

**ECON 947: Industrial Organization
Fall 2005**

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Office Hours: Tuesdays & Thursdays, 2:00pm to 3:00pm, and by appointment

Midterm Exam: Date to be announced

Literature Review: Due last day of Classes

Final Exam: Thursday, December 15, 9:40am to 11:30am

Course Description

This is a graduate course in industrial organization. Industrial organization studies the functioning of markets. It is concerned with business behavior and strategy, as well as their implications for economic efficiency. It also studies the role of public policies in promoting efficiency. The material covered in the references, listed by topics below, is more comprehensive than we can possibly cover in one semester. The reference list therefore serves at least two purposes, (1) to provide references for the issues we will discuss in class, (2) to provide additional references that may be useful for your future research. The course is divided into two main parts. Part I is theoretical in nature and covers topics such as *Monopoly Pricing, Vertical Control, Static Models of Oligopoly, Product Differentiation, and Entry*. Noncooperative game theory is used throughout much of the topics in Part I. Part II of the course is empirical in nature, and focuses on the use of econometric analysis to test the predictions of much of the theoretical models that we discuss in Part I of the course. Some of the topics we plan to discuss in the empirical section include, *Measuring Market Power, Short-Run Price/Quantity Competition in Differentiated-Products Industries, and Entry and Industry Structure*.

The main text for Part I is *The Theory of Industrial Organization* by Jean Tirole. I find that *Industrial Organization: A Strategic Approach* by Jeffrey Church and Roger Ware is an extremely useful supplemental text for the material we intend to cover. It provides a lot of case study examples and emphasizes intuition rather than rigorous theoretical modeling. The empirical part of the course will not follow any particular text, but instead will draw on materials from a series of journal articles in the field of Empirical Industrial Organization. Useful background reading for the econometric techniques used in the empirical part of the course can be found in *Regression models for Categorical and Limited Dependent Variables* by J. Scott Long, *Discrete Choice Methods with Simulation* by Kenneth Train, *Basic Econometrics*, by Damodar Gujarati, and *Econometric Analysis* by William Greene.

Main Text: Jean Tirole, *The Theory of Industrial Organization*, MIT Press, 1988.

Other Useful Texts:

- (1) Church, Jeffrey and Roger Ware, *Industrial Organization A Strategic Approach*, McGraw-Hill, 2000.
- (2) Carlton, Dennis and Jeffrey Perloff, *Modern Industrial Organization*, Addison Wesley, 2000
- (3) Greene W., *Econometric Analysis*, (fourth edition), *Prentice- Hall, Inc.*, 2000.
- (4) Gujarati, Damodar, *Basic Econometrics*, McGraw Hill/Irwin, 2002.
- (5) Long, J. Scott, *Regression models for Categorical and Limited Dependent Variables*, SAGE Publications Inc., 1997
- (6) Train, Kenneth, *Discrete Choice Methods with Simulation*, Cambridge University Press, 2003.

Course Requirements

Course requirements include a midterm, a final exam, a literature review (please discuss choice of topic with me before proceeding), a class presentation (one of the articles in your literature review), referee reports of published research articles (articles will be assigned in class), and periodic problem sets some of which are computer based.

Grading:

- 20% Midterm
- 20% Final
- 30% Class Presentations
- 10% Referee Reports
- 10% Problem Sets
- 10% Class Participation

Letter grades are based on a curve.

Class Web Page: online.ksu.edu/ECON_947/

Various class materials (Lecture notes and Homework Assignments) will be available on the class web page via K-State Online. You will need an e-ID and password to sign into K-State Online. If you currently do not have an e-ID you can create one for yourself via the K-State Online web page. Go to **online.ksu.edu** and follow the instructions.

Tentative list of topics to be covered:

Part I

1. Introduction:

- (i) What is Industrial Organization?
- (ii) How has the field Evolved?

2. A model of Perfect Competition:

- (i) Supply, Demand, and Market Equilibrium.
- (ii) Measures of consumers' and producers' surplus

3. Monopoly:

- (i) Derivation of the Lerner index in the case of a single product firm.
- (ii) Derivation of the Lerner index in the case of a multi-product firm.
- (iii) First, second, and third-degree price discrimination.

4. Vertical Control:

- (i) Two-part tariffs
- (ii) Resale price maintenance
- (iii) Quantity fixing

5. Models of Oligopoly:

- (i) Quantity competition
- (ii) Price Competition
- (iii) Hotelling model (Linear City model)
- (iv) Entry

Part II

6. Brief review of the linear regression model:

- (i) Ordinary least squares and instrumental variables estimation.
- (ii) Simultaneous equations, identification, and estimation.

