

Econ 8747: Industrial Organization Theory

Fall 2018

Professor Yongmin Chen

Office: Econ 112

Class Time/Location: 9:30-10:45 AM. TTH; ECON 5

Office Hours: 3:30-5:00pm, TTH; 10:00-11:30am, Wednesday

Course Description: Industrial organization studies the behavior of firms and markets under imperfect competition. 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%), presentation (30%), and a term paper (40%). 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. Tirole remains the classic graduate IO textbook, and you are encouraged to read the entire book and work out the exercise problems there (even though we only cover a few parts of the book in the course). You will also be asked to write short reviews/discussions (each review/discussion is 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. You are responsible for updating course information according to announcements made in class.

Course Schedule:

1. Introduction

Reading:

- Tirole; Pepall et al.; Tables of Contents, HIO 1, 2, 3.
- Varian, H. "How to Build an Economic Model in Your Spare Time", 1994, updated in 2009.
- Jonathan B. Berk, Campbell R. Harvey, and David Hirshleifer, "How to Write an Effective Referee Report and Improve the Scientific Review Process", Journal of Economic Literature, 2017

Planning for presentation: Each student will choose a paper to make a 30-minutes presentation in class.

2. Monopoly Pricing

- Price discrimination and differential pricing
- Nonlinear pricing
- Product bundling

Readings: Tirole Ch. 1

- Maskin, E., and J. Riley, “Monopoly with Incomplete Information”, RAND, 1984.
- *Iñaki Aguirre, Simon Cowan and John Vickers, “Monopoly Price Discrimination and Demand Curvature”, AER, 2010.
- *Bergemann, D., Brooks, B., and S. Morris. "The Limits of Price Discrimination," AER, 2015
- Weyl, E. Glen and Michal Fabinger. "Pass-Through as an Economic Tool: Principles of Incidence under Imperfect Competition." JPE, 121(3): 528-583, 2013.
- Chen, Y. and M. Schwartz. “Differential Pricing When Costs Differ: A Welfare Analysis”. RAND, 2015.
- Chen, Y. and M. Riordan, “Profitability of Product Bundling”, IER, 2013.
- *Andrew Rhodes and Chris Wilson, “False Advertising”, RAND, 2018
- *Monika Mrázová and J. Peter Neary, “Not So Demanding: Demand Structure and Firm Behavior”, AER, 2017.

Assignment 1:

(1) Exercise 1.1-1.9 in Tirole.

(2) Consider a discrete choice model where consumers’ value for a product follows distribution $F(v)$. Find the monopoly pass-through rate for as many forms of $F(v)$ as you can find; and find examples of $F(v)$ for which the pass-through rate is less than 1, equal to 1, and large than 1; and also find examples where the pass-through rate is increasing, constant, and decreasing.

(3) Review a starred article.

3. Product Differentiation and Price Competition

- Spatial Models of Product Differentiation
- The Representative Consumer Approach
- Discrete Choice Models
- Applications: (1) Competitive Differential Pricing; (2) Evaluating Horizontal Mergers

Readings: Ch. 5, 6, 7 in Tirole

- Hotelling, H. (1929). "Stability in Competition", Economic Journal, vol. 39, pp. 41-57.
- 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.

- Deneckere, R. and C. Davidson (1985), “Incentives to form coalitions with Bertrand competition,” RAND Journal of Economics, 473-486.
- *Stole, Lars, “Price Discrimination in imperfectly competitive markets,” HIO 3.
- *Justin Johnson, “Unplanned Purchases and Retail Competition”, AER, 2017
- *Zhou, J., “Competitive Product Bundling”, Econometrica, 2017.
- “Horizontal Merger Guidelines”, FTC and DOJ, 2010.
<https://www.justice.gov/sites/default/files/atr/legacy/2010/08/19/hmg-2010.pdf>

Assignment 2: (1) Exercise 5.1-5.9; 7.1-7.3 in Tirole; (2) Discuss a horizontal merger case.

4. Dynamic Models of Oligopoly

- Strategic Behavior: Ideas and Applications
- Dynamic Price Competition
- Dynamic Pricing Based on Consumer Purchase History
 - 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.
- Curt Taylor, “Supplier Surfing: Competition and Consumer Behavior in Subscription Markets”, RAND, 2003, 34, 223–46.
- Fudenberg, D and J. Tirole, “Consumer Poaching and Brand Switching,” RAND (2001), 634-657
- Chen, Y. and J. Percy, “Dynamic Pricing: When to Entice Brand Switching and When to Reward Consumer Loyalty”, RAND, 2010.
- *B. Douglas Bernheim and Erik Madsen, “Price Cutting and Business Stealing in Imperfect Cartels”, AER, 2017

Assignment 3: (1) Exercise 6.1-6.10 in Tirole; (2) Construct and discuss a simple two-period model with strategic behavior.

