**CSE 490J: Special Topics in Computer Animation**

Real-Time Production

Prerequisites: (none)

General Information:

Class Schedule: Thursdays 6 – 8:50pm

Class room: Sieg 332

Lab: Sieg 329

Professor: Natalie Burke

**Contact:** [**natburke@cs.washington.edu**](mailto:natburke@cs.washington.edu)**, natburke@uw.edu**

Class web page: https://courses.cs.washington.edu/courses/cse490j/18au/

Computer support: support@cs.washington.edu

Access to labs: cardkey@cs.washington.edu

Staff alias: cse490j-staff@cs.washington.edu

CSE account request: https://www.cs.washington.edu/lab/support/accountapp30.pdf

Lab hours: 24hrs

Support maintenance: Saturday 2 am – 4 am

Staff office hours: TBD

Class description:  
Over the past few years more and more entertainment verticals are moving away from offline rendering technology in favor of real-time engines. The main objective of this course is to cover the techniques and strategies used for creating content for runtime environments. Students will be introduced to various 3D engines and runtime development pipelines built to increase the efficiency of 3D production. Beyond pipeline development, shading, lighting, and effects for runtime will also be covered. At the end of the course students will have the skills necessary to tell a story using a runtime engine (Unity) for traditional and virtual reality formats.   
  
  
Course Schedule:

9/27:

First Day of Class

Topic: Intro to runtime and game engine basics

Project 1, Part 1 Assigned: Becoming familiar with using a game engine

10/4:

Topic: Pre-production

Project 1, Part 1 Due

Project 1, Part 2 Assigned: Camera Animation

10/11:

Topic: Development tools and source control

Project 1, Part 2 Due

Project 1, Part 3 Assigned: Collaboration

10/18:

Topic: Lighting and Post-Processing

Project 1, Part 3 Due

Project 1, Part 4 Assigned: Lighting and Post-Processing

10/25:

Topic: Rendering and budgets

Project 1, Part 4 Due

Project 2 Assigned: Rendering

11/1:

Topic: Physically-based rendering

11/8:

Topic: Visual Effects (guest lecturer)

Project 2 Due

Project 3 Assigned: Mouse Trap (real-time edition)

11/15:

Topic: Character shading

First group of Project 2 presenters

Project 3, Part 1 Due

11/21:

Project 3, Part 2 Due

11/22:

No class- Thanksgiving

11/29:

Topic: Virtual Reality

Project 3 Due

Second group of Project 2 presenters

Project 4 Assigned: VR Pre-production

12/6:  
Last day of class

Industry visitors

Viewing of Mouse Trap videos

Project 4 Part 1 Due

12/13:

Project 4 Due

Grading Policy:

* 20% from participation
* 20% from Project 1
* 20% from Project 2
* 20% from Project 3
* 20% from Project 4
* Project grades are based on how they each meet their individual grading rubrics. Rubrics will be posted before each assignment.
* Participation portion is based on engagement during class and contribution to in-class exercises.

Late Policy:

It is important to turn assignments in on time in order to keep up in the class. Late assignments will be accepted but 0.5 points will be deducted from the final grade **(out of 100)** for **each hour** an assignment is late.

Absence:

If you are more than 15 minutes late for a class (or leave early) it is marked as an unexcused absence.

• 2 unexcused absence: reduction of final grade by one full grade letter.

• 3 unexcused absences: class failure

If you cannot attend a class due to a significant conflict:

• Contact your instructor in advance if possible, or as soon afterward as possible.

• If you need a due date extension for a project this must be requested before the project’s due date, and extensions will only be granted on a case-by-case basis.

Lab Rules:

1. Only students of the Animation Capstone are allowed in the labs. Anyone else must obtain specific permission from Barbara Mones before entering. This means no girlfriends/boyfriends/family members, etc. This is for the safety of the students as well as the security of our equipment.

2. Our labs (Sieg 329 and 332) must be kept clean. They are community spaces, and it is important that they stay as clean as possible for everyone who uses them. This means keeping your own workstation clean, as well as doing your part to keep the floor and refrigerator clean. The kitchen in Sieg 319 is also used by other programs, so it is essential that you clean up your own messes, as well as return any dishes you may use as soon as possible after you're finished using them.

3. Always follow the golden rules within our lab spaces.

<http://courses.cs.washington.edu/courses/cse458/16au/administrative/the_golden_rules.html>

Instructor’s Biography:

Natalie Burke is Lead Technical Artist on the graphics team at Unity Technologies. She works to bridge the gap between computer science and art to increase the visual potential in real-time computer graphics. She has worked for years on improving artist pipelines with focuses on creating content inside of virtual reality, runtime and baked simulation, and character hair creation for runtime environments. She has worked in tandem with both artists and engineers to produce content for games such as Bungie’s *Destiny*, *The Taken King*, and Limitless Ltd’s *Gary the Gull*, and The Limitless Creative Environment. She has presented at respected conferences such as SIGGRAPH, GDC, and CEDEC about techniques for improving visual potential and the process of creating art for video games. She has a BS in Digital Arts and Sciences from the University of Florida and an MS in Interactive Entertainment from the University of Central Florida.