7. Identifying and Measuring Market Power:

- (i) Structure-Conduct-Performance approach.
- (ii) The New Empirical Industrial Organization (NEIO) approach.
- (iii) Generalized Method of Moments (GMM) estimation.
- (iii) Maximum Likelihood estimation.

8. Discrete Choice models of Demand and Methods of Estimation:

- (i) Conditional Logit.
- (ii) Nested Logit.
- (iii) Random Coefficients (Mixed) Logit.

9. Short-Run Price Competition in Differentiated Products Industries:

- (i) Merger Analysis.
- (ii) Measuring market power in differentiated products industries.

10. Entry and Industry Structure.

Reference List: Required readings are indicated by (*).

PART I

Introduction

- (*) Tirole, pp. 1-13. Church and Ware, pp. 3-28.
- (*) Schmalensee, R. 1988. "Industrial Economics: An Overview." *The Economic Journal* 98: 643-681.
- (*) Schmalensee, R. 1989. "Inter-Industry Studies of Structure and Performance." *Handbook of Industrial Organization*, ed. R. Schmalensee and R. Willig. Amsterdam:North Holland.
- Bresnahan, T. 1989. "Empirical Studies of Industries with Market Power." *Handbook of Industrial Organization*, ed. R. Schmalensee and R. Willig. Amsterdam:North Holland 1011-1057.

Monopoly Pricing

- (*) Tirole, pp. 65-72; 134-162
- (*) Varian, H., "Price Discrimination and Welfare," *AER* (1985), 870-875
- Fundenburg and Tirole, "Upgrades, Trade-ins, and Buybacks," *RAND* (1998)
- Clerides, Sofronis K., "Price Discrimination with Differentiated Products: Definition and Identification," *Working Paper, University of Cyprus* (2003).
- Van Ackere, A. and D. Reyniers, "Trade-ins and Introductory Offers in a Monopoly," *RAND* (1995), 58-74
- Maskin, E., and Riley, "Monopoly with Incomplete Information," *RAND* (1984), 171-196.
- McAfee, McMillian, and Whinston, "Multiproduct Monopoly, Commodity Bundling, and Correlation of Values," *QJE* (1989), 371-384.
- Chen, Y. and Rosenthal, "On the Use of Ceiling-price Commitments by Monopolists," *RAND* (1996), 207-220.
- Villas-Boas, Miguel, "Price cycles in markets with customer recognition," *UC-Berkeley School of Business working paper*, 2000.

Vertical Contractual Relations

- (*) Tirole pp.169-186
- Deneckere, R., H. Marvel, and J. Peck, "Demand Uncertainty, Inventories, and Resale Price Maintenance," *QJE* (1996), pp. 885-913.
- (*) Perry, M., and R. Porter, "Can Resale Price Maintenance and Franchise Fees Correct Sub-optimal Levels of Retail Service?" *IJIO* (1990), pp. 115-141.
- (*) Chen, Y., "Oligopoly Price Discrimination and Resale Price Maintenance," *RAND*, 1999, 441-455.
- Chen, Y., and K. Maskus, "Vertical Pricing and Parallel Imports," Working Paper, Department of Economics, University of Colorado at Boulder, 2000, revised 2001.
- Aghion, P., and P. Bolton, "Contracts as a Barrier to Entry," *AER*, Vol.77 (1987), pp. 388-401.
- Bernheim, B. D., and M. D. Whinston, "Exclusive Dealing," *JPE*, Vol. 106 (1998), pp. 64-103.
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- Martimort, D., "Exclusive Dealing, Common Agency, and Multiprincipals Incentive Theory," *RAND*, Vol. 27 (1996), pp. 1-31.
- Marvel, H. P., "Exclusive Dealing," *Journal of Law and Economics*, Vol. 25 (1982), pp. 1-25.
- Rasmusen, E., Ramseyer, J., and Wiley, Jr. J., "Naked Exclusion," *AER*, Vol. 81 (1991), pp. 1137-1145.
- Segal, I., and M. Whinston, "Exclusive Contracts and Protection of Investments," *RAND*, Vol. 31 (2000), pp. 603-633.
- Spier, K., and M. Whinston, "On the Efficiency of Privately Stipulated Damages for Breach of Contract: Entry Barriers, Reliance, and Renegotiation," *RAND*, Vol. 26 (1995), pp. 180-202.

