

GameMaker Programming I & II

Syllabus

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Overview: Learn the concepts taught in a college-level "Programming 101" course, but all of the projects are games! You will receive an introduction to basic programming by building two dimensional (2D) games. GameMaker, the 2D game engine you'll be using, is based on a scripting language that builds techniques that can be transferred to any other programming language such as Python, Java and C++. You will finish complete stand-alone executable games that can be played with friends and added to your digital portfolio.

Learning Outcomes: *Students will demonstrate proficiency with...*

- navigating GameMaker Studio Standard v1.3 software;
- using GML scripting language;
- designing a completely executable 2D game;
- exploring the game programming career field.

Length of Course:

GameMaker Programming I: Modules 1-10 (suggested) - Between 80 and 120 hours of coursework

GameMaker Programming II: Modules 11-21 (suggested) - Between 80 and 120 hours of coursework

Assessments Include: Formative and Authentic

Software Required: GameMaker Studio Standard v1.3

Modules	Lessons	Assignments
1 Ball Bouncer Project: Part I	1 Ball Bouncer Overview 2 Sprites 3 Ball Object 4 First Room 5 End of Game Background Workshop 1	<ul style="list-style-type: none">● Lesson 4 Activity● Lesson 4 Completed Project● Lesson 5 Discussion● Lesson 5 Completed● Module 1 Quiz● Workshop 1 Completed
2 Ball Bouncer Project: Part II	6 Two New Backgrounds 7 Playing Pieces 8 Objects and Instances 9 User Interface Workshop 2	<ul style="list-style-type: none">● Lesson 6 Discussion● Lesson 7 Completed● Lesson 9 Completed● Module 2 Quiz● Workshop 2 Completed
3 Debugging the Ball Bouncer Project	10 Computer Science Basics 11 Debugging Compile Errors 12 Debugging Runtime Errors 13 Global Variables 14 Adding a Power-up Workshop 3	<ul style="list-style-type: none">● Computer Science Background and Debugging● Compile Errors● Runtime Errors● Ways to Determine if it is Time to Destroy Objects● Lesson 14 Completed● How to Prevent Paddle from Rotating into Wall● Module 3 Quiz● Workshop 3 – Ball Bouncer Game

4 Basic Card Games - Matching	15 Matching Card Game 16 Managing Variables 17 Matching Game Iteration	<ul style="list-style-type: none"> Lesson 15 Completed Module 4 Quiz Finished Matching Game
5 Deck Card Games – Arrays and Loops	18 Creating a Deck of Cards 19 Deal a Deck 20 Begin Play 21 Deal a Deck Iteration	<ul style="list-style-type: none"> Lesson 18 for Loop Practice Deal a Deck Card Spacing Discussion Lesson 20 Completed Module 5 Quiz Deal a Deck Game Completed
6 Project 31	22 Getting Ready for 31 23 Setting up and Scoring the Cards 24 The Game Doc Workshop 4 Workshop 5 Workshop 6	<ul style="list-style-type: none"> Lesson 23 Completed Module 6 Quiz Array Runtime Error Workshop 4 Completed Workshop 5 Completed Workshop 6 Completed
7 Finish Project 31	Workshop 7 Workshop 8	<ul style="list-style-type: none"> Playtest Discussion Playtest Evaluation 31 Game 31 Game Evaluation
8 Start the Sky is Falling Project	25 Evolution of a Transmedia World 26 Finishing the Cut Scene Workshop 9	<ul style="list-style-type: none"> Lesson 25 Completed Move Together Module 8 Quiz Lesson 26 Completed Workshop 9 Completed
9 Continue the Sky is Falling Project	27 Capture the Animals 28 Game Timers Workshop 10	<ul style="list-style-type: none"> Lesson 27 Completed Captured Animal Discussion Lesson 28 Completed Module 9 Quiz Workshop 10 Completed
10 Finish the Sky is Falling Project	29 Lives 30 High Scores and Sound Workshop 11	<ul style="list-style-type: none"> Lesson 29 Completed Peggle Discussion Lesson 30 Sound Module 10 Quiz The Sky is Falling Game Evaluation The Sky is Falling Game
11 Start the Side Scroller Project	31 Player Ship 32 Build an Enemy Workshop 12	<ul style="list-style-type: none"> Lesson 31 Completed Layering Effects Lesson 32 Exploding Player Ship Assignment Module 11 Quiz Workshop 12 Completed
12 Side Scroller and Players	33 Add Parts to Player Ship 34 Player Weapons 35 Player Bases Workshop 13	<ul style="list-style-type: none"> Lesson 33 Completed Lesson 34 Add Player Weapons – Completed Module 12 Quiz Workshop 13 Completed
13 Side Scroller and the Enemy	36 The Enemy Ship Workshop 14	<ul style="list-style-type: none"> Build Points Lesson 36 – The Enemy Ship Completed Module 13 Quiz Workshop 14 Completed

14 Continue the Side Scroller Project	37 Enemy Waves 38 Create Link Ups 39 Maxi Blaster Weapon Workshop 15	<ul style="list-style-type: none"> ● Lesson 37 Completed ● Creating Enemy Waves Completed ● Lesson 39 – Maxi Blaster Weapon Completed ● Module 14 Quiz ● Workshop 15 Completed
15 Finish the Side Scroller Project	Workshop 16 40 Evaluate Keyboard Workshop 17	<ul style="list-style-type: none"> ● Workshop 16 Completed ● Lesson 40 – Adding Instructions Completed ● Side Scroller Game Evaluation ● Side Scroller Game
16 Maze Project	41 Maze Game 42 Player Movement Workshop 18	<ul style="list-style-type: none"> ● Lesson 42 Completed ● Workshop 18 Completed
17 Maze Project and Views	43 Views 44 Entering the Workshop 45 Workshop Storage Workshop 19	<ul style="list-style-type: none"> ● Ways to Check If Collision-Free Ahead ● Lesson 43 Completed ● Lesson 44 Completed ● Lesson 45 Completed ● Workshop 19 Completed
18 Continue Maze Project	Workshop 20 Workshop 21	<ul style="list-style-type: none"> ● Workshop 20 Completed ● Workshop 21 Completed
19 Maze Project and Traps	46 Variable Scope 47 Traps Workshop 22	<ul style="list-style-type: none"> ● Lesson 46 Completed ● Lesson 47 Completed ● Workshop 22 Completed
20 Maze Project and Enemies	48 Build Push Blocks 49 Deploy Mines 50 Complex Enemies	<ul style="list-style-type: none"> ● Lesson 48 Completed ● Lesson 49 Completed ● Lesson 50 Completed
21 Finish Maze Game	51 Enemy Health Workshop 23 Workshop 24	<ul style="list-style-type: none"> ● Efficient Code ● Lesson 51 Completed ● Workshop 23 Completed ● Maze Game Completed
<p>GameMaker Programming I Final Exam – Multiple Choice GameMaker Programming I Final Exam – Essay</p> <p>GameMaker Programming II Final Exam – Multiple Choice GameMaker Programming II Final Exam – Essay</p>		