MRTS 2300 Section 002 Virtual Asset Creation and Animation

Instructor: Cory Haltinner

University Of North Texas

Location:

RFTS room 180Y

Days: Tuesday/Thursday

Time: 1 pm - 2:20 pm

Instructor:

Cory Haltinner

Cory.Haltinner@unt.edu

Office Hours:
Wednesdays 1130 am -1:30 pm
RFTS Room 225. Can meet with me before or after class as needed, or other times by appointment.
Class will be notified via canvas of changes or updates to office hours times, or online office hours.

Course Description:

This course is designed to introduce individuals to the fundamentals of creating game assets from an industry perspective. Students will become familiar with production techniques such as modeling, UV mapping, creating textures, animation, optimization for games, and other aspects of game art asset creation. All this will be done with a focus on efficiency in design, color, balance and usability in a modern game engine.

Learning Outcomes:

- Comprehend core principles, tools, and processes of 3D graphics, understanding how various elements contribute to overall design.
- Recall and apply fundamental concepts in 3D modeling, texturing, and animation, demonstrating a foundational understanding of terminology and principles.
- Critically evaluate design choices, optimization strategies, and aesthetics in 3D graphics, gaining insight into decision-making processes.

- apply knowledge and skills to create 3D content, showcasing the practical application of theoretical concepts.

Communication Practices:

Connect with me through email and/or by attending office hours. During busy times, my inbox becomes rather full, so if you contact me and do not receive a response within two business days, please send a follow up email. A gentle nudge is always appreciated.

Attendance Policy:

Because this course involves collaboration, participation is essential to learning. Our project-based activities require you to be actively engaged in discussions and group work. I understand tardiness and absences may occur. If you are late to class, please drop me an email to let me know the circumstances. If you must miss class, please let me know prior to your absence.

Evaluation Methods and Criteria Methods: Presentations, papers, production and public critiques.

Suggested texts (not required):
1. Williams, R "The Animator's Survival Kit" -- Faber & Faber, 2002, ISBN: 0571202284
2. Murdock, K "Autodesk Maya 2024 Basic Guide" -- SDC Publications, 2023 ISBN: 1630575801

Required Software:
Autodesk Maya: (Free student version available on Autodesk website)
Adobe Photoshop: (Adobe photoshop available at discounted student rate for UNT students)
Unreal Engine: Available for free on the Epic Games Launcher

Optional Not Required Software: Available on classroom computers and may be used occasionally during in class practices
Substance Painter
Zbrush

Grade Scale:
90+ = A
80-89 = B
70-79 = C
60-60 = D
59-0 = F

Assignments and Projects:
Lab Activities: Weekly in class activities putting lecture topics into application using tools and software discussed and demonstrated in class and through readings.
PROJECT 1 - (Low Poly Character) design, model, and texture a character with a strict constraint of 1000 triangles or fewer with a focus on efficient polygonal modeling, UV mapping, and texture application
PROJECT 2 - (Bouncing Ball Animation) A short animated sequence featuring a bouncing ball with a focus on keyframe animation techniques, timing, and principles of motion
PROJECT 3 - (Diorama Environment) A small 3d modeled and textured scene with organic foliage, props, and buildings. Final renders will be created in the Unreal Engine.

Final Grade Formula:
Attendance and Participation 20%,
Speed Practice Activities 20%,
Low-Poly Character Project 20%,
Animation Project 20%,
Final Environment Project 20%

Weekly Class Schedule:

Schedule is subject to change based on student needs, guest speakers and needs that arise. Students will be notified of changes.

Week 1
T 8/19- Lecture: Intro to Syllabus
R 8/21 - Lecture: Creating orthographic drawings in Photoshop
Speed Practice Activity: Drawing with Photoshop

Week 2
T 8/26 - Lab Activity: chair model
R 8/28 - Lab Activity: Bean Person ortho images
Intro to Project 1: Low Poly Character
HW: Create Orthographic drawings for project 1

Week 3
T 9/2 - Lecture: box modelling techniques
R 9/4 - Check in on project 1 Lab Activity: Sword model
HW: 3d modeling project 1
Reading: Murdock chapter 1

Week 4
T 9/9 - Lecture: Maya GUI and polygon primitives Importing reference in Maya, modeling tools, Lecture
R 9/11 - Lab Activity: setup and model Bean Person in 3D
HW: 3d modeling project 1
Reading: Murdock chapter 4

Week 5
T 9/16 - Lecture: UV unwrapping and color maps
R 9/18 - Lab Activity: Hand painting textures using Maya and Photoshop
HW: UV unwrapping of project 1
Reading: Murdock chapter 9

Week 6
T 9/23 - Lecture: Physics Based Rendering and Texture Maps
R 9/25 - Lab Activity: Posing Bean Person with Maximo and importing to Unreal
HW: Continue working on Project 1

Week 7
T 9/30 - Lecture: Importing 3d assets to a game engine – posing with Mixamo
R 10/02 - Lab Activity: Posing Bean Person with Mixamo and importing to Unreal
HW: Finish up Project 1

Week 8
T 10/07 - Lecture: 12 principles of animation
R 10/09 - Lab Activity: setting up bouncing ball animation
HW: Work on project 2
Due: Project 1: Low Poly Character
Reading: Williams 35-39

Week 9
T 10/14 - Lecture: 3d animation tools and key framing
R 10/16 - Lab Activity: Squash and stretch animation
HW: Work on ball animation
Reading: Murdock chapter 1

Week 10
T 10/21 - Lecture: Rendering 3d animations in game engine
R 10/23 - Lab Activity: importing .fbx into Unreal with animation
HW: finish project 2
Reading: Murdock chapter 15

Week 11
T 10/28 - Lecture: 3d environments
R 10/30 - Lab Activity: Blocking out 3d environment
HW: Gather reference material for final project
Due: Project 2

Week 12
T 11/04 - Lecture: Tile-able texture maps and UV mapping part 2
R 11/06 - Lab Activity: Texture painting
HW: Project #3 block out and modeling

Week 13
T 11/11 - Lecture: Unreal Engine lighting and alpha maps
R 11/13 - Lab Activity: Foliage modeling and texturing
HW: Continue work on Project #3

Week 14
T 11/18 - Class one on ones with professor
R 11/20 - Lab: Work on Final Project

Week 15
T 11/25 - Thanksgiving Week
R 11/27- Thanksgiving Week

Week 16
T 12/02 Lab: Work on Final Project
R 12/04 Submit and Present Final Projects

Other Relevant and Important Information:

Inclusion Statement:

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and belonging. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let me know. We are all learning together.

ADA Statement:

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access

Links to an external site.

website (http://www.unt.edu/oda

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). You may also contact ODA by phone at (940) 565-4323.