GAME 250 : Character & Creature Modelling

Section 501, CRN 70494
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
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Course Goals:

Use our knowledge of animation and modeling to create detailed 3D characters. Students will learn and follow a full character workflow, ending with adding fully animated characters to Unreal Engine.

Learning Objectives:

By the end of the course, students will:

1. Use anatomy, proportions, and shape to design appealing characters
2. Be able to model characters using professional workflows
3. Understand topology and avoid common issues with 3D models
4. Make clothes and hair for 3D models using physics simulations
5. Be able to import rigs and animations into Unreal Engine

Materials:

You *must* have:

● Internet Access, for Learn, Zoom, and Youtube
● Unreal Engine 4.24 or higher (https://www.unrealengine.com/en-US/)
● Blender 2.8 or higher (https://www.blender.org/)
● Notebook / Sketchbook

Course Content

This course is broken down into 5 units, ranging from 2 to 5 weeks each. Each unit will have small assignments and tutorials that build towards a final goal, such as uploading a fully rigged model. In addition, students are expected to post weekly updates showing their work and respectfully peer reviewing each other's work.

Project Schedule

Weeks 1 - 5: Character Design & Basic Modelling
- Learn the theory of proportions and shapes in character design
- Analyze the shapes, structure, and proportions of existing video game characters
- Use a low-poly "chibi" style and retro textures to quickly practice character workflow
- Rig and animate our model before importing them to Unreal Engine

Weeks 6 - 8: Realistic Base Mesh
- Model a human base using simple techniques
- Emphasis on realistic proportions
- Tricks for dealing with common issues like flipped normals or excess vertices
- How to maintain good topology?

Weeks 9 - 11: Detail Sculpting
- Adding separate body features such as eyes and teeth
- Using sculpting techniques to make detailed facial features
- Focusing on subtle details that add realism

Weeks 12 - 13 : Clothes
- Techniques for designing and modeling clothes
- Using PBR techniques for realistic fabric textures
- Applying cloth physics to clothes

Weeks 14 - 16 : Unreal Rig
- Importing skeletal rigs, meshes, and animations
- Making character actions reactive and dynamic
- Building a full animation system for a character in UE4

Grade Breakdown:

As much of the semester is working through a single character, grades will be mainly based on effort, progress, and completion. Students are expected to do detailed and thorough work.

Weekly Updates	40% (2.5% per week)
Unit Progress	40% (8% for finishing each unit on time and to standards)
Peer Review	20%

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 extenuating circumstances

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/.