

ARTC 4303/CSAT 4302: ADVANCED MAYA

9.30am – 12.15pm (CSAT 9.30-10.45am), Tuesday and Thursday | Aug – Dec, 2021

Room – VIRTUAL MEETING, Sul Ross State University

Avram Dumitrescu adumitrescu@sulross.edu 1 (604) 316-8283

Office Hours: **TR: 9-9.25am**, and by appointment

Virtual Meeting Location

A Microsoft Teams recurring meeting has been set up and can be found here: <https://tinyurl.com/3mx66tue>

Course Introduction

This studio class is a continuation of *CSAT 3330/ARTC 3334: Introduction to Maya* and allows you to practice your 3d modeling, texturing, rigging, animation, and lighting skills. It also introduces digital sculpting with Autodesk Mudbox.

Learning Objectives

In this course, you will:

- Refine your 3D model making skills.
- Continue to work with textures and UV maps.
- Add skeletons and animate your creations.
- Continue to explore lighting in Maya.
- Work on art skills such as character design, historical research, architectural design, and so on.

Grading and Evaluation

You will be graded on attendance and participation in discussions and critiques, projects and assignments, and a final examination. All assignments will be evaluated for effort, technical ability, concept, execution, and presentation.

Please note that work submitted **no later** than the beginning of class, the day of the deadline, will be graded. **Any work submitted *one minute* past the beginning of class will be awarded a zero. There are no exceptions to this rule.**

Your final class grade will consist of:

- Projects : 60%
- Final Project : 25%
- Attendance and participation : 15%

Materials and Text

- 4GB (minimum) jump/flash drive
- A copy of Autodesk's Maya 2022 student edition, installed on a personal computer

No textbook is required for this class.

A flash-drive is essential for saving your work. You are expected to back up your projects to another location, such as at a free service like www.dropbox.com or www.google.com/drive. Not submitting a project because you lost your jump-drive or some other technical difficulty **will not be accepted as an excuse** and will earn you a zero for that project.

Availability of Autodesk Products

Autodesk's Maya 2022 can be found in BAB 302-303 and FAB 207. You can also download a student version onto a personal computer that lasts one year. You will also need access to Photoshop, which you can find on the second floor of the library and in the BAB labs.

Tobacco Products

Any tobacco products and e-cigarettes are not permitted in the classroom.

Rules and expectations

Attendance is **compulsory**. If you must miss a class for a school-related activity, the absence must be discussed (and arrangements made regarding coursework) **prior to the absence**. If you must miss a class for an emergency or illness, please contact me **by email or phone as soon as possible**. Six (6) absences result in you being dropped from the course with a grade of "F" as per Sul Ross State University policy. Five (5) unexcused absences will result in a zero for

your attendance and participation grade. Arriving to class **on time** is also essential – **arriving late more than two times will be counted as one absence. Lateness is defined as 15-minutes after the start of class. Leaving before class ends will result in you being marked absent.**

Please note that an absence is 50-minutes, not one class period. Below is a guide to how much each absence impacts your attendance and participation grade.

- | | | | |
|---------------------------------|------|--------------------------------|--------|
| • One (1) unexcused absence: | -20% | • Four (4) unexcused absences: | -80% |
| • Two (2) unexcused absences: | -40% | • Five (5) unexcused absences: | - 100% |
| • Three (3) unexcused absences: | -60% | • Six (6) unexcused absences: | FAIL |

No cell phone usage. No social-networking websites. No instant-messaging. No checking personal emails. Headphones and earbuds are allowable **ONLY** when you are working, but not when the professor or a fellow student is speaking. **Doing any of these, or anything I consider disruptive to the class, will drastically drop your attendance and participation grade. You may be also asked to leave the class and will be marked absent for that day.**

Late work will not be accepted.

Plagiarizing, cheating, or any other dishonest behavior in the classroom will not be tolerated. Rules and regulations regarding plagiarism, dishonesty, and other issues concerning classroom participation can be found in University Rules and Regulations and Student Handbook. This course will abide by these established policies. A student found to be engaging in these activities will be penalized to the full extent of Sul Ross State University policy.

ADA Needs

It is Sul Ross State University policy to provide reasonable accommodations to students with disabilities. If a student would like to request such accommodations because of a physical, mental, or learning disability, please contact the ADA Coordinator in the Ferguson Hall, room 112 or call (432) 837-8691. Please relate all requests for special accommodations to the instructor by the third class period.

SLOs

1. Students will expressively communicate an original idea or concept visually through an original artwork.
- 3d. Students with a concentration in Digital Art will be able to demonstrate knowledge and familiarity of digital image creation and knowledge of professional practices in digital art.
 - a. Demonstrate the ability to produce a cohesive professional thematic capstone project which is well crafted and has a defined technique or personal style.
 - b. Demonstrate technical mastery of digital skills as they apply to the selected media.
 - c. Ability to produce a professional portfolio that meet current industry standards.
 - d. Ability to work in a timely manner.

