SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Data Science Senior Project

CS 163

Fall 2025 Section 01 In Person 3 Unit(s) 08/20/2025 to 12/08/2025 Modified 08/18/2025

Contact Information

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Office Hours

Tuesday, Thursday, 9:00 AM to 10:00 AM, MH 216

Note: Feel free to drop by my office during office hours—no appointment needed.

Course Description and Requisites

Semester-long individual or team project. Apply knowledge and technology to solve a realistic data science problem, including the entire process of collecting and processing real-world data, applying suitable analytic methods, explaining analysis outcomes, and making appropriate recommendations.

Prerequisite(s): CS 100W, CS 131, and either CS 156 or CS 171.

Letter Graded

Classroom Protocols

- Laptops may be used during class for notetaking and viewing lecture slides or lab materials.
- Cellphones must remain unused during class unless required for SJSU system authentication or for participating in quizzes.
- If you arrive late or need to leave during the lecture, please enter through the rear of the classroom and sit in the back to minimize disruptions.

- All students are expected to show respect toward both the instructor and their peers, promoting an environment of mutual understanding, collaboration, and courtesy.
- Students should use the Canvas messaging function to contact the instructor. Private emails sent directly to the instructor may be lost due to the high volume of messages received.
- The instructor does not respond to messages outside normal business hours, on weekends, or on holidays.
- Homework code reviews and technical troubleshooting will be handled during office hours or upon appointment request.

Use of AI tools

The use of AI tools is allowed to help and enhance your learning experience, but they should never replace your own critical thinking. **Use them as a helper, not a shortcut.**

- Approved:
  - Brainstorming ideas for projects or papers.
  - Getting explanations of difficult concepts.
  - Checking grammar and clarity.
  - Draft feedback or structure suggestions.
- Not Approved:
  - Submitting AI-generated work as your own without acknowledgment.
  - Using AI to complete take-home tests, quizzes, or other "no-assistance" assessments.
  - Copying AI output word-for-word into assignments without modification.
  - Generating misinformation or inappropriate content.

Students must disclosure the use of AI tools using SAID — Student AI Disclosure and submit the certificate along with their work.

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:

- Execute a complete project ranging from proposal to project execution and presentation, including data collection, cleaning, analysis, and visualization.
- Conduct a literature review and summarize the current state of the art.
- Translate project objectives into a practical and achievable work plan.
- Design and implement the necessary prototypes.
- Deliver professional presentations—both oral and written—that cover the project plan, design, implementation, analysis, final results, and implications.

Course Materials

Suggested Readings

- Bruce, P., Bruce, A. and Gedeck, P., 2020. Practical statistics for data scientists: 50+ essential concepts using R and Python. O'Reilly Media.
- Hastie, T., Tibshirani, R. and Friedman, J., 2009. The elements of statistical learning.

Note: Learn how to use permalink to access the library's electronic resources, including databases, journals, articles, and eBooks here via Permalinks Introduction - Permalinks - Dr. Martin Luther King, Jr. Library at San José State University Library

Course Requirements and Assignments

This course follows a workshop format, where students present their proposals and results for group discussion. Assignments are structured to help students develop a timeline for completing an individual project by the end of the semester, with scheduling considered an integral part of the project work. Submitted assignments will be reviewed and discussed during class sessions. Active participation in these discussions is essential to receive full credit for each assignment.

Item	Percentage
Proposal draft	5
Finalized proposal	15
Project development	25
Analysis and visualization results	10
Research paper draft	5
Finalize research paper	15
Final presentation	15
Midterm Exam	10

Note:

- While **attendance is not used as a direct criterion for grading**, students are expected to attend all class meetings. Active participation is essential to ensure meaningful engagement and shared benefit for the entire class, as outlined in University Policy F69-24.
- All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course

grades. See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Grading Information

Criteria

Student development projects will be evaluated based on the following criteria:

- Fulfillment of all required features and project specifications.
- Reliability and effectiveness of the implemented features under expected usage.
- Overall quality of submitted work, including clarity, structure, and quality of code, as well as any required documentation.

Missed Assignments or Exams

If a student must miss an assignment deadline or exam due to illness or another emergency, the situation must be reported within one week of the due date.

Determination of Grades

Semester grades will be determined using a weighted average based on the scores earned in the specified categories. Late submissions of homework or other assignments will not be accepted. Additionally, in-class activities must be completed within the student's assigned section.

Nominal Grading Scale:

Percentage	Grade
94% and above	A
90	A-
87	B+
83	B
80	B-
77	C+
73	C

70	C-
67	D+
63	D
60	D-
Below 60	F

Note: Please be aware that numerical grades will not be rounded when converting to letter grades. For instance, a final score of 93.9% will result in an A-, not an A.

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.

Course Schedule

The course schedule is subject to change with one week's notice.

Week	Date	Topic	Note
1	8/21	Introduction	
2	8/26, 8/28	Project samples and group formation	
3	9/2, 9/4	Proposal discussion	
4	9/9, 9/11	Project development demo	
5	9/16, 9/18	Data collection and cleaning	
6	9/23, 9/25	Proposal presentations	
7	9/30, 10/2	Project development discussion	

8	10/7, 10/9	Exploratory data analysis	
9	10/14, 10/16	Statistical data analysis	
10	10/21, 10/23	Qualitative data analysis	Midterm 10/21
11	10/28, 10/30	Hand-on: Project development discussion	
12	11/4, 11/6	Hand-on: Project development discussion	
13	11/11, 11/13	Research paper discussion	Veteran's day 11/11
14	11/18, 11/20	Final presentation discussion	
15	11/25, 11/27	Open topic	Thanksgiving day 11/27
16	12/2, 12/4, 12/9	Final project presentations	