

# LINC 60C: EDUCATIONAL GAME DESIGN

## Foothill College Course Outline of Record

Heading	Value
<b>Effective Term:</b>	Summer 2023
<b>Units:</b>	3
<b>Hours:</b>	3 lecture per week (36 total per quarter)
<b>Advisory:</b>	Basic computer skills and knowledge of Macintosh or Windows operating systems; basic skills and knowledge using web browsers, email, bookmarking, searching, and downloading.
<b>Degree &amp; Credit Status:</b>	Degree-Applicable Credit Course
<b>Foothill GE:</b>	Non-GE
<b>Transferable:</b>	CSU
<b>Grade Type:</b>	Letter Grade (Request for Pass/No Pass)
<b>Repeatability:</b>	Not Repeatable

## Student Learning Outcomes

- Follow an iterative process to design an educational game.
- Analyze and evaluate educational games

## Description

This course applies a design thinking process to the design and development of an educational game. Students study the foundations and mechanics of game design, explore the use of games in teaching and learning experiences, and analyze tabletop, digital, and alternate reality games for their educational purposes. Following established methodologies, students research, design, develop, and refine an educational game through an iterative process. The final product will be tested with learners and evaluated on its educational impact.

## Course Objectives

The student will be able to:

- Identify the ways in which learning occurs during educational experiences and games
- Define the role, purpose, and function of an educational game designer
- Observe the ways in which pedagogical theory and games work together to create learning experiences
- Differentiate between educational game elements and their purposes
- Utilize game system dynamics to analyze, understand, and improve educational games
- Follow ideation processes in order to conceptualize an idea for an educational game
- Apply empathy techniques to learn about prospective players of an educational game
- Create digital and physical prototypes of an educational game
- Use an iterative process to playtest and refine an educational game

- Evaluate the quality of educational games based on engagement and inclusion factors

## Course Content

- Learning experiences
  - Defining learning
  - Motivation to learn
  - Developing skills and values
  - Building experiences
  - Impact of experiences on learning
- Role of the game designer
  - Advocate for the player
  - Passions and skills
  - Design processes
    - Playventric
    - Iterative
  - Educational game designers
    - Designing for innovation
- Pedagogy and games
  - Solving problems
  - Role of the educator
  - Pedagogic impacts
    - Behaviorism
    - Cognitivism
    - Constructivism
  - Inquiry-based learning
    - Project-based learning
    - Learning theory and objectives
    - Incorporating content area curriculum
    - Games as reflective tools
- Game elements
  - Formal elements
    - Players
    - Objectives
    - Procedures
    - Rules
    - Resources
    - Conflict
    - Boundaries
    - Outcome
  - Dramatic elements
    - Challenge
    - Play
    - Premise
    - Character
    - Story
    - World building
    - Dramatic arc
  - Mechanics elements
    - Educational games and problem solving
    - Decision making
    - Chance
    - Skill

- 5. Balancing mechanics
- 6. Collaboration vs. competition
- e. System dynamics
  - i. Games as systems
    - 1. Objects
    - 2. Properties
    - 3. Behaviors
    - 4. Relationships
  - ii. Deconstructing system dynamics
  - iii. Interacting with systems
  - iv. Information structure
  - v. Control
  - vi. Feedback
  - vii. Interaction loops and arcs
  - viii. Tuning game systems
- f. Conceptualization
  - i. Brainstorming
  - ii. Ideation methods
  - iii. Editing and refining
  - iv. Turning content into games
  - v. Ideas vs. designs
- g. Audience
  - i. Empathy techniques
  - ii. Understanding players' needs
    - 1. Stake
    - 2. Comfort
    - 3. Space and resources
    - 4. Socio-emotional development
  - iii. Player taxonomies
  - iv. Player personas
  - v. Player learning styles
- h. Prototyping
  - i. Methods of prototyping
  - ii. Prototyping game ideas
  - iii. Physical prototypes
  - iv. Digital prototypes
    - v. Control schemes
    - vi. Viewpoints
    - vii. Interface design
    - viii. Prototyping tools
- i. Playtesting
  - i. Playtesting and iterative design
  - ii. Evaluating educational games
  - iii. The play matrix
  - iv. Methods of playtesting
    - v. Conducting playtesting sessions
    - vi. Data gathering
    - vii. Receiving feedback
    - viii. Assessing for functionality, completeness, and balance
- j. Evaluating game quality
  - i. Fun
  - ii. Accessibility
  - iii. Achievement of educational objectives

- iv. Aesthetics
- v. Revising for quality

## Lab Content

Not applicable.

## Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. Computer laboratories equipped with computers or laptops with internet access
2. When taught via the internet: Students must have current email accounts and ongoing access to computers with web browsing capability and internet access

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Developing an educational game
- Presenting the project to peers for feedback
- Making constructive contributions to class discussions
- Providing peer reviews to other class members showing their own understanding of the class content

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete an activity
- Facilitated discussions of live presentations, readings, or video presentations
- Presentations in small group and whole class situations

## Representative Text(s) and Other Materials

Perez Marzullo, Fabio, and Antonio De Oliveira. [Practical Perspectives on Educational Theory and Game Development \(Advances in Educational Technologies and Instructional Design\)](#). 2021.

Sheldon, Lee. [The Multiplayer Classroom: Designing Coursework as a Game](#). 2020.

Kalmpourtzis, George. [Educational Game Design Fundamentals](#). 2018.

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

## Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- a. Reading assignments include analysis of texts, selected examples, and student projects
- b. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects

- c. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

## **Discipline(s)**

Instructional Design/Technology