What is more fun than playing a game? Design a game!

Course Title: Game Design

Course Number: CPSC 4820-002; CPSC 6820-002

Term: Spring 2021 (Jan 6 – April 30)

Modality: Online synchronous (Zoom via Canvas)

Days/Times: Tuesdays/Thursdays 12:30 pm – 1:45 pm

Instructor: Dr. Guo Freeman, Assistant Professor, School of Computing – Human Centered Computing

Instructor Email: guof@clemson.edu

Instructor Office Address: Zoom

Instructor Office Hours: By appointment via emails

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Course description

The gaming industry has come a long way since its humble beginnings more than thirty years ago. From a time when people were thrilled to see a square white block and two rectangular paddles on the screen to today, where gamers explore realistic three-dimensional worlds in high resolution with surround sound, the experience of being a gamer has changed radically. The experience of being a game *designer* has changed even more. In this course, students learn principles of game design and social impacts of games through play assignments, in-class teamwork, and group game design

exercises. Students are introduced to psychology and design theories as they relate to game design, and finish the semester by writing a design document for a game and using digital prototype tools to demo the game.

Students will be assigned to small teams (4 to 5 people per team) early in the semester, collectively pitch a game idea to the instructor and to the class, and design the game as a team-based semester-long project. Classes will include a mix of lectures, readings, in-class teamwork, and student presentations/demos of their projects.

Learning Outcomes
By the end of the course, students will be able to design elements of a game and apply the skills needed to formulate novel game concepts. This will involve:

1) explain the fact that games are not simply software applications but focus on player experience

2) build a solid knowledge on why gameplay and fun is the core of any games other than anything else

3) conduct game design practices as craftsmanship that involves imagining a game, defining how it works, describing the elements that make up that game and successfully communicating or documenting that information to a team, or even themselves, for development.

4) demonstrate necessary business and management skills for their future workplace, including examining business aspects of the gaming industry that impact design and development, including demographics, economic models, budgets, publishing, and marketing

5) practice using digital prototype tools to visualize and demonstrate their game ideas.

Textbook (Recommended)
T. Fullerton, *Game Design Workshop*, 3rd edition, CRC Press, Taylor & Francis Group, 2014, ISBN 978-1-4822-1716-2.

Prerequisites

CPSC 2150 and junior standing

Course Requirements
For both undergraduates (students who enroll in 4820) and graduate students (students who enroll in 6820), completing required readings, attending classes, actively participating in class discussions, and finishing course projects and presentations on time are essential to doing well in this course. **However, undergraduates' and graduate students' grades will be based on different criteria.**

For undergraduates (students who enroll in 4820):

1. Participation (individual, 15%)
This includes completing required readings and attending classes (come to the Zoom session, keep the web cam on unless you have technical/network issues, and stay engaged for the entire duration of each class). This also includes active participation in class discussions (e.g., provide feedback and critiques for others' presentations). This is an individual task. **If you miss class with no explanation more than twice, you will lose all the participation points.**

2. Play assignments and presentations (Individual, 10%*3)
This includes completing three play assignments. You are to reflect on your own play experience and/or investigate design concepts of an existing game. You will present your play assignments to you classmates in breakout rooms via Zoom (at most 5 mins). This is an individual task.

3. Team game design project (team, 55%)
This project is a team effort to design a digital game. Your decision on game ideas can be quite open and creative. There is no limitation on what genre of games you are expected to design. Note that it is possible to succeed in this course, even if the game your team designs has serious flaws. Teams are encouraged to take risks with their approach to gaming!

There are six deliverables for the team game design projects:

- Game idea pitch presentation (10%)
- Early-stage design demo (10%)
- Playable prototype demo (10%)
- "Kickstarter" final presentation (10%)
- Game design document (10%)
- Retrospective (individual, 5%)

Teams will be expected to offer informed and incisive critique of other teams' games, process and assessment plans. Usually, students are expected to communicate with each other, find teammates in class, and form teams. Due to the pandemic and the current online modality of this class, it may be challenging to do so. Therefore, **at the beginning of the semester, I will randomly assign students into small teams (4 to 5 people per team). If you already know whom you want to team up with, let me know as soon as possible so I can assign you in the same team.**

Game idea pitch presentation
Your team needs to develop a game idea to a degree that you all can agree on it. The game idea should outline the goal of the game and roughly how it will work. This description need not be much more than the genre or key mechanisms that are to be used. The goal is to distinguish at the rough level of whether you are designing an RPG, a first person shooter, a puzzle-solving game, or something else. You do not need to

be too specific in terms of genre, because these classifications are not necessarily beneficial and sometimes can constrain your design activities.

