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University of Georgia
Department of Economics
ECON 8080
Spring 2024

Introduction to Econometrics

Syllabus

Course Time: Mondays and Wednesdays, 9:35 – 10:50am

Location: Ivester Hall, E007

Office Hours: Tuesday 9:30am – 10:30am or by appointment (in person or via Zoom)

Teaching Assistant: Seth Smith, email: seth.smith@uga.edu, office hours: TBD, Amos B460 (in person) or https://zoom.us/j/9212023598 (Zoom), or by appointment.

Course Description:

This course provides an introduction to econometric theory for Ph.D. students.

Course Materials:

- Course Website: https://bcallaway11.github.io/Courses/ECON_8080_Spring_2024/
- eLC: https://elc.uga.edu

Course Prerequisites: ECON 8070

Textbook:

(1) **Required:** *Econometrics*, by Bruce Hansen (https://ssc.wisc.edu/~bhansen/econometrics/)

Additional References:

(1) *Econometric Analysis of Cross Section and Panel Data*, by Jeffrey Wooldridge, 2010.

(2) *Econometrics*, by Fumio Hayashi, 2000.

(3) *Probability and Statistics for Economists*, by Bruce Hansen, 2022. https://www.ssc.wisc.edu/~bhansen/probability/

(4) *Panel Data Econometrics*, by Manuel Arellano, 2003

(5) *Causal Inference: The Mixtape*, by Scott Cunningham, 2020. https://mixtape.scunning.com/

(6) *Quantile Regression*, by Roger Koenker, 2005

(7) *The Elements of Statistical Learning*, by Trevor Hastie, Robert Tibshirani, and Jerome Friedman, 2017. https://hastie.su.domains/ElemStatLearn/

Software:

We will use R (https://www.r-project.org/) to analyze data. R is freely available and available across platforms. You should go ahead and download R for your personal computer as soon as possible. It is also available at most computer labs on campus.

I also recommend using RStudio as a tool for writing code in R. You can download it here: https://www.rstudio.com/products/rstudio/download/#download; choose the free version based on your operating system (Windows, Mac, etc.).

If you have a laptop, it will sometimes be helpful to bring it to class as we will sometimes spend 15-30 minutes of class working on problems using actual data, and I think that it is most helpful for you to be able to work on the problem as I go through it with the class.

Additional R References:

There are tons of free R resources available online. Here are some that seem particularly useful to me.

Undergraduate-level emphasizing econometrics:

(1) Introduction to Econometrics with R, by Cristoph Hanck, Martin Arnold, Alexander Gerber, and Martin Schmelzer (https://www.econometrics-with-r.org/)

Introductions to programming in R:

(2) Introduction to Data Science: Data Analysis and Prediction Algorithms with R, by Rafael Irizarry (https://rafalab.github.io/dsbook/)

(3) STAT 545: Data Wrangling, exploration, and analysis with R, by Jenny Bryan (https://stat545.com/)

Homeworks:

There will be roughly 5 homeworks throughout the semester. They will be a mix of problems and data work. Homeworks will be due at the start of class, and I do not accept late homeworks. You should turn in a hard copy of your homework.

For coding homeworks, I expect both the code written and the output of the code should be turned in, and I expect the results to be very concise (in general, less than 1 page per answer). Unless otherwise stated,

I'll expect you to code all the estimators that we talk about in class on your own. For example, you can a regression in R using the "lm" command or you can code it using matrices – I'll expect you to use matrices, though it is perfectly fine to compare your results to those generated by using R's command.

About using AI/ChatGPT: the point of the homeworks is to help you learn. It's not my intent that you have ChatGPT do the homeworks for you, but if talking to ChatGPT while you are doing the homework helps you learn, then you are welcome to do that.

About working with other students: basically the same comment as for ChatGPT applies. I expect you to do your homeworks independently (and not rely too heavily on other students), but you are not forbidden from talking about the homeworks with each other if that helps you learn the material.

Tests:

There will be two midterms and a final exam.

- Midterm 1: Monday, Feb. 12, in class
- Midterm 2: Wednesday, Mar. 20, in class
- Final Exam: Monday, May 6, 8:00-11:00am

Attendance:

In-person attendance for the class is required. In plain words, you are not authorized to miss class for no reason, sleeping late, etc., but you are authorized to miss class due to any health issues and do not need to provide any documentation (e.g., doctor's note) unless the number of absences starts to add up. I may periodically take attendance for our class.

Grades: Grades will be 10% homeworks, 25% for each midterm, and 40% final exam. I will use the following grade scale

A	A-	B+	B	B-	C+	C	C-	D	F
93-100	90-93	87-90	83-87	80-83	77-80	73-77	70-73	60-70	<60

though I may eventually curve grades to some extent.

Course Outline: Available on course website: https://bcallaway11.github.io/Courses/ECON_8080_Spring_2023/

Course Statements and Policies

- UGA Student Honor Code: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others." A Culture of Honesty, the University's policy and procedures for handling cases of suspected dishonesty, can be found at www.uga.edu/ovpi.

- The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.
- UGA Well-being Resouces:

  UGA Well-being Resources promote student success by cultivating a culture that supports a more active, healthy, and engaged student community.

  Anyone needing assistance is encouraged to contact Student Care Outreach (SCO) in the Division of Student Affairs at 706-542-8479 or visit sco.uga.edu. Student Care Outreach helps students navigate difficult circumstances by connecting them with the most appropriate resources or services. They also administer the Embark@UGA program which supports students experiencing, or who have experienced, homelessness, foster care, or housing insecurity.

  UGA provides both clinical and non-clinical options to support student well-being and mental health, any time, any place. Whether on campus, or studying from home or abroad, UGA Well-being Resources are here to help.

  - Well-being Resources: well-being.uga.edu
  - Student Care and Outreach: sco.uga.edu
  - University Health Center: healthcenter.uga.edu
  - Counseling and Psychiatric Services: caps.uga.edu or CAPS 24/7 crisis support at 706-542-2273
  - Health Promotion/ Fontaine Center: healthpromotion.uga.edu
  - Disability Resource Center and Testing Services: drc.uga.edu

  Additional information, including free digital well-being resources, can be accessed through the UGA app or by visiting https://well-being.uga.edu.