**USC**School of Cinematic Arts

**CTIN 485L and Advanced Game Development**

**Units: 2.0**

**Fall—Thursday—6:00 – 8:50pm:**

IMPORTANT:

The general formula for contact hours is as follows:

**Courses must meet for a minimum of one 50 minute session per unit per week over a semester.**

(Please refer to the *Contact Hours Reference,* located at usc.edu/curriculum/resources.)

**Location:** SCL L113

**Instructor: Archie**

**Office:** e-mail to setup time

**Office Hours:** (General guideline: 1 weekly office hour for each 4 unit class taught. Office hours are not to be calculated in “contact hours.”)

**Contact Info:** archieoi[at]gmail.com, 213-915-4582

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**Course Description**

In this course for the Interactive Media Games Division, students will learn to work with advanced 3D engines. The class is taught in Unity development environment C# and a 3D engine of the students choice.

By using these tools, students will gain an understanding of concepts of advanced 3D game development. Unity is a professional tool used in game studios that is ubiquitous throughout the industry and used to make games such as Hearth Stone, Kerbal Space Program, Monument Vallie and many more.

In addition to understanding game production pipelines, we will boil down these development methodologies for production for smaller teams and indie development.

By the end of the course, you will have the skills to create interactive prototypes of your own ideas. You should expect to come out of this course having the skills to begin working at a AAA studio using the engine as well as the ability to push the limits of interactive game design.

**Learning Objectives**

Students will have the ability upon completion to convey their ideas of game prototypes using the Unity Engine. By having fluency within the engine, designers will be able to turn their ideas into reality. With the ability to create working prototypes, a game designer can take the first steps into taking a project into completion.

In addition, we will explore the limits of what is possible within the engine –first creating designs of classical game prototypes and then expand upon what it means to push the boundaries of interactive games.

By the end of the course, students will have a deeper understanding of 3D game development with a thorough grasp of game design patterns within Unity.

**Prerequisite(s):** course(s) that must be taken prior to this course are CTIN 483, CTIN 484, CTIN 488, CTIN 489

**Course Notes**

**Technological Proficiency and Hardware/Software Required**

Computer with a high end video card as well as a Unity and a 3D Animation package with be required. A advanced understanding of programing and basic understanding of design patternsof 3D game packages.

**Required Readings and Supplementary Materials**

Course Github - <https://github.com/>

Unity API Docs - <https://docs.unity3d.com/ScriptReference/Resources.html>

Unity Tutoirals - <https://unity3d.com/learn/tutorials>

CTIN 485L Rreddit - <https://www.reddit.com/r/ctin485l_fall2016/>

**Description and Assessment of Assignments**

Grading will be based on assignments given over the duration of the course.

**Grading Breakdown**

How will students be graded overall, including the assignments detailed above. Participation should be no more than 15%, unless justified for a higher amount. All must total 100%.

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| **Assignment** | **% of Grade** |
| Homework | 40% |
| Mini Game Project | 20% |
| Final Game Project | 30% |
| Participation | 10% |
| *Total* | *100%* |

**Assignment Submission Policy**

Describe how, and when, assignments are to be submitted.

**Missing an Assignment Deadline, Incompletes:**

The only acceptable excuses for missing an assignment deadline or taking an incomplete in the course are personal illness or a family emergency. Students must inform the instructor ***before the assignment due date*** and present verifiable evidence in order for a deadline extension to be granted. Students who wish to take incompletes must also present documentation of the problem to the instructor or student assistant before final grades are due.

For assignments turned in after the assignment deadline without prior permission from the instructor, a penalty will be imposed equal to 10% of the total available points for the assignment, for each day or part of a day that the assignment is late, up to a maximum of seven days.

**Attendance Policy:**

Punctual attendance at all classes is mandatory. Students arriving more than five minutes late to three classes, more than ten minutes late to a single class, or leaving early, will be marked as having an unexcused absence from class, unless prior permission has been obtained from the instructor. The following guidelines are from the Interactive Media & Games Division handbook regarding absences and grading and apply to all students.

Guidelines for absences affecting grading

* Two unexcused absences: lowers grade one full grade point (for example, from A to B)
* Three unexcused absences: lowers grade two full grade points
* Four or more unexcused absences: request to withdraw from course (instructor’s discretion)

Excused absences are:

* Illness (with a doctor’s verification)
* Family or personal emergency (with verification)

Social media, including text messaging and internet messaging, are excluded from class unless explicitly permitted by the instructor. A 0.5% grade reduction will result from each occurrence of a student being found using them.

**Diversity**

In making games and interactive media in a professional and ethical way, it is important that you consider diversity. When looking at your projects, you should consider who is depicted and how this work will impact others. What kinds of individuals and communities are represented in your work? What point of view does your work express? This class my assist you in learning how to make work that includes diverse viewpoints, and may discuss racial, religious, gender and sexual orientation issues in the context of games and interactive media.

**Additional Policies**

Add any additional policies that students should be aware of: late assignments, missed classes, attendance expectations, use of technology in the classroom, etc.

**Course Schedule: A Weekly Breakdown**

**Week 1 – 3: 3D Production Pipeline**

Covering aspects of 3D game production pipeline from animation, rigging, modeling and intergration of assets into Unity.

Assignment: Individual assignments will be given each week. All assignments are pass/fail.

**Week 4 – 6: Path Finding**

Implemening pipeline for patfinding inside of Unity.

Assignment: Individual assignments will be given each week. All assignments are pass/fail.

**Week 7 - 10: AI & Mini Game Project**

Structure: We will continue with lectures during the first half of the class, covering deeper aspects of the game engine AI programming covering aspect of game stages, state machines and b-trees.

Assignment: Teams will be formed to create a Mini Game project, working off the base starter projects students will create a unique prototype that will challenge and mix up core game archetypes.

**Week 11 – 13: Networking, Networking, Networking**

Implemening pipeline for Netowrking inside of Unity.

Assignment: Individual assignments will be given each week. All assignments are pass/fail.

**Week 13 – 15: Final Game Project**

Structure: First half of the class will be dedicated to continued lectures on advanced aspects of the engine.

Assignment: Teams will be formed to create a new, unique game prototype based on a few prompts. This project should both showcase the skills that they’ve learned via the semester and express a unique game design vision. Teams will also required to give scrum updates on the progress of the project and aquire feedback from fellow classmates.

**Final Exam**

During the final class we will set up a play session to show off what all students have made. Teams will be expected to give a standup postmortem explaining your thoughts on the development process. Also expect visitors to come play what you have made.

**Academic Conduct**

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences.  Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards*<https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>.  Other forms of academic dishonesty are equally unacceptable.  See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university.  You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>.  This is important for the safety whole USC community.  Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person.  *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

## **Support Systems**

A number of USC’s schools provide support for students who need help with scholarly writing.  Check with your advisor or program staff to find out more.  Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students.  *The Office of Disability Services and Programs* <http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html>provides certification for students with disabilities and helps arrange the relevant accommodations.  If an officially  declared emergency makes travel to campus infeasible, *USC Emergency Information* [*http://emergency.usc.edu/*](http://emergency.usc.edu/)will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

**Disruptive Student Behavior**:

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

**Syllabus Updates**:

This syllabus is liable to change up to the beginning of class and possibly over the semester. Please check the posted syllabus regularly, and note all changes that are shared by the instructor in class.