In addition, to assure that you have a solid collaboration plan in place, you need the following:

- the roles that each team member will play and the division of labor
- the assets (e.g., graphics) that are required for the game design and how you will obtain them
- project plan -- that is a schedule

Your team needs to present your game idea (about 5-8 minutes, depending on the number of teams) to the class.

Early stage design demo

As your task is to create preliminary playable experience, you will need to incorporate aspects from each of the team members. This isn't a completed game design, but it should shed light on the essentials of your game. Your team presentation should both demo (prototype) the preliminary game design and address the following questions:

- What are the objectives of the game?
- How does the game flow?
- What is the overall structure of the game elements?
- What is the game world?
- If there is a combat system, what is it?
- What are the key objects and actions of the game?

Your team needs to present your game idea (about 5-8 minutes, depending on the number of teams) to the class.

Playable prototype demo

This demo should be your team's attempt at the complete gameplay experience. There may be a few gaps and the features may not be final, but the design for player experience, game dynamic and user interface should be complete.

Your team presentation (about 5-8 minutes, depending on the number of teams) should demo the playable prototype of your game, summarize remaining issues, and explain your plans to fix those issues in the next step.

Final presentation

It is to present the rationale behind the game design and show off the game idea. It should talk about the vision of the game. The intention of this presentation is to interest people enough that they would help you develop it (hence the "kickstarter" in the title). This presentation should be no longer than 8 minutes plus 4 min Q&A with the audience.

Game Design Document
The final design document needs to follow the outline provided in the template. The template will be posted on Canvas. Of course, you can skip some items if they are not applicable for your game. Each team needs to submit their game design document as a WORD document via Canvas by the end of Wednesday, 4/28.

Retrospective
Each student is to submit his/her retrospective as a WORD document via Canvas by the end of Wednesday, 4/28. These are confidential evaluations and will not be shared with your teammates.

The retrospective will include the followings:

1. Overall team evaluation. How did the team work as a whole? What worked well and what didn't? How was the work divided? Did the division work well?
2. Individual assessments of each team member, including yourself. The assessment should cover
    - Design and analytical ability
    - Design and analytical contribution
    - Organizational skill
    - Team participation

    This evaluation will be both narrative and numeric. You are to assign a numeric value between 1 and 5 to each individual on each of these four categories. (1 is worst and 5 is best.) The narrative should justify the ranking and address the following points:

    - Describe what tasks were assigned to the person and how they executed those assignments.
    - Did they help others?
    - Did they contribute?
    - Did they need a lot of guidance or were they self-starting?

Grading policy

90% ~ A

80% ~ 89% B

70% ~ 79% C

60% ~ 69% D

Under 60% F

Or, you could read the grades as:

A = Excellent (Wow!)

B = Good (Hmmmm, Not bad, shows potential)

C = Average (Meh, it'll pass but….)

D = Below Average (Really?)

F = Fail (What are you doing here?)

For graduate students (students who enroll in 6820):

1. Participation (individual, 15%)
This includes completing required readings and attending classes (come to the Zoom session, keep the web cam on unless you have technical/network issues, and stay engaged for the entire duration of each class). This also includes active participation in class discussions (e.g., provide feedback and critiques for others' presentations). This is an individual task. **If you miss class with no explanation more than twice, you will lose all the participation points.**

2. Team game design project (team, 55%)
This project is a team effort to design a digital game. Your decision on game ideas can be quite open and creative. There is no limitation on what genre of games you are expected to design. Note that it is possible to succeed in this course, even if the game your team designs has serious flaws. Teams are encouraged to take risks with their approach to gaming!

There are six deliverables for the team game design projects (see the undergraduate section for details)

- Game idea pitch presentation (10%)
- Early-stage design demo (10%)
- Playable prototype demo (10%)
- "Kickstarter" final presentation (10%)
- Game design document (10%)
- Retrospective (individual, 5%)

Teams will be expected to offer informed and incisive critique of other teams' games, process and assessment plans. Usually, students are expected to communicate with each other, find teammates in class, and form teams. Due to the pandemic and the current online modality of this class, it may be challenging to do so. Therefore, **at the beginning of the semester, I will randomly assign students into small teams (4 to 5 people per team). I will assign graduate students to team up with other graduate students unless you have a different request. If you already know whom you want**

to team up with, let me know as soon as possible so I can assign you in the same team.

