

## IO TOPICS

---

Instructor: Laura Doval

Date and Time: Thursdays, 2 - 3:50 pm

Room: Geffen 380

Office hours: By appointment

---

### COURSE DESCRIPTION

This graduate-level course examines selected topics in Industrial Organization (IO), with a focus on theoretical models that constitute the backbone of structural models in industrial organization. We will cover a variety of topics that are the subject of much current research in theoretical (and empirical) IO, including auctions, repeated interactions and collusion, dynamic pricing, and two-sided markets. We will consider how theory can help with identification of structural models.

---

### GRADING SCHEME

60 % Research proposal

20 % Research proposal presentation

20 % In class presentation

---

### IMPORTANT DATES

- November 3: 5 page proposal
  - December 8: in-class presentation of research proposal
  - December 29: paper due
- 

### IN CLASS PRESENTATIONS

The class consists of a mixture of lectures and student presentations. The latter will be used to deepen our understanding of the topics and also to hone in your skills as presenters

## RESEARCH PROJECT AND PRESENTATION

The final assignment for the course is a well-developed paper proposal. The proposal will be submitted in three parts. First, on November 3, students will submit a short proposal to get feedback on the question, the related literature, etc. Second, during the last two classes (December 1 and 8), students will present preliminary versions (~ 15 minutes) of proposals and get feedback from the group. The final 10-page detailed proposal will be due three weeks after that, 11:59pm EST on December 29.

- The project can be theoretical or empirical, but related to the class material.
- The initial research proposal is at most 5 pages long. It should state the question, its merits, and a literature review. An example highlighting the desired results is ideal, but not necessary.
- In-class presentation: At the end of the class, students will present their research proposals
- The paper should describe the model and at the very minimum contain a fully solved example of the model.

---

## PREREQUISITES/COREQUISITES

Graduate level microeconomics and statistics/econometrics

## SYLLABUS & CLASS SCHEDULE

The schedule is tentative and subject to change. Readings that have a \* are required, while the others are not, but if you do IO as a field, you will likely end up reading these sooner or later.

### September 8 Revealed Preference Approach to Mechanism Design

- \* Larsen, Bradley, and Anthony Lee Zhang. [A mechanism design approach to identification and estimation](#). No. w24837. National Bureau of Economic Research, 2018.
- Sutton, John. "Market structure: theory and evidence." *Handbook of industrial organization* 3 (2007): 2301-2368.
- Larsen, Bradley J. "The efficiency of real-world bargaining: Evidence from wholesale used-auto auctions." *The Review of Economic Studies* 88.2 (2021): 851-882.
- \* Loertscher, Simon, and Leslie M. Marx. [Incomplete-Information Models for Industrial Organization](#). Working Paper, University of Melbourne

Reference readings:

- Myerson, Roger B. "[Optimal coordination mechanisms in generalized principal-agent problems](#)." *Journal of mathematical economics* 10.1 (1982): 67-81.
- Bergemann, Dirk, and Stephen Morris. "[Bayes correlated equilibrium and the comparison of information structures in games](#)." *Theoretical Economics* 11.2 (2016): 487-522.
- Bergemann, Dirk, Benjamin Brooks, and Stephen Morris. "[The limits of price discrimination](#)." *American Economic Review* 105.3 (2015): 921-57.
- Doval, Laura, and Jeffrey C. Ely. "[Sequential information design](#)." *Econometrica* 88.6 (2020): 2575-2608.
- Makris, Miltiadis, and Ludovic Renou. "[Information design in multi-stage games](#)." *arXiv preprint arXiv:2102.13482* (2021).

### September 15 Auctions

- \* Bulow, Jeremy, and John Roberts. "[The simple economics of optimal auctions](#)." *Journal of political economy* 97.5 (1989): 1060-1090.
- \* Klemperer, Paul. "[Why every economist should learn some auction theory](#)." Available at SSRN 241350 (2000).
- Klemperer, Paul. "[What really matters in auction design](#)." *Journal of economic perspectives* 16.1 (2002): 169-189.
- \* Asker, John, and Estelle Cantillon. "[Properties of scoring auctions](#)." *The RAND Journal of Economics* 39.1 (2008): 69-85.
- Che, Yeon-Koo. "[Design competition through multidimensional auctions](#)." *The RAND Journal of Economics* (1993): 668-680.

