

## 2D/3D Game Development

CS 497 • Summer I 2019

### Course description

A project-intensive course on developing games in 2D and 3D using Unreal Engine and others. The entire game dev pipeline will be covered in addition to creating 2D and 3D characters and other assets that import seamlessly into the engine, as well as level and environmental design, artificial intelligence, state machines and more. Heavy emphasis will be placed on the 3D modeling pipeline such as geometry, lighting, basic animation, textures and materials. Learn everything you'll need to create a 1st or 3rd person dungeon crawler RPG and more.

### Course objectives

Students will be able to create game and texture game assets, put those into their game, develop the logic for their game and export their game to various platforms including mobile devices.

### Pre Requirements

CS 321

### Materials Needed

Mac or PC

Recommended specs:

- Windows 7 64-bit or Mac OS X 10.9.2 or later
- Quad-core Intel or AMD processor, 2.5 GHz or faster
- NVIDIA GeForce 470 GTX or AMD Radeon 6870 HD series card or higher
- 8 GB RAM

### Grading Scale

97-100 A+	77-79 C+
94-96 A	74-76 C
90-93 A-	70-73 C-
87-89 B+	<70 R
84-86 B	
80-83 B-	

### Software

Blender: <http://www.blender.org>

Godot: <https://godotengine.org>

Unreal Engine: <https://www.unrealengine.com>

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*Mon, Tues, Wed 12:15 PM - 2:05 Tue & Thur*

### Week 1

May 13 – 15

- Intro to the course
- Intro to 2D and 3D graphics
- 3D Modeling

### Week 2

May 20 – 22

- Game engines overview and concepts
- Godot Engine
- Unreal Engine

### Week 3

May 27 – 29

- Blueprints and C++ game logic
- Colliders and Triggers and Physics
- Timelines
- Animations

### Week 4

June 3 – 5

- Storytelling in games and GDDs
- Level design and maps
- Game modes
- Health and player stats
- Characters and animations

### Week 5

June 10 – 12

- Design patterns
- Game architecture
- Game Mechanics

### Week 6

June 17 – 19

- Artificial intelligence
- Game Industry

### Week 7

June 24 - 26

- Publishing your game
- Making money with your game
- Game marketing