3. Submission aiming at ACM CHI Student Game Design Competition (team, 30%)

Your team will prepare a submission aiming at **ACM CHI Student Game Design Competition. Here is an example:** https://chi2020.acm.org/authors/student-game-competition/). The ACM CHI Conference on Human Factors in Computing Systems is the premier international conference of Human-Computer Interaction. The Student Game competition is aimed at providing an opportunity for students from a variety of backgrounds (HCI, computer science, game design, fine arts, etc.) to participate in CHI and demonstrate their game design and development skills in an international competition. Furthermore, the competition provides CHI attendees with engaging and playable exemplar games that showcase emerging student talent and inspire future work.

Your submission will be due by the end of Wednesday, 4/28. It should include:

- **A paper in the ACM extended abstract format (15%):** Student should submit a non-anonymized paper (up to 6 pages) written in the ACM Extended Abstracts Format. This paper should include:
    - An overview of the game itself, and the design and development process, with possibly screenshots/images of play.
    - The positioning of the game in terms of related work, including references and outlining the game's unique contribution.
- **A demonstration of the game (this can also be used in your team's "Kickstarter" final presentation) (10%):** This should take the form of a 4-minute maximum gameplay video clearly showing both the screen (if present) and the player interacting with the game. If the game is not yet fully complete, students could also submit a Wizard of Oz implementation of the game with justification on why the game is incomplete (e.g., technology is not yet there, needs massive resources).
- **A brief video 'trailer' (this can also be used in your team's "Kickstarter" final presentation) (5%)** that gives an overview of the game (2 minutes maximum).

Important notes:

1. This assignment is just part of the course requirements. **You do NOT need to actually submit to CHI.**

2. If you are in a graduate student only team, all team members should contribute to preparing this submission and be co-authors on the paper.

3. If you are in an undergraduate-graduate student mixed team, the graduate students should take lead on and be responsible of preparing this submission; undergraduate

students are welcome to contribute as much as they want (if so, they should be co-authors or acknowledged, and receive extra course credit).

4. This assignment is not required for undergraduate-only team.

Grading policy

93% ~	**A**
90% ~ 93%	**A-**
85% ~ 89%	**B+**
80% ~ 84%	**B**
75% ~ 79%	**B-**
70% ~ 74%	**C+**
65% ~ 69%	**C**
60% ~ 64%	**C-**
Under 60%	**F**

Or, you could read the grades as:

A and A- = Excellent (Wow!)

B+ and B = Good (Hmmmm, Not bad, shows potential)

B- = Average (Meh, it'll pass but….)

C+, C, and C- = Below Average (Really?)

F = Fail (What are you doing here?)

Collaboration Policy

All members of the team are expected to participate equally in the work of game design, writing, and presentations. Collaborate as much as you like, or split the work up if you prefer; you can't go wrong! However, groups should be cautious of borrowing their game mechanics too closely from familiar games. Just as a writing class wouldn't let you copy from Hemingway, this class discourages games that are too similar to existing games such as Scrabble or other popular pastimes. Don't worry, though – I'll let you know if your game is inadvertently plagiarizing in plenty of time to revise it! Additionally, if your team draws on resources not available to the rest of the class, such as working with other students who are not taking the course, you should clear it with me beforehand and acknowledge your peer in your submission(s).

Attendance Policy
The academic resources of Clemson University are provided for the intellectual growth and development of students. Class attendance is critical to the educational process; therefore, you should attend scheduled courses regularly if you are to attain your academic goals. **This means that you will log in Zoom at the scheduled day/time for the class, keep the web cam on unless you have technical/network issues, and stay engaged for the entire duration of each class.**

In the event of an emergency, you should make direct contact with me, preferably before a class or an assignment due. You should discuss with me regarding any scheduled absence as soon as possible and develop a plan for any make-up work. It is the your responsibility to secure documentation of emergencies, if required. **If you miss the class with no explanation more than twice, you will lose all the participation points.** A student with an excessive number of absences may be withdrawn at my discretion.

