UTD

EPPS 6313 - INTRODUCTION TO QUANTITATIVE METHODS

School of Economic, Political and Policy Sciences, Fall 2015

Time and location: Thursday, 7:00-9:00 pm, SLC 3.102

PRELIMINARY

Professor: Dr. Evgenia Gorina
Office hours: by appointment
Office: GR 2.322
E-mail: egorina@utdallas.edu

Teaching Assistant: TBD

Course Description and Objectives

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

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

- o Construct and visualize descriptive measures for variables of different types
- o Understand and apply the concepts of a sample, population, sampling distribution, probability, probability distribution
- o Estimate confidence intervals
- o Test hypotheses
- o Conduct basic analysis of variance
- o Build a linear regression model and interpret regression output
- o Appreciate statistics and enroll into your 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 for the course.

Each class session is structured to include lecture material, discussion, and in-class exercises. Lectures are intended to supplement the readings, not to replace them. Students are assigned <u>weekly</u> readings and homework exercises 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 27	Introduction to the course and each other	
Week 2 – September 3	**BLS: Ch 1** Defining and Collecting Data, sec. 1.1-1.5 **Ch 2** Organizing and Visualizing Data, sec. 2.1-2.7 W: Chapters 1, 7	
Week 3 - September 10	**BLS: Ch 3** Numerical Descriptive Measures, sec. 3.1-3.6 W: Chapters 2, 3, 4	HW 1 due
Week 4 - September 17	**BLS: Ch 4** Basic Probability, sect 4.1-4.5 W: Chapter 5 (including Ch 5 ½) Lab handed out	HW 2 due
Week 5 – September 24	**BLS: Ch 5** Discrete Probability Distributions, sec 5.1- 5.4 W: Chapter 6	HW 3 due
Week 6 – October 1	**BLS: Ch 6** Normal and Other Continuous Distributions, sec. 6.1-6.6 W: Chapter 8	HW 4 due
Week 7 – October 8	**BLS: Ch 7** Sampling Distributions, sec. 7.1-7.4 W: Chapter 9	Lab due
Week 8 – October 15	**BLS: Ch 8** Confidence Interval Estimation, sec. 8.1-8.5, 8.8	HW 5 due
Week 9 - October 22	**In-class Exam 1 – open books, open notes**	

Week 10 – October 29	**BLS:** **Ch 9** Hypothesis Testing: One-sample Tests, sec. 9.1-9.6 W: Chapter 10	Homework 6 due
Week 11 – November 5	**BLS:** **Ch 10** Hypothesis Testing: Two-sample Tests, sec. 10.1-10.5 Stata: Tutorial 1	Homework 7 due
Week 12 – November 12	**BLS:** **Ch 11** Analysis of Variance, sec.11.1, 11.2	Homework 8 due
Week 13 – November 19	**BLS:** **Ch 12** Chi-square and Nonparametric Tests, sec.12.1, 12.2 **BLS:** **Ch 13** Simple Linear Regression, sec. 13.1-13.9 Stata: Tutorial 2	Homework 9 due
Week 14 – November 26	No Class - Fall Break	Homework 10 due
Week 15 – December 3	**BLS:** **Ch 14** Multiple Regression, sec 14.1-14.8 W: Chapters 11, 12 Stata: Tutorial 3	Homework 11 due
Week 16 – December 10	**In-class Exam 2 – open books, open notes**	

Grading

Presentation of two current events '*Statistics in the news*' *	100 points
Class participation (discussion of Wheelan and other engagement)	100 points
Laboratory assignment	100 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 - 920		B-	799 - 760
A-	919 - 890		C+	759 - 720
B+	889 - 840		C	719 - 680
B	839 - 800		F	680 or below

* Statistics in the News

On the first day of class, you will sign up for two in-class presentations of news articles that make use of some statistical information. In a presentation, you are expected to summarize the article and comment on the quality and usefulness of statistics it uses. Questions that you may want to answer in your presentation 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? How do they improve our understanding of the social/economic/political issue in question? Could data collection or results presentation be improved? Good news outlets include but are not limited to Gallup, Wonkblog, the Economist. Expected presentation time: 5-7 minutes.

** Class Participation

On the first day of class, you will sign up for leading an in-class discussion of a chapter from *Naked Statistics* by Charles Wheelan (2013). On the day of your presentation, you are expected to discuss the main ideas of the chapter and examples that the author uses to illustrate them. You are also expected to ask 2-3 questions on the text to engage your classmates in the discussion. Expected presentation time: 10 minutes.

Course Policies

Academic Integrity

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

Use of Electronic Devices

You are welcome to take notes on your laptops or tablets and are expected to use electronic devices for coursework-related activities. 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 because student engagement in in-class activities is a key learning device. If you need to miss a class, please e-mail me at least 24 hours in advance. 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, judicial and 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.