SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Introduction to Data Visualization Section 02

CS 133

Fall 2024 3 Unit(s) 08/21/2024 to 12/09/2024 Modified 08/22/2024

Contact Information

Instructor: Jessica Huynh-Westfall
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To contact me, please, contact me through Canvas mail, not my SJSU email.

Office Hours
Monday and Wednesday 8:00AM-8:40AM, DH282

Course Description and Requisites

Topics in data analysis and visualization. Covers tools and techniques to efficiently analyze and visualize large volumes of data in meaningful ways to help solve complex problems in fields such as life sciences, business, and social sciences.ï¿½

Prerequisite(s):ï¿½CS 146 with a grade of "C-" or better, or CS 22B and graduate standing. Computer Science or Software Engineering majors only.

Letter Graded

Classroom Protocols

Student Conduct Code

Students are expected to adhere to the Student Conduct Code found at https://www.sjsu.edu/studentconduct/policies.php (https://www.sjsu.edu/studentconduct/policies.php). Additionally, students should regularly attend lectures, treat instructors and peers with respect, and refrain from the use of cell phones during any classroom activities.

Communication with the instructor

Students are requested to use the Canvas message function to contact the instructor. Private messages sent to the instructor's email address gets lost due to the large volume of emails received. The instructor does not write messages after normal business hours, on weekends or holidays.

Reviewing code for the homework and technical trouble-shooting should be done during the office hours.

Never send your entire code for an assignment to the instructor. The instructor will not fix all the bugs in your code.

Class Attendance

Regular class attendance is expected. Students are responsible for all material presented in all classes.

Regrading Procedure

Grades assigned are final, unless there was an error in the grading. If a student wants to request a regrade of a homework or test, please follow instructions on the "Regrade request" page on Canvas. A request for a regrade is not a technique to drum up a few more points. If the course instructor thinks a component was scored too generously the first time, it may be lowered in a regrade. Thus, regrading may result in a lower grade.

Academic Integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at http://www.sjsu.edu/senate/docs/S07-2.pdf (http://www.sjsu.edu/senate/docs/S07-2.pdf) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/ (http://www.sjsu.edu/studentconduct/) . Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, AI generated answers, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Integrity Policy S07-2 requires approval of instructors.

Anyone caught cheating (including sharing answers with others during exams) in the class will receive a failing grade on the exam or assignment, in addition to other sanctions that are permitted by the University, including but not limited to the filing of a report with the Dean of Student Services and expulsion from the University.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, http://www.sjsu.edu/senate/docs/S12-7.pdf (http://www.sjsu.edu/senate/docs/S12-7.pdf) , requires students to obtain instructor's permission to record the course. Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.

Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor-generated material for this course such as exam questions, lecture notes, hands-on exercises or homework solutions without instructor consent.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

- CLO 1 Manipulate large datasets and handle missing or inconsistent values in datasets
- CLO 2 Perform statistical analysis using packages such as Numpy and Scipy
- CLO 3 Analyze and visualize datasets using packages such as seaborn and matplotlib
- CLO 4 Develop interactive visualization using packages such as Plotly and Panel
- CLO 5 Recognize and reduce data and spatial biases

Course Materials

Recommended Reads:

- Biological data exploration with Python, pandas and seaborn by Martin Jones. June, 2020.[Author's page (https://pythonforbiologists.com/biological-data-exploration-book.html), ISBN-13: 979-8612757238]
- Hands-On Data Visualization: Interactive Storytelling From Spreadsheets to Code by Jack Dougherty and Ilya Ilyankou, 2021.[Free open-access web edition (https://handsondataviz.org/), ISBN-13: 978-1492086000] .

Technology requirements:

- Students will need to have either a personal laptop/desktop with Internet service or access to an on campus computer lab.
- Practice of data visualization will be done in Python 3.7 or 3.8 programming environment
- Google Colab (https://colab.research.google.com/) with Chrome or any supported web browser
- Anaconda (https://www.anaconda.com/products/individual) (optional) for local installation of Jupyter notebook.

Course Requirements and Assignments

Exams

Three exams will be conducted during the regular class hours. A tentative schedule will be given in the course schedule below.

The exams will contain multiple choice questions, true/false and short answer questions. Exams are open book, open notes, and comprehensive. No make-up exams except in case of verifiable emergency circumstances.

No make-up exams will be given if a student misses the midterm exam submission deadline (except for a legitimate excuse or other personal emergencies and student can provide documented evidence).

Assignments

There will be in-class and take-home assignments. The purpose of assignments is to develop students' understanding of the material and the skills in problem-solving. Assignments include code exercises, oral presentations, and projects. Please check the tentative schedule below.

All assignment solutions that you submit must be completely your own work (i.e., your solution cannot be copied from another source, such as other students, the internet, etc.). While it is fine to discuss the worksheet/assignment solutions with other students, solutions submitted on Canvas should reflect your own efforts. Oral examination might be requested. All homework should be submitted on Canvas and GitHub, not by e-mail.

Data Visualization Course

Students will complete an online Data Visualization course. The details will be explained in class.

Final project and presentation

Final project and presentation will be used to assess student's understanding of the course materials at the end of the semester instead of a final exam. Each team will have a unique problem to solve for the final project.

Final exam

Final exam will be given on Thursday, December 12 from 9:45 AM-12:00 PM. If there is a time conflict, please inform the instructor at least two weeks in advance for rescheduling.

✔ Grading Information

Assignment	Grade Weigh
Exam 1	15%
Exam 2	15%
Exam 3	15%

Assignments	30%
Group Project (code, write-up, & oral presentation)	20%
Data Visualization Course	5%

Extra-credits and Reworks

No extra-credit assignments or rework opportunities will be given.

Late Submission

Late submissions within 24 hours will be deducted 10% of its final grade. Submissions over 24 hours late will have 20% grade deducted. Late submissions over 2 days will not be accepted.

Missed Assignments or Exams

When students need to miss an assignment deadline or exam due to health conditions or any other emergency, it should be reported within ONE week after the due date.

Final Grade Table

Total Grade	Letter Grade
97% and above	A plus
92% to 96%	A
90% to 91%	A minus
87% to 89%	B plus
82% to 86%	B
80% to 81%	B minus
77% to 79%	C plus
72% to 76%	C
70% to 71%	C minus
67% to 69%	D plus
62% to 66%	D
60% to 61%	D minus
59% and below	F

University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.