

CS198-68: Game Design and Development

Course Description

This course is a deep dive into the creation of games, from beginning to end. Over the course of the semester, students will pitch a game, form small teams, and build out a project from start to finish with help from the instructors. Students are not required to have any prior game development experience but it is strongly recommended that a student taking the course either has basic art abilities or basic programming abilities. They will also learn about the different roles that exist within the industry, how to apply their skills to them, and form an understanding about how to best prepare themselves to find their way into these roles. This will be a rigorous class, one that will require a lot of time and dedication. Students will be selected via application prior to the first week of classes, to ensure that the class's composition reflects a diverse range of skills, backgrounds, and proficiency levels.

Course Structure

The class meets twice a week, for an hour and a half each meeting. For the first 4 weeks, both meetings will be tutorial lectures, designed to give students knowledge of how the Unity engine works, best practices for implementing game mechanics, and an introduction to graphics in Unity3D. After project teams are formed in the beginning of Week 5, the course will assume this structure: the first meeting of the week will be a project work meeting, and the second a lecture. During the project work meetings, the teams will meet and log their work in a development blog and plan their work schedule for the next week. Then, the teams will playtest each other's games and give/get feedback on recent changes, consult with instructors, and work together on their project. The lectures from Week 5 onward will focus less on strictly tutorials and more on topics relevant to game development, such as the game industry, game design, and tutorials. The lectures will come from a variety of sources: instructors, industry contacts, alumni, and possibly the students themselves.

The Projects

Project 1: A game based on official Unity tutorials, built by the instructors. Students will be given skeleton code and required to implement basic functionality, such as player input, controllers for the player and enemies, and a UI. This project will build upon key concepts introduced in the tutorial lectures given in the first 4 weeks of the class.

Project 2: The flagship project for the course is a game designed and built by the students themselves. Students will begin preparing their pitches in Week 4 with guidance from the instructors, and will give their pitches to the entire class in Week 5. Not all students must give a pitch. Students will then select which projects they are interested in, and the instructors will match people to teams based on their interests and skills. The member of the team who pitched the project will be the team lead, and will be largely responsible for communicating their team's progress to the instructor. From there on out, the teams will work with the instructors and their team leads to create a schedule and stick to it. All projects will be graded based on how well they achieve 3 milestones, placed 4 weeks apart. These milestones are as follows:

- Milestone 1: Playable prototype of the original pitch. The core mechanics of your game should be implemented, though no art needs to be in place yet. Effectively this milestone exists to ensure that your game will be fun, and to get feedback on how it can be improved if it's not shaping up to be fun.
- Milestone 2: Alpha/Beta Build. All levels should be built, and all mechanics should be implemented. A first pass should have been done on all art assets, and they should be in the game. There may be bugs and glitches, but the game should be starting to look like the final product at this point.
- Milestone 3: Finished Project. The game should be complete, and in line with the original pitch. It should be playable from start to finish, and mostly bug free.

At the end of the project, team members will fill out team evaluations that will be factored into your grade.

Written Responses

Students will be responsible for several written responses to articles or videos regarding the industry or games in general, and how those materials relate to the topics taught in class. Responses should be less than one page, and show insight into the topic discussed in the article or video. We recommend you source your articles from www.gamasutra.com and videos from www.gdcvault.com. The instructors will send out a list of recommended materials before every response is due, but others may be substituted with instructor approval.

Required Materials

Every student will need a laptop capable of running Photoshop, Illustrator, Unity3D, or another game engine. No textbooks are required.

Grading

Overall:

Project 1: 35%

Project 2: 55%

Written Responses: 10%

Projects:

Requirements: 45%

Peer evaluations: 20%

Complexity: 20%

Creativity: 15%

*Complexity and Creativity refer to the parts of the project where you are given free reign over what you want to do. You will get these points as long as you picked something that was non-trivial to implement and shows at least some level of creativity in the design.

A minimum of 70% is required to pass the course.

General Policy

Attendance matters! If you cannot be at class, you **must** let an instructor and your team lead know. Only three unexcused absences will be allowed, and any further absences will result in your grade dropping 10% per absence. If you are in danger of not passing come the end of the semester, the instructors will let people know what can be done to remedy that.

The instructors recommend you use Unity3D for your projects, as that will be the only “supported” engine by the instructors. You are welcome to use other engines, but the instructors will likely be unable to help you as well as a result.

We ask that if you are going to drop the course, drop early. In the event that you drop after teams are formed, we will need to find someone off the waitlist to replace you, which means that the waitlist won't necessarily go in order- we will look for a matching skillset first.

Schedule

The schedule format is (Week.Class). Guest lecture dates are subject to change based on availability of the guests, and the lecture schedule itself may end up in a very different order than written here, but the topics will remain largely the same.

1/17: Meet and greet, course overview, overview of game dev

1/19: Lecture: Intro to Unity- Basics

1/24: Lecture: Intro to Unity- Programming

1/26: Lecture: Intro to Unity- The art pipeline (**Project 1-1: Basic Controls due**)
1/31: Lecture: Basics of 3D games in Unity
2/2: Lecture: Basics of Game Design (**Project 1-2: Enemy/Levels due**)
2/7: Lecture: Game design case studies
2/9: Explanation of pitch day + Brainstorming session (**Project 1-3: UI due**)
2/14: Pitch day
2/16: Teams are assembled and settle in together.
2/21: Project work meeting
2/23: Lecture: Project management (**Written Response 1 due**)
2/28: Project work meeting
3/2: Lecture: Roles within the industry
3/7: Project work meeting
3/9: Milestone 1 Delivery: Demo and Feedback
3/14: Project work meeting
3/16: Lecture: Industry jobs/internships how it all works
3/21: Project work meeting
3/23: Lecture: Guest lecture (Design, TBA) (**Written Response 2 due**)
3/28: Spring break
3/30: Spring break
4/4: Project work meeting
4/6: Milestone 2 Delivery: Demo and Feedback
4/11: Project work meeting
4/13: Lecture: Guest Lecture (VR, TBA)
4/18: Project work meeting
4/20: Lecture: Guest lecture (Art, TBA)
4/25: Milestone 3 Delivery: Demo and Feedback
4/27: Course reflection and Feedback