University of Colorado Boulder
Department of Economics

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Economics 4848-002
Applied Econometrics, Spring 2015
Syllabus and Schedule
Office Hours: TTh 10:45-11:30, 1:45-2:30
Economics 208D
Other times by appointment

Course Description:

This course will teach you to be comfortable with the essential aspects of performing economic analysis on real-world data. In doing so, we will spend a substantial amount of time mastering STATA, a statistical computer software package designed especially for empirical economic analysis. While you will spend some time doing textbook style examples, you will also learn to create custom datasets from the US Census Bureau and Bureau of Labor Statistics for original analysis. Students who successfully completed this course have gone on to do applied data work for the government, in industry, or in other research/advocacy/policy contexts. The course meets in Humanities 1B45, each TTh (1/13-4/30) from 12:30 PM – 1:45 PM, with the exceptions of a week of individual meetings (3/31, 4/2) and Spring Break (3/24, 3/26).

Prerequisites:

To enroll in this course, you must have completed Economics 3070 and at least one of Economics 1088, Math 1081 or Math 1300. Economics 3818 or an equivalent course is also required. This course provides practical hands-on training in using statistical software to analyze economic data. To succeed, students will need a basic command of algebra, as well as a basic understanding of the mechanics of a statistical test. We will review hypothesis testing, but our treatment will assume prior exposure. Students with a continuing interest in econometrics will find complementary material in Economics 4818 as it provides more depth at the theoretical level.

Course Materials:

There is no required textbook for this course. The material to be mastered will be covered in lecture notes and problem sets, all of which will be available on the D2L website. A course pack is available at the CU Bookstore that contains all of the lecture notes. In addition, there are several electronic resources available for the newcomer to STATA. These are also posted on the course website.

Students are not required to purchase their own copies of STATA, although those desiring to do so qualify for a substantial discount through the University's GradPlan. More information is available through a link posted on the D2L website. I recommend Stata/IC. Prices are $69 for a six-month

advanced copy, but the Intercooled version will allow you to complete all the requirements of this course. Otherwise, you may access STATA on lab computers where it is installed. I have provided a link on the course website showing the labs with the software installed. Note that the Economics building is closed on weekends, but it remains open until 10 PM on weekdays.

You should bring a USB memory stick to copy programs and data from our work in class. It is unlikely that you will need more than 4 GB of storage; so you should be able to find one that is relatively inexpensive (~ $10) if you do not currently have one.

Requirements and Grading:

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

Assignment	Weight	Due Date
Midterm Exam	25%	3/3 In Class (Tentative Date)
Problem Sets	15%	Various dates throughout the semester (total of 4 or 5)
Research Paper & Presentation	30%	4/21 Hard Copy First Draft, 5 PM 4/23, 4/28, 4/30 (Presentations) 5/1, 5 PM (Final Draft)
Final Exam	30%	Monday 5/4 4:30-7:00 PM

The Midterm Exam will take place during a full class period. It will cover material through bivariate regression (through Chapter 5 in the coursepack), and it is tentatively scheduled for Tuesday, 3/3. Midterm questions will be similar to the problem sets and in-class exercises, but you will work alone. Although you will turn in your work on the midterm through D2L, you must attend class on the day of the midterm in order to receive credit.

Problem Sets will be assigned throughout the course, and must be submitted by 5 PM on their due dates. You are strongly encouraged to work on problem sets in groups of up to three students. Experience has shown that students who work in groups on these assignments fare much better in the course overall. To eliminate the temptation to free ride, each student must submit his/her own copy of the problem set (via D2L), and you should indicate each of your collaborators on each problem set. I will grade the assignments on a 3-point scale.

Research Paper and Presentation: The goal of this course is to train you to be able to perform original analyses of economic data. To that end, you will complete one independent research project, using the skills you learn throughout the course. You may work with a partner, but no more than two people may work together.

This project has two components. First, you will write a paper (approximately 6-8 pages, including figures and tables) on a topic of interest to you, focusing on original analysis using data from the US Census or another data source. I can provide some help with the census data and, to a lesser extent, support for work with alternative data sets. The first draft of the paper will be due April 21
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Second, during the final three course meetings, each group will give an approximately 15 minute presentation of their work (on average, five per class meeting). In order to maintain fairness, each group will need to send me their slides prior to class on 4/23. You are encouraged to revise your slides if you complete additional work between 4/23 and the day you present. The presentations are required, but I will not be grading your presentation style. Rather, you should use these presentations as an opportunity to get feedback from me and from your classmates so that you can improve your paper before submitting your final draft. Failing to make a class presentation will result in a 25% penalty on the project grade. The final draft is due on Friday, May 1 at 5 PM (Hard Copy in my office, plus electronic copy via D2L).

As we progress through the material, be thinking of the type of project you are interested in. I will schedule appointments to meet with each student/group individually during the week of 3/30 to make sure you have found an appropriate topic and to provide individual guidance on your projects.

NOTE TO STUDENTS WRITING HONORS THESES: you are writing a thesis you may write a paper for this course on a related topic, but your research question must be distinct from the work you include in your thesis

The Final Exam will cover all of the material learned in the course, and will be similar in format to the midterm and problem sets. Our assigned time from the Registrar is 4:30-7:00 PM on Monday, 5/4/2015. University policy provides students with three or more exams on the same day the right to reschedule exams following the first two.[1] Any student wishing to invoke this right should notify me as soon as possible and no later than February 15. I will ask for a copy of your schedule to verify your eligibility.

Final Letter Grades will be determined based on your cumulative performance relative to the scores a good student at this level could reasonably be expected to attain. Individual components (problem sets, exams, the project) will be curved and assigned a letter grade prior to taking the weighted average outlined above. I intend to follow the Economics department guidelines, which suggest a median grade of roughly B-/C+.

