UCSC Department of Economics
Summer 2022

ECON 104: Is There Truth in Numbers: The Role of Statistics in Economics

<u>Instructor</u>
Hamid Habibi   (hhabibi1@ucsc.edu)   Office Hours: Tues / Thurs 11:00AM-12:00PM (E2-405F)

<u>Lectures</u>
Tue/Thurs   1:00 PM – 4:30 PM   Oakes Acad 106

<u>Teaching Assistant</u>
Hyunjin Yun   (hyun8@ucsc.edu)   Office Hours: Wed 10:05 AM-12:05 PM (Remote)

<u>Section</u>
01A   Wed   9:00 AM – 10:05 AM   Remote:

Link: https://ucsc.zoom.us/j/93245231568?pwd=OFNzWSsvOUtKRHo4bXJaVS9Gb1BiUT09

<u>Course Description</u>
Applies the techniques of econometrics and experimental economics to the understanding of economics. A "hands-on" course where real economic data is used in an interactive way so that students develop the art of empirical analysis. The course will focus on five research designs: randomized control trial (RCT), regression correction on observables, instrumental variables, regression discontinuity, and difference-in-differences.

<u>Prerequisites</u>
Econ 100A or 100M; and ECON 113, and Entry Level Writing and Composition requirements.

<u>Required Textbook</u>
Mastering Metrics: The Path from Cause to Effect by Angrist and Pischke
Assigned chapters include the appendix sections.

<u>Software</u>
Stata BE is sufficient for this class ($48 for 6 months license, can be installed on 3 computers)
Stata GradPlan: http://www.stata.com/order/new/edu/gradplans/student-pricing/ [click "6-month" tab]

<u>Grades</u>
Participation: 5%
Class Exercises: 15%
Assignments: 30%
Paper 1 :25%
Paper 2 :25%

Assignments and paper drafts must be turned in on time and will be penalized one letter grade per day late.

<u>Participation (5%)</u>: Class attendance is required. Participation grades will be based on questions and answers during lectures and sections. There will be no penalty if your absence is excused.

Class Exercises (15%): Class exercises will be given at the end of most sessions and will be graded on completion and accuracy. They will cover material from lectures.

Assignments (30%): There will be 4 assignments during the session. They will use real data and will be graded on completeness, correctness, and the quality of your written explanations. You must submit the Stata do-files you used to generate your results. You will use your assignments extensively to write the papers.

Papers (50%): Two research papers are worth 50% of your total grade for the course. Papers are graded on completeness and quality (of empirical work, structure, presentation, arguments, and exposition). You can provide us with a draft of your paper before final submission, and we will provide feedback to improve the paper. Providing the draft is optional and is not part of the grade.

Assignments, and papers will be submitted on Canvas.

Academic Integrity
All work submitted for this class must be your own. Collaboration on assignments is encouraged, but the answers and drafts you submit must be your own, in your own words, and based on your own understanding. Copying answers, Stata code, or language is a violation of university policy. Excellent resources to support your academic integrity appear on the UC Santa Cruz library webpage:
https://guides.library.ucsc.edu/citesources
https://guides.library.ucsc.edu/citesources/plagiarism
For more information on academic integrity at UC Santa Cruz, please see the following link:
https://ue.ucsc.edu/academic-misconduct.html

UCSC Writing Center
UCSC provides undergraduates with writing support through The Writing Center:
https://ucsc.mywconline.com/

DRC Accommodations
UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by appointment, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu.

Lecture Schedule (subject to change)
Each lecture will be divided into 2 parts. There will be 20 minutes break between the lectures.

Tuesday 7/26/2022

Lecture 1A: Overview of course topics
Lecture 1B: Review: Ordinary least squares, units of measurement

Thursday 7/28/2022

Lecture 2A: Review: Hypothesis testing
Lecture 2B: Randomized Control Trials: Potential outcomes (Mastering Metrics Chapter 1)

Tuesday 8/2/2022

Lecture 3A: Randomized Control Trials: Examples, balance (Mastering Metrics Chapter 1)
Lecture 3B: Regressions: Omitted variable bias (Mastering Metrics Chapter 2)

Thursday 8/4/2022

Lecture 4A: Regressions: Versus randomized control trials (Mastering Metrics Chapter 2)
Lecture 4B: Instrumental Variables: Introduction (Mastering Metrics Chapter 3)

Tuesday 8/9/2022

Lecture 5A: Instrumental Variables: Intuition and Assumptions (Mastering Metrics Chapter 3)
Lecture 5B: Instrumental Variables: 2SLS (Mastering Metrics Chapter 3)

Thursday 8/11/2022

Lecture 6A: Regression Discontinuity: Introduction (Mastering Metrics Chapter 4)
Lecture 6B: Regression Discontinuity: Sharp, Fuzzy, Graphing (Mastering Metrics Chapter 4)

Tuesday 8/16/2022

Lecture 7A: Regression Discontinuity: Specifications (Mastering Metrics Chapter 4)
Lecture 7B: Regression Discontinuity: Balance and IV (Mastering Metrics Chapter 4)

Thursday 8/18/2022

Lecture 8A: Difference-in-Differences: Introduction (Mastering Metrics Chapter 5)
Lecture 8B: Difference-in-Differences: Design Options (Mastering Metrics Chapter 5)

Tuesday 8/23/2022

Lecture 9A: Difference-in-Differences: Examples and triple diffs (Mastering Metrics Chapter 5)
Lecture 9B: Wages and Schooling (Mastering Metrics Chapter 6)

Thursday 8/25/2022

Lecture 10A: Measurement Error
Lecture 10B: Standard Errors