*Extra readings:*

- DeMarzo, Peter M., Ilan Kremer, and Andrzej Skrzypacz. "[Bidding with securities: Auctions and security design.](#)" *American economic review* 95.4 (2005): 936-959.
- Skrzypacz, Andrzej. "[Auctions with contingent payments—an overview](#)" *International Journal of Industrial Organization* 31.5 (2013): 666-675.
- Che, Yeon-Koo, and Jinwoo Kim. "[Bidding with securities: Comment.](#)" *American Economic Review* 100.4 (2010): 1929-35.

*Reference readings:*

- Hendricks, Ken, and Robert H. Porter. "[An empirical perspective on auctions.](#)" *Handbook of Industrial Organization* 3 (2007): 2073-2143.
- Hortaçsu, Ali, and Isabelle Perrigne. "[Empirical perspectives on auctions.](#)" *Handbook of Industrial Organization*. Vol. 5. No. 1. Elsevier, 2021. 81-175.

**September 22 Product Differentiation**

- \* Mussa, Michael, and Sherwin Rosen. "[Monopoly and product quality.](#)" *Journal of Economic theory* 18.2 (1978): 301-317.
- Anderson, Simon P., and Levent Celik. "[Product line design.](#)" *Journal of Economic Theory* 157 (2015): 517-526.
- Johnson, Justin P., and David P. Myatt. "[The properties of product line prices.](#)" *International Journal of Industrial Organization* 43 (2015): 182-188.
- Johnson, Justin P., and David P. Myatt. "[On the simple economics of advertising, marketing, and product design.](#)" *American Economic Review* 96.3 (2006): 756-784.

*Reference readings:*

- Armstrong, Mark. "[Multiproduct nonlinear pricing.](#)" *Econometrica: Journal of the Econometric Society* (1996): 51-75.
- Gandhi, Amit, and Aviv Nevo. "[Empirical models of demand and supply in differentiated products industries.](#)" *Handbook of Industrial Organization*. Vol. 4. No. 1. Elsevier, 2021. 63-139.

**September 29 Product Differentiation and Competition (student led)**

- Johnson, Justin P., and David P. Myatt. "[Multiproduct quality competition: Fighting brands and product line pruning.](#)" *American Economic Review* 93.3 (2003): 748-774.
- Johnson, Justin P., and David P. Myatt. "[Multiproduct cournot oligopoly.](#)" *The RAND Journal of Economics* 37.3 (2006): 583-601.
- Johnson, Justin P., and David P. Myatt. "[The determinants of product lines.](#)" *The RAND Journal of Economics* 49.3 (2018): 541-573.

- Nocke, Volker, and Nicolas Schutz. "[Multiproduct-firm oligopoly: An aggregative games approach.](#)" *Econometrica* 86.2 (2018): 523-557.

#### Reference readings

- Armstrong, Mark, and John Vickers. "[Competitive price discrimination.](#)" *The RAND Journal of economics* (2001): 579-605.
- Armstrong, Mark, and John Vickers. "[Competitive non-linear pricing and bundling.](#)" *The Review of Economic Studies* 77.1 (2010): 30-60.

