GAME 160 : Game Engine Scripting

Online, Section 501, CRN 68434
Fall 2022

Instructor: Ian Burch

E-Mail: ianburch@unm.edu

Office and Hours: B110A, in-person hours M/W @ 11:00 - 12:00 am and 3:00 - 4:00 pm
                                Online on Zoom T @ 1:00 - 3:00 pm

Division Chair: Dr Stephen Takach; set@unm.edu

Course Goals:

Learn the core concepts of programming, such as conditionals, inputs, loops, as well as game specific concepts such as sprites, collision, and state-based AI. By the end of the semester, students will be able to program a feature-complete 2D game on their own.

Learning Objectives:

By the end of the course, students will:

(1) Understand core programming concepts such as conditionals, loops, and variables
(2) Incorporate art, sound, and other assets into a game
(3) Combine code and design to make games interactive and responsive
(4) Develop game AI using conditionals and finite state machines
(5) Program using industry standard practices to keep code legible and efficient

Materials:

You *must* have:

- Internet Access, for Learn, Zoom, and Youtube.
- Gamemaker Studio 2 (https://www.yoyogames.com/)
- Notebook

- Optional: Gamepad, such as an Xbox 360 controller
- Optional: Github account for version control
- Optional: Art programs, such as GIMP (https://www.gimp.org/), Aseprite (https://www.aseprite.org/),or Graphics Gale (https://graphicsgale.com/us/)

Course Details:

The course will be broken into two units, each building an entire game from start to finish. Unit one builds a top-down arcade shooter with enemy waves, score system, and powerups. Unit

two is a classic platformer with multiple levels, different enemy types, tile-based graphics, and a state-based movement and animation system..

Tentative Schedule:

This schedule is subject to change, but all topics listed will be covered during the semester

	Week	Topic	SLOs
8/22	**1**	Intro to Gamemaker, Basic Inputs	1, 3
8/29	**2**	Object Interaction	1, 3
9/5	**3**	Variables, GUIs	1, 5
9/12	**4**	Classes	1, 4
9/19	**5**	Menu	2, 3
9/26	**6**	Sound Effects	2, 3
10/3	**7**	Polishing & Extra Features	2, 3, 5
10/10	**8**	Project 1 Due	All
10/17	**9**	Project 2 Starts, Platforming & Collision	1, 5
10/24	**10**	Advanced Movement	1, 3, 5
10/31	**11**	Tilesets	2
11/7	**12**	State Machines	2, 4, 5
11/14	**13**	Rooms & Persistence	1, 5
11/21	**14**	Saving & Loading	1, 3, 5
11/28	**15**	Polishing & Extra Features	2, 3, 4, 5
12/5	**16**	Project 2 Due	All

Grade Breakdown:

Weekly Homework   50%
Final Arcade Game   20%
Final Platformer   20%
Participation & Activity 10%

While each project will have an overall grade, each project will be broken up into smaller assignments, each with their own due date. **The weekly assignments are 50% of the grade**. Grading will be primarily based on effort and completion. Letter grades will be given as follows, with + or - given for the highest and lowest 3% in each range, respectively:

90% - 100%	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
0% - 59%	F

Assignments:

Assignments will be given on UNM Canvas (https://canvas.unm.edu/) Homework assignments will typically be due either in one class session or a week after being assigned. Larger assignments and projects will be broken up into smaller pieces (such as drafts or rough versions) each with their own due dates, and the whole project given at least two weeks in advance.

Late Work / Absences:

Please email me ianburch@unm.edu if you're going to be late on an assignment and I'll generally give an extension. Unexcused late work may be docked points at my discretion, especially collaborative work that puts more of a burden on fellow students. Any assignments not submitted by the end of the semester (12/17) will be graded 0.

Expectations:

Students are expected to conduct themselves in a professional and collegial manner. Be respectful and polite of others ideas, work, and contributions. During Zoom meetings, be professional, appropriate, and mute when not speaking. When posting on discussion boards, be polite, concise, and avoid using internet slang. If you need an extension on an assignment, please email or message me before it is due. Students missing more than 4 consecutive assignments may be dropped from the course.

COVID-19 Health and Awareness:

UNM is a mask friendly, but not a mask required, community. To be registered or employed at UNM, Students, faculty, and staff must all meet UNM's Administrative Mandate on Required COVID-19 vaccination. If you are experiencing COVID-19 symptoms, please do not come to class. If you have a positive COVID-19 test, please stay home for five days and isolate yourself from others, per the Centers for Disease Control (CDC) guidelines. If you do need to stay home, please communicate with me at ianburch@unm.edu. I can work with you to provide alternatives

for course participation and completion. UNM faculty and staff know that these are challenging times. Please let us know that you need support so that we can connect you to the right resources and please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.

Accommodations:
UNM is committed to providing courses that are inclusive and accessible for all participants. As your instructor, it is my objective to facilitate an accessible classroom setting, in which students have full access and opportunity. If you are experiencing physical or academic barriers, or concerns related to mental health, physical health and/or COVID-19, please consult with me after class, via email/phone or during office/check-in hours (I am not legally permitted to inquire about the need for accommodations). We can meet your needs in collaboration with the Accessibility Resource Center (https://arc.unm.edu/) at arcsrvs@unm.edu or by phone (505) 277-3506.

Academic Integrity:
Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in coursework may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Credit-hour Statement:
This is a three credit-hour course. Class meets for two 75-minute sessions of direct instruction for fifteen weeks during the Fall 2022 semester. Please plan for a minimum of four hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week.

Title IX :
Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the

resources available to you on campus. Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: https://policy.unm.edu/university-policies/2000/2740.html

Citizenship and/or Immigration Status :
All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website:
http://undocumented.unm.edu/

Respectful and Responsible Learning:
We all have shared responsibility for ensuring that learning occurs safely and equitably. UNM has important policies to preserve and protect the academic community, especially policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH CO9). These are in the Student Pathfinder (https://pathfinder.unm.edu) and the Faculty Handbook (https://handbook.unm.edu). Please ask for help in understanding and avoiding plagiarism or academic dishonesty, which can both have very serious consequences.

Connecting to Campus and Finding Support:
UNM has many resources and centers to help you thrive, including opportunities to get involved, mental health resources, academic support including tutoring, resource centers for people like you, free food at Lobo Food Pantry, and jobs on campus. Your advisor, staff at the resource centers and Dean of Students, and I can help you find the right opportunities for you.