Welcome to Economics 351! This is a course intended for Ph.D. students interested in conducting research in empirical microeconomics. In the course, we will discuss estimation and applications of several broad classes of models:

1. Models of product differentiation.
2. Static games of Imperfect Competition.
3. Dynamic games of Imperfect competition.
4. Auctions.
5. Principal agent models.

Special attention will be paid to the most recent research in these areas so that students are exposed to papers on the research frontier. The main goal of this course is to provide students with a set of tools so that they can begin to write their own original research in empirical microeconomics.

Requirements.
This class will be rather demanding. While this entails a cost in terms of your time and effort, if you wish to be a serious researcher in this field, you will find that the potential benefits exceed the cost.

1. The first, and most important requirement, is that you read the papers before attending class. The papers we will read will be challenging. You will internalize the concepts and models much more clearly if you spend time struggling with the material before class begins.
2. Students will be asked to develop a research proposal in several steps. We will begin by proposing a question, revising the proposed question and then suggesting data sets and appropriate empirical frameworks.
3. Students will be asked to present a research paper in class.
4. There will be 3 or 4 intensive exercises where students will implement the estimators discussed in class. The students should familiarize themselves with an appropriate software package (e.g. Matlab, Fortran, C, Gauss…) in order to program these exercises.

Course notes and readings will be posted on my web page. You will want to consult it regularly.

Please note that econometrics is a prerequisite for this course. We will presume knowledge of the material in Ruud’s “An Introduction to Classical Econometric Theory” and Cameron and Trivedi’s “Microeconometrics”.
Grading.
Students will be graded on items two through 4 above. Also, I reserve the right to adjust grades upwards based on class participation. There will be no in class exams. Students are encouraged to work together by discussing the papers and in implementing the estimators.

Other Comments
Our study of industrial organization will focus on recently developed econometric methods and their applications. This is a narrow subset of topics in a much broader field. If you plan on doing industrial organization as a field, I encourage you to read the following books in order to broaden your exposure to the questions, techniques and concepts in the field.

1. Carlton and Perloff, “Modern Industrial Organization”. This is an advanced undergraduate text in IO. Unlike most undergraduate texts, this book surveys recent research and attempts to systematically integrate theory and applications. Both Carlton and Perloff are excellent IO economists and the book is perhaps the best and clearest introduction to how an IO economist thinks.
2. Jean Tirole, “The Theory of Industrial Organization”. This is still the best summary of industrial organization theory.
3. Handbook of Industrial Organization, volumes I-III. A definitive set of surveys on several important literatures in IO.
4. The NBER IO working paper series. http://papers.nber.org/papersbyprog/IO.html. This working paper series archives recent work by one of the most prominent professional organizations of IO economists. I encourage you to make a habit of starting to read in this series.

Reading List

1. Differentiated Products


Rossi, Peter E., Allenby, G. and McCullough, R, “Bayesian Statistics and Marketing”.

Train, K.E. “Discrete Choice Methods with Simulation”.

### III. Static Games.


Bajari, P., Hong, H., Krainer, J. and Nekipelov, D. “Estimating Static Models of Strategic Interactions”, University of Minnesota working paper..

Bayer, P. and Timmins, C. A Note on the Equilibrium Properties of Locational Sorting Models,” mimeo, Yale University.


Berry, S. and Tamer, E. “Identification in Models of Oligopoly Entry,” with S. Berry, 04/06 (prepared for ES World Congress 2005).


IV. Dynamic Games.


Ryan, S. and Tucker, C. “Heterogeneity and the Dynamics of Technology Adoption”, MIT working paper.

Rust, J. “Structural Estimation of Markov Decision Processes”, Handbook of Econometrics, Volume IV.
V. Auctions


5. Principal Agent Models.


