Introduction to Class

Game programming is a necessary part of creating a computer game. While the game design, game narrative, and game art and music assets makeup the game, the game programming element is used to present these other parts of a computer game. The game programmer does not have to be a game designer or artist or narrative creator, but will often become deeply involved in all of these aspects of game creation.

While games are created using many different game engines and programming languages, there are a common set of programming elements found in most computer games. These include the Game Loop, calculating 2D and 3D movement, handing the game camera, loading and unloading game assets, and other tasks that are common to almost all game programming jobs.

This class teaches the fundamentals of many of these game programming task. The approach of the class is to focus, at a high level, on what the game does from a programming level, rather than on a specific game engine or programming language. For example, using a Vector to move an object will work the same in all game engines and the code will look similar in different programming languages.

Along with specific programming topics this class will also have the student perform some simple game analysis and some simple game design. As a game programmer, you need to be familiar with both of these activities.

Student Background and Expectations

This class does not presuppose the student have any experience in programming or game programming. The game engine used to illustrate these game programming topics is Godot, which is a fairly easy-to-use game engine that uses a simple programming language (GDScript) which is similar to Python. The only expectation is that students are interested in computer games and have played different kinds of games.

How you will be Evaluated

You will be evaluated on assignments, a midterm, a final exam, and discussion questions. The assignments will consist of game analysis assignments, game design assignments, and programming assignments. The discussions will include general game programming topics. The quizzes will be multiple choice timed exams that will cover topics presented in lectures and in posted videos.

Each of the assignments, quizzes, and discussions will be given a point value. The final student grade will be based on the total number of points for the course. The final grade will be based on a percentage of these points

90 to 100% = A
80 to 90% = B

65 to 80% = C
50 to 65% = D

Class Policies

Assignments will have due dates along with discussion topics. Tests will be scheduled on specific days and will be limited to that single day. Makeup work for assignments and tests will not be accepted.

Students that fail to participate in assignments, discussions, or tests may be dropped for non-attendance. Students that do not complete the initial discussion assignment, due end of the second week (Friday, Feb 4), will be dropped for non-attendance.

Real-time Zoom sessions will be scheduled throughout the semester and are not mandatory. They will be recorded and can be watched later.

In this class students are subject to the college policy on plagiarism and cheating (policy listed below).

Campus Policies and Information for the student

https://www.fullcoll.edu/students/ - Distance Education Tools
https://www.fullcoll.edu/students/#support – Student Support Resources
https://www.fullcoll.edu/students/#health – Health, Wellness, Safety
https://www.fullcoll.edu/students/#conduct – Student Conduct and Complaints
https://catalog.nocccd.edu/fullerton-college/college-policies-rules/ - College Policy and Rules
https://catalog.nocccd.edu/fullerton-college/ - College Catalog
https://counseling.fullcoll.edu/ - Counseling
https://www.bkstr.com/fullertonstore - Bookstore

Student Learning Outcomes

- Outcome: Create a simple text-based computer game using an assigned programming language by following defined game parameters.
- Outcome: Create a simple graphics-based computer game using an assigned programming language by following defined game parameters.
- Outcome: Inspect and debug an existing computer game program to remove programming errors.

Resources for this class

The textbook for this class is:
GODOT ENGINE GAME DEVELOPMENT PROJECTS Author: BRADFIELD ISBN: 9781788831505

 You will also need access to a computer (either PC or Mac) to run the Godot game engine. A getting starting lecture will outline the steps for getting the game engine.

Topics and Schedule (may be adjusted at any time)

Week	Topics and Assignments
1/24	Introduction to Class – how the class will work – what you need intro video
1/31	Welcome to Class Discussion Assignment – Due on Friday, Feb 4 Game Analysis, Game Mechanics, and Game Programming Concepts Images and Image types

	Where to get images
	Video 1 – Basic Concepts and Notes
2/7	Godot concepts
	Creating and saving a Godot program
	Setting up the Godot Software and creating a simple display
	Video 2 – Setting up Godot
2/14	Adding elements to the basic setup
	Adding Animated Images
	Reading the keyboard and mouse
	Video 3 – expanding basic program
	Program 1 Due this week – Moving an Object- Due Saturday, February 19
2/21	Godot Events
2/28	Godot Object Interactions
	Video 4 – Events and Objects
3/7	Program 2 Due this week – Object interactions – Due Saturday, March 12
	Background to Physics
3/14	Game Physics
	Video 5
	Midterm Exam – Exam will be Friday, March 18
3/21	Spring Break
3/28	More Game Physics
	Video 6
	Program 3 Due – Game Physics – Due Saturday, April 2
4/4	Game UI system in Godot
4/11	Game Particle Effects in Godot
	Video 7 – UI and Particle Effects
4/18	Program 4 Due – UI and Particle System – Due Saturday, April 23
4/25	Designing your game – concept and basic idea
	Video 8 – Basic Game Idea and documentation
5/2	Designing your game – mechanics and player experience
5/9	Designing your game – levels and game structure
	Video 9 – Finishing your Game
5/16	Program 5 Due – Basic Game – Due Saturday, May 21
	Final Exam – Friday, May 21

Getting Started

1. Read the syllabus carefully and make note of the class policies, due dates for assignments, and test dates. Remember that there will not be any makeups if you miss assignment or due dates (unless extended by the Instructor).
2. Make sure you can log into Canvas and explore the structure of the class. Most of the material will be on the Canvas starting page with links to other items.
3. Do the first welcome to class Discussion assignment. If you have not participated in this discussion by Friday, Feb 4 you will be dropped from class as a no-show.
4. Read the getting started lecture and follow the steps to download and setup Godot.