

Course Syllabus – Virtual Environments I

ATCM 3370.501
Virtual Environments I
25 Spring
ATC 3.910
Tue 7:00pm – 9:45pm

Professor Contact Information

Professor	AJ Obuobi
Email Address	sxo170530@utdallas.edu
Office Location	n/a
Office Hours	Email me any time to schedule an online meeting.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-req: ANGM 2310 Animation and Games Fundamentals

Course Description

This course explores methods and techniques used in the design, development, and implementation of virtual environments for use in real-time experiences and simulations. Topics include aesthetics, architecture, and deployment, which can utilize a wide variety of applications

Student Learning Objectives/Outcomes

This course will exercise students' skills in using real-time rendering and game engines. Topics include surfacing, modeling, lighting, optimization, scene composition and basic interactivity. Critiques of work will be provided by both the students and the professor of the course.

- Students who proceed through this course successfully will have the ability to communicate about, and critique real-time ready 3D environments.
 - Produce assets and intermediate level environments utilizing the principles of real-time environment design and development that are applicable to various fields.
 - Design and develop intermediate level assets utilizing various techniques and present them in modern real-time rendering engines, such as Unreal Engine 5.
 - Produce asset kits which adhere to proper organization for modern pipelines in various fields.
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Required Textbooks and Materials

- Unreal Engine 5.4
 - Free Software - <https://www.unrealengine.com/en-US/download>

- System Requirements: <https://docs.unrealengine.com/5.0/en-US/hardware-and-software-specifications-for-unreal-engine/>
- Maya **2024 or higher** *
 - System Requirements: <https://knowledge.autodesk.com/support/maya/learn-explore/caas/sfdcarticles/sfdcarticles/System-requirements-for-Autodesk-Maya-2020.html>
 - Free Educational Licenses Available - <https://www.autodesk.com/education/free-software/maya>
- Substance Painter
 - System Requirements: <https://docs.substance3d.com/spdoc/technical-requirements-172824034.html>
 - Free Educational Licenses Available - <https://www.substance3d.com/education/>
- Substance Sampler
 - System Requirements: <https://docs.substance3d.com/spdoc/technical-requirements-172824034.html>
 - Free Educational Licenses Available - <https://www.substance3d.com/education/>

* You are free to use other editing software. You must be comfortable with figuring out the proper processes in your package based on the foundational knowledge provided in the course. Class examples will be presented in the listed packages.

Please feel free to email me with questions about the course requirements:
sxo170530@utdallas.edu

Suggested Course Materials

- (Optional) Wacom drawing tablet (or similar, not required, but it will make your texturing more efficient)
- (Optional) Nvidia RTX Graphics Card
- (Optional) 200gb or greater external SSD if you plan to work in the labs.

Please feel free to email me with questions and concerns about the course requirements:
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Assignments & Academic Calendar

#	Date	In-Class Material	Assignments
1	21-Jan	Course Introduction	Install Software - First Unreal Environment
2	28-Jan	Reference, Whiteboxes, Composition - Layout and Proxies	First Pass Environment in Unreal with Framing and Composition
3	4-Feb	Modeling Part 1 - Asset Lists, Proxies Mesh and Modularity Planning	Proxy Modeling and Importing
4	11-Feb	Modeling Part 2 – Production Models	Production Modeling Part 1

5	18-Feb	Modeling Part 3 – Tools and Techniques	Production Modeling Part 2
6	25-Feb	Surfacing Part 01 - Tiling Textures, Decals, and Nanite	Tiling Textures and Decals
-	4-Mar	Bonus Content	Catch Up Day
7	11-Mar	Surfacing Part 02 - UVs and Tools	UVing Part 1
8	18-Mar	CLOSED - SPRING BREAK	
9	25-Mar	Surfacing Part 03 – Advanced UV Use Cases	UVing Part 2
10	1-Apr	Surfacing Part 04 - Substance Painter	Substance Painter Part 1
-	8-Apr	Surfacing Part 05 -Critiques	Substance Painter Part 2
11	15-Apr	Work Day/Critiques	Catch Up Day
-	22-Apr	Lighting and Post	Finalize Lighting and Post
-	29-Apr	Bonus Lecture: Living Worlds (Bonus Material Unlocked)	
12	6-May	Where to go From Here Presentation Day	

Grading Policy

You must demonstrate satisfactory achievement of course objectives through fulfillment of course assignments and by contributing to class discussions and critiques. Course assignments will require you to use software and equipment available at the ATEC computer labs. Final grades will not be rounded up or down.

Assignment Weighting:

First Environment:	9%
Composition and Framing	9%
Proxy Modeling and Importing	9%
Production Models Part 1	9%
Production Models Part 2	9%
Tiling Textures and Decals	9%
UVing Part 1	9%
UVing Part 2	9%
Substance Painter Part 1	9%
Substance Painter Part 2	9%
Finalize Lighting and Post	10%
Course Total:	100%

Grade Distribution

A+	97-100	B+	87-89	C+	77-79	D+	67-69	F	00-59
A	94-96	B	84-86	C	74-76	D	64-66		
A-	90-93	B-	80-83	C-	70-73	D-	60-63		

Course & Instructor Policies

Late Work

Late assignments, without medical or documented excuses, will be accepted for up to **partial credit, no later than the final week of the course.**

***DO NOT WAIT TILL THE END TO TURN IN YOUR ASSIGNMENTS.
EVEN 1 MIN IS LATE***

Here is the breakdown of calculations for late work:

- 1m – 1h late = 5pts off
- 1h - 3h late = 10pts off
- 3h late or greater = 20 pts off

Late work must be turned in to eLearning and is subject to all of the same requirements as previous assignments.

Late work is extremely detrimental to your grade. As an Anim and Games Lab course, you should expect a lot of outside coursework each week. It is the only way to prepare for this industry. Do not procrastinate.

Keep in mind, most assignments in this course build on each other. If you miss one assignment, you will often be behind on the next. There are multiple catch up weeks built into the course.

Email the instructor early if you have a legitimate excuse, we can discuss what options will work for you.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Attendance

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have

special attendance requirements; these should be made known to students during the first week of classes.

While regular participation is required, a live online version of the lecture will be made available for those who need accommodations due to being ill, or other difficulties. Recordings of these lectures will be made available after the current day's lesson. All assignments are still due on time, and regular participation is required. This is NOT a fully asynchronous course. Please see the "Class Recordings" section below for more information on the rules and requirements for having these available.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

Off-campus Instruction and Course Activities

None

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please see <http://go.utdallas.edu/academic-support-resources>.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the [credit/no credit](#) or [pass/fail](#) grading option and withdrawal from class.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.