

**CS 41 Course Outline as of Fall 2020****CATALOG INFORMATION**

Dept and Nbr: CS 41 Title: GAME DESIGN

Full Title: Game Design

Last Reviewed: 11/26/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	4.00	17.5	Lecture Scheduled	70.00
Minimum	4.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 140.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: CS 74.41

**Catalog Description:**

This course will introduce students to the basics of game design and theory using analysis, research, critiques and projects. Students will learn about the game industry and what is required to develop a video game through assignments. Students will design, model and build working video game prototypes.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: This course will introduce students to the basics of game design and theory using analysis, research, critiques and projects. Students will learn about the game industry and what is required to develop a video game through assignments. Students will design, model and build working video game prototypes. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>			Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective:	Fall 2010	Inactive:	
<b>UC Transfer:</b>	Transferable	Effective:	Fall 2020	Inactive:	

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Examine and critically discuss the components of games.
2. Identify, examine and differentiate various aspects that make a game fun and compelling.
3. Apply the principles of theoretically sound game design including gameplay, core mechanics, game balancing, and iterative rapid prototyping.
4. Develop analytical skills which can be applied to the multiple uses of both computer hardware and software products for simulation gaming.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Create, develop and implement effective game design documents and supporting concept art and storyboard drawings for a proposed video game.
2. Perform critical steps to conceive, design, implement and playtest video game prototypes, models and assets.
3. Demonstrate teamwork skills in the development of video games.
4. Present working 3D and/or 2D game prototypes both non-digital and digital games.

### **Topics and Scope:**

#### **I. Role of Game Designer**

- A. Player-centric game design process
- B. Game designer skills: passion, communication, teamwork, creativity, and process control
- C. Famous game designers

#### **II. Iterative Design Process**

- A. Brainstorming
- B. Game concept idea
- C. Game pitch

- D. Physical prototype
- E. Design documentation
- F. Playtesting
- G. Production
- H. Quality assurance
- III. Structure of Games
  - A. Players
  - B. Objectives, challenges, encounters, and actions
  - C. Cooperative versus cooperation play
  - D. 2D versus 3D
  - E. Goals, win/loss, termination conditions
- IV. Game Design Principles and Methodologies
  - A. Formal elements of games
  - B. Game core mechanics, dynamics, and aesthetics
  - C. Concept art and storyboarding
  - D. Rules development and structure
  - E. Gameplay
    - 1. Hierarchy of challenges
    - 2. Skill, stress and absolute difficulty
    - 3. Commonly used challenges
  - F. Game balancing
    - 1. Asymmetrical game balancing and fairness
    - 2. Strategy versus luck
    - 3. Difficulty curves, story pace, player abilities, and character skills
    - 4. Risk versus reward
  - G. Flow and player psychology
  - H. Characters, cameras, and control
    - 1. Player character and non-player characters (NPC)
    - 2. Cameras: first person, 3rd person, isometric, and virtual/augmented reality
    - 3. Control: input, actions, and behaviors
  - I. Iterative process and rapid prototyping techniques
- V. Game Design Documentation
  - A. High concept document
  - B. Game pitch and document
  - C. Level design document
- VI. 3D Modeling Introduction and Principles
  - A. Modeling concepts
  - B. Model implementation
- VII. Environment and Game Level Design
  - A. Design of environment and world building
  - B. Level design document
  - C. Player encounters, challenges, heads-up display (HUD), audio, and collectables
  - D. Level assets and resources
  - E. Iterative prototyping
  - F. Playtesting
- VIII. Game Production and Roles
  - A. Game designer, programmer, artist, and producer
  - B. Milestones, deliverables, and production workflow
- IX. Platforms
  - A. Desktop
  - B. Mobile
  - C. Console

- D. Virtual reality
- E. Augmented reality
- X. Game Creation: Digital and Non-digital
  - A. Idea and design
  - B. Prototyping
  - C. Playtesting
  - D. Completing original games
  - E. Analysis and review

### Assignment:

1. Read 15 - 20 pages per week
2. Written review of a favorite video game (1 page)
3. Written assignments on research topics (7 - 9 one-page assignments and/or discussions)
4. Exams (0 - 3)
5. Game design projects (6 or more)
6. Final project
7. Game level project
8. 3D modeling tutorial and project
9. Drawings which will include storyboarding and concept art
10. Game level map

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Review and research assignments

Writing  
5 - 10%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Game design projects, game level project, and 3D modeling tutorial and project

Problem solving  
50 - 70%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Final project, drawings, and game level map

Skill Demonstrations  
20 - 30%

**Exams:** All forms of formal testing, other than skill performance exams.

Exam(s)

Exams  
0 - 25%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance, participation, and/or research assignment discussions

Other Category  
0 - 10%

### **Representative Textbooks and Materials:**

Instructor prepared materials

The Art of Game Design: A Book of Lenses. Schell, Jesse. 2nd ed. AK Peters/CRC Press. 2014 (classic)

Level Up! The Guide to Great Game Design. 2nd ed. Rogers, Scott. Wiley. 2014 (classic)

Fundamentals of Game Design. 3rd ed. Adams, Ernest. New Riders Press. 2013 (classic)

Challenges for Game Designers. Brathwaite, Brenda and Schreiber, Ian. Charles River Media. 2008 (classic)