

University of Florida  
Department of Economics  
Fall 2021

## Econometric Methods I ECO7426

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<b>Instructor:</b>	Ignacia Mercadal	<b>Time:</b>	M&W 11:45 – 1:40
<b>Email:</b>	<a href="mailto:imercadal@ufl.edu">imercadal@ufl.edu</a>	<b>Classroom:</b>	MAT 14
<b>Office Hours:</b>	Thursdays 2:00–4:00	Sign up for an appointment	<a href="#">here</a>

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### Course Description and Objective

This course is part of the second year sequence in econometrics offered for Ph.D. students in economics. The goal of the class is to provide Ph.D. students with tools that can be useful in applied research. We will cover topics including non-linear models, maximum likelihood estimation, the generalized method of moments, and an introduction to non-parametrics.

### Textbooks and Readings:

- Bruce Hansen’s Econometrics available at <https://www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf>
- Jeffrey M Wooldridge. *Econometric analysis of cross section and panel data*. MIT press, 2010
- William H Greene. *Econometric analysis 7th edition*. Pearson, 2012

### Assignments and Grading:

Your grade will be based on performance on 5 problem sets (25%), two exams (25% each), and a research proposal (25%).

You are welcome to discuss assignments with other students, but you must turn in your own work on Canvas. Please use RMarkdown or equivalent for assignments that include code, and make sure the code runs, I will not fix bugs. I recommend R, but you can use any programming language.

For the research proposal and presentation, you may work in groups of 1-2 students. You may choose any topic (subject to my approval), as long as you use the tools studied in class. There will be three deliverables associated to the project:

**October 27** : 1-3 pages brief literature review (5 papers) on the topic of interest. Identify question and data.

**December 1, 6** : In-class presentations.

**December 15** : Final Proposal Due

The proposal must identify a question of economic interest that has not been answered in the literature, and propose a concrete way to use available data to answer it. Proposals usually contain some descriptive figures or preliminary regressions suggesting that we can learn something useful from the variation in the data. Alternative, you can reproduce the results of an existing paper and find at least one interesting change or addition that would extend improve on the paper's econometric analysis.

## **Cheating and Plagiarism:**

Please review the [Student Honor Code and Student Conduct Code](#). Violations will be subject to the University of Florida's Disciplinary Procedures.

## **Topics**

### 1. Structural vs. non-structural discussion

- Christopher R Knittel. Automobiles on steroids: Product attribute trade-offs and technological progress in the automobile sector. *American Economic Review*, 101(7):3368–99, 2011
- Michael P Keane. Structural vs. atheoretic approaches to econometrics. *Journal of Econometrics*, 156(1):3–20, 2010

### 2. Maximum Likelihood Estimation

- Greene Ch. 16

- Wooldridge Ch. 13
- Timothy F Bresnahan. Departures from marginal-cost pricing in the american automobile industry: Estimates for 1977–1978. *Journal of Econometrics*, 17(2):201–227, 1981

### 3. Generalized Method of Moments Estimation

- Hansen Ch 13
- Greene Ch. 15
- Wooldridge Ch 14

### 4. Discrete Choice Models

- Greene Ch. 23
- Wooldridge Ch 15 and 16
- Hansen Ch 25, 26
- Steven T Berry. Estimating discrete-choice models of product differentiation. *The RAND Journal of Economics*, pages 242–262, 1994
- Aviv Nevo. Measuring market power in the ready-to-eat cereal industry. *Econometrica*, 69(2):307–342, 2001

### 5. Truncation and Sample Selection

- Wooldridge Ch 17, 19
- Hansen Ch 27
- Greene Ch. 24

### 6. Quantile Regression

- Hansen Ch 24

### 7. Nonparametric and Semiparametric Estimation

- Hansen Ch 19, 20
- Auction papers
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### 8. Model Selection

- Hansen Ch 28

## 9. Machine Learning Intro

- Hansen Ch 29

**Tentative Schedule:**

MONDAY	WEDNESDAY
8/ 23	8/25
8/30	9/ 1
9/6 <b>Labor Day</b>	9/8 Problem Set 1
9/13	9/15
9/20	9/22
9/27	9/29 Problem Set 2
10/ 4 <b>Midterm</b>	10/6
10/11	10/13
10/18	10/20 Problem Set 3
10/25	10/27 Proposal Lit Review
11/ 1	11/3 Problem Set 4

MONDAY	WEDNESDAY
11/8	11/10
11/15	11/17 Problem Set 5
11/22	11/24 <b>Thanksgiving Break</b>
11/29	12/ 1 Student Presentations
12/6 Student Presentations	12/8 <b>Final Exam</b>
12/13 No class	12/15 <b>Research Proposal Due</b>