PPHA 311: Statistics for Data Analysis II  
Winter 2020

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Office Hours:
Gaarder: Thursday 1 pm – 3 pm, Harris School (Keller) Room 2043
Norris: Tuesday 9:30 am – 11 am, Harris School (Keller) Room 3053
Wright: Tuesday 12:30 pm – 2 pm, Harris School (Keller) Room 2005

TAs and TA sessions:

- TBD

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.

Assignments and Grading: The final grade for the course will be a function of the midterm (30%), final (40%) and six homework assignments (30%). The final will be cumulative. There will be six homework assignments. 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. At the end of the quarter, the lowest problem set grade will be dropped.
You may not use any materials from prior years of this course.

Midterm: TBD

Final: TBD

The midterm and the final will both be closed book exams. No cell phones, calculators, etc. will be allowed.

Requests for rescheduling of midterm or final: All requests for rescheduling the midterm or final exam should go through the Harris Student Affairs who will determine if the request is for an acceptable reason. If the Student Affairs determines that the request is for an acceptable reason the instructor will decide the alternative that will be in place instead of the normal exam.

Re-grading policy: If you believe that your grade on an assignment or exam question is incorrect or unfair, please submit your concerns in writing to the head TA within a week of the assignment or exam being returned. Fully summarize what you believe the problems are and why. The head TA and the TA responsible for the relevant question will respond in writing. If you still have concerns, you may submit them in writing to the professor, who will issue a final grade.

Recommended Textbook:

- Introduction to Econometrics (Updated 3rd Ed.) by James H. Stock and Mark W. Watson
Supplemental Textbooks:

- *Mastering 'Metrics* by Joshua D. Angrist and Jorn-Steffen Pischke

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

**Discussion board:** Students should post questions about the material and clarifying questions about homework assignments on the course discussion board in Canvas.

**Stata and R Support Bar:** The Harris School has dedicated additional resources for teaching programming in R and Stata through the Stata and R support bars. Your instructor for Stata is Marissa Block (blockml@uchicago.edu) and your instructor for R is Dan Snow (dfsnow@uchicago.edu).

**Prerequisites:** This course is a continuation of PPHA 310. Knowledge of basic statistics is required. The material in Stock and Watson chapters 2 and 3 should be familiar to you already.

**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/Policies#Honesty)
- [https://studentmanual.uchicago.edu/university](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 of 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 student 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. SW # indicates the chapter number from Stock and Watson. Wd # is the chapter from Wooldridge. AP # is the chapter from Angrist and Pische. Additional readings will be posted on Canvas.

Lecture 1  Course Introduction, Causality, Randomized Controlled Trials
SW 1 (Wd 1) [AP 1]

Lecture 2  Randomized Controlled Trials (cont.) and Bivariate Linear Regression
SW 4 (Wd 2)

Lecture 3  Bivariate Linear Regression: properties, testing
SW 4, 5 (Wd 2)

Lecture 4  Multivariate Linear Regression, omitted variable bias
SW 6, 7.5 (Wd 3) [AP 2]

Lecture 5  Multivariate Regression, properties, interpretation
SW 6 (Wd 3) [AP 2]

Lecture 6  Multivariate Regression, testing
SW 7 (Wd 4) [AP 2]

Lecture 7  Functional forms
SW 8 (Wd 6.1, 6.2)

Lecture 8  Unfinished topics and Midterm Review
  — Midterm review problems due Monday, Jan. 28, 2019. (UNGRADED)

Lecture 9  Midterm

Lecture 10  Heteroskedasticity and Binary Dependent Variables
SW 11 (Wd 8, 7)

Lecture 11  Outliers, Missing Data and Measurement Errors
SW 9 (Wd 9.4, 9.5)

Lecture 12  Panel Data Strategies
SW 10 (Wd 13)

Lecture 13  Panel Data Strategies (cont.)
SW 10 (Wd 13, 14.1)

Lecture 14  Difference-in-Differences
SW 13 [AP 5]

Lecture 15  Simultaneity and Instrumental Variables
SW 12 (Wd 15) [AP 3]

Lecture 16  Instrumental Variables (cont.)
SW 12 (Wd 15) [AP 3]

Lecture 17  Regression Discontinuity Designs
SW 13 [AP 4]

Lecture 18  Power, Significance and Multiple Hypothesis Testing
SW 9 (Wd 9.4, 9.5)

Lecture 19  Review

FINAL  TBD