Brantly Callaway
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University of Georgia
Department of Economics
ECON 8070
Fall 2022

Statistics for Econometrics

Syllabus

Course Time: TR 11:10am–12:25pm

Location: Military Science Building-Army ROTC

Office Hours: Tuesday 2:30–3:30pm or by appointment (in person or via Zoom)

Teaching Assistant: Brad Curtis, email: bradley.curtis@uga.edu, office hours: TBD

Course Description:

This course provides an introduction to probability and statistics for Ph.D. students.

Course Materials:

- Course Website: https://bcallaway11.github.io/Courses/ECON_8070_Fall_2022/
- eLC: https://elc.uga.edu

Textbook:

(1) **Required:** *Probability & Statistics for Economists*, by Bruce Hansen (https://www.ssc.wisc.edu/~bhansen/probability/)

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

Additional References:

(1) *Probability, Statistics, and Econometrics* by Oliver Linton

(2) *Statistical Inference*, 2nd Edition, by George Casella and Roger Berger

(3) *Probability and Statistical Inference*, any edition, by Robert Hogg, Elliot Tanis, and Dale Zimmerman

(4) *Asymptotic Statistics* by A.W. van der Vaart

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.

Tests:

There will be two midterms and a final exam.

- Midterm 1: Tuesday, Sept. 20, in class
- Midterm 2: Tuesday, Oct. 25, in class
- Final Exam: Tuesday, Dec. 13, 12:00–3:00pm

Attendance:

In-person attendance for the class is required. That being said, under the present circumstances, I will be lenient on this front. 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). I'll periodically take attendance for our class.

Grades: Grades will be 20% homeworks, 25% for each midterm, and 30% final exam.

Course Outline: Available on course website: https://bcallaway11.github.io/Courses/ECON_8070_Fall_2022/

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.
- Mental Health and Wellness Resources:

  If you or someone you know needs assistance, you are encouraged to contact Student Care & Outreach in the Division of Student Affairs at 706-542-7774 or visit https://sco.uga.edu/. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.

  UGA has several resources for a student seeking mental health services https://www.uhs.uga.edu/bewelluga/bewelluga or crisis support https://www.uhs.uga.edu/info/emergencies.

  If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA https://www.uhs.uga.edu/bewelluga/bewelluga for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.

  Additional resources can be accessed through the UGA App.