Vertical Mergers and Vertical Organization of Industries

- (*) Chen, Y., "On Vertical Mergers and Their Competitive Effects," *RAND*, (2001)
- Choi, J., and S-S. Yi, "Vertical Foreclosure with the Choice of Input Specification," *RAND*, Vol. 31, (2000) pp. 717-743.
- Ordover, J., and G. Saloner, and S. Salop, "Equilibrium Vertical Foreclosure," *AER*, Vol. 80 (1990), pp. 127-142.
- Riordan, M., "Anticompetitive Vertical Integration by A Dominant Firm," *AER*, 1998, 88, 1232-1248.
- Riordan, M., and S. Salop, "Evaluating Vertical Mergers: A Post-Chicago Approach," *Antitrust Law Journal*, (1995), 63, 513-568.
- Salinger, M., "Vertical Mergers and Market Foreclosure," *QJE*, (1988), Vol. 103, pp. 345-56.

Models of Oligopoly

- (*) Tirole, 209-226
- (*) Bulow, J., J. Geanakoplos, and P. Klemperer (1985), "Multimarket Oligopoly: Strategic Substitutes and Complements," *JPE*, 488-511.
- Deneckere and Davidson, "Incentives to form Coalitions with Bertrand Competition," *RAND*, (1985).
- Farrell, J., and C. Shapiro, "Horizontal Mergers: An Equilibrium Analysis," *AER* (1990), 107-126.
- Rosenthal, R., "A Model in which Increase in the Number of Sellers Leads to a Higher Price," *Econometrica*, (1980), 1575-1579.
- (*) Shaked, A., and J. Sutton, "Relaxing Price Competition through Product Differentiation," *Review of Economic Studies* (1982), 3-13.
- Shaked, A., and J. Sutton, "Multiproduct Firms and Market Structure," *RAND* (1990), pp. 45-62.
- Homes, T., "The Effects of Third-Degree Price Discrimination in Oligopoly," *AER* (1989) 244-250.
- Stole, L., "Nonlinear Pricing and Oligopoly," *JEMS* (1995), 529-562.
- Chen, Y., "Equilibrium Product Bundling," *Journal of Business*, (1997), 85-103.
- Dixit, A., "The Role of Investment in Entry Deterrence," *Economic Journal*, (1980), Vol. 90, 95-106.

- Spence, A., "Entry, Capacity Investment, and Oligopolistic Pricing," *Bell Journal of Economics*, (1977), Vol. 8, 534-44.
- Mankiw, N., and M. Whinston, "Free Entry and Social inefficiency," *RAND*, (1986), Vol. 17, 48-58.

PART II

Measuring Market Power

- (*) Church and Ware, Chap12
- (*) Bresnahan, T. 1989. "Empirical Studies of Industries with Market Power," *Hand Book of Industrial Organization*, ed. R. Schmalensee and R. Willig. Amsterdam:North Holland 1011-1057.
- (*) Kadiyali, V., K. Sudhir, and V. Rao, 2001. "Structural analysis of competitive behavior: New Empirical Industrial Organization methods in marketing," *International Journal of Research in Marketing*, Vol. 18, 161-186.
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- Panzar, John and James Ross, 1987. "Testing for Monopoly Equilibrium," *Journal of Industrial Economics*, 443-56.
- Genesove, D., and W. Mullin, 1998, "Testing Static Oligopoly Models: Conduct and Cost in Sugar Industry, 1890-1914," *RAND*, Vol. 29:355-77.
- Wolfram, C., 1999, "Measuring Duopoly Power in the British Electric Spot Market," *AER*, Vol. 89, 805-26.
- (*) Porter, R. 1983, "A Study of Cartel Stability: The Joint Executive Committee, 1880-1886," *Bell Journal of Economics*, Vol. 14, 301-314.
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- Borenstein, S., and A. Shepard, 1996, "Dynamic Pricing in Retail Gasoline Markets," *RAND*, Vol. 27, 429-51.
- Chevalier, J., and D. Scharfstein, 1996, "Capital-Market Imperfections and Countercyclical Markups: Theory and Evidence," *AER*, Vol. 86, 703-25.
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Short-Run Price/Quantity Competition in Differentiated-Products Industries

- (*) Bresnahan, T., 1987, "Competition and Collusion in the American Automobile Market: The 1955 Price War," *Journal of Industrial Economics*, Vol. 45, 457-482.
- (*) Berry, S., 1994, "Estimating Discrete-Choice Models of Product Differentiation," *RAND*, Vol. 25, 242-262.
- Berry, S., Levinsohn, J., and A. Pakes, 1995, "Automobile Prices in Market Equilibrium," *Econometrica*, Vol. 63, 841-990.
- (*) Nevo, A., 2001, "Measuring Market Power in the Ready-to-Eat Cereal Industry," *Econometrica*, Vol. 69, 307-342.
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- Nevo, A., 2000, "Mergers with Differentiated Products: The case of the Ready-To-Eat Cereal Industry," *RAND*, Vol. 31, No. 3, 395-421.
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- Borenstein, 1989, "Hubs and High Fares: Dominance and Market Power in the U.S. Airline Industry," *RAND*, 2(3), 344-365.
- Berry, S., M. Carnall, and P. Spiller, "Airline Hubs: Cost, Markups and the Implications of Customer Heterogeneity," *NBER working paper*, No. 5561.
- Berry, S., J. Levinsohn, and A. Pakes, 1998, "Differentiated Products Demand Systems From a Combination of Micro and Macro Data: The New Car Market," *NBER* No. 6481.

