

GAME 160 : Game Engine Scripting

Online, Section 501, CRN 68434

Fall 2021

Instructor: Ian Burch

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Office and Hours: Online on Zoom. M/W @ 3:00 - 5:00 pm or by appointment

Division Chair: Dr Laura Musselwhite; lmusselwhite@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) Be able to program basic games
- (2) Understand core programming concepts such as conditionals, loops, and variables
- (3) Combine code and design to make games interactive and responsive
- (4) Develop simple 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

Expectations:

Students are expected to conduct themselves in a professional and collegial manner. 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.

Course Details:

The course will be broken into four units, each guiding through how to program a different game type; a space shooter, a platformer, a crafting survival game, and then a game of your choice.

Each project will be graded on three things:

Required features: Each game project must have certain core features. For example, in the space arcade project, the player must be able to shoot, move, and take damage from enemies. These mandatory features are 60 points out of 100 of each project.

Progress. Students are expected to post weekly updates of their work on the shared discussion forum. These progress updates are 20 points out of 100 for each project.

Optional features: Non-core mechanics let you customize your game and get credit for it. For example, adding moving platforms to the platformer project will give an extra 10 points to your grade. These can give up to 30 points per project.

Project Schedule :

Weeks 1 - 3 - Space Arcade Project

A top-down space shooter, with waves of enemies, scores, and upgrades

- Variables
- Movement
- Timers
- Collision

Weeks 4 - 6: Platformer Project

A side-scrolling platformer like Mario, with jumping, falling, and NPCs

- Loops
- Finite-state machines
- Tilesets
- Dialogue

Weeks 7 - 10 : Crafting Game

A crafting and survival game like Don't Starve, to learn about inheritance and GUIs

- Inheritance
- GUIs / Menus
- Inventories
- Best Practices

Weeks 11 - 16 : Your Game!

- Design and program your own game using the techniques from the rest of the semester!
- Recommended styles: Top-down, platformer, or fighting game

Grade Breakdown:

Space Arcade	20%
Platformer	20%
Crafting	20%
Final Project	30%
Participation & Activity	10%

Grading will be primarily based on effort and completion. Posting weekly updates and completing the minimum features for all projects is sufficient for a B- in each project; adding optional features improves your grade. 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 posted on UNM Learn (<https://learn.unm.edu>). Most assignments will have a deadline one week after it's assigned. Larger assignments will be broken up into smaller pieces (such as drafts or rough versions) each with their own due dates . You can use the calendar tool in Learn to track assignments and their due dates.

Late Work / Absences:

As we are still dealing with Covid-19 and its effects, I'll be lenient on due dates. Email me if you're going to be late on an assignment and I'll generally give an extension. Any assignments not submitted by the end of the semester will be automatically graded 0

Expectations:

Students are expected to conduct themselves in a professional and collegial manner. 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.

UNM Administrative Mandate on Required Vaccinations

All students, staff, and instructors are required by UNM Administrative Mandate on Required Vaccinations to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the UNM vaccination verification site. Students seeking medical exemption from the vaccination policy must submit a request to the UNM verification site for review by the UNM Accessibility Resource Center. Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the UNM verification site for review by the Compliance, Ethics, and Equal Opportunity Office. For further information on the requirement and on limited exemptions and exemptions, see the UNM Administrative Mandate on Required Vaccinations.

UNM Requirement on Masking in Indoor Spaces

All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios and meetings on UNM campuses, see masking requirement. Vaccinated and unvaccinated instructors teaching in classrooms must wear a mask. Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. With the exception of the limited cases described above, students and employees who do not wear a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions.

Disability Statement:

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 or arc.unm.edu for additional information.

If you have a documented disability, the Equal Access Services office will provide me with a letter outlining your accommodations. I will then discuss the accommodations with you to determine the best learning environment. If you feel that you need accommodations, but have not documented your disability, please contact Cheryl Dilger, the coordinator for Equal Access Services at 925-8910 or cdilger@unm.edu.

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 course work 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 or equivalent of direct instruction for fifteen weeks during the Fall 2021 semester. Students are expected to complete a *minimum* of six hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week.

Title IX :

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see pg 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, 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/>.