ECON 7710
Causal Inference for Business Analytics
Course syllabus

Fall 2021
TR 935 & 1110
Correll 315

INSTRUCTOR

Instructor
Chris Cornwell
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Office hours
Wed 200-330p
and by appointment

COURSE DESCRIPTION

ECON 7710 is a course in causal inference for business analytics students, focusing on regression analysis and the quasi-experimental methods of difference-in-differences, regression discontinuity and instrumental variables. Each of these techniques is developed in the context of a formal framework for counterfactual thinking and compared with the experimental ideal of a randomized trial.

COURSE OBJECTIVES

After completing this course, you should understand

1. The distinction between correlation and causation
2. The potential outcomes model
3. The value of randomized trials
4. Regression estimation and inference for causal analysis
5. How to implement and interpret difference-in-differences, regression discontinuity and instrumental variables research designs
6. How to apply the techniques covered in this course in R

PREREQUISITES

Students enrolling in ECON 7710 must have completed the MSBA summer statistics bootcamp or its equivalent.

RECOMMENDED TEXTS

Angrist, J. and Pischke, S., *Mastering 'Metrics*, Princeton University Press.
Cunningham, S., *Causal Inference: The Mixtape*, Yale University Press.
Wooldridge, J., *Introductory Econometrics*, Thomson, 7e.

SOFTWARE

The software of choice for this class is **R**, a free and open-source language for statistical computing and graphics. **RStudio** is a popular integrated development environment (IDE) for R that will greatly enhance your R experience. Download R **here** (first); (then) download RStudio **here**.

ELECTRONIC DEVICE POLICY

Cell phones **must** be muted or turned off and stowed away during class. Laptops may be used in class, but **only** for purposes directly related to the course (e.g., taking notes, live coding and viewing course materials).

PERFORMANCE EVALUATION

Performance will be evaluated on the basis of five homework assignments and a cumulative final exam weighted as follows:

Component	Weight
homework	.15 each
final exam	.25

The **homework will be done in teams**, but your individual homework scores will be weighted by your team members' evaluations of your performance. Depending on the evaluation of your peers, you will receive between 50 and 100 percent of your team's score. A peer evaluation form is posted on eLC.

The **final exam will be taken individually**. *You will not be permitted to confer with anyone, period.* Doing so will constitute a violation of UGA's academic honesty policy (see below). The exam will be released at noon on **Fri, Oct 8** and due by noon on **Mon, Oct 11**.

Grading policy

You will be ranked relative to other students in the class according to your overall performance and grades assigned based on your class rank. I will use the plus/minus system to make distinctions within grade categories.

Class Attendance

Regular class attendance is essential for success and therefore strongly encouraged. There will be no explicit penalty assessed for missing class, but repeated absences will send a clear negative signal. All instruction will be fully in-person. Class lectures and discussion will not be recorded.

TOPICAL OUTLINE WITH READING ASSIGNMENTS

The third column lists the chapters/sections/pages from the recommended texts, and, in some cases a selected journal article, associated with each topic. I have posted pdf copies of the articles on eLC.

Date	Topic	Readings	
Aug 19	Course overview		
Aug 24	Statistics boot camp recap	Tutorials	
Aug 26	Correlation, causation & potential outcomes	Angrist & Pischke	ch 1
Aug 31	Correlation, causation & potential outcomes	Cunningham	pp 1-15, 119-148
Sep 2	Linear regression	Angrist & Pischke	ch 2
Sep 7	Linear regression	Cunningham	pp 36-95
Sep 9	Linear regression	Wooldridge	ch 3-8
Sep 14	Linear regression		
Sep 16	Panel data	Cunningham	pp 386-396
		Wooldridge	ch 13-14.1
Sep 21	Difference in differences	Angrist & Pischke	ch 5
Sep 23	Difference in differences	Cunningham	pp 36-95
Sep 28	Regression discontinuity	Angrist & Pischke	ch 4
Sep 30	Regression discontinuity	Cunningham	pp 241-312
Oct 5	Instrumental variables	Angrist & Pischke	ch 3
Oct 7	Instrumental variables	Cunningham	pp 315-384
		Wooldridge	ch 15.1-15.3

UNIVERSITY HONOR CODE & ACADEMIC HONESTY POLICY

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: https://honesty.uga.edu/Academic-Honesty-Policy/. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

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/**

CHANGES TO THE SYLLABUS

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