

**University of Colorado at Boulder  
Department of Economics**

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ECON 8848: Applied Microeconometrics, Fall 2015  
Syllabus and Schedule  
Office Hours: WF 1:00 PM-2:30 PM  
Economics 208D  
Other times by appointment

**Course Description:**

Students who are successful in this course will be well prepared to conduct empirical research

advanced copy (SE or MP), but the Intercooled version will allow you to complete all the requirements of this course.

I will use STATA during some lectures to demonstrate estimators and methods that we cover. If you have STATA installed on a laptop, you may find it useful to bring on those days.

### **Requirements and Grading:**

Your grade will depend on your performance on a number of assignments, according to the table below:

<u>Assignment</u>	<u>Weight</u>	<u>Due Date</u>
Problem Sets	15%	Every 1-2 weeks (~10 total)
Paper Replication/Extension	30%	Friday, 12/11, 5 PM D2L or Hard Copy
Midterm	25%	Wednesday, 10/21 In Class (tentative date)
Final Exam	30%	Monday, 12/14 4:30-7:00 P

**The Midterm** will cover material from the beginning of the course through lecture on October 19. The exam will take place during our normal class meeting on Wednesday, October 21. You have to do any STATA programming for the midterm. Instead, the questions will focus on the interpretation and implementation of techniques we have discussed. The questions will thus be very similar to the interpretation questions asked on the problem sets. You may also be asked questions about the papers that we read.

**The Final Exam** will be nominally cumulative, but it will focus heavily on material covered after the midterm. It will be similar in format to the midterm. Our assigned time from the Registrar is 4:30-7:00 PM on Monday, December 14. University policy provides students with three or more exams on the same day the right to reschedule exams following 30 minutes of time from the

**A note on my role:** I will be willing to offer you assistance with any assignment for this course, including the final paper. I will strongly suggest, however, that you form study groups for the problem sets and use the other members of your group as your initial resource in solving programming problems. I will not tell you how to solve specific coding issues on the problem sets, nor will I tell you whether you have answered interpretation questions properly. In addition, I cannot generally offer help on projects that are unrelated to this course, e.g. work you are doing as part of your dissertation or as an RA for other faculty members. My goal in offering this course is to create a critical mass of well-trained graduate students who can then continue to learn more on their own and begin to serve as a resource to each other.



## **Other University Policies:**

### **Disability Accommodation**

If you qualify for accommodations because of a disability, please submit to Prof. Cadena a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu).

If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) and discuss your needs with Prof. Cadena.

### **Religious Observances**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this course, please inform me no later than two weeks prior to any conflict you foresee, sooner if possible, so that we may find an alternative arrangement for

All students of the University of Colorado at Boulder are responsible for knowing and adhering to [the academic integrity policy](#) of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council ([honor@colorado.edu](mailto:honor@colorado.edu); 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Additional information regarding the [Honor Code policy can be found online](#) and at the [Honor Code Office](#).

## Reading List

The list below provides a guide to how to get the most out of your available resources for this course. Your most directly relevant text will be our lecture notes. They will provide you with the basics of all of the material that we cover in each class meeting. There are also two books that I think fit nicely with the applied nature of this course and offer a good complement to our in-class discussion. They are both relatively inexpensive, and I would recommend them as your best additional resources for learning the topics we cover. I also strongly recommend having one or more graduate econometrics textbooks for reference. Finally, we will read a few papers that apply the methods we are discussing. These are listed below in bold. Additional references that we will probably not have time for are listed in standard font. The links are active, but you will need to be on-campus or connected through VPN.

**Books with an Applied Focus.** I highly recommend getting a copy of each of these books, as they will provide a very useful supplement to my lectures and notes. Angrist and Pischke is relatively inexpensive (~\$25), and I would strongly suggest that each of you get a copy. The Cameron and Trivedi book is great, and it is specifically tailored for people learning STATA. A good strategy might be to order one for each study group (~\$60). As of this writing, they are currently listed together on Amazon as “Frequently Bought Together”

Angrist and Pischke (2009).

**AP**

Cameron and Trivedi (2009).

**CT-STATA**

**Econometrics Reference Books.** I am not going to require you to have any particular one of these. I would recommend that you find at least one of the following books that you find useful as a reference book. I have tried to include the relevant sections where possible in the main table below.

Cameron and Trivedi (2005).

**CT**

Davidson and MacKinnon (2004).

**DM**

Wooldridge (2002).

**W**

**Papers.** Papers listed in **bold** are required reading and will be discussed in class during one of the meetings scheduled for the topic. Exact dates will be announced as we see how we are progressing. The additional papers listed are for reference for the interested student.



## Topics and Readings

Readings marked with a [\*] indicate that if I were you, and I had limited time to read non-required readings, I would prioritize these.

