectual Property Rights (IPRs) and Innovation

- The Fundamental Trade-off: Static vs. Dynamic Efficiency
- Common Forms of IPRs
- Optimal Patents: Single Innovation
- The Division of profits in sequential innovation
- Antitrust and Innovation
- IPRs and Continual Innovation
- IPRs and Innovation in Developing Countries

Readings:

- U.S. National Science Board. "[Science and Engineering Indicators 2014](http://www.nsf.gov/statistics/seind14/)".
<http://www.nsf.gov/statistics/seind14/>
- Arrow, K. (1962). "Economic Welfare and the Allocation of Resources for Innovations," R. Nelson ed. *The Rate and Direction of Inventive Activity*, Princeton University Press.
- Chen, Y and T. Puttitanun (2005). "Intellectual Property Rights and Innovation in Developing Countries", *Journal of Development Economics*, 78: 474-493.
- Chen, Y. (2006). "Marketing Innovation", *JEMS*, 15: 101-123.
- Chen, Y and D. Sappington (2010). "Innovation in Vertically Related Markets", *Journal of Industrial Economics*.
- Chen, Y and D. Sappington (2011). "Exclusive Contracts, Innovation, and Welfare", *American Economic Journals: Microeconomics*.
- Chen, Y and M. Schwartz (2013). "Product Innovation Incentives: Monopoly vs. Competition", *Journal of Economics and Management Strategy*.
- Chen, Y. (2014) "Refusal to Deal, Intellectual Property Rights, and Antitrust". *Journal of Law, Economics, and Organization*.
- Chen, Y., S. Pan and T. Zhang (2014). "(When) Do Stronger Patents Increase Continual Innovation?" *Journal of Economic Behavior and Organization*.
- Gilbert, R. and Newbery, D. (1982). "Preemptive Patenting and the Persistence of Monopoly," *American Economic Review*, 72: 514-526.
- Green, J. and S. Scotchmer (1995). "On the Division of Profits in Sequential Innovation". *RAND Journal of Economics*, 26: 20-33.
- Hunt, R. (2004) "Patentability, Industrial Structure, and Innovation". *Journal of Industrial Economics*.
- O'Donoghue, T., S. Scotchmer, and J-F. Thisse (1998). "Patent Breadth, Patent Life and the Pace of Technological Progress". *Journal of Economics and Management Strategy*.
- Scotchmer, Suzanne. 2004. *Innovation and Incentives*. Cambridge: MIT Press.
- Segal, I. and M. Whinston. (2007) "Antitrust in Innovative Industries". *American Economic Review*.

- Vickers, John. 2010. "Competition Policy and Property Rights." *Economic Journal*, 120: 375-392.

Assignment 6. (1) Exercise 10.1-10.10 in Tirole; (2) Discuss an issue or a case related to patenting or innovation.

7. Bounded Rationality in Industrial Organization

Readings:

- *Ellison, Glenn, "Bounded Rationality in Industrial Organization", 2006, MIT.
- Spiegler, Ran (2011), *Bounded Rationality and Industrial Organization*, Oxford University Press.
- Gabaix, Xavier & David Laibson. 2006. "Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets." *QJE*, 121(2):505—540.
- Heidhues, P. and B. Köszegi, "Competition and Price Variation When Consumers Are Loss Averse", *AER*, 2008
- *Köszegi, B. and M. Rabin, "A Model of Reference-Dependent Preferences" *QJE*, 2006.
- Armstrong, M. and Y. Chen, "Discount Pricing", *Oxford University Working Paper*, 2013.

Completing Term Paper

Abbreviations for journals:

AER: American Economic Review

EM: *Econometrica*

IJIO: *International Journal of Industrial Organization*

JB: *Journal of Business*

JEMS: *Journal of Economics and Management Strategy*

JIE: *Journal of Industrial Economics*

JLEO: *Journal of Law, Economics, and Organization*

JPE: *Journal of Political Economy*

QJE: *Quarterly Journal of Economics*

RAND (BELL): *Rand (Bell) Journal of Economics*

RES: *Review of Economic Studies*

University Policies

Students with Disabilities

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs can be addressed. Disability Services determines

accommodations based on documented disabilities. Contact: 303-492-8671, Center for Community N200, and <http://www.colorado.edu/disabilityservices>.

If you have a temporary medical condition or injury, see guidelines at <http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html>

Religious Observances

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, Please make your requests to me within the first two weeks of the semester. See full details at http://www.colorado.edu/policies/fac_relig.html

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at <http://www.colorado.edu/policies/classbehavior.html> and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

Discrimination and Harassment

The University of Colorado at Boulder Discrimination and Harassment Policy and Procedures, the University of Colorado Sexual Harassment Policy and Procedures, and the University of Colorado Conflict of Interest in Cases of Amorous Relationships policy apply to all students, staff, and faculty. Any student, staff, or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Student Conduct (OSC) at 303-492-5550. Information about the ODH, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at <http://www.colorado.edu/odh>.

Academic Misconduct

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall

be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at <http://www.colorado.edu/policies/honor.html> and at <http://www.colorado.edu/academics/honorcode/>