Economics 4848
Applied Econometrics
Fall 2025

Email: jennifer.klein@colorado.edu **Office Hours:** Tuesdays 12:30-2pm in Econ 11 Virtual Office Hours by appointment Thursdays 3-4pm **Website**: Canvas	

Course Description

Applied Econometrics provides an overview of econometric techniques commonly used in applied research in microeconomics. Methods and topics covered in this course will help students develop a deeper understanding of econometrics as well as learn to use STATA, a statistical software package commonly used in economics. Learning to use STATA will take a significant amount of time and effort but will be extremely valuable as it is much more powerful than what you can do in Excel, EViews, etc. Students will apply the econometric models using data from various sources. In addition, students will be able to apply these skills to a research topic of their choosing. Each week we will discuss the theory for the current topic and then spend some time working with data to apply the theory in STATA.

This class requires previous completion of Econ 3070, Intermediate Micro, and Econ 3818, Intro to Statistics, or the equivalent.

Course Materials

There is no required text but you may find the following resources helpful:

- Introductory Econometrics: A Modern Approach by Jeffery M. Wooldridge
- Using Econometrics: A Practical Guide by A.H. Studenmund

Software: We will be learning to use a statistical software program called STATA in class. For all assignments, projects, and exams you will be required to complete all analysis using STATA. Students can receive a discount on the software through the University's GradPlan. Information is available at: https://www.stata.com/order/new/edu/profplus/student-pricing/. I would suggest Stata/BE license which is $48 for 6 months.

Grade Breakdown

- Class Participation (5% total)
- Stata Practice Assignments (5% total)
- Group data project (20%)
- 2 Midterm Exams (20% each)
- Final Exam (30%)

Final grades will be determined by your cumulative performance at the end of the semester, and this may or may not correspond to the typical ten-point grading scale (A's are 90-10, B's are 80-89, etc.)

Class Participation (5% total): We will be using CUClickers to facilitate practice questions and attendance in class. There will be one point for each question asked during class, graded for completion, not correctness. Students not in attendance or not answering any questions receive a 0 for the day, no exceptions. You can answer the questions in the CU Clicker app on your phone. An account is free through the university. Four days of attendance are dropped.

Stata Practice Assignments (5% total): One assignment is due before each exam. These will be completed on Canvas. Each has a 10% grade penalty each day if submitted late, and they will not be accepted once the assignment closes and the answers are posted. While you may work with a classmate on your homework, you each must submit your own assignment. In addition, your exams will be completed individually. Therefore, it is in your best interest to ensure you fully understand the material. These assignments are similar in format to the types of questions you will see on your exams.

Midterm Exams (20% each): Midterm exams will be held on September 23 and October 28. The exams will be taken on paper and include a combination of theory questions and Stata-based questions. For the Stata questions, you will be given print out from Stata code and asked to answer questions. Exams may not be taken early/late and no make ups are given. If you must miss a midterm exam due to an emergency the weight of the midterm will automatically be divided between the other midterm and final exam. Exam scores will not be dropped due to poor performance or lack of preparation. You cannot miss both midterm exams.

Final Exam (30%): The final exam is taken in person on Monday, December 8th at 1:30pm. This exam cannot be skipped or taken at another time so plan accordingly.

Data Project and Paper (20%): Students will work in groups of 3-4 on a data analysis project applying what you've learned in the course. Your written project is due on Sunday, November 30th. With the change to our academic schedule, this ends up being the Sunday at the end of Fall Break, so plan accordingly. You should start thinking about your topic as soon as possible at the beginning of the semester. Your project should pose a testable economic question that can be answered using one of the techniques we discuss in applied econometrics and using individual level data.

As part of your grade for the project, your chosen research question will be due on Sept 28, your cleaned data set will be due on Oct 19, and your preliminary analysis will be due on Nov 9. In addition, each group will have a Q&A session with me during the last week of classes. Due dates for these portions of your project appear in blue in the schedule.

Your overall grade for the final project will be determined as follows: Research Question (10 points), Data set submission (15 points), Preliminary Data Analysis (15 points), Final Paper (20 points), Q&A performance, Corrections to Assignments (10 points), Collaboration Grade (15 points). Each of these grade items will be scored as a group, except for the Q&A and the Collaboration Grade.

Additional 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, marital 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.

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

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, 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.

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. Understanding the course's syllabus is a vital part in adhering to the Honor Code.

All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: StudentConduct@colorado.edu. 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 abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who 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 including confidential services can be found on the OIEC website.

Please know that faculty and graduate instructors must 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 outreach from OIEC about resolution options and support resources. To learn more about reporting and support for a variety of concerns, visit the Don't Ignore It page.

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.

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.

Attendance

Attendance is a necessity in this course. It is where I can guide you in learning STATA and completing a project, and you can get feedback on where improvement is needed. In addition, on several days during the semester you will be given time in class to work with your group on your data project. Since part of your project grade is based on your collaboration with your group, it is important you plan to attend on these dates (which are noted on Canvas). In-line with department policy, if a student does not attend class for the first three class periods he/she/they will be administratively dropped from the course to make room for others on the waitlist.

Acceptable use of AI in this Class

The use of AI tools such as Gemini or ChatGPT is not prohibited in this class. However, most of the high value assessments are set up in such a way that it cannot be used. So, taking short cuts on assignments or portions of your data project by using AI will only hurt your scores on these other grade items. For instance, all exams will be completed on paper, so you need to have a thorough understanding of the econometric theory, coding, and interpretation of results to succeed. In your data project, a significant portion of your grade will be determined by a Q&A session. If you do not understand what your project is doing, you will not be able to answer questions about it.

Tentative Class Schedule

	Topic	Due Dates
Week 1 August 17 - 23	Course Information	None
Week 2 August 24 - 30	Stats Review Introduction to Stata	None
Week 3 Aug 31 – Sept 6	Creating Variables Data Exploration	None
Week 4 September 7 - 13	Bivariate Regression Distribution of Beta-hat	None
Week 5 September 14 - 20	Hypothesis Testing Goodness of Fit	Stata Practice #1 on 9/19
Week 6 September 21 - 27	**Tuesday, September 23: Exam 1** Thursday, Sept 25: Multivariate Regression & Data Project	None
Week 7 Sept 28 – Oct 4	Non-linear Models ACS/CPS tutorial	Research Question on 9/28
Week 8 October 5 - 11	Tues, Oct 7: Categorical Variables Thurs, Oct 9: No Class, Reading Day	None
Week 9 October 12 - 18	Tues, Oct 14: Categorical Variables Thurs, Oct 16: work on data sets	None
Week 10 October 19 - 25	Limited Dependent Variables	Project Data Set on 10/19 Stata Practice #2 on 10/24
Week 11 Oct 26 – Nov 1	**Tues, October 28: Exam 2** Thurs, Oct 30: Omitted Variable Bias	None
Week 12 November 2 - 8	Multicollinearity Heteroskedasticity	None
Week 13 November 9 - 15	Panel Data	Preliminary Project Analysis on 11/9
Week 14 November 16 - 22	Time Series Data Serial Correlation	Stata Practice #3 on 11/21
Week 15 November 23 - 29	No Class: Fall Break	None
Week 16 Nov 30 – Dec 6	Q&A sessions (individual groups)	Final Paper on 11/30
Week 17 December 7 - 13	**Monday, Dec 8 at 1:30pm: Final Exam**	None