

**New York University Tandon School of Engineering**

Department of Integrated Digital Media

**DM-UY 4913-A** Special Topics in Digital Media: Game Development with Unity

**Fall 2023**

**Professor Seth S. Scott**

## Meeting Times & Location

- Tuesday & Thursday, 8:00am - 9:50am

## Contact Information

- Email: [sss782@nyu.edu](mailto:sss782@nyu.edu)
- Phone: (505) 550-6996
- Office Hours: Available by request

## Course Prerequisites

There are no course prerequisites. This is an introductory game development course and there are no expectations other than basic computer knowledge. Some knowledge of computer programming, 2D and 3D asset creation, or prior knowledge of the Unity engine is a big plus but not required.

## Course Description

In this class, students will receive an intensive tutorial of the Unity game engine, be exposed to the different aspects of the game development process, and gain a basic understanding of the principles of game design. Heavy emphasis will be placed on understanding Unity's place in the game development pipeline and mastering its unique world-building and scripting capabilities. This is a project-based class where students will get the opportunity to use what they have

learned in lectures to develop their own 2D or 3D games. Students will work individually and in groups, and by the end of this course will have completed at least one full game.

## Course Structure

Students are expected to:

- Attend class twice a week at the meeting times mentioned above.
- Tuesday classes will be an overview of each week's topic and goals.
- Thursday will be a lab class in which students can begin to implement the things we learned this week. I will be available for one-on-one help through class on Thursday.

## Readings

Technical information about the Unity Game engine will be largely available through the official Unity documentation and online tutorials. Throughout the course, I may refer to some readings from the following books. I think both of these are super fun and great books on games, play, and the dev process:

- **The Infinite Playground: A Player's Guide to Imagination, Bernard De Koven**
- **How to Do Things With Videogames, Ian Bogost**

## Attendance Policy

Students are allowed one (1) unexcused absence. Any further unexcused absences will result in a loss of 5 points from the participation component listed in the [grading](#) section. **This is roughly equivalent to 1/3 of a grade penalty in most cases.**

# Grading

Your final grade for this course will be broken down into the following components:

Participation and Attendance: 20%

Project 1: 20%

Project 2: 20 %

Final project: 40%

# Schedule

Week 1: Syllabus Overview / Intro to Unity [09/05, 09/07]

- Games, Intros, Syllabus overview, Unity Installs/Setup
- Unity Introduction, Basic Movement
  - GameObjects and the Entity Component System

Week 2: Basic Movement, Rigidbodies, Physics & Colliders [09/12, 09/14]

- Rigidbodies, what are they?
- Forces, collisions, collectibles and enemies!
- What is the Scene Manager?

Week 3: Tagging, 2D vs 3D in Unity, Camera Movement [09/19, 09/21]

- Basics of programming in C#
- Choosing the IDE for you
- The role of Physics and Colliders in Unity

#### Week 4: Unity UI System Implementation, Static Variables [09/26, 09/28]

- UI design and implementation
- Overview of building UI for multiple resolutions

#### Week 5: Sound & Audio Design [10/03, 10/05]

- Working with music, sfx and audio design

#### Week 6: No Class Tuesday, Lab Time Thur [**10/10 NO CLASS**, 10/12]

- 1 on 1 Time during LAB this week to check in and answer any Q's, FINAL prep for showing Project 1 next week

#### Week 7: Project 1 DUE, Select Groups for Project 2 and Plan [10/17, 10/19]

- Projects Due and playable in class on Tuesday 10/17
- Select groups for Project #2, and use lab time to decide on an idea to come ready to work on next week

#### Week 8: Advanced Unity Systems/PlayerPrefs, Group Lab [10/24, 10/26]

- Exploring saving/data management by using Unity PlayerPrefs to store data between sessions and multiple playthrough styles.
- Unity Asset Store Ideas, ProBuilder
- Building your game.

#### Week 9: Animation and the Animator & Group Lab Time [10/31,11/02]

- A deep dive in Unity's Animation features and techniques

#### Week 10: Collaborative Group Work Week [11/07, 11/09]

- This week will be dedicated to a group project. Now that you have a great base of skills so far, our group projects will have the ability to push our projects even further.

## Week 11: Playtesting & Feedback, Project 2 Presentations [11/14, 11/16]

- ½ of TUE LAB is Group Work, ½ of TUE is Playtesting Session
- Thursday Groups will present what they learned from Playtesting, how they changed it, and then we will show our final games for Project 2 for group playing

## Week 12: Unity AI and Navigation, Final Project Ideas [11/21, **11/23 NO CLASS**]

- Understanding ways to start creating dynamic and interactive AI for games
- Plan final project ideas and proposals and come ready to share next week
- Happy long weekend!

## Week 13: In-depth Topics by Request, Final Project Proposals [11/28, 11/30]

- Topics by request! Please think of anything throughout the semester and we can tackle some fun ideas to expand here
- Kicking off Thursday lab with final project proposals!

## Week 14: Work Week for Final Project [12/05, 12/07]

- Specialized help individually for students ramping up to presenting their final projects

## Week 15: Final Project Playtesting, Final Project Presentations [12/12, 12/15]

- ½ of TUE LAB is work time, ½ of TUE is Playtesting Session
- Final game presentations and gameplay on 12/15

# Moses Center Statement of Disability

If you are a student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities (CSD) at 212-998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu). You must be registered with CSD to receive accommodations.

Information about the Moses Center can be found at [www.nyu.edu/csd](http://www.nyu.edu/csd). The Moses Center is located at 726 Broadway on the 3rd floor.

## NYU School of Engineering Policies and Procedures on Academic Misconduct

- A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.
- B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:
1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having

someone take an exam for you or taking an exam for someone else;  
violating other rules governing the administration of examinations.

2. Fabrication: including but not limited to, falsifying experimental data and/or citations.
3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
4. Unauthorized collaboration: working together on work that was meant to be done individually.
5. Duplicating work: presenting for grading the same work for more than one project, or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.
6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.

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If you are experiencing an illness or any other situation that might affect your academic performance in a class, please email the Office of Advocacy, Compliance and Student Affairs:  
[eng.studentadvocate@nyu.edu](mailto:eng.studentadvocate@nyu.edu).

#### STATEMENT ON INCLUSION

The NYU Tandon School values an inclusive and equitable environment

for all our students. I hope to foster a sense of community in this class and consider it a place where individuals of all backgrounds, beliefs, ethnicities, national origins, gender identities, sexual orientations, religious and political affiliations, and abilities will be treated with respect. It is my intent that all students' learning needs be addressed, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. If this standard is not being upheld, please feel free to speak with me.