California State University, Sacramento

2021 Summer Session

STAT 303 Intermediate Statistics

Course Outline

Course Code: STAT 303

Instructor: George Sarraf

Office Hours: by appointment

Home Institution: University of California Irvine

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Credit: 3

Course Description, Goals & Hours:
This is an intermediate course in statistics focusing on statistical concepts applied and used in economics and business data analysis. Upon completing this course, students will learn statistical concepts and how to apply these concepts to solve and analyze business problems. Topics includes simple hypothesis testing, multiple hypothesis testing, statistical inferences involving two or multiple populations for mean and variance comparisons, independence of populations, simple and multiple regressions, ANOVA, and nonparametric test statistics such as Wilcoxson rank-sum test, Kruskal-Wallis test.

Microsoft Excel will be used to conduct several statistical analyses. Microsoft Excel contains important statistical data analysis functions which will be covered in this course. Students will also learn how to perform a regression analysis using Excel.

Course Goals:
A student who satisfactorily completes this course should:

- Understand concepts related to statistical inference, confidence intervals, and hypothesis testing.
- Demonstrate their knowledge by running regressions (single and multiple) and interpret their results.
- Perform analysis of variance and interpret results of analysis of variance tests.
- Perform and interpret nonparametric tests.

Required Textbook:
Statistical Techniques in Business and Economics by Lind, Marchal and Wathen. McGraw Hill 17th edition

Lectures:

Lectures are designed to clearly explain the concepts covered in the textbook and how they apply to real world situations. Outlines of the lecture notes will be made available to students prior to class.

Attendance Policy:
Summer classes are intensive and require hard work and diligence. Attending classes is essential for mastering the concepts presented during lectures. If you miss the class due to a legitimate reason (e.g. sickness) you will be required to notify the instructor. Such absence will be recorded as excused absence.
Attendance will be recorded and is worth 15% of the student grade.

Tests:
There will be one midterm and a final. Further announcements about the exams will be made in lectures.

Homework:
There will be 2 homework assignments, each one is meant to help you prepare (along with the other materials) for the upcoming exams. Late submission of homework will not be accepted. You are required to submit a hard copy of your homework. Homework emailed to me or the TA will not be graded. It's important to write down your name, student id and homework number, otherwise it will not be graded. Instruction on how to submit your homework will be provided.

Grading Breakdown:

Midterm	30%
Final	35%
Homework	20%
Attendance	15%

Total Score = [Mid*0.3 + Final*0.35 + Hwk*0.20 + Att*0.15]. Curve will be determined based on the distribution of grades.

Your grade will be determined on the following scale.

Grade	**Grade Points**
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3

D	1.0
D-	0.7
F	0.0

Course Outline		
Week	**Topic**	**Chapter**
Week 1		
	Introduction and Syllabus	
	Sampling Methods and the Central Limit Theorem	***8***
	Estimation, Confidence Interval and Sample Size	***9***
	One-Sample Tests of Hypothesis	***10***
Week 2		
	Two Sample Hypothesis	***11***
	Correlation and Linear Regression	***13***
	Multiple Regression Analysis	***14***
Week 3		
	Midterm Review (Monday)	
	Homework 1 Due (day of the midterm)	
	Midterm Exam (Tuesday)	**8-11**
	Analysis of Variance (ANOVA)	***12***
Week 4		
	Nonparametric Methods: Test a Hypothesis of Pop Proportion, Chi-Square Test, Goodness of Fit Tests	***15***
	Nonparametric Methods: Wilcoxon Rank-Sum Test, Kruskal-Wallis test.	***16***
	Final Exam Review	
	Homework 2 Due (day of the final)	
	Final Exam (tba)	**12-16**