Any assignment that was scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Any extension or postponement of assignments or exams must be granted by me via email or Canvas within 24 hours of the weather related cancellation.

Notification of Absence
For an absence to be considered an excused absence, a student must use **the Notification of Absences form in Canvas** to directly communicate with me. The Notification of Absence form in Canvas allows students to quickly notify instructors of an absence from class and provides for the following categories: court attendance, death of family member, illness (**or COVID-19 related isolation**), illness of family member, injury, military duty, religious observance, scheduled surgery, university function, unscheduled hospitalization, other anticipated absence, or other unanticipated absence. The notification form requires a brief explanation, dates and times. Based on the dates and times indicated, instructors are automatically selected, but students may decide which instructors will receive the notification. This does not serve as an “excuse” from class, and students are encouraged to discuss the absence with their instructors. If a student is unable to report the absence electronically, he/she may call the Office of Advocacy and Success at 656-0935 for assistance and guidance.

Email Policy/Response Time
You can expect a response to your email inquiries within 48 hours, excluding weekends and university holidays.

Late Work policy
For in-class presentations, no lateness is allowed. You are expected to share your play experience with your classmates or your team is expected to present your game to the class on the due day. If you or your team cannot make an in-class deadline, you may

contact me in advance to discuss alternatives or you will receive a grade of zero for that assignment.

For game design document, your team retrospective, and the CHI game design competition submission, you must contact me in advance if your team wishes an extension. I can be flexible with many of the written deadlines, but only if you speak to me beforehand. If you do not obtain an extension, the late assignment will be penalized by a third of a grade for every day that it remains overdue.

COVID-19 Related

If you test positive or are being asked to quarantine/isolate because of exposure to the virus and you have to miss classes, you may use the Notification of Absence form in Canvas to let me know, which can be found under the "Help" button on the left navigation. Additional communication via email is encouraged. You should also follow up with me to develop a continued plan of study. If I test positive or am being asked to quarantine/isolate because of exposure to the virus so I have to miss classes, you will be notified of a plan for continuing course instruction as soon as possible.

Academic Integrity Statement

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.

Accessibility Statement

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen if possible, but there could be a significant wait due to scheduled appointments. Students who receive Academic Access Letters are strongly encouraged to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. You can access further information here: http://www.clemson.edu/campus-life/campus-services/sds/.

Title IX statement
Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at http://www.clemson.edu/campus-life/campus-services/access/title-ix/. Ms. Alesia Smith is the Clemson University Title IX Coordinator, and the Executive Director of Equity Compliance. Her office is located at 110 Holtzendorff Hall, 864.656.3181 (voice) or 864.656.0899 (TDD).

Copyright
All materials found in this course are strictly for the use of students enrolled in this course and for purposes associated with this course; they may not be retained or further disseminated. Clemson students, faculty, and staff are expected to comply fully with institutional copyright policy as well as all other copyright laws.

Privacy Policy
This course is designed with your privacy in mind. If, however, you feel that an assignment or technology tool undermines your right to privacy, please contact me immediately. We will work together to determine an alternative assignment that will help you achieve the course learning outcomes.

Tentative Schedule of Readings and Topics
(Subject to change with advance notice)

Date	Topic	Readings	Due
1/12 Tuesday	Introduction and overview of the course	Syllabus	
Brawler (Designing the process)			
1/14 Thursday	Explore types of computer games and players	1. Video Game History: http://www.history.com/topics/history-of-video-games 2. Video games timeline: https://www.infoplease.com/spot/timeline-video-games 3. Bartle, R. (1996). Hearts, clubs,	

