San José State University
Department of Art & Art History
Art 102-01, 3D Modeling and Printing
Fall, 2020

Course and Contact Information

Instructor:	Rhonda Holberton
Office Location:	ART 319 (will be holding office hours via Zoom)
Telephone:	(408) 924-4348
Email:	rhonda.holberton@sjsu.edu
Office Hours:	Tues/Thur 10:30-11:30
Class Days/Time:	Tues/Thur 12:00PM - 2:50PM
Classroom:	Online via Zoom
Department Office:	ART 116
Department Contact:	Website: www.sjsu.edu/art Email: art@sjsu.edu
Course Format:	Activity

Course Description

Introduce experimental 3D methods with a focus on conceptual and creative processes using Maya software and 3D printing technology while addressing contemporary uses for artistic production.

Course Format

Technology Intensive, Hybrid, and Online Courses

This course will be taught online. Students will need access to a computer with internet connection, camera, & speaker/microphone.

Canvas and Course Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Learning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through Canvas to learn of any updates. For help with using Canvas see Canvas Student Resources page at http://www.sjsu.edu/ecampus/teaching-tools/canvas/student_resources.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:
LO1: Produce work in line with contemporary art practices.
LO2: Present created work in a professional manner.
LO3: Discuss ideas and concepts related to contemporary 3D digital art.
LO4: Complete original projects exploring the visual and conceptual language of experimental 3D.
LO5: Demonstrate knowledge of the works of some of the most important 3D animation/print artists/ projects.
LO6:Think critically about 3D methods from a digital media art context including 3D rendering, 3D printing, and time-based 3D methods.
LO7: Demonstrate technical skills to use Maya and other open source software.

Required Texts/Readings

Textbook

No textbook is required; all reading material will be available on Canvas.

Other technology requirements / equipment / material

Software (free)

- **Maya -** Free download for SJSU students here: https://www.autodesk.com/education/free-software/maya.
- **Adobe CC** - Request free download for SJSU students here: http://www.sjsu.edu/ecampus/teaching-tools/adobe/index.html.
- **Lynda.com** - Access to Lynda is free through the SJSU library portal here (need library card): https://www.lynda.com/portal/patron?org=sjlibrary.org

Essential Hardware

- A computer capable of running Maya
  - CPU: 64-bit Intel® or AMD® multi-core processor with SSE4.2 instruction set
  - Graphics Hardware: Recommended systems and graphics cards: Maya Certified Hardware
  - RAM: 8 GB of RAM (16 GB or more recommended)
  - Disk Space: 4 GB of free disk space for install.
- 3-button Mouse: scroll-wheel middle button design. There are many Middle and Right Click Operations in Maya.

Library Liaison

Gareth Scott
email: gareth.scott@sjsu.edu
phone: (408) 808-2094
Dr. Martin Luther King, Jr. Library
4th Floor Administration Offices

Department Advising

For information about majors and minors in Art & Art History, for a change of major/minor forms and a list of advisors: http://www.sjsu.edu/art/ or the Art & Art History department office in ART

Course Requirements and Assignments

Project 1: Prosthetic (Rendering)

With a partner, make a 3D scan of a body or body sized object. Import the scan into Maya and use basic modeling techniques to create a 'prosthetic' for yourself. Consider ways the addition of external technologies can enhance, modify, or restrict the ways the biological body interacts with the world. How can prosthetics augment our biological senses? In rendered space you are not bounded by physics or economic restrictions so I encourage you to press into the limits of what you think is possible and stretch the definition of 'prosthetic.'

