

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

Prof. Brian Cadena  
[brian.cadena@colorado.edu](mailto:brian.cadena@colorado.edu)  
(303) 492-7908  
Website: CULearn  
<https://culearn.colorado.edu>

Economics 4848: Applied Econometrics, Spring 2009  
Syllabus and Schedule  
Office Hours: M 10-12, Th 2-4  
Economics 4D  
Other times by appointment

**Course Description:**

This course will teach you to be comfortable with the essential aspects of running economic analysis on real-world data. The majority of the time will be spent learning to master 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 Tuesday and Thursday (1/13-4/30) from 12:30 PM – 1:45 PM, with the exception of 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 is recommended, although not 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, including the summation sign. 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 make a point to discuss your preparation with me during the first week of class.

**Course Materials:**

There is no required textbook for this course. The material to be mastered will be covered in lecture notes, quizzes and problem sets, all of which will be available on the CULearn website. 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. Of note, the CU library has an electronic version of “A Handbook of Statistical Analyses Using STATA” available as an online resource. Although this book is somewhat out of date (2000) and not ideally suited for this course, it does have the advantage of being free. A link to that book and instructions for accessing it for students living off-campus are available on the CU Learn 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 CULearn website. Note: SMALL STATA WILL BE INSUFFICIENT FOR THIS COURSE. I recommend Stata/IC. Prices are \$95 for a one-year license and \$155 for a perpetual license. You will receive a copy of “Getting Started”, an

official STATA guide if you elect to purchase your own copy. 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. Otherwise, you may access STATA on computers in this classroom or in the computer lab in the basement of the economics building.

You may find it useful to acquire a USB memory stick to copy programs and data from our work in class. It is unlikely that you will need more than 1 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>
Quizzes	20%	2/3, 2/24, 3/17, 4/14
Problem Sets	25%	Various dates throughout the semester
Research Paper & Presentation	25%	4/23, 4/28, 4/30 (Presentations) 5/1, 5 PM (Final Draft)
Final Exam	30%	Tuesday 5/5 4:30-7:00 PM

**Quizzes** will take place during the final 25 minutes of the Tuesday class periods listed. They will include material covered through the end of the previous Thursday's meeting, i.e. they *will not* include material covered the day of the quiz. Quiz questions will be similar to the problem sets and in-class exercises. Although the quizzes will be administered through CULearn, you must attend class on the day of the quiz 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 encouraged to work on problem sets in groups of up to three students. However, each student must submit his/her own copy of the problem set (via CULearn), and you must indicate each of your collaborators on each problem set.

**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. The use of alternative data sets will be evaluated on a case-by-case basis. The first draft of the paper will be due April 21 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 three course meetings, each group will give an approximately 15 minute presentation of his/her work. In order to maintain fairness, each group will need to send me their slides prior to class on 4/23. These presentations will allow you 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).

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 March 31 to make sure you have found an appropriate topic and provide individual guidance on your projects.

**The Final Exam** will cover all of the material learned in the course, and will be similar in format to the quizzes and problem sets. Our assigned time from the Registrar is 4:30-7:00 PM on Tuesday, 5/5/2008. University policy provides students with three or more exams on the same day the right to reschedule exams following the first two.<sup>1</sup> Any student wishing to invoke this right should notify me as soon as possible and no later than February 28.

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.

**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 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 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.

#### **Late Assignments/ Missed Examinations Policy:**

Problem sets and quizzes will be submitted through the CULearn website. Problem Sets will be due by 12:30 PM on their due dates. Following a 5 minute grace period, I will deduct 25 percent from each assignment for each day it is late. Assignments submitted more than 3 days after the due date will receive no credit. Quizzes must be submitted by the end of the class period (1:45 PM). I will allow a 2 minute grace period beyond the end of class in case of delays in uploading your answers. NOTE: You *must* attend class on the day of the quiz in order to receive credit.

If you miss a quiz 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 quiz or 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 quizzes or exams. If you foresee any conflict that will prevent you from taking a quiz or exam, please let me know as soon as possible and at least two weeks beforehand.

---

<sup>1</sup> [http://www.colorado.edu/policies/final\\_exam.html](http://www.colorado.edu/policies/final_exam.html)

### **Tentative Schedule**

Topic	Tentative Dates
Introduction and Research Design	1/13, 1/15 (Read Mortgage Paper)
STATA Tutorial	1/20, 1/22, 1/27
Summarizing Continuous Data	1/29, 2/3 (Quiz 1), 2/5
Dealing with Categorical Data	2/10
Review of Hypothesis Testing	2/12
Bivariate Regression	2/17, 2/19, 2/24 (Quiz 2),
Multiple Regression Basics	2/26
Omitted Variable Bias	3/3, 3/5
Categorical Variables in Regression	3/10, 3/12
IPUMS Tutorial	3/17 (Quiz 3), 3/19
Interaction Models	3/31, 4/2
Advanced Data Management	4/7, 4/9, 4/14 (Quiz 4)
Binary Dependent Variables	4/16, 4/21, (Draft Due 4/21 5 PM)
Class Presentations	4/23, 4/28, 4/30 (Slides Due 4/23, Final Draft Due 5/1 5 PM)
Final Exam	5/5 4:30-7:00 PM

## **Other University Policies:**

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, 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](http://www.colorado.edu/policies/fac_relig.html)

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and [www.Colorado.EDU/disabilityservices](http://www.Colorado.EDU/disabilityservices)

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, culture, religion, politics, sexual orientation, gender, gender variance, 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](http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code)

The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs 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://www.colorado.edu/odh>

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); 303-725-2273). 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://www.colorado.edu/academics/honorcode/>