San José State University
Computer Science Department
CS 185C: Advanced Topics In Computer Science, Sec-02
Data Analytics & Prediction, Spring 2020

Course Information

Instructor: Leonard P. Wesley
Department: Computer Science

Required Texts

All required text, publications, reference material, and so forth will be provided to the class. Example textbooks from which material will be used and provided to the class include but is not limited to are

1. Dean Abbott (2014)

on previous experiences of the instructor and students. So please plan and schedule accordingly.

Previously, some students have asked for special exceptions to policies and procedures for this course. An example includes asking the instructor for extra assignments or work to help improve a grade. Even if such a request is reasonable in the opinion of the instructor, no exception will be given to a student unless the same opportunity can be made available to the entire class, and does not constitute significant extra work on the part of students, instructors, graders and so forth. Students should have no concern that other students will receive special exceptions that will not be made available to the entire class.

NOTE: University policy (F69-24) states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading." However, attendance will be required in order to complete and submit many in-class exercises, quizzes, and exams. Should students miss or leave early from one or more classes, students are responsible for knowing and understanding any and all course subject matter, assignments, exercises, instructions and so forth that are presented or discussed during official scheduled class time.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the Syllabus/Greensheet.

Quizzes and Exams

There will be three quizzes, one midterm and a final exam all of which will count toward a student's final grade as specified in the "Grades" section below. During quizzes and exams, communication with other individuals via any means is strictly prohibited without the express permission of the instructor. Violations will be met with the full impact of SJSU's academic integrity policy and procedures.

Projects

Several life-science, business intelligence, or finance related data analytics and prediction project topics will be described near the start of the course. Projects will involve applying the skills and knowledge learned in the course to the project. Projects in this course will be individual (not team) projects. Project scores will count toward the final grade as specified in the "Grades" section below.

In-Class Exercises

There will be four in-class exercises where groups

Tentative course calendar of assignment due dates & exam dates:

Week 3 Class Mtgs 5 & 6	2/6	2/11	#2 DATA ANALYTICS	2/6: - Data cleaning, correction, imputation, normalization 2/11: - In-Class Exercise 1 Topics Covered 1/23 – 2/6	Module #2 Week 3 Project Selection Due 2/11 February 11th Last Day To Add Classes
4	2/13	2/18	#2 DATA ANALYTICS	2/13: - Project Descriptions - Numerical Summary Measures, Probability Distributions, Sampling Distributions 2/18: - Binomial, Poisson, and Normal Distributions	Module #2 Week 4
5	2/20	2/25	#2 DATA ANALYTICS	2/20: - 2/25: - Sampling Distributions - Central Limit Theorem	Module #2 Week 5 Project Selection Due 2/25
6	2/27	3/3	#2 DATA ANALYTICS	2/27: - Confidence Intervals (CIs), Two-sided CIs, One-sided CIs, Hypothesis Formation and Testing 3/3: - In-Class Exercise 2 Topics Covered 2/6 – 2/27	Module #2 Week 6

7	3/5	3/10	#2 DATA ANALYTICS	3/5: - Hypothesis Formation and Testing (cont.) 3/10: -	Module #2 Week 7
8	3/12	3/17	#2 DATA ANALYTICS	3/12: - Hypothesis Formation and Testing - Two-Sided Tests of Hypotheses - One-sided Tests of Hypotheses 3/17: - Types of Errors - Power - Sample Size Estimation	Module #2 Week 8
9	3/19	3/24	#2 DATA ANALYTICS	3/19: - One-Way ANOVA - Multiple Comparisons 3/24: -	

11	4/2	4/7	#3 MACHINE LEARNING	4/2: 4/7 - Regression Theory & Concepts - Assumptions - Simple Linear Regression	Module #3 Week 11
12	4/9	4/14	#3 MACHINE LEARNING	4/9: - Multiple Linear Regression Theory & Concepts 4/14: - Intro to SVM (SVC)	Module #3 Week 12
13	4/16	4/21	#3 MACHINE LEARNING	4/16: - In-Class Exercise 4 (Work on Individual Projects, Q&A) 4/21: - Complete SVM - Generalization (L1 & L2) Theory & Concepts	Module #3 Week 13
14	4/23	4/28	#3 MACHINE LEARNING	4/23: - Model evaluation 4/28: -	Module #3 Week 14
15	4/30	5/5	#4 APPLICAT-IONS	4/30: - Complete Generalization (L1 & L2) 5/5: - Introduction to case studies of data analytics	Module #4 Week 15
16	5/7	No Class	#4 APPLICAT-IONS	5/7: - Data analytics case studies - Final exam review	Module #4 Week 16

	Final Project Code and Pr oject Report Due To Canvas Final Exam

SCHEDULE FOOTNOTES:

(NOTE: Ranges might change if point totals change)

How To Calculate/Estimate Your Grade

If students would like to calculate their numeric grade percentage, the formula is as follows:

Numeric Grade Percentage =