SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Computer Game Design and Programming

CS 134

Spring 2026 Section 01 In Person 3 Unit(s) 01/22/2026 to 05/11/2026 Modified 01/14/2026

Contact Information

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Office Hours

Tuesday, Thursday, 2:00 PM to 3:00 PM, MH 216

Note: I would appreciate it if you could schedule an appointment using Zoom Scheduler and provide a brief description of your needs, so that I can better prepare.

Course Information

This course provides a comprehensive introduction to the art and science of game design and development. Students will explore the full lifecycle of game development—from conceptual design and rapid prototyping to programming and iterative refinement—while gaining both creative and technical skills essential for aspiring game developers.

Course Description and Requisites

Architectures and object-oriented patterns for computer game design. Animation, simulation, user interfaces, graphics, and intelligent behaviors. Team projects using an existing game engine framework.

Prerequisite: CS 146 and either CS 151 or CMPE 135 (with a grade of "C-" or better in each); Allowed Majors: Computer Science, Applied and Computational Math, Software Engineering; or instructor consent.

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:

- Understand the principles of engaging game design.
- Be able to prototype and test ideas quickly and effectively.
- Develop functional games using Unity and C#.
- Build a portfolio piece demonstrating their skills in design and development.

Course Materials

Suggested Readings

- Bond, J.G., 2022. *Introduction to Game Design, Prototyping, and Development, 3rd Edition*.

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

Course Format:

- Lectures & Readings: Learning concepts and techniques based on the textbook, enriched with case studies and real-world examples.
- Labs & Projects: Weekly exercises in Unity and prototyping tools to reinforce concepts.
- Capstone Project: Design, prototype, and develop a playable game, showcasing both creative vision and technical execution.

Course Requirements:

- Engagement (5%)
  - Students will be required to participate in discussions, class activities, and present their works in informal presentations.
- Reading exercises/Quiz (10%)
  - Students will complete several reading exercises and take quizzes.
- Development Projects (35%)
  - Students will complete a series of assignments using Unity Game Engine for 2D and 3D game development projects, and/or production tools introduced during the course.
  - These projects will be posted on Canvas and are designed to build upon one another, culminating in a comprehensive final project.
  - Successful course completion requires submission of *all* development projects.
  - Students are required to share videos and codes of each project as instructed on Canvas.
- Homework/Lab Assignments (10%)
  - Homework/lab exercises will be assigned after learning several topics. Those exercises are tools for you to learn and prepare for projects. Some of lab assignments are designed to be completed in class.

- Mid-Term Exam (15%)
  - The mid-term will be administered as either a closed-book exam or a take-home problem, depending on course needs.
- Final Project (25%)
  - Instead of a traditional final exam, students must submit a final project showcasing comprehensive knowledge gained throughout the semester.
  - This project will include a recorded demo, presentation, and a functioning prototype incorporating elements from prior assignments.

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 before or within one week of the due date. Documentation, including the date of the incident, may be required.

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:

Letter Grade	Range
A	100% to 94%
A-	< 94% to 90%
B+	< 90% to 87%
B	< 87% to 84%
B-	< 84% to 80%
C+	< 80% to 77%
C	< 77% to 74%
C-	< 74% to 70%
D+	< 70% to 67%
D	< 67% to 64%
D-	< 64% to 61%
F	< 61% to 0%

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.

You may review your grade throughout the semester. However, your final grade will be updated after all assignments have been graded.

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	Part
1	01/22	Introduction		Intro Game Design
2	01/27, 01/29	Thinking Like a Designer, Unit 1 - Get started in Unity	Team Formation, Unit 1 assignment	
3	02/03, 02/05	Game Analysis Frameworks, Unit 2 - Make a basic game	Unit 2 assignment	
4	02/10, 02/12	The Layered Tetrad, The Inscribed Layer		
5	02/17, 02/19	The Dynamic Layer, Unit 3 - Audio	Unit 3 assignment	Game Development
6	02/24, 02/26	The Cultural Layer, Unit 4 - VFX	Unit 4 assignment	
7	03/03, 03/05	Acting Like A Designer, Unit 5 - UI	Unit 5 assignment	
8	03/10, 03/12	Design Goals, Unit 6 - Animation	Unit 6 assignment	
9	03/17, 03/19	Prototyping, Unit 7 - Shaders and Materials	Unit 7 assignment	
10	03/24, 03/26	Game Testing, Midterm	Midterm 03/26	
	03/30 - 04/03	Spring Recess	No classes	
11	04/07, 04/09	Game Balance, Unit 8 - Lighting	Unit 8 assignment	Advanced Game Design and Development
12	04/14, 04/16	Guiding the Player, Unit 9 - Iterate on your game		
13	04/21, 04/23	Development Cycle, Open Topics	Final Project	
14	04/28, 04/30	Project Discussion/Final Project Presentation	Final presentation	
15	05/05, 05/07	Final Project Presentations		
16	05/14	Final Project Presentations		