Project 2: Distributed Object (3D Print)

You are responsible for modeling or combining elements from 3 or more found models to create a hybrid object that will be 3D printed. What happens when a virtual object is translated into physical material? Why print a virtual model? What can 3D prints do that other mediums can't? What does it mean that you can physically manifest something that someone else created in virtual space? How is the value of the object calculated given that a) it takes so long to produce something relatively small and b) the reproducibility of the object resists aspects of traditionally associated with the arts; namely originality and authorship. How is the object presented? Photographed? On a pedestal? Stop Motion Animation? Site Specific Installation? SJSU libraries offer 3D printing, but you must print your own model unless you can make a compelling argument for the distributed production. More here: http://libguides.sjsu.edu/3d

Project 3: Virtual Installation (Rendering + Textures)

Create a virtual art installation with 3 or more objects with unique textures. How are virtual environments different from physical ones? Where is your installation located and how does that change the intention of the work? How do the objects in your scene relate? What happens when you change the texture of an object? How does lighting affect the scene? How does the orientation (resolution) and position of the camera (and by extension the viewer) affect the way the scene is 'read'?

Project 4: Animation

Use the scene from Project 3 (or create a new scene) and make a 30-60 sec animation that seamlessly loops using basic rigging and keyframe animation techniques. How does animation change the way the work is read? How does each object move? What happens when one object moves and another doesn't? How does the gesture effect temporal texture? Is it calm? Anxious? Athletic? Natural? Artificial? Does the animation suggest real-time or compressed/expanded playback?

Project 5: Self Portrait/Avatar

Use the modeling techniques we have discussed so far to create an animated self portrait/avatar. This can be as 'realistic' or fantastic as you like. Rig the model and create a looping animation cycle. Consider the ways site, lighting, texture, and gesture interact to create a conceptual framework for the piece. Why does this NEED to be an animation? How is an animation different from traditional video? How is the portrayal of a virtual self different from a portrayal of your 'real' self? What kinds of things can happen in virtual space? What kinds of things can't happen in virtual space?

Artist Presentation

Select an artist using 3D modeling techniques in their practice and give a 10 min presentation on their work. Use the readings and discussions from class to contextualize their practice within contemporary art/critical theory. Why is their work important and why is the use of 3D modeling necessary to their practice?

Final Project + 1500 Word PDF Artist/Research Statement

Create a work of art using 3D modeling that synthesizes the ideas and techniques you learned in Art 102. Final projects may be presented in-class in physical and/or animated formats. Include a 4-page PDF layout with text, images, & hyperlinks that includes a 500 word artists statement, and a 1000 word research statement that addresses your process, influences, and conceptual/theoretical interests.

Grading Information

Projects 1-5 60%

- Project 1: Prosthetic (Rendering) 12%
- Project 2: Hybrid Object(3D Print) 12%
- Project 3: Still Life (Rendering + Textures) 12%
- Project 4: Animation 12%
- Project 5: Self Portrait 12%
- Artist Presentation 10%
- Final Project 20%
- Artist/Research Statement 10%

TOTAL 100%

Determination of Grades

Each Project will be graded on the following three categories

- The Work 50%
- Description & Documentation 25%
- Tutorials, Readings, Participation in Class Discussions, and Project Review Day 25%

The work will be assessed according to the following rubric
A 100-90% Excellent. Student exhibits exemplary effort at comprehension and application of the required materials. All creative and programming work is engaging.
B 89-80% Good. Student completes assignments, and demonstrates a grasp of key programming and creative concepts. Student participates actively in the classroom.
C 79-70% Satisfactory. Student completes the assignment but the work lacks creative and aesthetic effort. The work is underdeveloped, incomplete or partially broken.
D 69-60% Unsatisfactory. Student does not complete the work as assigned. Substantial problems exist in student's work.
F < 60% Fail. Student does not submit work, or work is below unsatisfactory level.

Submission Requirements
Description & Documentation for creative projects must be submitted to Canvas. You will not receive a grade until the following is submitted:
Portfolio-Ready Documentation
- Photograph (.jpg 1200 pixels on the long side)
- Stills/Storyboard (.jpg 1200 pixels on the long side)
- Video (link)

Work list
- Title
- Medium
- Size/Duration

One paragraph description that includes at least one sentence about each of the following:
- Process/Tools
- Inspirational Materials
  - Examples from Artist Presented in Class
  - Ideas From Course Readings
- Concept
  - Connect the Process/Tools you used to the Inspiration Materials