#### October 6 Collusion

- \* Green, Edward J., and Robert H. Porter. "[Noncooperative collusion under imperfect price information.](#)" *Econometrica: Journal of the Econometric Society* (1984): 87-100.
- Rotemberg, Julio J., and Garth Saloner. "[A supergame-theoretic model of price wars during booms.](#)" *The American economic review* 76.3 (1986): 390-407.
- \* Abreu, Dilip, David Pearce, and Ennio Stacchetti. "[Optimal cartel equilibria with imperfect monitoring.](#)" *Journal of Economic Theory* 39.1 (1986): 251-269.
- Abreu, Dilip, David Pearce, and Ennio Stacchetti. "[Toward a theory of discounted repeated games with imperfect monitoring.](#)" *Econometrica: Journal of the Econometric Society* (1990): 1041-1063.
- Athey, Susan, Kyle Bagwell, and Chris Sanchirico. "[Collusion and price rigidity.](#)" *The Review of Economic Studies* 71.2 (2004): 317-349.
- Athey, Susan, and Kyle Bagwell. "[Collusion with persistent cost shocks.](#)" *Econometrica* 76.3 (2008): 493-540.

#### October 13 Consumer search

- \* Diamond, Peter A. "[A model of price adjustment.](#)" *Journal of economic theory* 3.2 (1971): 156-168.
- \* Varian, Hal R. "[A model of sales.](#)" *The American economic review* 70.4 (1980): 651-659.
- Wolinsky, Asher. "[True monopolistic competition as a result of imperfect information.](#)" *The Quarterly Journal of Economics* 101.3 (1986): 493-511.
- Armstrong, Mark, and John Vickers. "[Which demand systems can be generated by discrete choice?.](#)" *Journal of Economic Theory* 158 (2015): 293-307.
- Choi, Michael, Anovia Yifan Dai, and Kyungmin Kim. "[Consumer search and price competition.](#)" *Econometrica* 86.4 (2018): 1257-1281.

#### Extra readings:

- Weitzman, Martin L. "[Optimal search for the best alternative.](#)" *Econometrica: Journal of the Econometric Society* (1979): 641-654.

- Armstrong, Mark, and Jidong Zhou. "[Search deterrence.](#)" *The Review of Economic Studies* 83.1 (2016): 26-57.
- Anderson, Simon P., and Régis Renault. "[Firm pricing with consumer search.](#)" *Handbook of Game Theory and Industrial Organization*, Volume II. Edward Elgar Publishing, 2018. 177-224.
- Doval, Laura. "[Whether or not to open Pandora's box.](#)" *Journal of Economic Theory* 175 (2018): 127-158.
- Nocke, Volker, and Patrick Rey. [Consumer Search and Choice Overload.](#) Centre for Economic Policy Research, 2021.

*Reference readings:*

- Armstrong, Mark. "[Ordered consumer search.](#)" *Journal of the European Economic Association* 15.5 (2017): 989-1024.

**October 27 Two-sided Markets and Platforms**

- \* Rochet, Jean-Charles, and Jean Tirole. "[Two-sided markets: a progress report.](#)" *The RAND journal of economics* 37.3 (2006): 645-667.
- \* Armstrong, Mark. "[Competition in two-sided markets.](#)" *The RAND journal of economics* 37.3 (2006): 668-691.
- Hagiu, Andrei. "[Two-sided platforms: Product variety and pricing structures.](#)" *Journal of Economics & Management Strategy* 18.4 (2009): 1011-1043.

*Reference readings:*

- Rysman, Marc. "[The economics of two-sided markets.](#)" *Journal of economic perspectives* 23.3 (2009): 125-43.
- Jullien, Bruno, Alessandro Pavan, and Marc Rysman. "[Two-sided markets, pricing, and network effects.](#)" *Handbook of Industrial Organization*. Vol. 4. No. 1. Elsevier, 2021. 485-592.

**November 3 Digital Platforms (student led)**

- Calvano, Emilio, et al. "[Algorithmic collusion with imperfect monitoring.](#)" *International Journal of Industrial Organization* 79 (2021): 102712.
- Anderson, Simon P., and Özlem Bedre-Defolie. "[Hybrid platform model.](#)" (2021).
- Madsen, Erik, and Nikhil Vellodi. "[Insider imitation.](#)" Available at SSRN 3832712 (2022).
- Hagiu, Andrei, Tat-How Teh, and Julian Wright. "[Should platforms be allowed to sell on their own marketplaces?.](#)" *The RAND Journal of Economics* 53.2 (2022): 297-327.
- Kang, Zi Yang, and Ellen V. Muir. "[Contracting and vertical control by a dominant platform.](#)" *Unpublished manuscript, Stanford University* (2022).

