



## PPHA 311: Statistics for Data Analysis II Winter 2024

Yukiko Asai                      Dmitri Koustas                      Austin Wright  
yasai@uchicago.edu    dkoustas@uchicago.edu    austinlw@uchicago.edu

**Section Times and Professor Office Hours:** See Canvas

**Administrative TA:** Vitor Agrella da Silveira (vitorsilveira@uchicago.edu)

**Description:** This course is an introduction to econometrics and is a continuation of the empirical methodology core sequence that is intended to follow PPHA 310. The course focuses on multivariate regression methods and their interpretation.

**Lectures:** This course consists of live lectures of 1 hour and 20 minutes 2 times per week. All lectures will be in person. If a student requires remote accommodations, only Student Disability Services (**NOT** your instructor) can approve students to take their courses on a fully remote basis. Please contact Dean of Students Kate Biddle (kbiddle@uchicago.edu) for more information.

**Head Teaching TAs:** Michael Mckelligott (mckelligott@uchicago.edu); Smriti Ganapathi (sganapathi@uchicago.edu)

Lectures are complemented with weekly TA sessions taught by our head teaching TAs. These sessions will emphasize practice problems that aid in understanding of the material. These sessions are strongly encouraged for all students. There is also a TA section once per week with a Zoom option.

**Coding/Office Hour TAs:** Margot Bond (margotbond@uchicago.edu); Jade Jiang (jadejiang@uchicago.edu)

In order to accommodate students who want extra support with coding, optional coding sections and office hours will be held throughout the week. These sessions will go over some example coding exercises, and provide an opportunity for students to ask

coding questions related to the course. No advance registration is necessary. Please see Canvas for more details.

**Assignments and Grading:** The final grade for the course will be a function of 4 of 5 homework assignments (30%), the midterm (30%), and final (40%). The final will be cumulative. You may work on the problems with others in the class, but you must turn in your own set of answers and indicate on the first page who you worked with. No late problem sets will be accepted.

**Late problem sets/requests for extensions:** No late problem sets will be accepted, but your final grade will be based on your four highest problem sets (there will be 5 problem sets in total). The idea is this should cover most requests for extensions.

You may **NOT** use any materials from prior years of this course.

**Examinations:**

The exams will be held on the following dates and times:

Midterm exam: Thursday, February 1, in class

Final exam: Wednesday, March 6, 9:00am-11:00am

As of now, we are planning for in-person exams at these times. All requests for accommodations for the midterm or final exam should go through the Harris Student Affairs who will determine if the request is for an acceptable reason. Please email Dean Kate Biddle and cc the administrative TA.

In the rare case of a documented emergency where an accommodation is not feasible, we will reweight other components of your grade. If you miss an exam without a valid reason, you will almost certainly fail the course.

**Gradescope Submission of Problem Sets:**

We will be using Gradescope to manage assignments and grading this quarter. You can find the Gradescope shortcut on the left side of your Canvas menu. You must submit a PDF version of your assignment at that link, and NOT under “Assignments” on Canvas. We will not consider submissions if they are not on Gradescope. In order to include your coding work in the PDF, you can use one of the three options listed below:

1. Save your .R file as a PDF and attach it to your homework PDF with the rest of your assignment

2. Take screenshots of your .R file and copy them into your homework PDF with the rest of your assignment. Make sure it's legible if you use this option.
3. If you are so inclined, use R Markdown to knit your code + rest of your assignment together into a PDF.

You must include the outputs of your code, such as any numbers, figures, tables, or graphs, within your homework assignment PDF. Any homework assignment without these outputs will receive zero credit on the coding portion.

### **Re-grading policy:**

If you wish to submit a regrade request for an assignment, you must submit a request for a specific question through the Gradescope regrade request system within **4 days** of the release of grade release. Regrade requests submitted later than 4 days will not be considered.

Some guidelines: regrade requests should only be made for idiosyncratic grading errors made by the grader. If you have questions about the interpretation of a questions or the solution, **DO NOT** submit a regrade request in this case. Please bring your questions to office hours or post on the Piazza discussion board, and your instructor can provide guidance on whether you should submit a regrade request.

Note that we will dismiss any regrade requests that do not fully adhere to the guidelines above. This means that we will dismiss any regrade request that include parts where you simply disagree with whether something deserves to be marked as incorrect. In other words, the entirety of the regrade request needs to be about a factual mistake in your grading or it will be dismissed.

If your regrade request is approved, your grade on Canvas will be changed to reflect the regrade. It may take up to a week for your grade change to be available on Canvas.

### **Ed Discussion Course Discussion board:**

Students should post clarifying questions about the material and homework assignments on the Ed Discussion course discussion board available through Canvas integration. **DO NOT POST YOUR CODE ON Ed Discussion.** Coding questions should be brought to coding office hours. More substantial conceptual questions should be brought to instructor office hours.

### **Additional support:**

Harris offers free tutoring support to students in need of one-on-one help with their core courses as well as coding in Stata, R, and Python. Tutoring opens on Monday of Week 3 each quarter and students can utilize up to 10 hours total of tutoring per quarter. If you would like to learn more about the tutoring program or book an appointment [visit the Harris Student Handbook tutoring page here](#).

