



# Create with Code:

## Course Syllabus

In this official high school course from Unity, you will learn to Create with Code as you program your own exciting projects from scratch in C#. As you iterate with prototypes, tackle programming challenges, complete quizzes, and develop your own personal project, you will transform from an absolute beginner to a capable Unity developer. By the end of the course - if you want - you will be ready to put your skills to the test on the Unity Certified User Programming Exam. Most importantly, though, when you complete this course, you will have the confidence that you can Create with Code.

### Objectives

<b>C# Skills:</b>	Students will gain a foundational knowledge of programming in C# and will feel confident that they can implement new features on their own with this knowledge
<b>Unity Skills:</b>	Students will have the confidence that, given enough time and resources, they could create anything they want in Unity
<b>Project Management:</b>	As students create their own personal projects, they will learn to manage the process from start to finish: outlining their concept, setting project milestones, and tracking progress.
<b>Unity Certified User Exam:</b>	Should they choose, students will have the skills and confidence to pass the Unity Certified User Programming exam, earning an official certificate validating their skills




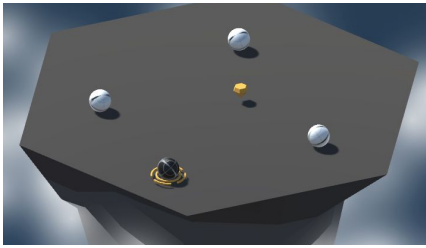
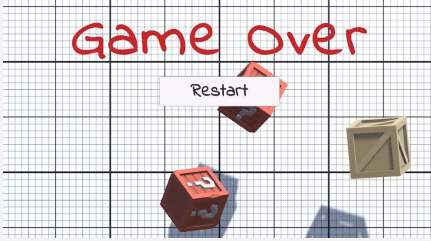
### Requirements

<b>Knowledge &amp; Skills</b>	Students are not required to have any prior knowledge or skill with programming, C#, or Unity development
<b>Hardware &amp; Software</b>	Students are required to have a computer <a href="#">capable of running Unity</a> and a mouse with a scroll wheel (*note that an Apple "magic mouse" will not work)

### Duration

<b>Independently</b>	If taking the course independently, the full course will take: <b>30-50 hours</b>
<b>In a Classroom</b>	If delivering the course to students in a classroom, the full course will take: <b>50-70 hours</b>

# Course Overview

Unit	Prototypes	Assessments	Personal Project	
1	<b>Driving Simulator</b> 	<i>Learn basic <b>player control</b> as you program a car that can steer down a floating road, avoiding (or hitting) obstacles in the way</i>	→ Challenge 1 → Quiz 1	→ Lab 1
2	<b>Feed the Animals</b> 	<i>Learn to implement <b>basic gameplay</b> with this top-down game where you throw food at animals, who are charging towards you.</i>	→ Challenge 2 → Quiz 2	→ Lab 2
3	<b>Run and Jump</b> 	<i>Learn to add <b>sound, animation, &amp; effects</b> with this side-scrolling game where the player needs to time their jumps over oncoming obstacles.</i>	→ Challenge 3 → Quiz 3	→ Lab 3
4	<b>Sumo Battle</b> 	<i>Learn to program <b>gameplay mechanics</b> in a game where the player tries to knock off waves of enemies, using power-ups to help defeat them.</i>	→ Challenge 4 → Quiz 4	→ Lab 4
5	<b>Quick Click</b> 	<i>Learn to implement a <b>user interface</b> in a game where the player needs to click on objects tossed in the air before they fall off the screen.</i>	→ Challenge 5 → Quiz 5	→ Lab 5

Continued Lab work on Personal Projects

# Grading and Rubrics

## Overview

- 40%: Prototypes | 5 x 8% each
- 15%: Challenges | 5 x 3% each
- 10% Quizzes | 5 x 2% each
- 35% Personal Project | 1 x 35% each