Student Presentations

5. Privacy, advertising, and Information Security

Readings:

- Alessandro Acquisti, Curt Taylor and Liad Wagman, “The Economics of Privacy,” *Journal of Economic Literature*, June 2016.
- *Curt Taylor, “Consumer Privacy and the Market for Customer Information”, RAND, 2004.
- Athey, S. and J. Gans (2010). The impact of targeting advertising technology on advertising markets and media competition. *AER*, 100 (2), 608–613.
- Anderson, R. and T. Moore (2006). The economics of information security. *Science* 314 (5799), 610–613.
- *Goldfarb, A. and C. Tucker (2011). Privacy regulation and online advertising. *Management Science* 57 (1), 57–71.
- *Haan, M. A. and Moraga-González, J. L. (2011). "Advertising for Attention in a Consumer Search Model." *Economic Journal*, Vol. 121, pp. 552--579.
- *Sanjeev Goyal and Adrien Vigier, “Attack, Defence, and Contagion in Networks”, *REStud.*, 2014.

Assignment 4: Discuss the (economic and policy) issues on consumer privacy or online security.

Student Presentations

Planning for Term Paper

6. Platform Economics and Consumer Search

Readings:

- Wolinsky, A. 1986. “True Monopolistic Competition as a Result of Imperfect Competition,” *QJE*.
- *Anderson, S. and Renault, R. (1999). "Pricing, Product Diversity, and Search Costs: A Bertrand-Chamberlin-Diamond Model." *RAND*.
- *Athey, S. and G. Ellison, 2011, “Position Auctions with Consumer Search”, *QJE*.
- *Eliaz, K. and Spiegler, R. (2011). "A Simple Model of Search Engine Pricing." *Economic Journal*, Vol.121, pp F329-39.
- Chen, Y. and C. He, 2011. “Paid Placement: Advertising and Search on the Internet,” *Economic Journal*.
- Chen, Y. and T. Zhang, “Entry and Welfare in Search Markets”, *Economic Journal*, 2016.
- Chen, Y. and T. Zhang, “Intermediaries and Consumer Search,” *IJIO*, 2018
- *Edelman, B. and J. Wright (2014) “Price Coherence and Adverse Intermediation”, *QJE*, 2015.
- *Bar-Isaac, H., Caruana, G. and V. Cunat, “Search, Design and Market Structure”, *AER*, 2012.
- *de Cornière, A., and G. Taylor (2013) "Integration and Search Engine Bias," *RAND*
- *Dinerstein, M., Einav, L., Levin, J. and N. Sundaresany, “Consumer Price Search and Platform Design in Internet Commerce”, *AER*, 2018.
- *Justin Johnson, “The Agency Model and MFN”, *Review of Economic Studies*, 2017

- Hagiü, A., and B. Jullien, "Search Diversion and Platform Competition," IJIO, 2014.
- Armstrong, M, Vickers, J, and Zhou, J., "Prominence and Consumer Search", RAND, 2009.

Assignment 5: (1) Review a starred article; (2) Discuss issues related to Internet commerce.

Student Presentations

7. 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
- Patent Damages/Remedies
- 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.
- Gilbert, R. and Newbery, D. (1982). "Preemptive Patenting and the Persistence of Monopoly," American Economic Review, 72: 514-526.

- Chen, Y and M. Schwartz (2013). “Product Innovation Incentives: Monopoly vs. Competition”, Journal of Economics and Management Strategy.
- 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. (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.
- Chen, Y. and D. Sappington (2018). “An Optimal Rule for Patent Damages under Sequential Innovation,” RAND.
- *Green, J. and S. Scotchmer (1995). “On the Division of Profits in Sequential Innovation”. RAND Journal of Economics, 26: 20-33.
- Gilbert, R. and C. Shapiro. (1990). "Optimal Patent Length and Breadth," RAND Journal of Economics, 21: 106-112.
- 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.
- *Shapiro, C. (2016). "Patent Remedies," American Economic Review, 106: 198-202.
- 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.

Presentation and Completion of Term Paper

University Policies

Students with Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see [Temporary Medical Conditions](#) under the Students tab on the Disability Services website.

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 race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. 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. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

Discrimination and Harassment

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).