Economics 4848- Applied Econometrics
Fall 2014, T/Th 2:00-3:15, Humanities 1B45

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Course Website
On Desire2Learn at http://learn.colorado.edu

Office Hours
Tues 10-11:30
It is very easy to schedule appointments outside of office hours with me—I am almost always in my office during normal business hours. The best way to set up an appointment is by email.

Course Prerequisite
This class requires previous completion of Economics 3818, Intro to Statistics, or the equivalent.

Course Description
The goal of this course is to teach you how to analyze data in order to obtain meaningful inferences, in other words, to use data to say something informative about interesting questions. Because these are skills that are best learned by doing, this requires that students develop facility with a statistical software package. In this course, we will use STATA, a package particularly well suited for empirical economics analysis. While students will exert a fair amount of energy mastering STATA in order to follow the lectures and complete the assignments in this course, it is important to remember that learning STATA commands is only a means to an end, and that the key focus of this course is develop skills in econometric analysis and interpretation.

Course Materials

Textbook:
A course pack developed by Prof. Brian Cadena serves as an informal textbook. It is available in electronic form on the course website.

Stata Support:
Websites with additional on-line STATA help guides and training:
www.ats.ucla.edu/stat/stata
www.stata.com/links/resources1/html

Software:
Students are not required to purchase their own copies of STATA, as it is available in the computer lab in the basement of the economics building. Note that the economics building is closed on weekends, but remains open until 10pm on weekdays. Purchasing your own copy of

STATA will provide the convenience of working on class material outside of university computer labs. If you chose to purchase your own copy of STATA, you qualify for a substantial discount through the University's GradPlan. Information is available at: http://www.stata.com/order/new/edu/gradplans/gp-campus.html. Please note that **Small Stata is insufficient for this course**. Current price for Stata/IC (Intercooled Stata) license for 6 months is $69.

Hardware:
You will need a USB memory device to store copies of data and log files from our work in class.

Course Requirements

Attendance: Attendance is absolutely crucial to success in this class. In order to re-enforce the importance of attendance, it will be factored into final grades. **Attendance will be taken regularly and any student missing more than 20% (3 weeks of class, or 6 class meetings) of the course's scheduled classes will receive a failing grade.** To be clear, these absences are intended to cover both valid (illness, car breaking down) and invalid reasons for missing class. Excused absences will therefore not be granted. I reserve the right to record an absence for students who spend substantial class time on non-class activities.

Homework: Students will regularly work on ungraded exercises during class time to practice course material. Graded homework assignments are not given. Students should, however, plan on taking time outside of class each week to: a) Review log file, class notes and in-class exercises from that week's classes. b) Using STATA and the data files to independently perform the analysis conducted in class in order to review STATA commands, interpretation of output, and key concepts from class lecture and c) Using STATA and the data files to perform additional data analysis beyond that conducted in class to further test facility course content. The course material is highly cumulative, so it is important to confirm mastery of each week's material in preparation for the next week's material. It is not sufficient to merely review several weeks of material just before an exam.

Exams: Two midterms and a final exam. The first midterm is scheduled for **Tues, Sept 30**. The second midterm is scheduled for **Thurs, Oct 30**. The final is scheduled for **Sun, Dec 14 4:30-7:00**.

Research Paper: The goal of this course is to train you to perform and interpret original analyses of economic data. To that end, you will complete one independent research project, using the skills taught in this course. You will write a paper (roughly 8 pages, double-spaced, including figures and tables) on a topic of interest to you, focusing on original analysis of relevant data. Some course time will be spent teaching you how to download and analyze U.S. Census data, and many students will formulate a research question that can be investigated using Census data. Students are, however, free to pursue other data sources on topics of interest. I will hold individual meetings the week of Nov 10 to make sure that you have found an appropriate topic and data set and provide some individual guidance (class will be cancelled during the week to allow for individual meetings during class time). The research paper is due, in both electronic and hard copy, on the last day of classes, **Dec 12, by 5 pm**.

Grades
Grades will be based on:
20% Midterm 1 (Tues,Sept 30)
20% Midterm 2 (Thurs, Oct 30)
30% Final Research Project (Due Fri, Dec 12)
30% Final Exam (Sun, Dec 14, 4:30-7)

Final letter grades will be based on the cumulative performance I would expect from an intelligent and hardworking student.

