Game Programming

Game Design 205
Professor Bethancourt

Meets: T: 2-4:45 C-456
Class Site: mouseandthebillionaire.com/hostos/GD205/
Email: mbethancourt@hostos.cuny.edu | matt@bethancourts.com
Office: C-415
Phone: 562.686.3296

Course description:
   This course is a continuation of programming concepts introduced to students in GD105 Introduction to Action Script Programming. Here students will work on foundational fundamentals of programming to focus on the creation of games using Adobe Flash. Students will build a familiarity with programming concepts such as variables, scope, iteration, conditionals as well as basic animation techniques, and with these tools they will create a series of game interactions in preparation for conceptualizing and building a final small online game. This course also covers Artificial Intelligence, Collision, and Physics algorithms as well as teaching students how to incorporate pre-built programming libraries into the Flash Environment.

Prerequisites: GD101 Intro to Games; GD105 Intro to Programming; DD112 Intro to Web Design

Course objectives:
By the end of the course, students will have learned:
   - A greater familiarity with the development environment
   - A fundamental understanding of the core concepts of programming
   - Stronger technical and conceptual design skills
   - Better collaborative methodologies
   - A greater familiarity with game design methodology, concepts and development.

Credit Hours: 3 hours

Required readings:
   - Lanzinger, Franz. From Pong to Pac-Man, *Classic Game Design with Unity*.
   - Gibson, Jeremy. *Introduction to Game Design, Prototyping, and Development: From Concept to Playable Game with Unity and C#.*

Due dates:
Late assignments will not be accepted without a note from a physician or counselor.

Game Programming assignments:
   This is a studio course involving a combination of lecture, project activities, and discussion of assigned readings. Staying on top of the reading assignments is essential in order to be informed and make contributions during in-class discussions and activities. These readings will reference and introduce concepts and vocabulary that may at times be unfamiliar and so require students to do independent research. This will be expected.

10% of the grade will be based on engagement and consistent attendance. The balance of the grade will be determined by several projects undertaken over the 15 week course.

Assignment	Description	Points
Coding Exercises (3)	The first third of this class we involve reviewing and learning more fundamentals of programming in Unity. Students will be expected to complete a series of coding exercises both in class and as homework to further their understanding of game programming and to be able to talk through coding challenges in pseudo code. Exercises are to be completed in time for review at the start of class. Students arriving with incomplete exercises will not be given credit for the assignment.	5 each
Game Exercises (3)	This class will focus a great deal of attention on the production, coding and testing of three small game examples. Students will be expected to recreate these examples on their own and be able to talk through the code as pseudo code. Students arriving with incomplete exercises will not be given credit for the assignment.	10 each
Final Game Proposal	Each student will prepare a small game proposal in the form of a short formal presentation. These presentations will detail the goal of their game, its core mechanic, the narrative, coding strategy, assets needed to build, and precedents being referenced. The class will review and critique these proposals and students will spend the last third of the semester building and testing their games.	15

Final Game Prototypes (3)	Students will develop and test three iterations of their game design over the remainder of the term. These will come in the form of the following prototypes: • The first prototype should demonstrate the student's ability to develop and code the game's core mechanic. • The second prototype should introduce graphic assets to the game and have developed other game assets (timer, score, health). • The third and final prototype should have a refined core mechanic, working visual assets, and the larger game environment (start screen, game over, score, sounds, etc.) put in place. This prototype will require observed and recorded play testing for final presentation and critique the last day of classes.	5 each
Final Game	For the last day of the class, students will be required to give a formal presentation of their final game design, its precedents, concept, various iterations, and testing for critique and review.	15
Attendance		10
Total		**100**

Notes on the grading criteria:
Work will be evaluated according to the following criteria:
  • Understanding and interpretation of readings
  • Research and Analysis of related issues
  • Contribution to in-class discussion

Participation:
A student's participation grade is based primarily on their attendance and participation in class. Every student begins the term with 10 participation points. Attendance is mandatory for every single scheduled class. For each class missed, 3 participation points will be deducted. Tardy students will have 1 participation points deducted. More than three absences will amount to a failure, as a student may not earn less than 0 participation points.

Academic policies (from Catalogue):
Hostos Community College believes that developing student's abilities to think through issues and problems by themselves is central to the educational process. Since the Hostos College degree signifies that the student knows the material s/he has studied, and the practice of academic dishonesty results in grades or scores that do not reflect how much or how well the student has learned, understood, or mastered the material, the College will investigate any form of academic dishonesty brought to its attention. If the charge of academic dishonesty is proved, the College will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery.

Cheating (from Catalogue):
In the collegiate setting, cheating is defined as the purposeful misrepresentation of another's work as one's own. Faculty and students alike are responsible for upholding the integrity of this institution by not participating either directly or indirectly in act of cheating and by discouraging others from doing so.

Plagiarism (from Catalogue):
Plagiarism is a form of cheating which occurs when persons, even if unintentionally, fail to acknowledge appropriately the sources for the ideas, language, concepts, inventions, etc. referred to in their own work. Thus, any attempt to claim another's intellectual or artistic work as one's own constitutes an act of plagiarism.

Bribery (from Catalogue):
In the collegiate setting, bribery involves the offering, promising, or giving of items of value, such as money or gifts, to a person in a position of authority, such as a teacher, administrator, or staff member, so as to influence his/her judgment or conduct in favor of the student. The offering of sexual favors in exchange for a grade, test score, or other academic favor, shall be considered attempted bribery. The matter of sexual favors, either requested or offered, in exchange for a grade, test score or other academic favor, shall also be handled as per the Sexual Harassment procedures of the College.

College attendance policy (from Catalogue):
Students are expected to attend all class meetings in the courses for which they are registered. Classes begin at the times indicated in the official schedule of classes. Arrival in class after the scheduled starting time constitutes lateness.

The maximum number of absences is limited to 15% of the number of scheduled class hours per semester and a student absent more than the indicated 15% is deemed excessively absent. Attendance is monitored from the first official day of classes. In the case of excessive absences or lateness, the instructor has the right to lower the grade, assign a failing grade, or assign additional written work or readings.

Absences due to late registration, change of program, or extenuating circumstances will be considered on an individual basis by the instructor. Each department and program may specify in writing a different attendance policy. Instructors are required to keep an official record of student attendance and inform each class of the College's or department attendance policy.

NOTE:
- Any work missed during any period of absence must be made up by the student.
- To meet financial aid criteria, a student must attend class at least once in the first three weeks and once in either the fourth or fifth week of class.

Course schedule:
Readings must be completed for each class. Not all assigned texts will be discussed in class or covered in the class lectures.

Class	Lecture	Due	Other	Reading
1	• Class Introduction • Intro to the Unity environment		CE1: Read the Input.GetKey API and build a new Hello World program that moves the text based on certain keys being pressed	Unity Beginner Scripting Tutorials 1-5
2	• Programming Concepts: Variables, Conditions	CE1		
3	• Programming Concepts: Loops	CE2		
4	• Programming Concepts: Functions	CE3		
5	• Programming Concepts: Arrays			
6	• Programming Concepts: Objects	GE1		
7	• Game Sound • Workshopping	GE2		
8	Game Jam			
9	Game Pitches	GE3		
10	Presentation: Final Game Proposal	GP		
11				
12	Production: Protoype 1 / Testing	FGP1		

13	Production: Protoype 2 / Testing	FGP2		
14	Production: Protoype 3 / Testing	FGP3		
15	Game Jam	FG		