

**Dornsife College of
Letters, Arts and
Sciences,
Department of
Economics**

ECONOMICS 317, 26096R- Introduction to Statistics for
Economics

Units: 4

Spring 2016, Tue, Thu 10:00-11:50 am

Location: KAP-156.

Instructor: Manochehr Rashidian

Office: KAP-116B

Office Hours: Tue, Thu 12:00-1:30 p.m. If my office hours
are not convenient for you, I am also available by
appointment.

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Teaching Assistant: Wenjing Chu

Office: KAP-337

Office Hours: Thu, 12:00-2:00 pm, 6:00-8:00 pm

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Course Description

This course is designed to provide the students with basic knowledge of statistics. Emphasis will be placed on many applications of descriptive and inferential statistics. The topics covered in this course can be divided in four parts. The first part of the course focuses on data collection and description of data. The second part deals with theory of probability and its applications. In this part emphasis will be placed on understanding the concept of “sampling distribution” and its applications. Making inference about population parameters is the focus of the third part of the course. In this part students will learn about confidence intervals and hypothesis testing for a single population parameters and multiple population parameters. The final part of the course pays attention to regression analysis, estimation and predictions.

Learning Objectives

The purpose of this course is to familiarize the students with these aforementioned concepts and to provide them with necessary background to use these concepts as decision-making tools. After completion of this course students will be able to perform the following tasks:

- Data collection
- Estimating populations' unknown parameters
- Making inference about a single population parameters
- Making inference about several populations' parameters
- Modeling relationships that are usable in linear regression
- Estimating and testing linear models and interpreting the results

Course Notes

- 1- To prevent disruptions in lecture, students should come to class on time.
- 2- Attendance to lecture is mandatory. Missing class will reduce your class participation points.
- 3- Students are advised to take notes during lecture because exam questions are mostly on the subjects discussed in the class. You should also know that your notes are not substitutes for the text.
- 4- Solutions to homework assignments and exams will be posted on the blackboard after they are completed.
- 5- You should check your grades on the blackboard regularly and if you see any discrepancies, inform the instructor or your TA immediately.

Required Readings and Supplementary Materials

Statistics for Business and Economics by McClave, Benson, and Sinsich. Latest Edition. Pearson-Prentice Hall.

Textbook website:

http://www.pearsonhighered.com/educator/product/Statistics-for-Business-and-Economics-12E/9780321826237.page#dw_resources

Supplemental materials, such as solution manual and software, offered on the book's website are not required for the course.

Description and Assessment of Assignments and exams

The list of homework assignments from the end of chapter problems and questions is on the last page of the syllabus. In addition to these problems, more problems may be assigned from the class lecture. Homework assignments must be turned in on time and preferably typewritten. There will be no credit for late homework after solutions are posted on Blackboard. The exact due date for each homework assignment will be announced in class. There will be 4 short quizzes of which the quiz with the lowest grade will be dropped and the remaining 3 will count toward your total score. Although the quizzes are non-cumulative, most chapters build on previous ones. Hence, to do well on the quizzes, students should carefully review the previous chapters. Quizzes consist of multiple choice questions and problems. Midterm exam is cumulative and consist of problems and questions. The final exam is the same format as the midterm exam and it will covers most of the chapters.

Grading Breakdown

The course will be graded on regular scale of 100% unless class average falls short of my expectations. In that case, I will use a curve based on the average grade of students who actually complete the course. The class average is usually a B.

Weights for homework and exams are

Activity	Points	Percentage of Grade
Homework and class participation	15	15%
Quizzes	30	30% (10% each)
Midterm exam	25	25%
Final exam	30	30%
Total	100	100%

Assignment Submission Policy

The due dates for homework assignment are in the following table. Any changes in the due dates will be announced in class and/or posted on Blackboard.

