

EPPS 6313: Introduction to Quantitative Methods

Fall 2022

Class Information

Time: Wednesday 7:00pm - 9:45pm
Classroom: CB3 1.308

Instructor Information

Name: Pengfei Zhang
Email: pengfei.zhang@utdallas.edu
Office: GR 2.520
Office Hours: Friday 3:00-4:00 pm (or by appointment)

TA Information

Name: Shreyas Meher
Email: shreyas.meher@utdallas.edu
Office: GR 3.318
Office Hours: Monday and Wednesday 10:00-11:00 am (or by appointment)

Course Description

The purpose of this course is to introduce basic statistical concepts and applications that are heavily used in quantitative social science research. The course serves as a foundation for anyone interested in empirical research and also as a prerequisite to taking more advanced methodology courses.

Topics include creating and interpreting graphical and tabular summaries of data, descriptive statistics, basic probability theory, sampling distributions, basic hypothesis testing, estimation of population parameters, confidence intervals and correlation. An introduction to regression analysis will also be provided. Topics are supported by computer-supported data analyses.

Course Objectives

After completing this course, you should be able to

- Understand basic statistical concepts and methods used in social science research
- Use the basic function of Stata (a popular statistical package) to analyze real data

- Given a research question, use relevant data to test hypotheses, conduct statistical inference, and interpret regression results
- Clearly present your research work, in both oral and written formats

Required Text & Software

The required textbook for this course is *Statistical Methods for the Social Sciences*, 5th edition by Alan Agresti. The textbook is ordered at the bookstore. Other readings will be uploaded to the course website when needed.

You are required to use Stata to do statistical work in this course. Stata is installed in all the lab computers. If you prefer to use it on their own device, you can purchase a student license for 6 month (or longer) with a discount price (see <https://www.stata.com/order/new/edu/profplus/student-pricing/>).

We will spend some time in class teaching Stata and the program documentation is excellent. It is also easy to train yourself given the rich self-learning resources available. An extensive resource that leads you to many useful links is <https://www.stata.com/links/resources-for-learning-stata/> For those students who feel more comfortable with a book in hand, Acock's *A Gentle Introduction to Stata* is up to date and pretty good.

Course Requirements and Grading

The course grade is determined by the following components:

Class Participation	10%
Assignments	25%
An In-class Exam	25%
Group Project: Short Proposal	5%
Group Project: Presentation	15%
Group Project: Final Report	20%

Class Attendance and Participation

I expect you to attend every lecture and to show up on time. You may need a laptop or tablet to answer poll questions or run Stata during class time. Electronic devices are not needed otherwise, and remember to keep your phone silenced. It is in your best interests to refrain from “digital addiction” during class time. Your active participation in classroom discussions will also be instrumental in solving problem sets and launching the group project.

Please also note that lectures are intended to supplement the readings, not to replace them. As a graduate student, extensive reading is an essential skill.

Assignments

The purpose of the assignments is to practice the statistical concepts covered in class and

to apply the concepts using statistical software. There will be *six* problem sets in total throughout the semester. Each will be graded on a 0-5 scale. The best *five* scores will be counted in the final grade. You are welcome to discuss them with your peers but your submission has to be your *independent* work.

You may pass in the problem sets as pdf's through the course website by 6:55PM or in person at the beginning of class on the due date. All writings should be clear and legible. Students are encouraged to type their solutions. All computer exercises should be done using Stata. When applicable, submissions must also include the Stata .do files that students produce. Late problem sets will not be accepted, including those turned in after class on the due date. Because one problem set is dropped, any excuse for missed problem sets will not be considered.

Exam

The exam is *cumulative* and *closed-book*, but one double-sided A4 page of notes is allowed. You may not use any electronic devices, but you may use a calculator during the exam.

You can request a regrade with an explanation within 1 week of the exam being returned (not the date you pick it up). The entire exam will be regraded, and as a result it is possible for your grade to go down as well as up.

There will be no make-up exam unless there is a medical emergency. In case of a medical emergency, written proof from the doctor is required and should be sent to the instructor within one week after the exam.

Group Project

The best way to learn the empirical method is to do an empirical study. The group project provides you with an opportunity to use the real-world data and the tools you learn in the class to answer a question that you are interested in. It is designed to guide you through the steps of conducting quantitative research as social scientists do.

A group consists of three or four students. You can either form a group with others voluntarily or ask me to do a random matching. The last day to report a group is September 7th, after which the TA and I will perform a random matching for all the unmatched students.

Your grade for the project will be based on a short proposal (Due on October 19th), an in-class presentation, and a final report. In the short proposal, each group will identify their dataset and the research question, and quantitatively describes their sample and the relevant variables in it. More details can be found in "Guidelines for the Short Proposal". During the last week of the classes (December 7th), each group will do a 15-minute presentation to report and communicate their results. By the end of that week (December 11th), each group will submit a written project report that includes an introduction, their regression models, and a discussion of the empirical analysis. More details can be found in "Guidelines for the Final Report".

On the 12th week, the TA and I will hold a consultation session with each group to make sure you are making good progress. But you should be proactive and always feel free to discuss your projects with me and the TA. I would be happy to offer advice and help at any

stage of the process.

Special Accommodation

It is the policy and practice of the University to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact OSA for a confidential discussion. If you are eligible to receive an accommodation and would like to request it for this course, please send me the accommodation letter at least one week in advance.

Email Policy

All email communication in this course should be titled with the following format **EPPS6313|Your Name|Email Title**. Please use your @utdallas.edu email account. Please also make sure you *copy both the TA and me*. This is to help ensure that your email is noticed and responded to.

Course Schedule

Week	Topics	Required Reading	Deadlines
week 1 - 08/24	Motivation and Preliminaries	Ch1	
week 2 - 08/31	Sampling and Measurement	Ch2	
week 3 - 09/07	Descriptive Statistics	Ch3	Group Sign-up Due
week 4 - 09/14	Class Cancelled	Ch4	
week 5 - 09/21	Probability Distributions	Ch4	PS1 Due
week 6 - 09/28	Statistical Inference I: Estimation	Ch5	
week 7 - 10/05	Statistical Inference II: Hypotheses Testing	Ch6	PS2 Due
week 8 - 10/12	Comparison and Association across Categories	Ch7-Ch8	
week 9 - 10/19	Bivariate Linear Regression	Ch9	PS3 Due
week 10 - 10/26	Bivariate Linear Regression II	Ch9	Proposal Due
week 11 - 11/02	Group Consultation		PS4 Due
week 12 - 11/09	Review		
week 13 - 11/16	In-class Exam		PS5 Due
week 14 - 11/23	No Class - Fall Break		
week 15 - 11/30	Multiple Regression	Ch10- Ch11	
week 16 - 12/07	Students Presentation		Report Due