\* Note that these weight values are only suggestions

## Prototypes

<b>Weight</b>	40% (5 x 8% each)
<b>Description</b>	Students follow along step-by-step over the course of 4 lessons to create a prototype with the same functionality as the instructor, but with a few of their own creative choices.
<b>Purpose</b>	To teach students all of the concepts and skills they'll need to complete the challenges and quizzes, and to provide examples of core components that they could add to their personal projects

4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
<ul style="list-style-type: none"><li>- Project runs without error</li><li>- All functionality present and operating as expected</li><li>- Code and hierarchy are neat &amp; commented, using correct conventions</li></ul>	<ul style="list-style-type: none"><li>- Project runs without error</li><li>- All functionality present and operating mostly as expected</li><li>- Code and hierarchy are mostly neat &amp; commented, using correct conventions</li></ul>	<ul style="list-style-type: none"><li>- Project runs with some issues</li><li>- Some functionality missing, and overall not operating as expected</li><li>- Code and hierarchy are disorganized, using inconsistent conventions</li></ul>	<ul style="list-style-type: none"><li>- Project barely runs</li><li>- Most functionality absent</li><li>- Code and hierarchy are messy, with no sign of consistency in conventions</li></ul>

## Challenges

<b>Weight</b>	15% (5 x 3% each)
<b>Description</b>	Students are provided with an incomplete or broken version of a project and tasked with 5 items to implement or resolve, including a couple of Bonus challenges. They are also provided with hints and an example of a completed challenge.
<b>Purpose</b>	To allow students to apply the skills they learned while creating the prototype to a new, but somewhat similar context, solidifying the concepts and extending their skills.

4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
<ul style="list-style-type: none"><li>- All 5 tasks have been completed fully</li></ul>	<ul style="list-style-type: none"><li>- 4 out of 5 of the tasks have been completed</li></ul>	<ul style="list-style-type: none"><li>- 3 out of 5 of the tasks have been completed</li></ul>	<ul style="list-style-type: none"><li>- 2 or less of the tasks have been completed</li></ul>

## Quizzes

<b>Weight</b>	10% (5 x 2% each)
<b>Description</b>	Students complete 10 multiple choice questions.
<b>Purpose</b>	To give students the opportunity to apply and check their knowledge in a decontextualized environment, which will also help prepare them for the Unity Certified User exam.

4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
- 9-10 out of 10 correct	- 7-8 out of 10 correct	- 5-6 out of 10 correct	- Less than 5 out of 10 correct

## Personal Project

<b>Weight</b>	35% (1 x 35% each)
<b>Description</b>	Students conceptualize, plan, and complete their own personal project throughout the course, integrating features they learned during the prototypes and extending them beyond. Students will be evaluated on <b>completeness</b> and <b>uniqueness</b> of their project.
<b>Purpose</b>	To give students an opportunity to <i>extend</i> their skills to a project that is uniquely their own, further solidifying the skills they learned and giving them the confidence that they can create whatever they want with the power of Unity and C#.

4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
<ul style="list-style-type: none"><li>- Project contains all of the features outlined in their project plan</li><li>- Stayed on track with their planned milestones</li><li>- Used their Unity and/or C# skills in a novel and creative ways</li><li>- Code and hierarchy are neat &amp; commented, using correct conventions</li></ul>	<ul style="list-style-type: none"><li>- Project contains most of the features outlined in their project plan</li><li>- Stayed mostly on track with their planned milestones</li><li>- Used their Unity and/or C# skills in new, but not necessarily creative ways</li><li>- Code and hierarchy are mostly neat &amp; commented, using correct conventions</li></ul>	<ul style="list-style-type: none"><li>- Project contains a few of the features outlined in their project plan</li><li>- Did not really stay on track with their planned milestones</li><li>- Did not use their Unity or C# skills in any new ways</li><li>- Code and hierarchy are disorganized, using inconsistent conventions</li></ul>	<ul style="list-style-type: none"><li>- Project does not contain any of the features outlined in their project plan</li><li>- Did not stick to their planned milestones at all</li><li>- Did not demonstrate an ability to apply skills they learned in the course</li><li>- Code and hierarchy are messy, with no sign of consistency in conventions</li></ul>