Marketable Skills

1. Solving problems through critical thinking.
2. Creating ideas with independence of thought.
3. Communicating professionally through written and spoken presentation.

Please note that this syllabus is subject to change.

COURSE SCHEDULE

DATE	IN CLASS	FOR NEXT CLASS
Aug 24 (T)	Class introduction and syllabus review. Download <i>Files for Students – Advanced Maya</i> from Blackboard. Begin thinking about your final project	Find a room to photograph. Good, well-lit photos are essential – the better they are, the easier your work will be
Aug 26 (R)	DEMO: Building and texturing a column	Final project discussion
Aug 31 (T)	Orally present your final project idea to class Project #1: Modelling, texturing, and lighting tools	
Sept 2 (R)	Continue working on your tool project	
Sept 7 (T)	Continue working on your tool project	
Sept 9 (R)	Continue working on your tool project	
Sept 14 (T)	Continue working on your tool project DEMONSTRATION: Setting up measurements and blocking out a room	Have your room photos ready to be used in class
Sept 16 (R)	DUE TODAY: Tool project DEMONSTRATION: Setting up measurements and blocking out a room	
Sept 21 (T)	Block out your room and begin basic modelling	
Sept 23 (R)	Continue working on your room	
Sept 28 (T)	Continue working on your room	
Sept 30 (R)	Continue working on your room	
Oct 5 (T)	Continue working on your room	
Oct 7 (R)	Texture and light your room	
Oct 12 (T)	Continue working on your room	
Oct 14 (R)	DUE AT END OF CLASS: Room project Intro to Mudbox. Model two heads (CSAT – one head)	
Oct 19 (T)	Continue working on your head models.	
Oct 21 (R)	Continue working on your head models.	
Oct 26 (T)	Continue working on your head models.	
Oct 28 (R)	Continue working on your head models.	
Nov 2 (T)	DUE at the end of class – Two heads Begin self-generated project	
Nov 4 (R)	Continue working on self-generated project	
Nov 9 (T)	Continue working on self-generated project November 15, Friday, is the last day to withdraw from the 16-week course/term with a grade of 'W'. Drops must be processed and in the University Registrar's office by 4 p.m.	
Nov 11 (R)	Continue working on self-generated project	
Nov 16 (T)	Continue working on self-generated project	
Nov 18 (R)	Continue working on self-generated project	
Nov 23 (T)	Continue working on self-generated project	
Nov 24-26	Thanksgiving Break	
Nov 20 (T)	Continue working on self-generated project	
MONDAY Dec 6 9am	FINAL EXAM – Show your self-generated project to the class. Your work is due at 9pm, the day before the exam.	

Project #1: Modelling, texturing, and lighting tools

Description

As a refresher, choose four tools (ARTC – two) from the *Tools to Model* folder and then model, texture, and light them.

SET-UP AND MODELLING

- 1) In Photoshop, crop and resize the images so that they all align. This step is vital to make modelling easier.
- 2) Above the workspace in Maya is a menu. Switch to the front view and choose *View > Image Plane > Import Image*. Repeat for all other views you need to work with.
- 3) Begin modelling! Keep it simple, start off with polycubes or polytubes, extrude, and beware of creating ngons (faces with more than 4-sides).
- 4) Switch views regularly to ensure your model looks accurate.
- 5) Remember to select individual or groups of verts to reshape objects.
- 6) Extrude is an absolutely essential tool for adding complexity to shapes.
- 7) Edge Loops are also vital, especially when avoiding ngons.
- 8) When you finish your model, remember to *Mesh > Combine* to bring the various objects together. Deleting history is good once you're completely finished with a model. Hold down the D key to move the pivot point.

UVs

- 9) *UV > UV Editor...* allows you to start laying out your UVs. Under the UV menu Maya gives you the following choices: Automatic, Cylindrical, Planar, Spherical, and Contour Stretch. There is also Camera-Based. Use whichever gives you the best UVs.
- 10) Organization of each UV island is important. You want to set up the shapes so that they're easy to paint in your painting software. In the UV Editor, right-click to choose Shell – this allows you to access a shape. Once selected, you can use the normal Maya tools to move, rotate, and scale each shell.
- 11) Sometimes you need to connect some UV shells. Align them, select the connecting edge, and select *Polygons > Move and Sew*.
- 12) Keep the checkerboard patterns in each UV shell consistent. Not doing so means parts of your model might end up pixelated.
- 13) When finished, choose *Polygons > UV Snapshot*. Make *Size X* and *Size Y* at least 1024 pixels. Image format should be either PNG or Photoshop (not JPEG) so that you can have transparent backgrounds.

UVs (cont'd)

- 14) Once you have painted your UV snapshot, save it as a PNG or Photoshop file and return to Maya.
- 15) Right-click your model and apply a new material. If you do not see the applied material, press the 6 key.
- 16) In the Attribute Editor, find the material you created and click on the checkerboard square by Color. From here you can choose File... and navigate to the painted UV file you created.

