ECON-4848-002 - Applied Econometrics

Fall 2021

Professor:	Doctor Mahdieh Yazdani	Time:	TTH 2:20 { 3:35
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TA:	Loren Kruschke		
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Course Description: The objective of this course is to learn how to analyze and interpret real-world data. This course provides practical hands-on training in using statistical software for empirical economics analysis. We will be using R (an open source programming language for statistical analysis and graphics). This course will enable you to carry out empirical studies in economics and related fields. The course will held in person each TTH from 2:20 - 3:35 PM.

Office Hours: Tuesdays & Thursdays 3:50 - 4:45 pm, or by appointment.
You can attend my office hours by clicking on the link below:

https://cuboulder.zoom.us/j/95509316290

TA's Office Hours: Mondays & Thursdays 12:45 - 1:45 pm.

You can attend your TA's office hours by clicking on the link below:

https://cuboulder.zoom.us/j/7811291844

Prerequisites: To enroll in this course, students must have completed Economics 3818 (or equivalent). To succeed, students will need a basic understanding of math and statistics. Students interested in more theoretical parts of econometrics will find Economics 4818 as a complementary course.

Course Objective: By the end of the semester, you will be able to implement regression techniques in R to analyze data and will become proficient in interpreting the results. Throughout this course, we will make extensive use of the data-set provided by Jeffrey M. Wooldridge in his \Introductory Econometrics: A Modern Approach" textbook.

Students Learning Outcomes: By the end of this semester, the students will be able to

1. Acquire R programming skill.
2. Construct appropriate econometric models for a given problem and data-set, estimate their parameters, and test the hypothesis in R.
3. Interpret econometric models, graphs, and tables.
4. Analyze data and apply empirical methods to guide decision-making. Articulate why a particular model might give misleading results and how to improve upon the model.

Textbook:

- Introductory Econometrics: A Modern Approach, 6th edition, by Jeffrey M. Wooldridge.

Attendance: Classes are interactive, and you will get the most out of this course by attending each

Grading Policy:

Grade	Percent
Problem Sets	10%
Quizzes	15%
Midterm	37:5%
Final Research Project	37.5%
Group Discussions	Extra Credits 10%

Tentative Course Outline:

Tentative Schedule	Resource: Introductory Econometrics: A Modern Approach, by Je rey M. Wooldridge
Programming	R Tutorial
Introduction	The Nature of Econometrics and Data Analysis
Chapter 2 & R Programming Tutorial	The Simple Regression Model (Cross-Sectional Data, Simple Regression Model, Ordinary Least Squares Estimates, Fitted Values, Residuals, Goodness-of-Fit, Incorporating Nonlinearities in Simple Regression, The Interpretation of Linear Regression, Expected Values and Variances of the OLS Estimators, and Gauss-Markov Assumptions for Simple Regression Model).
Chapter 3 & R Programming Tutorial	Multiple Regression Analysis (The Model with k Independent Variables, Holding Other Things Constant, Interpretation of Ordinary Least Squares, OLS Fitted Values, Residuals, A Partialling Out Interpretation of Multiple Regression, Goodness-of-Fit, Including Irrelevant Variables in a Regression Model, Omitted Variable Bias, and Multicollinearity).
Midterm Exam	10/26
Project Meetings	11/2 and 11/4
Chapter 4 & R Programming	Multiple Regression Analysis: Inference (Testing Hypotheses, the T Test, P-Values, Con dence Intervals and the F Test).
Chapter 6 & R Programming	Multiple Regression Analysis: Further Issues (Using Logarithmic Functional Forms, Models with Quadratics, Models with Interaction Terms, Adjusted R-Squared).
Chapter 7 & R Programming	Multiple Regression Analysis with Qualitative Information: Binary (Dummy) Variables (Describing Qualitative Information, A Single Dummy Independent Variable, Interpreting Coe cients on Dummy Explanatory Variables, the Linear Probability Model, and Interpreting Regression Results wiess-of-Fq2oResEa/F30 10.9090 0 m 0 27.098 l SQBT/F30

accommodation because a disability prevents you from ful lling these safety measures, please see the Accommodation for Disabilities statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is temporary precaution during the Delta surge to supplement CU Boulder COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask related accommodation, please follow the steps in the accommodation for Disabilities statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing mask if they so choose.

Students who have tested positive for COVID-19 have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined, alert me and we will work together to provide appropriate accommodations.

Disability Accommodation: 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.

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 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; 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 O ce 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, workrningr-yct,qu membesg of our communsty.duals who blieive they have beon subject to misconduct ory for reposting atact the O ce of Iesttuctionaly and Cmpalin6ce OIECr) at303-492tor c(rep)-28(orr@colorado.edu)]TJ0 g 0 G [n. Informationuat theOIEh,ersity ypoliites, reporwing and the re(ouices)-376cans bs found the websitP.lease knod that faculty and instructors have a responsibility to inforo md(e)-311(a298(w)28(are)-311(of)-317(inciden)28(ts)-311(of)-317(sexual