Students have the option of turning their homework to me or the TA prior to the due date. Please do not email your homework without prior arrangements. There will be no credit for late homework.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings and Homework Assignments	Due Dates
Week 1 1-12, 1-14	(chapter 1) Fundamental elements of statistics, Types of data, Basic definitions	Chapter 1, # 2, 6, 8, 26, 30	1-21
	(chapter2, 2.1-2.8) Describing qualitative and quantitative data	Chapter 2, # 6, 26, 44, 64, 84, 98, 126	1-21
Week 2 1-19, 1-21	Measures of central tendency and variability, Interpreting mean and standard deviation (chapter 3, 3.1-3.6) Probability theory, Unions and intersections	Chapter 3, # 14, 32, 44, 60, 74	1-26
Week 3 1-26, 1-28	Probability Theory, Independent events, Conditional probability, Random sampling (chapter 4, skip 4.4) Probability distributions for discrete and continues random variables, Measures of central tendency and variability for ransom variables. Quiz 1, Jan. 28th	Chapter 4, # 18, 32, 44, 56, 88, 92, 96, 106, 126	2-9

Week 4 2-2, 2-4	Binomial distribution, Uniform distribution, Normal distribution and its properties, Standard normal distribution, Normal approximation to Binomial distribution		
Week 5 2-9, 2-11	(chapter 5) Sampling distribution of sample mean and proportion, Central limit theorem (chapter 6) Large and small sample confidence intervals for population means population proportions	Chapter 5, # 10, 18, 24, 42, 48 Chapter 6, # 8, 16, 28, 36, 44, 56, 72. 90, 102	2-11 2-16
Week 6 2-16, 2-18	confidence intervals for population proportions Desired sample size, Confidence intervals for variance and standard deviation (chapter 7, skip 7.8) Introduction to Hypothesis testing, Quiz 2, Feb. 18th	Chapter 7, # 30, 34, 44, 54, 70, 80, 86	2-25
Week 7 2-23, 2-25	Large sample hypothesis testing for population mean, Small sample Hypothesis testing for population mean, Hypothesis testing for population proportion and population variance, Observed significance, p-value, and interpretation of p-value		
Week 8 3-1, 3-3	(Chapter 8) Comparing two population means, Confidence intervals for differences in two population means Midterm Exam, Mar. 1st	Chapter 8, # 10, 18, 40, 52, 68, 80, 94	3-24
Week 9 3-8, 3-10	Determining the sample size, Hypothesis testing for equality of means with independent and paired sampling, Comparing and hypothesis testing for equality of population variances. Comparing population proportions and determining the sample size		
Week 10 3-22, 3-24	Hypothesis testing for equality of proportions, Hypothesis testing for equality of 2 variances Chapter 9, 9.2) Analysis of variance, Comparing multiple population means	Chapter 9, # 26, 32, 34	3-29

Week 11 3-29, 3-31	(Chapter 10) Multinomial experiments and contingency tables, Testing category probabilities, one-way and two-way tables Quiz 3, Mar. 31st	Chapter 10, # 6,14, 26, 48	4-7
Week 12 4-5, 4-7	(chapter 11) Simple linear regression, Basic assumptions Fitting the model, Estimating the unknown parameters using method of OLS	Chapter 11, # 10, 16, 24, 46, 62, 72, 76, 88	4-14
Week 13 4-12, 4-14	Confidence intervals and hypothesis testing for intercept and slope, Correlation and regression, R^2 and its interpretation. Predictions and prediction intervals		
Week 14 4-19, 4-21	(chapter 12, 12.1-12.9) Multiple regression, Basic assumptions of multiple regression, Estimation and interpretation of the parameters, Prediction using Multiple regression Quiz 4, Apr. 19th	Chapter 12, # 12, 20, 48, 56, 76, 96, 102	4-28
Week 15 4-26, 4-28	Inference about parameters and overall utility of the model, Using the model for estimation, Nonlinearities, Qualitative variables, Testing for multiple linear restrictions Review for the final exam		
FINAL Exam	Tuesday May 10th , 11:00 am-1:00 pm		

Policy on Missed Exams

Students must take the exams as scheduled. There will be no make-up exams unless student has a valid medical excuse and can provide documentation for such an excuse, or if student cannot take the exam because of extenuating circumstances, and prior arrangements are made with the instructor if possible. Students will receive zero credit for unexcused missed exams. Student will receive an F for course if final exam is missed for unexcused absence regardless of student's performance during the semester. If a student has a valid reason for missing the final exam, and can document it, he/she will be awarded an incomplete.

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.