THE UNIVERSITY OF TEXAS AT DALLAS
School of Economic, Political and Policy Sciences

EPPS 6313 Introduction to Quantitative Methods
Fall 2017

Thursdays 7:00 - 9:45 p.m. in GR 3.402A

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Course Description

This graduate course introduces students to fundamental methods of statistics for social sciences analysis. Measures of descriptive statistics, probability theory, hypotheses testing, analysis of variance, and simple linear regression are the core topics of this course and it concludes with principles of multiple regression.

The translation of issues and developments of social behavior into mathematical and statistical language to analyze and obtain answers to research questions is the primary objective of the students in this course. Students will understand when and how to use the proper tools of statistical inquiry, and see how the use of such tools improves upon our knowledge of theoretical and applied social science knowledge.

Learning Objectives

- Construct and visualize descriptive measures for variables of different types.
- Understand and apply fundamental statistical concepts such as a population, a sample, a sampling distribution, probability, a probability distribution.
- Test hypotheses (Z-test, T-test, F-test, Chi-square test).
- Estimate confidence intervals.
- Conduct basic analysis of variance

- Build a linear regression in Stata and R and interpret regression output
- Preparation for next statistics course EPPS 6316

Required text and primary course reading

Berenson, M., Levine, D.& Szabat, K. (2014). *Basic Business Statistics (13th ed.)*. Boston, MA: Pearson. ISBN: 978-0-321-87002-5.

Levitin, Daniel (2017). *A Field Guide to Lies and Statistics : A Neuroscientist on How to Make Sense of a Complex World*. London, U.K. Penguin Books Ltd. ISBN: 0241239990.

Other sources and readings will be posted on e-learning.

Grading Policy

Your grade will have FOUR main assessment parts:

- Class participation (10%)
- Book review (5%)
- Homeworks (45%)
- Mid-term examination (10/19/17) (15%)
- Laboratory assignment (10%)
- Final examination (12/07/17) (15%)

Grading Scales

Min	Max	Grade	Min	Max	Grade	Min	Max	Grade
93	100	A	76	79.9	B-	0	63.9	F
90	92.9	A-	72	75.9	C+			
84	89.9	B+	68	71.9	C			
80	83.9	B	64	67.9	C-			

Course & Instructor Policies

Attendance. Class attendance is key to succeed in the course. It is student's responsibility to check announcements, and information given in class or posted on e-learning.

Participation. To gain exposure of statistical analysis in real issues, each student will search and select a recent news to present at the beginning of the class at least two times in the course. The student has to sign up the two mini-presentations on `http://signup.com/go/UnRqGHQ`.

In your presentation, you are expected to summarize the article briefly and comment on the quality and usefulness of the statistics it uses. Questions that you may want to answer include but are not limited to the following. Where do the data for the news article come from? If the article is based on survey data, what sampling method was used to collect them? Are the presented numbers credible? Are they useful? What do we learn from them? How do they improve our understanding of the social/economic/political issue in question? Could the data collection or the presentation of results be improved? Good news article outlets include Gallup, Wonkblog, the Economist. Answer some of your questions in the presentations but leave some for class discussion. The expected presentation time is 5 minutes.

Each student is expected to participate actively in the discussion when she/he is not presenting. Class participation is measured by the quality of your contribution to the related discussion and will count at least 30% of the *Participation* grade.

Book review. You have to write 3 to 5 pages double-spaced review of the book *A field Guide to Lies and Statistics*. It should include a brief summary, and one analytical or critical position. What things do you agree with the author and what things do you disagree. Explain why and what would you do instead. Support your position with one or several techniques we studied in the course.

Homeworks. There will be 11 homework assignments throughout the course. They will be due at the beginning of class time in hard copy. No late homework will be accepted. The lowest two homeworks grades will be dropped, so each graded homework will count 5%.

Exam Rules. Exams are based on lecture material, homeworks and required readings. Midterm and final exam are not cumulative. Once seated, it is not allowed to leave the classroom. No bathroom breaks. No one will be allowed to do the exam after 30 minutes the exam has been handed out. No make-up exams will be administered. Any exceptions owing to special circumstances may only be arranged on the basis of medical or other formal documentation.

Laboratory assignment. The Lab assignment is a group project that involves survey creation, data collection and statistical analysis. Specific instructions will be distributed on September 7. Groups will be assigned on the fourth week of class.

Classroom Citizenship. We expect students to be attentive during class and actively participate in discussions and group activities. You are expected to listen respectfully to the instructors and peers when speaking. Racism, sexism, homophobia, classism, ageism and other forms of bigotry are inappropriate to express in the class. We will be discussing topics that require sensitivity and maturity. Disruptive students will be asked to leave and may be subject to disciplinary action.

Technology policy. Cell phones are to be turned off during class. Lab computers and laptops must be OFF unless the class is actively engaged in a computer activity. When using computers, be mindful of your time and of those seating around you.

UTD Course Policies. University policies on course conduct, student discipline, academic integrity, e-mail use, course withdrawals, grievance procedures, incomplete grades, disability services, and religious holidays fully apply in this course. Information on university policies can be found at `hhtp://go.utdallas.edu/syllabus-policies`.

The description and timelines contained in the syllabus are subject to change at Professors' discretion.

Course Outline

Week	Topic and Readings	Assignment
Week 1 August 24	Presentation and course introduction	
Week 2 August 31	**Ch 1** Defining and Collecting Data, sec. 1.1-1.5 **Ch 2** Organizing and Visualizing Data, sec. 2.1-2.7	
Week 3 September 7	**Ch 3** Numerical Descriptive Measures, sec. 3.1-3.6	HW 1 due
Week 4 September 14	**Ch 4** Basic Probability, sect 4.1-4.5	HW 2 due, Lab handed out
Week 5 September 21	**Ch 5** Discrete Probability Distributions, sec 5.1- 5.4	HW 3 due
Week 6 September 28	**Ch 6** Normal and Other Continuous Distributions, sec. 6.1-6.6	HW 4 due
Week 7 October 5	**Ch 7** Sampling Distributions, sec. 7.1-7.4	Lab due
Week 8 October 12	**Ch 8** Confidence Intervals, sec. 8.1-8.5, 8.8	HW 5 due
Week 9 October 19	**In-class Midterm**	HW 6 due
Week 10 October 26	**Ch 9** Hypothesis Testing: One-sample Tests, sec. 9.1-9.6.	HW 7 due
Week 11 November 2	**Ch 10** Hypothesis Testing: Two-sample Tests, sec. 10.1-10.5.	HW 8 due
Week 12 November 9	**Ch 11** Analysis of Variance, sec.11.1, 11.2. **Ch 12** Chi-square Test, sec.12.1, 12.2.	HW 9 due
Week 13 November 16	**Ch 13** Simple Linear Regression, sec. 13.1-13.9.	HW 10 due
Week 14 November 23	**Thanksgiving Break**	
Week 15 November 30	**Ch 14** Multiple Regression, sec 14.1-14.8	HW 11 due, Book review due
Week 16 December 7	**In-class Final**	