### Introduction and STATA Basics

- **Lecture Notes**
- [\*] CT-STATA Chapter 1

### STATA Programming

- **Lecture Notes**
- [\*] CT-STATA Chapter 1.5-1.8, 4.5 -1.16 Td(o)Tj/TT3 19 0 T2 CT

- [Smith and Todd \(2005\) Does Matching Overcome LaLonde's Critique of Nonexperimental Estimators?](#), Vol 125, No. 1-2, pp. 305-353
- [Dehejia \(2005\) Practical Propensity Score Matching: A Reply to Smith and Todd](#), Vol 125, No. 1-2, pp. 355-364
- [Smith and Todd \(2005\) Rejoinder](#), Vol 125, No. 1-2, pp. 365-375
- [\*] CT – Chapter 25.4
- W – Chapter 18.1-18.3

#### Panel Data – Fixed Effects, etc.

- **Lecture Notes**
- [Ashenfelter and Krueger \(1994\) Estimates of the Economic Return to Schooling from a New Sample of Twins, \*American Economic Review\*, Vol. 84, No. 5 \(Dec., 1994\) pp. 1157-1173](#)
- [McKinnish \(2008\) Panel Data Models and Transitory Fluctuations in the Explanatory Variable.](#) Vol. 21 2008.
- [\*] AP – Chapter 5.1, 5.3, 8.2
- [\*] CT-STATA Chapter 8
- CT – Chapter 21
- W – Chapter 10

#### Difference-in-Differences

- **Lecture Notes**
- [Davis \(2004\) The Effect of Health Risk on Housing Values: Evidence from a Cancer Cluster. \*The American Economic Review\*, Vol. 94, No. 5 \(Dec., 2004\), pp. 1693-1704](#)
- [Meyer \(1995\). Natural and Quasi-Experiments in Economics.](#) Vol. 13, No. 2 pp. 151-161
- [\*] AP – Chapter 5.2
- CT – Chapter 22.6
- W – p.130, p. 284

#### Getting the Standard Errors Right

- **Lecture Notes**
- [Bertrand et. al. \(2004\) How Much Should We Trust Differences-in-Differences Estimates? \*Quarterly Journal of Economics\*, Vol. 119, No. 1, Pages 249-275](#)
- [Moulton \(1990\) An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units, \*Review of Economics and Statistics\*, Vol. 72, No. 2 \(May, 1990\), pp. 334-338](#)
- [Cameron, Gelbach, and Miller \(2006\) Robust Inference with Multi-Way Clustering,](#) No. 327
- [Cameron, A. Colin and Douglas L. Miller, A Practitioner's Guide to Cluster-Robust Inference, \*Journal of Human Resources\*, 50\(2\) March 2015, pp. 317-372.](#)
- [\*] AP – Chapter 8.2

#### Instrumental Variables

- **Lecture Notes**

- [Imbens and Angrist \(1994\) Identification and Estimation of Local Average Treatment Effects. \*Econometrica\*, Vol. 62, No. 2 \(Mar., 1994\), pp. 467-475](#)
- [Bound, Jaeger, and Baker \(1995\) Problems with Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogenous Explanatory Variable is Weak. \\_\\_\\_\\_\\_, Vol. 90, No. 430 \(Jun., 1995\), pp. 443-450](#)
- [Field and Ambrus \(2008\) Early Marriage, Age of Menarche, and Female Schooling Attainment in Bangladesh, \*Journal of Political Economy\*, Vol 116, No. 5, pp. 881-930](#)
- [\*] AP – Chapter 4
- [\*] CT-STATA Chapter 6
- CT – Chapter 4.8-4.9
- DM – Chapter 8
- W – Chapter 5, 18.4

#### Regression Discontinuity

- **Lecture Notes**
- [Imbens and Lemieux \(2008\) Regression Discontinuity Designs: A Guide to Practice. \\_\\_\\_\\_\\_ Volume 142, Issue 2, February 2008, Pages 615-635](#)
- Carrell, Scott E. & Hoekstra, Mark & West, James E., 2011. "[Does drinking impair college performance? Evidence from a regression discontinuity approach.](#)" *Journal of Public Economics*, Elsevier, vol. 95(1), pages 54-62
- [\*] AP – Chapter 6

#### Binary Dependent Variables

- **Lecture Notes**
- [\*] CT-STATA Chapter 14
- CT – Chapter 14
- W – Chapter 15.1-15.8

#### Additional Topics<sup>2</sup>

##### Event Study Models

- [Jacobson, LaLonde, and Sullivan \(1993\) Earnings Losses of Displaced Workers \\_\\_\\_\\_\\_, Vol. 83, No. 4 \(Sep., 1993\), pp. 685-709](#)

##### Selection

- [\*] CT-STATA - Chapter 16
- [\*] W – Chapter 17

##### Propensity Score Reweighting

- [DiNardo, Fortin and Lemieux \(1996\) Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach \\_\\_\\_\\_\\_, Vol. 64, No. 5 \(Sep., 1996\), pp. 1001-1044](#)

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<sup>2</sup> I would ideally cover these topics, but in the past, we have not had sufficient time. The citations are provided for those interested in pursuing these topics independently.

## Duration Models

- [\*] [Meyer \(1990\) Unemployment Insurance and Unemployment Spells.](#)  
[\\_\\_\\_\\_\\_](#), Vol. 58, No. 4 (July 1990), pp. 757-782
- CT – Chapter 17
- W – Chapter 20

## Discrete Choice Models

- [Train \(2009\) Discrete Choice Methods with Simulation, Cambridge University Press](#)
- [\*] CT-STATA Chapter 15
- CT – Chapter 15
- W – Chapter 15.9-15.10