- Salcedo, Bruno. "[Pricing algorithms and tacit collusion.](#)" *Manuscript, Pennsylvania State University* (2015).

### **November 10 Mechanism Design for Identification (student led)**

- Chassang, Sylvain, et al. "[Robust screens for noncompetitive bidding in procurement auctions.](#)" *Econometrica* 90.1 (2022): 315-346.
- Armstrong, Mark, and Jidong Zhou. "[Consumer information and the limits to competition.](#)" *American Economic Review* 112.2 (2022): 534-77.
- Syrgkanis, Vasilis, Elie Tamer, and Juba Ziani. "[Inference on auctions with weak assumptions on information.](#)" *arXiv preprint arXiv:1710.03830* (2017).
- Kawai, Kei, et al. [Using bid rotation and incumbency to detect collusion: A regression discontinuity approach.](#) No. w29625. National Bureau of Economic Research, 2022.

### **November 17 Market Structure, Mergers**

- Bolton, Patrick, and Michael D. Whinston. "[The "foreclosure" effects of vertical mergers.](#)" *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft* 147.1 (1991): 207-226.
- Nocke, Volker, and Michael D. Whinston. "[Merger policy with merger choice.](#)" *American Economic Review* 103.2 (2013): 1006-33.
- Nocke, Volker, and Michael D. Whinston. "[Dynamic merger review.](#)" *Journal of Political Economy* 118.6 (2010): 1200-1251.
- Nocke, Volker, and Michael D. Whinston. "[Concentration Thresholds for Horizontal Mergers.](#)" *American Economic Review* 112.6 (2022): 1915-48.
- Loertscher, Simon, and Leslie M. Marx. "[Incomplete information bargaining with applications to mergers, investment, and vertical integration.](#)" *American Economic Review* 112.2 (2022): 616-49.

#### *Extra readings:*

- Johnson, Justin P., and Andrew Rhodes. "[Multiproduct mergers and quality competition.](#)" *The RAND Journal of Economics* 52.3 (2021): 633-661.
- Whinston, Michael D. "Lectures on antitrust economics." MIT Press Books 1 (2008).
- Nocke, Volker, and Nicolas Schutz. [An aggregative games approach to merger analysis in multiproduct-firm oligopoly.](#) No. w24578. National Bureau of Economic Research, 2018.
- Cunningham, Colleen, Florian Ederer, and Song Ma. "[Killer acquisitions.](#)" *Journal of Political Economy* 129.3 (2021): 649-702.

### **December 1 Industry dynamics**

- Hopenhayn, Hugo A. "[Entry, exit, and firm dynamics in long run equilibrium.](#)" *Econometrica: Journal of the Econometric Society* (1992): 1127-1150.
- \* Weintraub, Gabriel Y., C. Lanier Benkard, and Benjamin Van Roy. "[Markov perfect industry dynamics with many firms.](#)" *Econometrica* 76.6 (2008): 1375-1411.
- Benkard, C. Lanier, Przemyslaw Jeziorski, and Gabriel Y. Weintraub. "[Oblivious equilibrium for concentrated industries.](#)" *The RAND Journal of Economics* 46.4 (2015): 671-708.

*Reference readings:*

- Ericson, Richard, and Ariel Pakes. "[Markov-perfect industry dynamics: A framework for empirical work.](#)" *The Review of economic studies* 62.1 (1995): 53-82.
- Aguirregabiria, Victor, Allan Collard-Wexler, and Stephen P. Ryan. "[Dynamic games in empirical industrial organization.](#)" *Handbook of Industrial Organization*. Vol. 4. No. 1. Elsevier, 2021. 225-343.

**December 8 Final paper presentation**