**Recommended Textbooks:**

- *Mastering 'Metrics* by Joshua D. Angrist and Jorn-Steffen Pischke
- *Introductory Econometrics: A Modern Approach* (7th Ed.) by Jeffrey M. Wooldridge

**Supplemental Textbooks:**

- *Introduction to Econometrics* (4th Ed.) by James H. Stock and Mark W. Watson

Other course readings, made available via Canvas, will supplement the text.

**Ethical Academic Conduct:**

The University's Academic Policies and Procedures and guidance regarding Civil Conduct apply to all activity in our course. If you need to review the University's policies, please see:

<https://studentmanual.uchicago.edu/Policies#Honesty>

<https://studentmanual.uchicago.edu/university>

By taking this course, you explicitly pledge your honor that you will not cheat (or help others to cheat) in any way on the assignments/exams.

We adhere to the official Harris School protocol for ethical violations:

Harris Procedures for Allegations of Plagiarism, Cheating, and Academic Dishonesty

First Violation

If a student is accused by an instructor or teaching assistant of plagiarism, cheating, or any other form of academic dishonesty, the student will be summoned to meet with the Dean of Students and the instructor. In the meeting, the student and instructor both present information about the situation. If it is determined by the instructor and the Dean of Students that the student has, in fact, plagiarized or cheated, the following sanctions will be imposed for the first violation:

- The student will generally receive a grade of 0 on the assignment or exam in question (subject to the discretion of the instructor). They may be penalized in other ways, up to and including failing the class.
- The student may be asked to re-do the assignment or retake the exam (without credit) to ensure that the student has learned how to properly cite sources or demonstrate that he or she has command of material covered.
- A formal letter of finding is sent to the student stating that the student has been found in violation of the code of academic honesty and what the sanctions were. The letter, along with any evidence presented, is archived in Harris Student Affairs records until the student graduates if the student has no other violations.

### Second Violation

If a student who has already been found in violation academic dishonesty is again accused of academic dishonesty, the case will be sent to the Harris Area Disciplinary Committee. Details about the Area Disciplinary Committee procedures can be found in the University Student Manual (<https://studentmanual.uchicago.edu/area>). If the student is found in violation of academic honesty a second time, the Area Disciplinary Committee can assign sanctions including suspension or expulsion from the University.

To clarify ethical academic conduct within the boundaries of your homework assignments:

You may work on the homework assignments with others in the class. However, you must turn in your own set of answers and indicate on the first page who you worked with. Copying the homework of another student/ passing code from student to student is cheating. Providing another students with your assignment to copy is cheating.

### **Copyrights and Course Content (Use of Course Hero and similar websites):**

This course is a work of original authorship. All course materials (including, but not limited to, class lectures and discussions, handouts, examinations, study guides and web materials) and the intellectual content of the course itself are protected by United States Federal Copyright Law. Students are permitted to make notes solely for their own private educational use. Students and all other persons are expressly forbidden from recording lectures or discussions and from distributing or selling lectures notes and all other course materials without the prior written permission of the instructors. Because

the instructors own the copyright to the classroom presentations and all course materials, any notes taken during those presentations and subsequently sold or distributed to others would constitute an unauthorized derivative work and expose the person or persons involved to individual copyright infringement actions by the instructors.

## Course Calendar

The following calendar is meant as a **rough guide**. We will do our best to keep the homework, midterm and final dates unchanged. In terms of lecture material, this is the order of the material, but we expect some content to take longer than one lecture, so the dates may change. Additional readings will be posted on Canvas.

### 1. Week of January 1

No class Tuesday Jan 2. We will post a pre-recorded lecture.

First class, Thursday Jan 4.

**Topic:** Course overview, causal inference & randomized trials

**Textbook:** Angrist & Pischke Ch.1

### 2. Week of January 8

**Topic:** Bivariate regression, Part 1 and 2

**Textbook:** Wooldridge Ch.2

### 3. Week of January 15

**Topic:** Multivariate Regression, Part 1 and 2

**Textbook:** Wooldridge Ch. 3.1-3.3, pp. 66-83

### 4. Week of January 22

**Topic:** Multivariate regression, Part 3

**Topic:** Binary dependent variables

**Textbook:** Wooldridge Ch 3.3-3.4, pp. 79-95, Ch.4, pp.117-152

Angrist & Pischke Ch.2

Wooldridge Ch. 7.5, pp. 239-244

### 5. Week of January 29

**Topic:** Midterm review

Feb 1 MIDTERM (in class)

**6. Week of** February 5

**Topic:** Functional form

**Topic:** Problems in practice

**Textbook:** Wooldridge Ch. 6.2, 186-195; Ch. 7.1-7-4, pp.220-239; Ch. 9.4-9.5, pp. 308-321

**7. Week of** February 12

**Topic:** Difference-in-differences (DD)

**Textbook:** Angrist & Pischke Ch.5; Wooldridge Ch 13.2 pp.431-439.

**8. Week of** February 19

**Topic:** Instrumental variables (IV)

**Textbook:** Angrist & Pischke Ch.3; Wooldridge Ch 15.1 pp. 495-512

**9. Week of** February 26

**Topic:** Regression discontinuity (RD) methods

**Topic:** Final review

**Textbook:** Angrist & Pischke Ch.4

**X. Week of** March 4

FINAL EXAM. Wednesday, March 6, 9:00am-11:00am