

University of Colorado at Boulder
Department of Economics

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Economics 4848-001: Applied Econometrics, Spring 2013
Syllabus and Schedule
Office Hours: MW: 1:30-3:30
Economics 14A
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 for original analysis. Students who successfully complete this course will be qualified to do applied data work for the government, in industry, or in other research/advocacy/policy contexts. The course meets in Humanities 1B45, each MWF during the semester (1/14-5/3) from 11:00 AM – 11:50 AM, with the following exceptions: Monday 1/21 (MLK Day), Friday Feb. 15 and Friday May 3 (no class due to Professor Cadena's research-related travel), Spring Break (March 25-29), and no full-class meetings during a week of individual meetings (4/1-4/5) related to the final project.

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. If you have not completed the prerequisites, please drop the class as soon as possible and enroll in a subsequent semester after you have completed them.

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 Desire2Learn website. A course pack, available at the CU Bookstore, contains all of the lecture notes and is available for the cost of printing and binding. In addition, there are several electronic resources available for the newcomer to STATA. These are also posted on the course website under "Web Links." There are links to official STATA help guides and free training modules.

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 Desire2Learn website. I recommend Stata/IC. Prices are \$65 for a six-month license, \$98 for a one-year license, and \$179 for a perpetual license.
Note: SMALL STATA WILL BE INSUFFICIENT FOR THIS COURSE.

You will receive full STATA documentation in PDF format if you choose to purchase the software. If you expect to use STATA beyond this course, you can feel free to purchase a more advanced copy, but the Intercooled version will allow you to complete all the requirements of this course. If you choose not to purchase the software, your easiest access to STATA will be the computer lab in the basement of the economics building (Econ 6) or the Norlin Statlab (Norlin M350). Note that the Economics building is closed on weekends, but it remains open until 10 PM on weekdays. The library lab is open some hours on the weekend with details on the OIT website.

You may find it useful to 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 (< \$20).

Requirements and Grading:

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

<u>Assignment</u>	<u>Weight</u>	<u>Due Date</u>
Midterm	20%	3/1 (Tentative date, covers material through bivariate regression)
Problem Sets	20%	Various dates throughout the semester (total of 5)
Research Paper & Presentation	30%	4/19 Hard Copy First Draft, 5 PM 4/22-5/1 (Presentations) 5/3, 5 PM (Final Draft)
Final Exam	30%	Wednesday 5/8 1:30-4:00 PM

The **Midterm Exam** will take place during a full class period. It will cover material through bivariate regression (Chapter 5 in the coursepack), and it is tentatively scheduled for Wednesday, 3/1. Midterm questions will be similar to the problem sets and in-class exercises, but you will work alone. Although the midterm will be administered through Desire2Learn, 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 prior to the beginning of class 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 Desire2Learn), and you should indicate each of your collaborators in the comment section of the program submitted for 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 (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 19 at 5 PM (Hard Copy in my office). Any student/group failing to submit a draft of the project will receive a 25% penalty on their project grade. During the final two weeks of course meetings, each group will give an approximately 12-15 minute presentation of their work (on average, 3-4 per class meeting). In order to maintain fairness, each group will need to send me their slides prior to class on 4/22. You may revise your slides if you complete additional work between 4/22 and the day you present. The presentations are *required*, but I will not be grading your presentation skills. 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 3 at 5 PM (Hard Copy in my Office).

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 4/1 (immediately after Spring Break) to make sure you have found an appropriate topic and to provide individual guidance on your projects.

NOTE TO STUDENTS WRITING HONORS THESES: *I will accept work on your thesis for this assignment, but the paper and presentation must conform to the requirements of the project. You must work alone if the work you are doing will become part of 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 1:30-4:00 PM on Wednesday, 5/8/2013. 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 22. I will ask for a printout 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 (including historical performance from earlier semesters). Individual components (problem sets, exams, the project) will be curved separately prior to taking the weighted average outlined above.

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 will be allowed up to five absences without penalty. Students with more than 5 absences throughout the semester will fail the course. You are always responsible for the material covered in class, so you are strongly encouraged to attend every class possible. 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

¹ http://www.colorado.edu/policies/final_exam.html

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 ask that you sit at the same computer every meeting. That will allow for quick and efficient attendance taking.

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

Late Assignments/ Missed Examinations Policy: Problem sets and exams will be submitted through the Desire2Learn website. Problem Sets will be due by 5:00 PM on their due dates. Following a 5-minute grace period, I will deduct 1 point from each assignment for each day it is late. Assignments submitted more than 48 hours after the due date will receive no credit. There will be additional incentives to complete the exams on time. NOTE: You *must* attend class on the day of an exam to receive credit. The files you send to me will have time stamps, which I will use to determine whether you completed exams prior to the deadline.

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, the missed exam will be given no weight 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.

² http://registrar.colorado.edu/students/registration/registration_packet/drop_add.html#administrative

Covered Topics and Tentative Schedule

Topic	Tentative Dates
Introduction and Research Design	1/14, 1/16, 1/18 (Read Mortgage Paper)
NO CLASS	1/21
STATA Tutorial	1/23, 1/25, 1/28, 1/30
Descriptive Analysis	2/1, 2/4
Dealing with Categorical Data	2/6
Review of Hypothesis Testing	2/8, 2/11
NO CLASS	2/13
Bivariate Regression	2/18-2/27
MIDTERM EXAM	3/1 (Tentative)
Multiple Regression Basics	3/4, 3/6
Omitted Variable Bias	3/8, 3/11
Categorical Variables in Regression	3/13, 3/15
IPUMS Tutorial	3/18-3/22
NO CLASS (Spring Break)	3/25-3/29
Individual Project Meetings (NO CLASS)	4/1-4/5
Interaction Models	4/8-4/12
Advanced Data Management	4/15, 4/17
Binary Dependent Variables	4/19 (Paper Draft Due 4/19, 5 PM)
Class Presentations	4/22-5/1 (Draft Slides Due 4/22, Final Paper Due 5/3)
Final Exam	5/8 1:30-4:00 PM

Other University Policies:

Disability Accommodation

If you qualify for accommodations because of a disability, please submit to your professor 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.

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 your professor.

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 class, please inform me no later than two weeks prior to any conflict you foresee, and sooner if possible, so that we can find an alternative arrangement for you to complete the requirements of the course. See full details at http://www.colorado.edu/policies/fac_relig.html

Classroom Behavior and Gender Identity

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at <http://www.colorado.edu/policies/classbehavior.html> and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

Discrimination and Harassment

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. (Regent Law, Article 10, amended 11/8/2001). CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected 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>