GAM 340 : Practical Scripting for Games

Course Description

This workshop introduces game scripting to artists and game designers. A game script is a short list of commands that control something in a game, such as how a character moves, or an enemy's behavior. Students will learn to read, modify, and author scripts that generate and affect a variety of game elements over the course of weekly projects.

Quarter :	Winter Quarter 2020-2021 (Section 502, Class 28351)
Location:	Virtual (Zoom)
Lecture Meeting Times:	Monday/Wednesday 11:50am-1:20pm Central
Office Hours:	Thursday 5:30pm-7:00pm Central
Software:	Unity
	Visual Studio
Course Websites:	D2L
	Discord
Prerequisites:	GAM 240, CSC 241, CSC 242, or CSC 243
Instructor:	Arianna Rudawski
	arudawsk@depaul.edu

Course Goals

Within the scope of the Unity 3D game engine, scripts are responsible for the bulk of the action that drives a game – responding to player input, controlling timed or triggered game events, driving the physics of game objects, the list goes on. In this course, students will learn to read, modify, and write (from scratch!) custom game scripts to drive the actions of an interactive 3D game that will be created over the course of this ten-week course, with biweekly checkpoints to ensure smooth and consistent development. At the end of this course, students will have finished a complex project worthy of their game development portfolios that they can further customize to fit their own needs.

Students' success in this course will rely on conscious participation and consistent practice. All assignments in this course (apart from any extra credit assignments) will build upon each other so it will be important to keep up with course content on a weekly basis.

Learning Objectives

- Students will gain a breadth of understanding of how to design and implement behaviors in games
- Students will learn how to break down common behaviors found in games and implement these behaviors into their own projects – including movement, projectiles, UI, and game management
- Students will gain firsthand programming experience in a long term development project and will gain a better understanding of the relationship between Design and Programming in game development

Course Schedule

This schedule is VERY tentative and very subject to change. Any changes will be addressed during lectures, posted on D2L, and sent via email update.

	Week	Topic	Homework	
1	1/4/2021	Intro to Unity & Coding		
2	1/11/2021	Movement	Checkpoint 1	1/17/2021
3	1/18/2021	Physics		
4	1/25/2021	Projectiles	Checkpoint 2	1/31/2021
5	2/1/2021	Game Management		
6	2/8/2021	UI	Checkpoint 3	2/14/2021
7	2/15/2021	Animation		
8	2/22/2021	Advanced Programming Techniques	Checkpoint 4	2/28/2021
9	3/1/2021	Final Project Workday		
10	3/8/2021	Extra Credit & Extra Topics	**Final Project**	**3/12/2021**
11	3/15/2021	Finals Week	Extra Credit	3/19/2021

Grading

This course will be graded completely on the final project and its checkpoint assignments. No quizzes, no exams. Attendance is not a factor in grading this course, but active participation will absolutely help you keep your grades up!

Checkpoint 1	15%
Checkpoint 2	15%
Checkpoint 3	15%
Checkpoint 4	15%
Final Project	**40%**

Every day that a student's assignment is late will remove 5% of the points from that assignment's grade. For example, if a student completes an assignment and earns a 97%, but the project is submitted 12 hours late, the assignment will earn the student 92%.

Software

All of the software used in this course is available free to download online.

I repeat… DO NOT PAY MONEY FOR SOFTWARE FOR THIS CLASS!

Unity 2019.4.17f1

- This is the game engine that will help us turn our game assets into game scenes
- System Requirements
    - OS: Windows 7 SP1+, 8, 10, 64-bit versions only; Mac OS X 10.12+; Ubuntu 16.04, 18.04, and CentOS 7
    - GPU: Graphics card with DX10 (shader model 4.0) capabilities
- Download
    - https://unity3d.com/get-unity/download
    - Download Unity Hub
    - If you don't have a Unity ID, create one now
    - In Unity Hub go to Installs, Add, and then select the 2019.4.17f1 version of Unity

Visual Studio Community 2019

- This is the Integrated Development Environment (IDE), or basically, the software where we write the code that becomes our scripts
- System Requirements
    - https://docs.microsoft.com/en-us/visualstudio/releases/2019/system-requirements
- Download
    - https://visualstudio.microsoft.com/vs/unity-tools/
    - Download Community 2019

Online Resources & Textbooks

There are no required textbooks for this course, as all course content will be available through lectures, modules, and online resources.

Unity Resources

- Unity Learn (Free during quarantine, take advantage of this!) https://learn.unity.com/
- Unity Scripting Manual https://docs.unity3d.com/Manual/ScriptingSection.html

Textbooks

Students who want to obtain additional resources can check out these books…

- *Unity Game Development Cookbook: Essentials for Every Game* by Paris Buttfield-Addison
    - ISBN: 978-1491999158
- *Learning C# by Developing Games with Unity 2020* by Harrison Ferrone
    - ISBN: 978-1800207806

Collaborating && Academic Integrity

You are encouraged to work together on the projects in this class! This is why we have a Discord. Of course, there is a fine line between collaborating and copying. We will all do our best as a class to keep it COLLABORATIVE. Everyone is 100% responsible for their own work, so if you receive some help in your script from a classmate or grab a chunk of code from stack overflow, you will want to *refactor the code* and make it your own before you submit. We will discuss refactoring in greater detail in class.

Biweekly checkpoint assignments are in place to help keep everyone on track, but there is no shame in falling a little behind. If you feel stuck and feel yourself even starting to feel tempted to plagiarize, reach out for help. Don't compromise your integrity! It's easy to get the assistance you need -- ask a question on discord, talk to your instructor during office hours.

A student who submits a plagiarized assignment will receive an automatic F in the class and will be put up for Academic Integrity Violation.

Course Policies

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. If you have any questions be sure to consult with your professor. More information can be found at http://academicintegrity.depaul.edu/

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: cdm.depaul.edu/enrollment.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities:

> Center for Students with Disabilities (CSD)
> csd@depaul.edu
> Lewis Center 1420, 25 East Jackson Blvd.
> Phone number: (312)362-8002
> Fax: (312)362-6544
> TTY: (773)325.7296

Retroactive withdrawal

This policy exists to assist students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. During their college career students may be allowed one medical/personal administrative withdrawal and one college office administrative withdrawal, each for one or more courses in a single term.

Repeated requests will not be considered. Submitting an appeal for retroactive withdrawal does not guarantee approval. Information on enrollment, withdrawal, grading and incompletes can be found at:

> http://www.cdm.depaul.edu/Enrollment-Policies.aspx