		diamonds, spades: Players who suit MUDs. Journal of MUD research, 1(1), 19. http://mud.co.uk/richard/hcds.htm	
1/19 Tuesday	How games motivate players: Psychology of gaming	1. Yee, N. (2006). Motivations for play in online games. CyberPsychology & behavior, 9(6), 772-775. 2. Sjöblom, M., & Hamari, J. (2017). Why do people watch others play video games? An empirical study on the motivations of Twitch users. *Computers in Human Behavior*, *75*, 985-996.	
1/21 Thursday	Individual presentations		**Announcing assigned teams; Undergraduates only: Categorization of games**
1/26 Tuesday	Phases of game development; prototype and design document	ch. 7 Prototyping; ch. 8 Digital prototyping; ch. 13 and 14	
1/28 Thursday	Individual presentations		**Undergraduate only: Mapping your gameplay**
2/2 Tuesday	Where games come from: Conceptualization and system design	Ch. 5 and 6	
2/4 Thursday	Individual presentations		**Undergraduates only: Share your play experience**
Warrior (Designing the game world)			
2/9 Tuesday	Rules and mechanics	Ch. 3	
2/11 Thursday	Teamwork		Work on your game!
2/16 Tuesday	Characters	1. Ch. 4: Character, Fullerton (2014): pp. 108-112 2. Magerko, B., Laird,	

		J., Assanie, M., Kerfoot, A., & Stokes, D. (2004). AI characters and directors for interactive computer games. In *Proceedings of the Sixteenth Innovative Applications of Artificial Intelligence Conference* (pp. 877–884), AAAI Press.	
2/18 Thursday	Teamwork		Work on your game!
2/23 Tuesday	Levels	1. Sorenson, N., & Pasquier, P. (2010). Towards a generic framework for automated video game level creation. In Applications of Evolutionary Computation (pp. 131-140). Springer Berlin Heidelberg.	
2/25 Thursday	Team presentations		Game idea pitch
Veteran (Designing the player experience)			
3/2 Tuesday	Gameplay	1. "Challenge" and "Play" in ch. 4, Fullerton (2014), pp. 97-104 2. "Fun" in ch. 11, Fullerton (2014), pp. 341-368	
3/4 Thursday	Teamwork		Work on your game!
3/9 Tuesday	Narratives and storytelling	1. "Premise," "Story," "World building," and "The dramatic Arc" in Ch. 4 (Fullerton, 2014), pp. 105-120	
3/11 Thursday	Teamwork		Work on your game!
3/15 – 3/19: No Class. Spring Break			
3/23 Tuesday	Design interface and audio	1. Alofs, T., Theune, M., & Swartjes, I.	

		(2011). A tabletop board game interface for multi-user interaction with a storytelling system. In Intelligent Technologies for Interactive Entertainment (pp. 123-128). Springer Berlin Heidelberg. 2. Juan, C., Toffetti, G., Abad, F., & Cano, J. (2010, July). Tangible cubes used as the user interface in an augmented reality game for edutainment. InAdvanced Learning Technologies (ICALT), 2010 IEEE 10th International Conference on (pp. 599-603). IEEE. [PDF] 3. VR interface design pre-visualization methods: https://www.youtube.com/watch?v=id86HeV-Vb8 4. Paterson, N., Naliuka, K., Jensen, S. K., Carrigy, T., Haahr, M., & Conway, F. (2010, September). Design, implementation and evaluation of audio for a location aware augmented reality game. In Proceedings of the 3rd International Conference on Fun and Games (pp. 149-156). ACM.	
3/25 Thursday	Team presentations		Early-stage design demo
3/30 Tuesday	Design for accessibility	1. Game accessibility guidelines:	

		http://gameaccessibilityguidelines.com/full-list/ 2. Porter, J. R., & Kientz, J. A. (2013, October). An empirical study of issues and barriers to mainstream video game accessibility. In Proceedings of the 15th international ACM SIGACCESS conference on computers and accessibility (p. 3). ACM.	
4/1 Thursday	Teamwork		Work on your game!
Destroyer (Gaming industry as an ecosystem)			
4/6 Tuesday	Design for the future	1. Designing for VR: https://blog.prototypr.io/designing-for-vr-a-beginners-guide-d2fe37902146 2. How Will VR Change Game Design in The Future? https://www.gamedesigning.org/gaming/vr-change-game-design/ 3. The possibilities and challenges of designing AR games, by a HoloLens developer: https://www.digitalartsonline.co.uk/features/interactive-design/possibilities-challenges-of-designing-ar-games-by-hololens-developer/	
4/8 Thursday	Team presentations		Playable prototype demo
4/13 Tuesday	Understand the gaming ecosystem and gaming industry	Ch. 15	

4/15 Thursday	Teamwork		Work on your game!
4/20 Tuesday	Final presentations		
4/22 Thursday	Final presentations		Game design document, teamwork Retrospective, and submission to the CHI student game design competition due: **End of Wednesday, 4/28**