Course Summary

In this course, we study imperfect competition among firms, with an emphasis on empirical work. We learn how to implement empirical methods commonly used in Industrial Organization (IO), and how to read, and ultimately write, papers in empirical IO. Topics covered include demand estimation, auctions, price discrimination, bundling, asymmetric information and adverse selection, vertical control and contractual arrangements, and others as time allows. Each topic will be organized around recent empirical work. Throughout, we will consider the importance of identification in empirical studies. There will almost certainly be some important topics (e.g., estimating dynamic models) that we will not have time to cover in detail. I will introduce these topics through the course readings, and will provide lectures notes to students who are interested in pushing further on these topics. There is no required text. However, you should obtain a copy of The Theory of Industrial Organization by Jean Tirole as a reference for any models that are not familiar to you.

Course Requirements

1. A large portion of the class is discussion-based. You must read the papers announced before each class meeting and participate in the discussion of these papers.

2. One referee report will be assigned. You will need to complete the referee report along with a cover letter to the editor summarizing your analysis. One goal of the course is to teach you how to read papers for the purpose of providing constructive criticism. Thus, this assignment is usually completed after you have had a chance to read and discuss several papers. I will provide the paper and announce a due date for the report later in the course.

3. There will be three problem sets assigned. I will also provide you with a “Problem Set 0” to help you become proficient at coding in Matlab or a similar language before starting the graded problem sets. You may choose whether or not to turn this problem set in. You should expect to spend a lot of time on the problem sets in the beginning of the semester.

4. Each student will lead two in-class discussions of an empirical paper from the syllabus in the second half of the semester. Starred papers are eligible for presentation, and you may sort yourselves among papers using any mechanism of your choosing.

A complete reading list follows the course outline. Papers for which you are expected to prepare discussion questions are listed separately in the course outline. The current list is my best expectation of the papers we will cover from the more extensive reading list that follows, but they may change as we go along.
Course Outline

Sept 4: Introduction to Graduate Empirical IO
Lecture Notes

Sept 9: Demand Estimation I
Lecture Notes (Early Approaches; Vertically-Differentiated Models of Demand)

Sept 11: Application of a Vertically-Differentiated Demand Model
Mortimer (2007)

Sept 16: Demand Estimation II
Lecture Notes (Logit and Nested-Logit Models of Demand, and Review of GMM)

Sept 18: Application of a Nested-Logit Demand Model
Goldberg (1995)

Sept 23: Demand Estimation III
Lecture Notes (Random Coefficients Models of Demand)

Sept 25: Applications of Random-Coefficient Logit Demand Model
Lecture Notes (Automobile Examples)

Friday, Sept 27: Problem Set 1 Due, 5.00pm

Sept 30: Entry Models as Static Comparisons of Industry Structure
Lecture Notes

Oct 2: Entry Models as Discrete Games
Lecture Notes

Oct 7: Moment Inequalities
Lecture Notes
Oct 9: Single-Agent Dynamic Optimization Models
Lecture Notes on Rust (1987)

Friday, Oct 11: Problem Set 2 Due, 5.00pm

Oct 14: Columbus Day (No Meeting)

Ackerberg (2003)*

Oct 21: No Meeting

Oct 23: No Meeting

Friday, Oct 25: Problem Set 3 Due, 5.00pm

Oct 28: U.S. Merger policy
Lecture notes

Oct 30: Application of U.S. Merger policy

Nov 4: Retailing and Inventories I
Aguirregabiria (1999)*

Nov 6: Retailing and Inventories II
Hendel and Nevo (2006)*

Nov 11: Retailing and Inventories III: Stock-out Events
Conlon and Mortimer (2012)

Nov 13: Auctions I

Nov 18: Auctions II (Collusion)
Asker (2010)*

**Nov 20: Network Externalities**

Ackerberg and Gowrisankaran (2006)*

**Nov 25: Vertical Contracts**

Mortimer (2008)*, plus Lecture Notes.

**Nov 27: Thanksgiving Break (No Meeting)**

**Dec 2: Vertical Bundling**

Ho, Ho, and Mortimer (2012)*

**Dec 4: Experiments in IO**

Conlon and Mortimer (2010)

**Dec 9: Health Economics I**

Ho (2009)*

**Dec 11: Health Economics II**

Grennan (2012b)*

**Important Topics we are missing:**

**Asymmetric Information:** Cohen and Einav (2007), Chiappori and Salanie (2000)


**Boundaries of the Firm:** Baker and Hubbard (2003)

**Horizontal Bundling:** Crawford and Yurukoglu (2012)

**Adverse Selection:** Handel (2012)
Class Outline References


References

Auctions


### Price Discrimination


**Networks and Network Externalities**


**Bundling**


**Boundaries of the Firm**


**Vertical Control and Contractual Agreements**


Retail and Inventories


Moral Hazard, Asymmetric Information in Insurance Markets


Advertising, Information Disclosure, Provision and Search


Discussion Questions for All Papers

1. What is the research question?

2. What are the goals of the paper? (Does the paper aim to develop methods, answer a policy question, test models, or measure an effect?)

3. Why is the paper important according to the author? Is the author right?

4. If the objective is a methodological advance, what is the problem that the author addresses? Why are existing techniques inadequate? How successful is the author’s approach? Could we use the approach elsewhere?

5. What is the theoretical foundation for the empirical work? How appropriate is the model for the applications? How tight is the relationship between the theoretical and empirical models?

6. For papers using structural empirical models:
   - Why does the author use a structural empirical model? Could any of the questions the author asks be addressed with other approaches? What is the source of identification? Could the model be generalized in any obvious ways?
   - Does the structural model seem to capture the key features of the market? What elements are missing from the model that might be important? Is it clear what the implications of ignoring these elements are for the estimate the author obtains?
   - Are there overidentifying restrictions of the model that could be tested? Can you think of alternative models of behavior for the market?

7. For papers not using structural empirical models:
   - Why does the author choose this particular model?
   - Does the author evaluate the model specification?
   - Are the interpretations of the estimates and/or hypothesis tests clear?
   - Are there parameters or distributions of interest that one could identify and estimate by imposing more structure from economic theory?

8. What are the data?

9. What are the key variables in the empirical model?
10. What is assumed to be exogenous and endogenous? How is the endogeneity addressed? Do you believe the solutions?

11. What variation in the data does the author rely on for identification of each element of the empirical model? What assumptions must be true about this variation for the author’s interpretation of the results to be correct? Are you worried about any of the assumptions?

12. Does the author make distributional assumptions? If so, are they important for identification? Does the author evaluate the robustness of the results to the assumption?

13. What are the conclusions of the author?

14. What alternative interpretations are plausible? Does the author test against any plausible alternatives, or provide any practical reason why they are less likely?