

**University of Colorado Boulder**

**Econ 4848-001 – Applied Econometrics  
Fall 2018**

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**Lectures:** Monday, Wednesday and Friday 11:00-11:50 HUMN 1B45

**Office hours:** Monday 9:00-10:30, Wednesday 12:00-1:30

**Course Description:** This course will develop your ability to organize, analyze and interpret real-world data – skills that are growing increasingly important and valuable in industry, government, and academic settings. We will be using a very hands-on learning approach with STATA as our tool for empirical analysis; however, this is not a how-to course on STATA. Rather, the objective of the course is to learn how to conduct rigorous econometric analysis and interpretation using modern statistical software. Course enrollment is contingent on Econ 3818 (or equivalent) as a prerequisite. Students interested in more theoretical foundations of econometrics should consider Econ 4818 as a complementary course.

**Course Organization:** The delivery of course material will consist of lectures and hands-on lab work with STATA. The typical class day will consist of lecture, followed by in-class work on STATA and then discussion to tie the lecture to the hands-on work. There will be one midterm exam covering material from the first half of the class, along with a comprehensive final exam. D2L will be the main point of communication.

**Textbooks:** There is no required textbook, however the coursepack developed by Prof. Brian Cadena will prove to be a very useful reference. One nice aspect of using STATA is that there is a wealth of online material. For example, see <http://data.princeton.edu/stata/> or <https://stats.idre.ucla.edu/stata/modules/>. While I'm happy to meet and discuss issues related to STATA use, you'll often find that a quick internet search will get you the answer faster than trying to track me down. If you stop by and I say LMGTFY, you're doing it wrong.

**Software:** You are not required to purchase your own copy of STATA, however, you may find it useful to do so. STATA is available in the Department of Economics basement computer lab, though the department closes at 10PM on weekdays and is closed weekends. If you choose to purchase your own version of STATA, I recommend STATA IC which is available through CU GradPlan for \$45 dollars for a six-month license (see <https://www.stata.com/order/new/edu/gradplans/student-pricing/> for more detail - this is 30 bucks cheaper than in years past!). You should also plan on having a USB memory device for storing data and files, or be familiar with e.g. Google Drive.

**Teaching Assistant:** Brian Marein ([brian.marein@colorado.edu](mailto:brian.marein@colorado.edu)) will be the Teaching Assistant for our course (he will be the TA for all sections of 4848 this fall). You should view him as an excellent resource for help on homework, the research project, and general assistance with STATA. Office hours will be posted on D2L and noted the first day of class.

**Grading:**

|                     |     |
|---------------------|-----|
| Class Participation | 10% |
| Problem Sets        | 10% |
| Midterm Exam        | 20% |
| Final Exam          | 30% |
| Research Project    | 30% |

**Class Participation and Attendance:** Because the best way to learn applied econometrics is to actually do it, it will be assumed that all students will be in attendance every day. That said, I will be enforcing the administrative drop rule for the first week of class, so be there or get booted. Participation in class discussion will constitute 10% of your final grade. To facilitate and track participation and attendance, we will be using the Top Hat ([www.tophat.com](http://www.tophat.com)) classroom response system in class. You will be able to submit answers to in-class questions and discussion via your computer.

You can visit <https://support.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide> for the Student Quick Start Guide which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system. An email invitation will also be sent to your email account. Top Hat will require a subscription. There are three options to choose from (if you're not using it for other CU classes, just go with the 4 month/1 term option):

- \$26 for 4 months of unlimited access
- \$38 for 12 months of unlimited access
- \$75 for lifetime access

**Problem Sets:** There will be a total of 5 problem sets assigned during the semester. You may work with a partner, but each student should individually submit their assignment (with both names on it). The problem sets will be a mix of analysis in STATA and interpretation, so plan ahead if you don't own your own copy of STATA.

**Midterm and Final Exams:** The midterm will occur in-class roughly mid-October (tentatively October 17), with the final taking place on finals week on Sunday December 16 at 7:30-10:00PM. The midterm will cover material up through bivariate regression analysis, while the final will be comprehensive. If the midterm exam is missed due to an excused absence, there will be no make-up – rather the weight for the midterm will be reallocated to the other graded components.

**Research Project:** A key objective of this course is to train you to be able to conduct rigorous econometric analysis. As such, the research project will consist of original econometric analysis on a topic of the student's choosing. You may work with up to two

other students. In early November, we will use a week of class-time for individual meetings to discuss your research topic. The final week of class will consist of roughly 15 minute presentations by each team and will account for 25% of the research project grade. The final research paper will be roughly 8 pages in length, and is due on Reading Day, Friday December 14 by 5:00 PM.

### **Tentative Schedule**

Topics subject to change depending on interest and time constraints

|                      |  |
|----------------------|--|
| Week 1 8/27-8/31:    | Introduction to applied econometrics                         |
| Week 2 9/3-9/7:      | Hello STATA (no class Monday – Labor Day)                    |
| Week 3 9/10-9/14:    | Getting to know your data                                    |
| Week 4 9/17-9/21:    | Summary statistics   |
| Week 5 9/24-9/28:    | Categorical data   |
| Week 6 10/1-10/5:    | Hypothesis Testing   |
| Week 7 10/8-10/12:   | Bivariate Regression   |
| Week 8 10/15-10/19:  | Bivariate Regression (Midterm ~10/17)                        |
| Week 9 10/22-10/26:  | Multivariate Regression                                      |
| Week 10 10/29-11/2:  | Dummy Variables and Interactions                             |
| Week 11 11/5-11/9:   | Omitted Variable Bias and Research Design                    |
| Week 12 11/12-11/16: | Individual research project meetings                         |
| Week 13 11/19-11/23: | Fall Break   |
| Week 14 11/26-11/30: | Binary dependent variables                                   |
| Week 15 12/3-12/7:   | Fixed effects, difference-in-differences, IV                 |
| Week 16 12/10-12/14: | In-class presentations of research project (no class Friday) |
| Final Exam 12/16:    | 7:30-10:00PM in usual classroom                              |

### **Important Stuff**

#### **ACCOMMODATION FOR DISABILITIES**

*If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.*

#### **CLASSROOM BEHAVIOR**

*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 race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran*

*status, political affiliation or political philosophy. 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. For more information, see the policies on classroom behavior and the Student Code of Conduct.*

#### **HONOR CODE**

*All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.*

#### **SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION**

*The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website.*

*Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.*

#### **RELIGIOUS HOLIDAYS**

*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. See the campus policy regarding religious observances for full details.*