

# Structural Econometrics (Econ 5175): Part I

Spring 2020

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Office Hours: Mondays and Wednesdays 3:00pm to 4:00pm

## Grading

There will be two assignments and a referee report and replication of a paper on the reading list. They will count toward the grade as follows.

Assignments	40%
referee report and replication	60%.

## Description of the Course

This course is an introduction to the estimation of structural economic models.

## Surveys

Aguirregabiria, V., and P. Mira (2010): “Dynamic Discrete Choice Structural Models: A Survey,” *Journal of Econometrics*, 156, 38-67.

Arcidiacono, P. and P. Ellickson (2011): “Practical Methods for Estimation of Dynamic Discrete Choice Models”, *Annual Review of Economics*, 3, 363-394.

Eckstein, Z. and K. Wolpin (1989): “The Specification and Estimation of Dynamic Stochastic Discrete Choice Models: A Survey”, *The Journal of Human Resources*, 24, 562-598.

Miller, R. (1997): “Estimating models of dynamic optimization with microeconomic data”, in *Handbook of Applied Econometrics*, M. Pesaran and P. Schmidt, editors, Basil Blackwell, Vol. 2, 246- 299.

Pakes, A. (1994): “The Estimation of Dynamic Structural Models: Problems and Prospects, Part II. Mixed Continuous-Discrete Control Models and Market Interactions”, Chapter 5 of *Advances in Econometrics: Proceedings of the 6th World Congress of the Econometric Society*, edited by J. Lafont and C. Sims, 171-259.

Rust, J. (1994): “Structural Estimation of Markov Decision Processes”, in *Handbook of Econometrics*, Volume 4 , ed. by R.E. Engle and D. McFadden. Amsterdam: Elsevier -North Holland, Chapter 51, 3081-3143.

Todd, P., M. Keane and K. Wolpin: “The Structural Estimation of Behavioral Models: Discrete Choice Dynamic Programming Methods and Applications”, forthcoming in Volume 2, *Handbook of Labor Economics*.

## Week 1: Overview of Structural Estimation

Simulated method of moments.

## Week 2 : Structural Estimation of Static Models: Competitive Equilibrium

Simulated Method of Moments, Euler Equation, and General Equilibrium.

## Week 3 : Structural Estimation of Static Models: Strategic Behavior

Estimation and Identification of Static Entry Games.

- Readings:**
1. Bresnahan and Reiss(1990): “Entry in Monopoly Markets”, *Review of Economics Studies*, 57:531-533.
  2. Bresnahan and Reiss(1990): “Entry and Competition in Concentrated Markets”, *The Journal of Political Economy*, 99, 977-1009.
  3. Berry (1992): “Estimation of Models of entry in the airline industry”, *Econometrica*, 60:889-917.
  4. Reiss (1996): “Empirical Models of Discrete strategic Choices”, *American Economic Review*, 86, 421-426.
  5. Tamer, E. (2003): “Incomplete simultaneous discrete response model with multiple equilibria”, *Review of Economic Studies*.

#### **Week 4, 5, & 6 : Markov Decision Processes and Continuous Choice**

##### Estimation of Markov Decision Models

- Readings:**
1. Hotz and Miller (1993): ”Conditional Choice Probabilities and the Estimation of Discrete Decision Processes” *Review of Economic Studies*, 60:497-529.
  2. Aguirregabiria and Mira (2002): “Swapping the Nested Fixed Point Algorithm: A Class of Estimators for Discrete Markov Decision Models”, *Econometrica*, 70 :1519-1543..
  3. Altug S. and R.A. Miller (1998):“Human Capital Accumulation and Female Labor Supply”, *Review of Economics Studies*,
  - 4 Miller (1997): “Estimating Models of Dynamic Optimization with Macroeconomic Data”, in M. Pesaran and P. Schmidt (ed.), *Handbook of Applied Econometrics*, 246-299
  5. Altug and Miller(1990): “Household Choices in Equilibrium”, *Econometrica* 58:543-570.
  6. Hansen and Singleton (1982): “Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models”, *Econometrica*, Vol. 50, No. 5 , pp. 1269-1286
  7. Slade, M. (1998) : “Optimal Pricing with Costly Adjustment: Evidence From Retail Grocery Stores” *Review of Economics Studies*, 65, 87-108.