

Economics 4848- Applied Econometrics Fall 2023, MWF 12:20-1:10, MEUN E431

Prof. McKinnish
Econ 115
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Office Hours

T 1:30-3, Wed 1:30-3
Email to set up an appt outside of office hours

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. While in the first few weeks, students will spend time learning STATA, this is only a means to an end, and the key focus of this course is developing 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 Canvas

Software:

Students must install STATA on their laptop for this course:

<http://www.stata.com/order/new/edu/gradplans/student-pricing/>

Stata/BE is sufficient for this course and the current price for 6 months is \$48.

Course Requirements

Attendance: Attendance is crucial to success in this class because of the highly cumulative nature of the course material. **Attendance will be taken regularly and any student missing more than 20% (3 weeks of class, or 9 class meetings) of the course's scheduled classes will receive a failing grade.** There is no distinction between excused and unexcused absences, with absences for all reasons, including illnesses and emergencies, counting towards this 9 class limit. Students therefore do not need to email me regarding their absences except in the case of very extenuating circumstances that will cause a multiple week absence. I reserve the right to record an absence for students who spend substantial class time on non-class activities.

In-Class Exercises: Students will regularly work on ungraded exercises during class time to practice course material.

Exam review problem sets: Review problem sets will be due prior to each midterm exam **by 10 am on Fri Sept 22, Fri Oct 13, and Fri Nov 3**. Problem sets turned in on time that are at least 50% correct will receive a score of 100. Late problem sets and those less than 50% correct will receive a 50. These review sets act merely as a starting point for appropriate exam preparation and are not intended to serve as the totality of material review.

Exams: Three midterms and a final exam. **Midterm 1: Mon Sept 25; Midterm 2: Mon Oct 16; Midterm 3: Mon Nov 6.**

Research Project: 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. Students will be taught to download and analyze U.S. Census data in class but are free to pursue other data sources on topics of interest.

Project description due Wed Nov 15.

Data download report due Fri Nov 17.

Variable summary and program due Mon Dec 4.

The research paper due 10 pm Thurs Dec 14.

Grades

15% Midterm 1 (Mon Sept 25)

15% Midterm 2 (Mon Oct 16)

15% Midterm 3 (Mon Nov 6)

5% Midterm review problem sets

5% Project description, data download report, variable summary (equally weighted, 100% if on time, 60% if late but turned in by Fri Dec 8)

30% Final Research Project (Due Thurs Dec 14 10 pm, 15 point deduction if late, not accepted after 10 pm Fri Dec 15)

15% Final Exam (CU-Boulder final exam schedule TBA)

Letter grade standards: I evaluate work in this course from the perspective of an employer. An A on an exam or on the final project means that an employer would consider the student a desirable hire. Standards for other letter grades are based on degree of departure from this standard.

Course Specific Policies

Material from a Missed Class: If you miss class, you should obtain the log file for the missed class from Canvas, obtain notes from classmates, and work any missed in-class exercise. You are welcome and encouraged to ask questions in office hours once you have reviewed the log file and notes and completed any missed in-class exercises on your own.

Missed Exams: Make-up exams for the midterms are not 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.

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

How Can I Do Better?

When students come to office hours to express dissatisfaction with their performance in the class and ask advice about how to improve, my answer is always the same. I provide this advice here, so everyone has it from the first day of class!

Material in this class is advanced and highly cumulative. Material must be practiced multiple times to master. Mastering one week's material is crucial to understanding the next week's material.

1) Attend every day. Put your cell phone away. Only have class material open on your computer.

2) Mentally engage in class. Take excellent notes. However, material is not learned by passively typing in commands and writing without thinking. Are you concentrating on following and understanding the material? Can you answer the questions I am asking in class?

3) Review previous class material before each class. Course material 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.

4) Focused effort during in-class exercises is crucial. Review class material before coming to class so you are prepared for in-class exercises. Focus on the exercise without distraction and refer to your class notes and log files rather than just answering off the top of your head. After completing the exercise, check over your work carefully while referring to your course notes and log files.

*5) Practicing for exams must include working problems, not just reading over old answers. Simply reading over in-class exercises before an exam **will not** be sufficient! It is important to re-work examples from class and the class exercises. It is even more effective to practice the skills by applying them to new variables. For example, using the class data sets, conduct a different t-test, a different nonlinear regression, a different categorical variable regression, etc than the ones already done in class. You only truly master the material by working new problems you have not already seen.*

Course Schedule

Week 1: Introduction and Getting Started in STATA

Week 2: Summarizing Continuous Data

Week 3: Categorical Data

Week 4: Hypothesis Testing

Fri Sept 22: Review PS 1 due

Mon Sept 25: Midterm 1

Week 5: Simple Regression

Week 6: Non-linear Models

Week 7: Categorical Variables

Fri Oct 13: Review PS 2 due

Mon Oct 16: Midterm 2

Week 8 (Oct 10, 12, 14): Multiple Regression

Week 9 (Oct 17, 19, 21): Interaction Models

Week 10 (Oct 24, 26): Omitted Variable Bias

Fri Nov 3: Review PS 3 due

Mon Nov 6: Midterm 3

Week 11: How to do the Project/IPUMS Tutorial

Week 12: Topic selection/Data download

Wed Nov 15: Project description due

Fri Nov 17: Data download report due

Thanksgiving Break

Week 13: Advanced topics: Logit Model

Week 14: Advanced Topics: Fixed-Effects Models

Mon Dec 4: Variable summary due

Week 15: Advanced Topics: Difference-in-Differences Models

Thurs Dec 14: Final Project Due

Final Exam data/time posted by CU registrar in October

University Policies

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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.

For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Requirements for Infectious Diseases

Members of the CU Boulder community and visitors to campus must follow university, department, and building health and safety requirements and all public health orders to reduce the risk of spreading infectious diseases.

The CU Boulder campus is currently mask optional. However, if masks are again required in classrooms, students who fail to adhere to masking requirements will be asked to leave class. Students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct & Conflict Resolution. Students who require accommodation because a disability prevents them from fulfilling safety measures related to infectious disease will be asked to follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

For those who feel ill and think you might have COVID-19 or if you have tested positive for COVID-19, please stay home and follow the [further guidance of the Public Health Office](#). For those who have been in close contact with someone who has COVID-19 but do not have any symptoms and have not tested positive for COVID-19, you do not need to stay home.

ACCOMMODATION FOR DISABILITIES, TEMPORARY MEDICAL CONDITIONS, AND MEDICAL ISOLATION

[Disability Services](#) determines accommodations based on documented disabilities in the academic environment. If you qualify for accommodations because of a disability, submit your accommodation letter from Disability Services to your faculty member in a timely manner so your needs can be addressed. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance.

If you have a temporary medical condition or required medical isolation for which you require accommodation you should follow the policy set out above under attendance. If your temporary condition will cause you to miss a substantial amount of course material, contact the professor. Also see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name, but students are welcome to indicate preferred names and pronouns to me regardless of what appears on the official roster.

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 Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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 Student Conduct & Conflict Resolution: honor@colorado.edu, 303-492-5550. Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who believe they have been subjected to misconduct can contact OIEC at 303-492-2127 or email cureport@colorado.edu. Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive an outreach from OIEC about their options for addressing a concern and the support resources available. To learn more about reporting and support resources for a variety of issues, visit [Don't Ignore It](#).

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. For this class, students should follow the

policies for attendance set out above in the syllabus. See the [campus policy regarding religious observances](#) for full details.

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#) located in C4C or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through [Academic Live Care](#). The Academic Live Care site also provides information about additional wellness services on campus that are available to students.