

53-374 Retro Game Lab Syllabus

Mini 3, Spring 2024

Course offered by IDeATe and the ETC

Course Instructors:

Jonathan Walton (he/they) – <jwalton2@andrew.cmu.edu>
Robert “Zach” Zacharias (he/him) – <rzachari@andrew.cmu.edu>

Course Meeting Time: Fridays noon–2:50pm

Course Location: IDeATe Physical Computing Lab, Hunt Library A10
Carnegie Mellon University, Pittsburgh, Pennsylvania

Course Description

In this course, we invite students to explore, hack, and redesign early arcade machines and related entertainment devices — growing their skills in both game design and physical computing. Before the digital age, entertainment arcades were dominated by a variety of electromechanical devices. Building on the tradition of carnivals, midways, and expositions, these interactive interfaces invited users to explore and play in new ways, culminating in the explosion of pinball’s popularity in the 1930s and the eventual rise of video game arcades in the late 1970s. In this course, we build on these traditions of design and play, but also push toward new and alternate understandings of early entertainment arcades. The course will culminate in students building a working electromechanical game to be shared with the public at Spring Carnival.

Course Goals

- Learn about the history and construction of electromechanical arcade machines
- Practice designing and redesigning physical entertainment interfaces
- Collaboratively create 1+ arcade machines to show at Spring Carnival

Course Schedule

Week 1, Jan. 19: Introduction to Electro-Mechanical Games

READINGS (due Monday 1/22):

- Huhtamo, "Amusement Arcade," *Debugging Game History* (2016)
- "Musée Mécanique: San Francisco's Weirdest Museum" (2012):
<https://www.youtube.com/watch?v=owwJ9Y-Wbzw>

Week 2, Jan. 26: Field Trip: Pinball Perfection

READINGS (by class time):

- Technology Connections, "Old Pinball Machines Are Surprisingly Complex" (2023):
<https://www.youtube.com/watch?v=ue-1JolQaEg>
- Williams, "Mechanical and Electromechanical Arcade Games (1870-1979)," *History of Digital Games* (2017)

Week 3, Feb. 2: Designing Electro-Mechanical Experiences

READINGS (by class time):

- Pinball Room, "Playfield Design" (2021):
<https://www.youtube.com/watch?v=tXGJCxR-f0A>
- Rockwell and Amano, "Pachinko: A Case Study in Hybrid Physical and Virtual Interface," *Journal of the Japanese Association for Digital Humanities* 4, no. 1 (2019)

Week 4, Feb. 9: Start Designing the Arcade Machine

READINGS (by class time):

- Natasha Dow Schüll, "Mapping the Machine Zone," *Addiction by Design: Machine Gambling in Las Vegas* (2014)

Week 5, Feb. 16: Start Building the Arcade Machine

Week 6, Feb. 23: Playtesting & Redesign

Week 7, Mar. 1: Finish the Arcade Machine

Spring Carnival, Apr. 11–13: Show off our game to the public

Grading Scheme

%	Assignment	A-level work (exceeding expectations)	B-level work (meeting expectations)	C-level work (below expectations)	Unacceptable work
10%	Basic Attendance	Attendance at 7 classes	Attendance at 6 classes	Attendance at 5 classes	Attendance at less than 5 classes
20%	Week 1-3 Class Participation	Excellent job being active, raising questions, giving input, helping others	Acceptable job being active, raising questions, giving input, helping others	Weak job being active, raising questions, giving input, helping others	Lower than C-Level
20%	Weekly Quizzes & Discussion	Excellent job responding to 3 questions on readings/media	Acceptable job responding to 3 questions on readings/media	Weak job responding to 3 questions on readings/media	Lower than C-Level
30%	Week 4-7: Process Grade on Building	Heavily involved in building; providing creative input; adding ideas and effort towards final project	At least two of the three A-level criteria	At least one of the A-level criteria	None of the A-level criteria met
20%	Final Grade on Final Build	Functional, repeatable, engaging (fun?), creative, effort	At least four of the A-level criteria	At least three of the A-level criteria	Fewer than three of the A-level criteria

Course Policies

Student & instructor behavior: Despite being a young and still developing field, game design (and games more broadly) has often been unwelcoming to others – particularly those who are not straight, white, cis men, and/or “good” (???) at playing games. However, it is our duty to change that, for the benefit of the games we make and play, as well as the people, communities, and working environments involved in game design. Students & instructors are expected to treat their peers as fellow game designers, deserving of our respect and encouragement.

If you feel like you or your contributions are not being respected – for whatever reasons – please reach out to a member of the instructional team. If you don’t feel comfortable talking with one of us about it (for example, if it involves a member of the instructional team or is too personal), please reach out to Student Support Services or someone you trust.

The instructional team is eager to provide **accommodations for students with disabilities**, whether through the official accommodation process or on an individual basis, based on student needs. The official process is great, but we also recognize that some issues are difficult to address in that way. If there are additional ways we can be helpful, please don’t hesitate to reach out.

Attendance is an important part of the class, and is graded. However, if you are feeling minor symptoms of illness (like a cold), please wear a facemask in class. If you are feeling severe symptoms (fever, etc.), please let the instructor know and stay home or see a doctor. The instructional team can allow you to have an excused absence, at our discretion, if you email or talk to us. The same general policy also holds true for minor and severe mental health symptoms.