Some Additional Notes/Policies

Material from a Missed Class: If you miss class, you are responsible for obtaining the material you missed. There is sufficient overlap with the course pack that reviewing the relevant material there will help, but you should arrange to obtain log file/programs/notes from a classmate (not from the professor), and work through these on your own to catch back up with the class. Students will frequently work on ungraded in-class exercises, and these will be posted on the course website for students who miss class to complete on their own.

Missed Exams: Make-up exams for the midterms will not be given. Midterm exam absences will only be excused for compelling circumstances (generally family emergencies or documented illness), in which case the other course material will be re-weighted. Students anticipating conflict with an exam date due to religious observance or over-scheduling (3 or more exams on the same day) should bring these to my attention within the first 3 weeks of class.

Special Accommodations: Students with documented disabilities who may need academic accommodations should speak with me during first three weeks of the class. Also contact the Disability Services Office, Willard 322 (phone 303-492-8671).

Class Disruptions: Computers should not be used for non-class activities during class time and cell phones should be stored away during class time.

Academic Integrity: All students are responsible for knowing and adhering to the academic integrity policy of the University of Colorado at Boulder (www.colorado.edu/policies/honor.html and www.colorado.edu/academics/honorcode/). All incidents of academic misconduct will be reported to the Honor Code Council. I particularly encourage students to avoid plagiarism (portrayal of another's work or ideas as one's own) and therefore to conscientiously identify and cite all ideas or language borrowed from any other work.

How Can I Do Better?

Every semester, I have some students who show up in office hours to discuss the fact that they are dissatisfied with their performance in the class so far and ask advice about how to improve. My answer is always the same. So I am putting that advice here so that everyone has it from the first day of class!

1) Mentally engage in class. There is a big difference between passively typing in commands and taking notes on what I say and mentally engaging in class to really understand the material. Can you answer the questions I am asking in class? Are you thinking about what is being done and why, or are you simply writing things down so you can memorize them later?

2) Review class material before the next class. The material in this course is highly cumulative. You will learn much better in class if you have already mastered the material from the previous lecture. Review previous material so that it is fresh in your mind for the next lecture. It is particularly crucial that you review the previous material before an in-class exercise, as you will get a lot more out of the in-class exercises when you don't have to spend class time reading over your notes to remember the topic.

3) Re-do material from lecture on your own in STATA. Use your log file and the course data sets to re-do the analysis conducted during lecture and reinforce your understanding of the relevant concepts. First try to interpret the output on your own before reading the answer from your notes.

4) But don't just re-do lecture material in lecture, make up your own exercises in STATA. One of the advantages of having the data sets is that you can use them to extend the methods taught in class to new examples. For example, when we learn to create variables, think up some other variables to create and check to see that you have done them correctly. When we learn to do t-tests, pick your own variables from the data set and conduct a different t-test than the ones done in class. When we estimate regressions, use the other variables in the data set to run your own regressions and interpret them.

5) Use in class-exercises to test your understanding.
In-class exercises are an excellent opportunity to test your understanding of the material. Review the lecture material before class, and then treat in-class exercises like a mini practice exam. See how much of the in-class exercise you can complete correctly without prolonged consultation of your notes. If you spend most of the in-class exercise reading through your notes because you've forgotten everything from previous lecture, and then only complete part of the exercise before we go over the answers, that is a wasted opportunity.

Course Schedule

Week 1 (Aug 25-29): Introduction and Getting Started in STATA

Week 2 (Sept 1-5): Summarizing Continuous Data

Week 3 (Sept 8-12): Categorical Data

Week 4 (Sept 15-19): Hypothesis Testing

Week 5 (Sept 22-26): Simple Regression

Week 6: (Sept 29-Oct 3) **Tues, Sept 30- 1st Midterm**

Week 7 (Oct 6-10): Non-linear Models, Multiple Regression

Week 8 (Oct 13-17): Categorical Variables, Interaction Models

Week 9 (Oct 20-24): Omitted Variable Bias

Week 10 (Oct 27-31) Standard errors and Multicollinearity **Thurs, Oct 30- 2nd Midterm**

Week 11 (Nov 3-7): IPUMS Tutorial

Week 12 (Nov 10-14): Individual meetings during class time to discuss final projects

Week 13 (Nov 17-21): Advanced topics: Logit Model

Week 14: Thanksgiving Break

Week 15 (Dec 1-5): Advanced Topics: Differences in Differences Models

Week 16 (Dec 8-12): Advanced Topics: Fixed-Effects Models

Fri, Dec 12, 5 pm, Final Papers Due
Sun, Dec 14, 4:30-7, Final Exam