EPPS 6313 - INTRODUCTION TO QUANTITATIVE METHODS

School of Economic, Political and Policy Sciences, Fall 2016

Time and location: Thursday, 7:00-9:45 pm, CB1.104

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Office hours: by appointment

Course Description and Objectives

The course introduces students to fundamental methods of statistical analysis in social sciences. It offers a review of measures of descriptive statistics, probability theory, hypotheses testing, analysis of variance, and simple linear regression. The course concludes with an introduction to multiple regression.

At the end of the course students will be able to:

- 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 model in Excel and Stata and interpret regression output.
- Appreciate statistics and enroll into their next statistics course willingly (EPPS 6316).

Course Expectations and Format

This course requires active student participation in the classroom and conscientious work outside the classroom. Doing the assigned readings and completing homework assignments are the most critical tasks of a student. A scholarly attitude, reflected in diligence, engagement, and respect for opinions of others is an integral requirement of the course.

Class sessions are structured to include lecture material, discussion, and in-class exercises. Lectures are intended to supplement the readings, not to replace them. Students are assigned weekly readings and homework after in-class presentations of a new topic.

Required Readings

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

W - Wheelan, C. (2013). Naked Statistics: Stripping the Dread from the Data. New York, N.Y.: Norton. ISBN: 978-0-393-34777-7 (paperback).

Course Schedule

Week	Topic and Readings	Assignment
Week 1 – August 25	Introduction to the course and each other	
Week 2 – September 1	**BLS: 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 8	**BLS: Ch 3** Numerical Descriptive Measures, sec. 3.1-3.6	HW 1 due
Week 4 – September 15	**BLS: Ch 4** Basic Probability, sect 4.1-4.5	HW 2 due Lab handed out
Week 5 – September 22	**BLS: Ch 5** Discrete Probability Distributions, sec 5.1- 5.4	HW 3 due
Week 6 – September 29	**BLS: Ch 6** Normal and Other Continuous Distributions, sec. 6.1-6.6 **W**: **Ch 1-7 - Discussion**	HW 4 due
Week 7 – October 6	**BLS: Ch 7** Sampling Distributions, sec. 7.1-7.4	Lab due
Week 8 – October 13	**BLS: Ch 8** Confidence Intervals, sec. 8.1-8.5, 8.8	HW 5 due
Week 9 – October 20	**In-class Midterm – open books, open notes**	HW 6 due
Week 10 – October 27	**BLS: Ch 9** Hypothesis Testing: One-sample Tests, sec. 9.1-9.6 Stata: Tutorial 1	HW 7 due

Week 11 – November 3	**BLS: Ch 10** Hypothesis Testing: Two-sample Tests, sec. 10.1-10.5 Stata: Tutorial 2	HW 8 due
Week 12 – November 10	**BLS: Ch 11** Analysis of Variance, sec.11.1, 11.2 **BLS: Ch 12** Chi-square Test, sec.12.1, 12.2 Stata: Tutorial 3	HW 9 due
Week 13 – November 17	**BLS: Ch 13** Simple Linear Regression, sec. 13.1-13.9 Stata: Tutorial 4	HW 10 due
Week 14 – November 24	**Thanksgiving Break**	
Week 15 – December 1	**BLS: Ch 14** Multiple Regression, sec 14.1-14.8 **W**: **Ch 8-12 - Discussion** Course review	HW 11 due
Week 16 – TBD (tentatively December 9)	**In-class Final – open books, open notes**	

Grading

Current event *	50 points
Laboratory assignment**	100 points
Class participation & discussion of Wheelan ***	150 points
In-class exams (2 @ 100 points)	200 points
Homework assignments (10 best out of 11 @ 50 points)	500 points
Total	1000 points

Final grades will be assigned based on the following correspondence of earned points to letter grades:

A	1000 - 930	B-	799 - 760
A-	929 - 900	C+	759 - 720
B+	899 - 840	C	719 - 680
B	839 - 800	F	680 or below

* *Current event*

On the first day of class, you will sign up for an in-class presentation of a news article that makes use of statistical information. 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. The expected presentation time is 5-7 minutes. Please post a link to your current event on eLearning under *Current Events* prior to presenting your work in class. If you would like to use PowerPoint slides, please post them on eLearning next to your news article link.

** *Laboratory Assignment*

A group project that will involve data collection and analysis. Specific instructions will be distributed on September 15.

*** *Discussion of Wheelan*

On the first day of class, you will sign up for leading a discussion of a chapter from *Naked Statistics* by Charles Wheelan (2013). The discussion days are September 29 (Week 6) for Chapters 1-7 and December 1 (Week 15) for Chapters 8-12. After you sign up for this assignment, you will need to coordinate discussion leadership with other students responsible for the same chapter. You may work as a group. In advance of your discussion leadership, each of you will post two questions about the reading on eLearning under *Wheelan*. In class, you will lead the discussion of the main ideas of your assigned chapter by asking your class members the questions you had prepared. You do not have to ask all of your questions if they have been answered previously. The goal of this assignment is for us to reinforce your understanding of statistical concepts by using them in academic discussions. Students asking and answering questions will receive participation credit.

Course Policies

Academic Integrity

The value of an academic degree depends on the absolute integrity of the work done by a student. Therefore, I expect you to demonstrate the highest standard of individual honor in your work. If you have any questions on what constitutes academic dishonesty, please do not hesitate to ask me. To learn more about the University's policies that apply to students who engage in academic dishonesty, please go to http://go.utdallas.edu/syllabus-policies.

Use of Electronic Devices

You are welcome to take notes on your laptops or tablets and are expected to use a computer for course assignments. Please note, however, that taking notes in the old-fashioned way (by hand in your notebook) may be conducive to a better understanding of the material. Please be respectful of your colleagues and remember to keep your cell ringer off during class time.

Attendance, Late Work, and Missed Exams

Regular class attendance is important for succeeding in the course. EPPS 6313 is a graduate course therefore I will not take attendance. However, if I notice your frequent absences, they may affect your grade because they demonstrate a lack of commitment and engagement with the material. No late homework will be accepted, 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.

Other University 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. For a review of the policies, see http://go.utdallas.edu/syllabus-policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

Plan to succeed!

Week	Presentations, exams, etc.	Notes
Week 1 – August 25		
Week 2 – September 1		
Week 3 – September 8		
Week 4 – September 15		
Week 5 – September 22		
Week 6 – September 29		
Week 7 – October 6		
Week 8 – October 13		
Week 9 – October 20	**Midterm**	
Week 10 – October 27		
Week 11 – November 3		
Week 12 – November 10		
Week 13 – November 17		
Week 14 – November 24	**Thanksgiving Break**	
Week 15 – December 1		
Week 16 – TBD **(**December 9)	**Final**	