LIGHTS

- 17) Add surface planes so that your lights have something to bounce off. Press the 7 key and begin dropping in lights to complete your scene.
- 18) Render some shots as PNGs or JPGs and email to the professor. Compress the project folder and also pass that onto the professor.

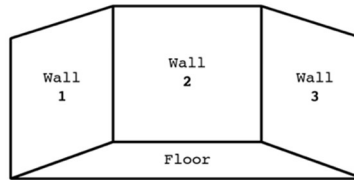
Grading

Grade breakdown:

- Build your four/two tools – 70%
- Texture your tools – 20%

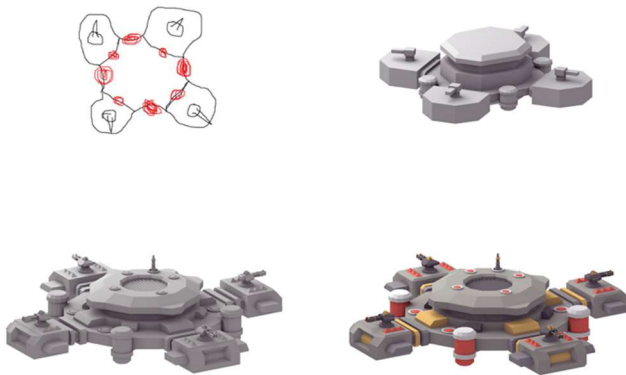
- Light your scene with at least two image planes – 10%

Project #2: Modelling a room



Description

Recreate or design from scratch a room in Maya. Add simple textures and light it. The room must be built from three walls and have a floor. Add windows, door(s), and relevant furniture. Be sure to include a reasonable amount of detail for this project.



https://www.gamasutra.com/blogs/StasShostak/20171219/311916/On_the_bottom_of_gamedev.php

SET-UP

- 1) Make sure you work in Meters by visiting Preferences > Settings > Working Units.
- 2) Create a thin block about 1.5 meters tall to simulate a human. This will be your reference model.
- 3) Lay out a floor and at least two walls using Image Planes. Make space for doors and windows, if using.
- 4) Using very basic blocks to position the elements in your room (see the space station graphic above). Detail is not important here – you only want to make sure you block in all the elements in the room, getting a feel for size, flow, etc.
- 5) Once the room looks good begin duplicating each element and building a more complex model to take its place.

UVs AND LIGHTS

- 6) Not all your objects will need UVs – the built-in materials in Maya may suffice. Regardless, you should have at least one or two objects that you will build UVs for.
- 7) Once you're fully textured, add lights. The mood of the scene is up to you.
- 8) Render some shots as PNGs or JPGs and email to the professor. Compress the project folder and also pass that onto the professor.

Grading

Grade breakdown:

- Build your room with all the objects – 70%
- Texture your room and objects – 20%
- Light your scene well – 10%

Project #3: Modelling two heads

Description

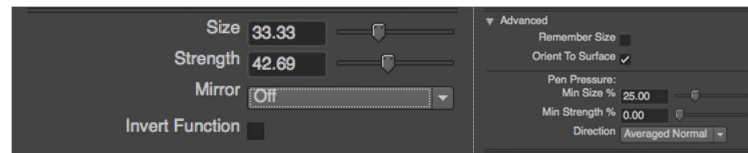
Sculpt two heads in Mudbox (CSAT – one head) – for example, one friendly, one aggressive. Both should be radically different from one another.

SET-UP

- 1) Open up the default head model in Mudbox.
- 2) The grid does not need to be visible. Press Spacebar to access the Grid options and turn it off.
- 3) SHIFT D to subdivide your model. This gives you more geometry to work with, and thus more detail possibilities. Subdivide until you have at least 100,000 polygons.
- 4) There are various materials you can work in, but the default clay is probably best.
- 5) Begin by creating a new Sculpt layer (top, far right panel).

SCULPT

- 1) Now you can begin sculpting! Prepare your tools. Change the size and the strength to the levels you need. Turn on Mirror – your model is symmetrical so this will save a lot of time. Under Advanced, choose Orient to Surface.



- 2) Play with the various tools. Sculpt is useful for adding to the model. Knife is good for adding holes and creases.
- 3) SHIFT will smooth lines. CTRL will do the opposite effect of the tool.
- 4) Work broad and then refine.
- 5) Stamps and stencils can be used to add texture to your model's skin.

Grading

Grade breakdown:

- Sculpt two heads with sufficient detail – 100%

Project #4: Self-generated project

Description

Design your own Maya project that explores the software and exercises your creativity over the course of approximately a month. Consider this a project you would work on for a portfolio.

IDEAS

- A short animation
- Several highly detailed creatures or figures
- Adding 3d graphics to video footage you or a friend created
- Interiors
- Exteriors
- Vehicles
- Models you can animate via the SRSU motion capture lab

Grading

Grade breakdown:

- Effort – 40%
- Creativity – 30%
- Aesthetics – 30%