Price Discrimination

- Shepard, Andrea. 1991. "Price Discrimination and Rental Configuration," *Journal of Political Economy* 99 (February): 30-53.
- Blackstone, Erwin. 1975. "Restrictive Practices in the Marketing of Electrofax Copying Machines: The SCM Corporation Case," *Journal of Industrial Economics* 23(3), 89-202.
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- Borenstein, Severin and Nancy Rose. 1994. "Competition and Price Dispersion in the U.S. Airline Industry," *Journal of Political Economy* 102 (August): 653-83.
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- Philip Leslie. 1997. "A Structural Economic Analysis of Price Discrimination in Broadway Theater," *UCLA*: mimeo.
- Cohen, Andrew. 2000. "Package Size and Price Discrimination in the Paper Towel Market," *University of Virginia* mimeo.
- McManus, Brian. 2001. "Nonlinear Pricing in an Oligopoly Market: the Case of Specialty Coffee." *Washington University Olin School*. Mimeo.
- Miravete, Eugino and Lars-Hendrik Roller. 2003. "Competitive Nonlinear Pricing in Duopoly Equilibrium: The Early Cellular Telephone Industry." *University of Pennsylvania*. Mimeo.

Entry and Industry Structure

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- Bresnahan, Tim and Peter Reiss. 1991. "Entry and Competition in Concentrated Markets," *Journal of Political Economy* 99 (October): 977 – 1009.
- Bresnahan, Tim, and Peter Reiss. 1991. "Empirical Models of Discrete Games," *Journal of Econometrics* 48: 57-81.
- Berry, Steve. 1992. "Estimation of a Model of Entry in Airline Industry", *Econometrica* 60 (4): 889-918.
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- Whinston, Michael and S. Collins. 1993. "Entry and Competitive Structure in Deregulated Airline Markets: An Event Study Analysis of People Express," *RAND* 23 (Winter): 445-62.
- Reiss, Peter and Pablo Spiller. 1989. "Competition and Entry in Small Airline Markets," *Journal of Law and Economics* 32 (October): S179-202.
- Scott Morton, Fiona. 1999. "Entry Decisions in the Generic Pharmaceutical Industry." *RAND* 30 (3); 421-40.
- Berry Steve and Joel Waldfogel. 1999. "Free Entry and Social Inefficiency in Radio Broadcasting," *RAND* 30 (Autumn): 397- 420.
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- Einav, Liran. 2002. "Seasonality and Competition in Time: an Empirical Analysis of Release Dates in the U.S. Motion Picture Industry," *Stanford University. Mimeo.*
- Toivannen, Otto and Mike Waterson. 2001. "Market Structure and Entry: Where's the Beer?" *University of Warwick Working Paper no. 593.*

Production, Technology and Industry Structure

- Berndt, Ernst. 1991. The Practice of Econometrics, Chapters 3 and 9, *Addison-Wesley*.
- Fuss, Mel, Dan McFadden and Yair Mundlak. 1978. "A Survey of Functional Forms in the Economic Analysis of Production," in M. Fuss and D. McFadden (ed.), *Production Economics: A Dual Approach to Theory and Applications, North Holland.*
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Benkard, Lanier. 2000. "Learning and Forgetting: The Dynamics of Aircraft Production," *American Economic Review*, 90 (4), 1034-54.

Other Good Papers

Villas-Boas, Sofia, 2002. "Vertical Contracts Between Manufacturers and Retailers: An Empirical Analysis," *University of California, Berkeley, Manuscript*.

Manuszak, M. D., 2001. "The Impact of Upstream Mergers on Retail Gasoline Markets," *Working Paper, Carnegie Mellon University*.

Trajtenberg, Manuel, 1989, "The Welfare Analysis of Product Innovations, with an Application to CAT Scanners," *JPE*, pp.444-479.

Bresnahan, Stern, and Manuel Trajtenberg, "Market Segmentation and the Sources of Rents from Innovation: Personal Computers in the late 1980s," *RAND*, Special Issue 1997.

Beck, T., Asli Demirguc-Kunt, and Ross Levine, "Bank Concentration and Crises," *University of Minnesota Carlson School of Management Working Paper*, 2003.

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*