GAME 102 : GAME ENGINES
Section 501, CRN 57684
Spring 2023

Instructor: Ian Burch

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Office and Hours: B110A, M/W @ 10:00-10:30 am and 3:00 - 4:30 pm

Online on Zoom T @ 1:00 - 3:00 pm or by appointment

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

Course Prerequisites:

None

Course Goals:

This course introduces Unreal Engine for game development, using its Blueprint scripting system. Students will learn how to build levels in the engine, and then script basic game features such as upgrades, turrets, scores, and triggers. Core ideas behind programming, such as conditionals and states, will be introduced with Unreal's Blueprint system. By the end of the semester, students will be comfortable building a small game in Unreal Engine.

Materials:
- Internet Access, for Learn, Zoom, and Youtube.
- Unreal Engine 5+ or 4.26 (UE)
- (Optional) Github account & software

This course requires a computer. If you do not have one, let me know and we can work with campus IT to let you borrow a laptop with the necessary software.
- Unreal Engine is free, and can be gotten from
  https://www.unrealengine.com/

Learning Objectives:

By the end of the course, students will be able to:

(1) Design and configure game projects in Unreal Engine

(2) Be able to quickly build objects, textures, and levels

(3) Implement basic motion, object interactions, and game logic

(4) Understand the core concepts of game programming via Blueprints

(5) Develop simple games in Unreal Engine

Course Content

The course is broken into two main units. Weeks 1-8 uses Unreal Engine's default FPS level as a starting point to learn the fundamentals of implementing games. Students will use variables, interactions, and conditionals to make a small minigame with moving targets, platforms, and doors with several levels. For the second-half of the semester students will build a small stealth game to learn about pathing, AI, and state machines.

Grade Breakdown:

Target Arena – 45%
      Weekly Milestones   30%
      Finished Game   15%
Stealth Level – 45%
      Weekly Milestones   30%
      Finished Game   15%
Participation and Discussion – 10%

Each unit's grade will be split between the weekly assignments and the unit's final submission as shown above. Letter grades will be given as follows, with + or - given for the highest and lowest 3% in each range, respectively. Incomplete (I) grades will not be assigned without documented, extenuating, circumstances.

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

Tentative Schedule:

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

Date	Week	Topic	SLOs
1/16	**1**	Installations, Intro to UE4	1
1/23	**2**	Materials & Blueprints	1, 2
1/30	**3**	Variables	3, 4
2/6	**4**	Interactions & Timelines	2, 3, 4, 5
2/13	**5**	Levels	1, 2, 5
2/20	**6**	Effects	1, 2
2/27	**7**	Project - Target Arena	1, 2, 3, 5
3/6	**8**	Project - Target Arena	1, 2, 3, 5
3/13	**-**	Spring Break	-
3/20	**9**	Enemy Objects	2, 4
3/27	**10**	Enemy AI	2, 4, 5
4/3	**11**	Alert States	1, 2, 5
4/10	**12**	Character Controller	3, 4
4/17	**13**	Cameras	2, 3
4/24	**14**	Visualizations & GUI	1, 3, 4
5/1	**15**	Project - Stealth Level	1, 2, 3, 5
5/8	**16**	Project - Stealth Level	1, 2, 3, 5

Late Work / Absences:

If your work will be late for any reason, please let me know! I will almost always give an extension when requested! For extended absences from sickness or other complications, I will work with you to find an appropriate time to submit

the work. Late work without an extension may be penalized 10% per day, or 20% in the case of collaborative projects where lateness presents problems to your peers. Any assignments not submitted by the end of the semester (5/15) will be automatically graded 0%

Expectations:

Students are expected to conduct themselves in a professional and collegial manner. This course will feature discussions, feedback, and group work. 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.

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.

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 me, an advisor, or another UNM staff member know that you need support so that we can connect you to the right resources. Please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.

Support:
[PASOS]() Resource Center (505) 925-8546, mailto:pasos@unm.edu. The Resource Center is an on-campus center that serves as a "one-stop" for all non-academic needs of UNM-Valencia students.

[Student Health and Counseling]() (SHAC) at (505) 277-3136. If you are having active respiratory symptoms (e.g., fever, cough, sore throat, etc.) AND need testing for COVID-19; OR If you recently tested positive and may need oral treatment, call SHAC.

[LoboRESPECT Advocacy Center]() (505) 277-2911 can offer help with contacting faculty and managing challenges that impact your UNM experience.

[UNM-Valencia Learning Commons (Tutoring)]()
Tutoring is available to you in math, science, writing, and other subjects through the Learning Commons: Learning and STEM Centers and Writing Center. In person tutoring is in these centers in the LRC (the building that also has the library). Tutoring in Zoom and, for writing, through email, is also available. Making use of tutoring is a fantastic way to use your resources and set yourself up to learn deeply and well in your courses.To schedule an appointment, please go to: [Learning Commons Bookings](). If you are making an email appointment with the Writing Center, email your draft to [tutor@unm.edu]() after you fill out the form above.

[Center for Academic Program Support](#) (CAPS). Many students have found that time management workshops can help them meet their goals (consult ([CAPS](#)) website under "services").

[LoboRESPECT Advocacy Center](#), the [Women's Resource Center](#), and the [LGBTQ Resource Center](#) all offer confidential services.

Accommodations:

UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact The [UNM-Valencia Equal Access Services](#) (Sarah Clawson, Coordinator), at (505) 925-8840 or by email at sjclawson@unm.edu.

Credit-hour Statement:

This is a four credit-hour course. Class meets for two 75-minute sessions of direct instruction for fifteen weeks during the Spring 2023 semester, plus an online component equivalent to 50 minutes of instruction. Please plan for a minimum of six 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" 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 and reporting, 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, honestly, and equitably. Submitting material as your own work that has been generated on a website, in a publication, by an artificial intelligence algorithm, by another person, or by breaking the rules of an assignment constitutes academic dishonesty. It is a student code of conduct violation that can lead to a disciplinary procedure. Please ask me for help in finding the resources you need to be successful in this course. I can help you use study resources responsibly and effectively. Off-campus paper writing services, problem-checkers and services, websites, and AIs can be incorrect or misleading. Learning the course material depends on completing and submitting your own work. UNM preserves and protects the integrity of the academic community through multiple policies including policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH C09). These are in the Student Pathfinder (https://pathfinder.unm.edu) and the Faculty Handbook (https://handbook.unm.edu).

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 Valencia Campus Food Pantry, and jobs on campus. Your advisor, staff at the resource centers and Academic Affairs Office, and I can help you find the right opportunities for you.