
Instructor: Professor Luella Fu
Office Hours: TuTh 11:30-12:30 + open door policy. ACC 215B
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Course Description

Applied Business Statistics (BUAD 310) sets the foundation of statistics knowledge necessary for intelligent business decision-making. The primary objective of this course is to enable students to perform and understand statistical analysis of data, with the view of being able to critically evaluate statistical reports or findings. You will learn to think critically about how statistics is used by others and how it impacts your day to day life and career. No mathematical background beyond high school algebra is required for an understanding of the material.

Course Learning Objectives

1. Understand the concepts of descriptive statistics and learn how to infer summary analyses about the sample;
2. Recognize different models of statistical processes such as hypothesis testing through Chi-square, linear and multiple regression, etc.;
3. Explain statistical processes and choose which process to use for particular data analysis applications;
4. Learn to interpret statistical results as a basis for decision-making;
5. Learn to use applicable statistics software in Excel;
6. Collaborate effectively to use statistical analysis to address business challenges
7. Communicate your interpretation of the results of statistical analysis logically and persuasively in speaking and writing.

Materials

1. All students must have Excel 2016 and install the Excel Data Analysis Pack (a free add-on). Excel 2016 is free for USC students and can be downloaded from <https://itservices.usc.edu/officestudents/>. See the “Installing Excel” document in Blackboard for step-by-step installation instructions. If you own a Mac from 2011 or earlier or if you use a PC with Windows Vista or earlier, then see the “Installing Excel” document to download Excel 2011 instead.
2. We will use the book *OpenIntro Statistics* (3rd Edition) by David Diez, Christopher Barr, and Mine Çetinkaya-Rundel. It is freely available online at https://www.openintro.org/stat/textbook.php?stat_book=os.
3. The Blackboard course page will host materials, updates, and announcements relevant to the course.

Grades, Assignments and Class Structure

- Grading

Your final grade will be assessed according to the following weight:

Mid-Term Exam	20%
Final Exam	30%
Application Exercises	20%
Homework	20%
In class participation	<u>10%</u>
	100%

- **Class Attendance & Participation:** Class attendance is helpful and allows you to interact with other students when learning about statistical concepts through demonstrations, class exercises, and Excel assignments. Class helps clarify material and lets you do work in class that you would otherwise have to do at home to master the material, but attendance will not be taken. *In cases of borderline grades, strong participation will be rewarded. Poor attendance cannot earn a grade above 90%.*
- **Homework:** There will be six (6) homework assignments. You will view your assignments and submit the answers online, using Blackboard. Typed or scanned submissions are accepted as Word documents or pdfs (jpeg files or other image files not accepted). Due dates will be specified for each HW assignment. See Blackboard for updates on homework due dates.
- **Application Exercises:** You will regularly work collaboratively to use Excel to perform analysis and present conclusions. The exercises will be constructed in order to lead you through key topics introduced in lectures and reading. Your grade will be based on the quality of your participation and submissions.
- **Midterm and Final Exam:** Exams will be given in class on the dates announced in the course schedule. You are allowed one handwritten sheet (both sides) containing notes and formulas. All make-up tests must be requested at least a week ahead. You will receive a grade of zero for each missed test unless you have a written excuse from your doctor or the University. You cannot be exempted from this final under any circumstances.
- **Academic Integrity:** The use of unauthorized material, communication with fellow students during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tensions accompanying examinations. Where a clear violation has occurred, however, the instructor may disqualify the student's work as unacceptable and assign a failing mark on the paper.
- **Academic Accommodation for Students with Disabilities:** Any student requesting academic accommodation based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30am-5:00pm Monday through Friday. The telephone number for DSP is (213) 740-0776.

Schedule

Note: Subject to Modification

See Blackboard for topic detail, assignment due dates, required reading, and other posted announcements and materials.

Week	Date	Topic	Reading [OpenIntro Statistics]
1	Thurs 5/19	Introduction	Ch1.1 Introduction Ch1.2.1, 1.2.2, 1.3.1 Data
2	Tues 5/24	Describing and representing one variable	Ch1.7.1-1.7.4 Describing categorical data Ch1.6.2-1.6.4 Describing numerical data
	Thurs 5/26	Outliers and dealing with outliers	Ch1.6.2-1.6.4 Describing numerical data Ch1.6.5-1.6.6 Robust statistics HOMEWORK DUE MONDAY 5/30 11:59 PM
3	Tues 5/31	Describing and representing two or more variables	Ch1.6.7 Transformed data Ch1.6.1, 1.7.5 Assoc b/n variables Ch1.3.4 Explanatory and response variables
	Thurs 6/2	Collecting data and sampling	Ch1.3.1, 1.3.3 Sampling from a population Ch1.3.2, 1.3.5, 1.4, 1.5 Sampling methods & quality
4	Tues 6/7	Probability	Ch2.1-2.2.1(long) Probability Ch2.2.2-2.2.5 Conditional probability
	Thurs 6/9	Probability models & Random Variables	Ch2.4, 2.5 Random variables and Expected Value Ch3.3.1-3.3.3, 3.5.2 and exponential random variables Special random variables (if time) HW DUE MONDAY 6/13 11:59 PM
5	Tues 6/14	Normal Distribution	Ch3.1 Normal Probability Model
	Thurs 6/16	Hypothesis testing (Significance Testing)	Ch4.1, 4.4 Sampling distribution Ch4.3.1, 4.3.3, 4.3.4 z-tests for one group Ch5.1.1-5.1.3, 5.1.5 t-tests for one group Ch5.3.2, 5.3.4 tests for two groups
6	Tues 6/21	Confidence intervals (Estimation)	Ch4.2.1-4.2.2, 4.2.4-4.2.5, 4.3.2 Confidence intervals for z-statistics Ch4.5.3-4.5.4 Validity of using the normal model
	Thurs 6/23	Proportions and Chi-squared testing for categorical variables	Ch4.2.1-4.2.2, 4.2.4-4.2.5, 4.3.2 Confidence intervals for z-statistics Ch6.1.1-6.1.3, 6.2 Proportion tests and confidence intervals Ch4.5.3-4.5.4 Validity of using the normal model HW DUE MONDAY 6/27 11:59 PM
7	Tues 6/28	Review Session	
	Thurs 6/30	Midterm Exam	
8	Tues 7/5	T-tests for numeric data,	

		Chi-squared tests	Ch5.2.3 Confidence intervals for t-statistics Ch5.3.1 Confidence intervals for two groups Ch6.3,6.4 Chi-squared tests for goodness of fit and independence
	Thurs 7/7	Concept Check / Review	HW DUE MONDAY 7/11 11:59 PM
9	Tues 7/12	Linear regression model	Ch7.1 Linear relationships Ch7.2.1-7.2.6 The Simple Regression Model
	Thurs 7/14	Linear regression continued	Ch7.2.7 Categorical predictors Ch7.3, 7.4 Variation in linear regression and inference
10	Tues 7/19	Multiple Regression	Ch8.1,8.2.1 Multiple regression and choosing predictors
	Thurs 7/21	Multiple Regression, cont.	Ch8.3, slides Model assumptions and how the metrics relate
11	Tues 7/26	Multiple Regression, cont.	HW DUE WEDNESDAY 7/27 11:59 PM
	Thurs 7/28	Final Review	
12	Tues 8/2	Final Exam	