Participation in Class Discussions and Project Review Day

- Students must be present on discussion and review days to receive credit
- Students who are not ready to present on review days must attend class to receive participation credit

Hazardous Materials (HAZMAT)

All studio classes that use any "hazardous materials" should include one graded assignment that helps students understand HAZMAT regulations and develop consistently safe practices—this might be as simple as a labeling assignment. Note that food containers cannot be used for chemical storage and that common household items (bleach, vinegar, etc.) are deemed hazardous materials and must be stored appropriately. The campus EHS (Environmental Health & Safety) office and the County will schedule inspections with increasing frequency; fines assessed by the County are now high enough to put us out of business, so this is a serious matter. The techs are NOT responsible for cleaning up facilities and classrooms and offices—this is your responsibility. If you need information or help, please let us know. Additional note: clutter is deemed a hazard, and we can be fined for clutter. Basic training powerpoint: http://www.sjsu.edu/fdo/docs/hazmatandlabsafetyguidance.pdf

Classroom Protocol

Online Class Protocol

Students are required to attend scheduled class meetings and engage in meaningful dialogue. All classes will meet via Zoom during the regular class hours. This will be a small and highly participatory class; please turn on your video. All sessions will be recorded and uploaded to Canvas.

Zoom Meeting Transcripts

Zoom allows participants to communicate with group messages to all of the meeting participants and/or to send private messages to individual participants. Although it seems reasonable that private messages stay between two people, please be aware that all of the group messages and all private messages will be included in the meeting transcript.

Email

Canvas messaging is the fastest way to reach me. All emails MUST include Art 210 in the subject line for priority filtering. Expect a reply within 1-2 business days (Monday-Friday). Emails sent directly that don't include Art 210 in the subject won't be answered as quickly.

Attendance

Show up on time. If you need to miss a class, let me know ahead of time and tell me what you will do to make up the missed work and when you will turn it in.

University Policies

Per University Policy S16-9 *(http://www.sjsu.edu/senate/docs/S16-9.pdf)*, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (http://www.sjsu.edu/gup/syllabusinfo), which is hosted by the Office of Undergraduate Education. Make sure to visit this page to review and be aware of these university policies and resources.

Art 102-01, 3D Modeling and Printing, Course Schedule

Schedule is subject to change with fair notice and is available on Canvas. Check regularly for any updates.

Week	Date	Topics, Readings, Assignments, Deadlines

1	Thu 8/20	Course Introduction /Overview of Syllabus. Lecture: Intro to 3D Animation & Artists using 3D modeling. Due by end of class: Course Teams. Due by end of class: dma-lab-email-group.
2	Tue 8/25	Lecture/Discussion: 01a_Prosthetics In-Class Tutorial: 01b_102_MAYA_Setup_Interface Due: Reading 1. Due: 3-Button Mouse. Maya Downloaded. Due: Adobe Request Submitted. Due: Library Card & Lynda Access.
2	Thu 8/27	Lecture: 02_Maya_Mesh_Polyginal_Modeling Workshop: Sculpting in Maya. Due: In-Class Giraffe. Tutorial Due: Maya Basics.
3	Tue 9/1	Lecture: Lighting & Rendering. Workshop: 3D Scanning. In-Class Studio Time. Tutorial Due: Maya Lighting/Rendering with Arnold.
3	Thu 9/3	**Breakout Groups: Review Sketches, Artists, & Reading Quotes** **In Class Worktime & One-on-One Meetings** **Due: Prosthetic Sketch**
4	Tue 9/8	**Project 1 Due: Prosthetic**
4	Thu 9/10	Lecture: Intro 3D Printing. Workshop: CURA Slicing Due: 3D Printing Tutorial PT1. Due: Reading 2
5	Tue 9/15	Workshop: Preparing Files for 3D Printing. In-Class Tutorial: Dual Filament Printing with Ultimaker Due: Reading 2 Tutorial Due: 3D Printing PT2
5	Thu 9/17	Group Meetings & Model Reviews. Breakout Groups: Review Sketches, