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University of Georgia
Department of Economics
ECON 8080
Spring 2026

Introduction to Econometrics

Syllabus

Course Time: Tuesdays and Thursdays, 11:35am–12:55pm

Location: Gilbert Hall, 0116

Office Hours: Tuesdays 1:00–2:00pm or by appointment (in person or via Zoom)

Teaching Assistant: Derek Dyal, email: ddyal@uga.edu, office hours: Wednesdays 3:30–4:30pm, Amos B456 (in person) or https://zoom.us/j/95009172954 (Zoom), or by appointment.

Course Description:

This course provides an introduction to econometric theory for Ph.D. students. The main topics for this semester are linear regression, causal inference, and panel data econometrics. We will also discuss the bootstrap, nonlinear models, and generalized method of moments.

Course Materials:

- Course Website: https://bcallaway11.github.io/Courses/ECON_8080_Spring_2026/
- eLC: https://elc.uga.edu

Course Prerequisites: Material from ECON 8070. See course website.

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/

These are mostly at the Ph.D. or M.A. level. If you need more introductory material on any topics here are some suggestions:

(1) I have very detailed course notes for my undergraduate class (both on R and on Econometrics) https://bcallaway11.github.io/econ_4750_notes/

(2) I also like Stock and Watson and Wooldridge as undergraduate level books.

- These both cover a lot of the same material that we will cover in this course, though at an easier level.
- If you get either of these, get an older edition and save some money.

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 Wrangling and Visualization with R, by Rafael Irizarry (https://rafalab.dfci.harvard.edu/dsbook-part-1/)

(3) Shorter Video Tutorials on LinkedIn Learning: R for Data Science: Analysis and Visualization, by Barton Poulson. You should have access to LinkedIn Learning by logging in with your UGA credentials.

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. My plan is that every time we turn in a homework, it will be accompanied by a short homework quiz. Half of your grade will come from the homework itself, and half will come from the quiz.

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: Tuesday, Feb. 17, in class
- Midterm 2: Tuesday, Apr. 7, in class
- Final Exam: Tuesday, May 5, 12:00–3:00pm

Attendance:

In-person attendance for the class is required. My general expectation is that students will show up for all classes during the semester. I will periodically take attendance. The third class that you miss during the semester will result in 2 points taken off your final grade. Subsequent missed classes will result in 5 points taken off your final grade for each class missed.

You are authorized to miss class due to health reasons. You do not need to provide me any documentation like a doctor's note unless the number of absences starts to add up. For other absences, please contact me.

The main other types of excused absences are for major health issues of a close relative, a sibling's wedding, and religious holidays. The main types of unexcused absences are for job interviews, other work, taking the GRE, other travel, and participation in clubs or other extracurricular activities.

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_2026/

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 honesty.uga.edu.

- *Syllabus Changes:*
  The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

- *UGA Well-being Resources:*
  "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

- Accessibility & Testing: accessibility.uga.edu

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