

Brantly Callaway

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University of Georgia

Department of Economics

ECON 4750

Fall 2021

Introduction to Econometrics

Syllabus

Location:

- **1:50pm Section:** BLC II Benson Hall C010
- **3:00pm Section:** BLC II Benson Hall C115

Office Hours: Monday 4:00–5:00pm and Wednesday 10:00–11:00am or by appointment (available via Zoom if scheduled ahead of time)

Teaching Assistant: Seth Smith, email: seth.smith@uga.edu, office hours: Tuesday 4:30–5:30pm, Amos Hall B458

Course Description:

Econometrics is the field of economics that combines statistical methods and economic theory to analyze economic data. This course provides an introduction to econometric theory and methods for undergraduate students. The topics include regression analysis, working with cross sectional and panel data, and dealing with common challenges in economics and business by those analyzing data. Fair warning: the course is relatively math intensive (though only knowledge of algebra and basic probability and statistics is required) and requires quite a bit of computer programming (very little prior experience is required here either). We will work with real data and develop the skills needed for carrying out empirical work.

Course Materials:

- Course Website (https://bcallaway11.github.io/Courses/ECON_4750_Fall_2021/)
- eLC (elc.uga.edu)

Textbook:

- (1) Course Notes (https://bcallaway11.github.io/econ_4750_notes/)
- (2) **Required:** Introduction to Econometrics, 4th Edition, by James Stock and Mark Watson.

[My recommendation is to get the 4th edition of the book, but it might be possible to get through the class with an earlier edition or alternative format.]

Additional References: (these are all free to download; they are not main textbooks but I sometimes consult them for the class and could potentially be useful for you to consult in the future)

- (1) For R programming: Introduction to Econometrics with R, by Cristoph Hanck, Martin Arnold, Alexander Gerber, and Martin Schmelzer (<https://www.econometrics-with-r.org/>)
- (2) For prediction/machine learning: An Introduction to Statistical Learning, by Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani (https://web.stanford.edu/~hastie/ISLRv2_website.pdf and <https://www.statlearning.com/>)
- (3) For causal inference: Causal Inference: The Mixtape, by Scott Cunningham (<https://mixtape.scunning.com/>)

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, I recommend bringing it to class. We will often 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.

- (1) Manageable Introduction: [Introduction to R and RStudio](#), by Stephanie Spielman
- (2) Full length book: [Introduction to Data Science: Data Analysis and Prediction Algorithms with R](#), by Rafael Irizarry (this is way more than you will need for this course, but I suggest checking out Chapters 1, 2, 3, and 5, and there's plenty more that you might find interesting).
- (3) Full length book: [STAT 545: Data Wrangling, exploration, and analysis with R](#), by Jenny Bryan

Terry Analytics Lab:

The Terry Analytics Lab (TAL) provides free tutoring services in econometrics, senior theses, and economics research. This is a very useful resource for our class. The details for TAL have not been finalized yet for this semester, but I will provide an update as soon as they are.

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).

Projects:

The course will involve two projects. Roughly: one will be scheduled for the middle of the semester, and the other will be scheduled for the end of the semester.

Tests:

There will be two midterms and a final exam. The exams will be taken in class.

- **1:50pm Section:** Final Exam: Fri., Dec. 10, 12:00-3:00pm
- **3:00pm Section:** Final Exam: Fri., Dec. 10, 3:30-6:00pm

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 50% exams (15% for each midterm, 20% for the final exam), 20% homeworks, and 10% for each project, and 10% for attendance/participation.

ECON 6750 and Honors Option

For students enrolled in ECON 6750 or in the Honors option for the course, there are two additional requirements: (i) more extensive versions of the two course projects, and (ii) one additional question on each exam.

Course Outline: Available at: https://bcallaway11.github.io/Courses/ECON_4750_Fall_2021/tentative_schedule.html

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. Every course syllabus should include the instructor's expectations related to academic honesty.
- The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

CORONAVIRUS INFORMATION FOR STUDENTS FOR FALL 2021 CLASSES

Face coverings:

Following guidance from the University System of Georgia, face coverings are recommended for all individuals while inside campus facilities.

How can I obtain the COVID-19 vaccine?

University Health Center is scheduling appointments for students through the UHC Patient Portal (https://patientportal.uhs.uga.edu/login_dualauthentication.aspx). Learn more here — <https://www.uhs.uga.edu/healthtopics/covid-vaccine>.

The Georgia Department of Health, pharmacy chains and local providers also offer the COVID-19 vaccine at no cost to you. To find a COVID-19 vaccination location near you, please go to: <https://georgia.gov/covid-vaccine>.

In addition, the University System of Georgia has made COVID-19 vaccines available at 15 campuses statewide and you can locate one here: <https://www.usg.edu/vaccination>

What do I do if I have COVID-19 symptoms?

Students showing COVID-19 symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see, <https://www.uhs.uga.edu/info/emergencies>.

What do I do if I test positive for COVID-19?

If you test positive for COVID-19 at any time, you are required to report it through the DawgCheck Test Reporting Survey. We encourage you to stay at home if you become ill or until you have excluded COVID-19 as the cause of your symptoms. UGA adheres to current Georgia Department of Public Health (DPH) quarantine and isolation guidance and requires that it be followed. Follow the instructions provided to you when you report your positive test result in DawgCheck.

Guidelines for COVID-19 Quarantine Period (As of 8/1/21; follow DawgCheck or see DPH website for most up-to-date recommendations)

Students who are fully vaccinated do not need to quarantine upon exposure unless they have symptoms of COVID-19 themselves. All others should follow the Georgia Department of Public Health (DPH) recommendations:

Students who are not fully vaccinated and have been directly exposed to COVID-19 but are not showing symptoms should self-quarantine for 10 days. Those quarantining for 10 days must have been symptom-free throughout the monitoring period and continue self-monitoring for COVID-19 symptoms for a total of 14 days. You should report the need to quarantine on DawgCheck (<https://dawgcheck.uga.edu/>), and communicate directly with your faculty to coordinate your coursework while in quarantine. If you need additional help, reach out to Student Care and Outreach (sco@uga.edu) for assistance. Students, faculty and staff who have been in close contact with someone who has COVID-19 are no longer required to quarantine if they have been fully vaccinated against the disease and show no symptoms.

Well-being, Mental Health, and Student Support

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 to support your well-being and mental health: <https://well-being.uga.edu/>

Counseling and Psychiatric Services (CAPS) is your go-to, on-campus resource for emotional, social and behavioral-health support: <https://caps.uga.edu/>, TAO Online Support (<https://caps.uga.edu/tao/>), 24/7 support at 706-542-2273. For crisis support: <https://healthcenter.uga.edu/emergencies/>.

The University Health Center offers FREE workshops, classes, mentoring and health coaching led by licensed clinicians or health educators: <https://healthcenter.uga.edu/bewelluga/>

Monitoring conditions:

Note that the guidance referenced in this syllabus is subject to change based on recommendations from the Georgia Department of Public Health, the University System of Georgia, or the Governor's Office. For the latest on UGA policy, you can visit coronavirus.uga.edu.