Other Policies:
Attendance Requirement: Attendance for this course is required. Classes are interactive, and you will get the most out of this course by attending each class meeting. However, I understand that occasionally circumstances necessitate missing a lecture. Thus, students are allowed up to five absences without penalty. Students with more than 5 absences throughout the semester will fail the course. Note that there are no additional absences available for standard "excused" reasons (illness, family emergency, etc). I will take attendance prior to the start of every class period. Because there is often confusion about who is enrolled during the first week of the semester, I will begin counting absences toward this policy in the second week of the semester. Students in the past have found it useful to continue working on the same lab computer throughout the semester, so I will encourage you to sit at the same computer every meeting. That will allow for quick and efficient attendance taking.

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[1] http://www.colorado.edu/polies/final_exam.html

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) for any day that you miss. I expect you to work through these on your own to catch back up with the class prior to coming to ask questions in my office.

Waitlist: I will use the university's administrative drop policy as a means of clearing the waitlist.[2] *If you fail to attend any class meeting in the first two weeks, I will have you dropped from the course as soon as possible*. If you are administratively dropped, you may attempt to re-register, but you will be subject to standard waitlist procedures.

I will also enforce prerequisites. Please provide me with a copy of your unofficial transcript as soon as possible, and by the end of the second class meeting at the latest, with the prerequisites highlighted or circled. *If you do not provide me with proof that you have passed the prerequisites, I will have you administratively dropped*.

Late Assignments/ Missed Examinations Policy: Problem sets and exams will be submitted through the D2L website. Problem Sets will be due by 5:00 PM on their due dates. Following a 5-minute grace period, you will receive no credit for completing the assignment if it is received late. There will be additional incentives to complete exams on time. NOTE: You must attend class on the day of the exam to receive credit.

If you miss the midterm or the final exam you will receive no credit unless you provide documentation of a medical or family emergency. In the case of a legitimate emergency, I will treat the score on the missed exam as a missing data point, i.e. give no weight to the exam in the calculation of the final grade, and other assignments will be reweighted accordingly. There will be no make-up exams. If you foresee any conflict that will prevent you from taking an exam, please let me know as soon as possible and at least two weeks beforehand.

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[2] More information on this policy is available here:
http://www.colorado.edu/registrar/registration-grades/add-drop-courses

Covered Topics and Tentative Schedule

Topic	Tentative Dates
Introduction and Research Design	1/13, 1/15(Read Mortgage Paper)
STATA Tutorial	1/20, 1/22, 1/27
Descriptive Analysis	1/29, 2/3
Dealing with Categorical Data	2/5
Review of Hypothesis Testing	2/10
Bivariate Regression	2/12, 2/17, 2/19, 2/24
Multiple Regression Basics	2/26
MIDTERM EXAM	3/3
Omitted Variable Bias	3/5
Categorical Variables in Regression	3/10
Interaction Models	3/12
IPUMS Tutorial	3/17, 3/19
Spring Break - NO CLASS	3/24, 3/26
Individual Project Meetings	3/31, 4/2
NO CLASS	3/31, 4/2
The Difference-in-Differences Estimator	4/7
Advanced Data Management	4/9, 4/14

How Can I Do Better?

Every semester, I have some students who show up in office hours worried that they are not doing well and wondering what they can do differently. I have noticed some differences in the approach take by the strongest students and by those who find themselves in this situation. As a service to you, I am giving everyone access to the advice I would give later in the semester now, all from day one.

1) Mentally engage in class. There is a big difference between passively typing in commands and taking notes on what we are doing and mentally engaging in class to really understand the material. Can you answer the questions I am asking? Do you understand why I am asking them? 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 quite cumulative, and your experience in a lecture will be much more productive 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. I'll always open the floor for questions about earlier material at the start of class. You should take me up on this offer.

3) Don't confuse familiarity with mastery. This is not a course about remembering concepts or examples. It's a course about doing analysis and doing it well. Re-reading the examples from lectures or the problem sets will help some, but really you'll want to do some analysis as practice. There are two main ways to do this:

   a. Re-do material from the lectures on your own in STATA. Use your log file and the course data sets to re-do the analysis conducted during the lecture to reinforce your understanding of the relevant concepts. First try to interpret the output on your own before reading the answer from your notes. Then, try to think of follow-up questions that you could ask based on the analysis we did or on additional analysis.

   b. Make up your own exercises in STATA. I'll provide multiple data sets for you to use, and you should be able to come up with your own example questions/analysis. 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, open a new data set and see what new tests would be interesting given the content of that dataset. When we estimate regressions, use additional variables in the data set to run your own regressions and interpret them.

4) Use the problem sets to test your understanding of the material. You can certainly finish the problem sets and get some credit by going through the motions with someone else who has already worked through it, but they are primarily designed to give you a way to practice the skills you are learning. The problem sets will be available with substantial lead time. Start early, and ask for help from other students or me well in advance of the problem set deadline to make sure that you don't end up just copying someone else's code without understanding what you are doing.

Other University Policies:

Disability Accommodation

If you qualify for accommodations because of a disability, please submit 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: 303-492-8671, Center for Community N200, and http://www.colorado.edu/disabilityservices

If you have a temporary medical condition or injury, see Temporary Injuries under Quick Links at Disability Services website (http://disabilityservices.colorado.edu/) and discuss your needs with me.

Religious Observances

Campus policy reg

Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, or veteran status. Individuals who believe they have been discriminated against should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Student Conduct (OSC) at 303-492-5550. Information about the ODH, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at http://hr.colorado.edu/dh/

Academic Integrity

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; 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). Other information on the Honor Code can be found at

http://www.colorado.edu/policies/honor.html and at

http://honorcode.colorado.edu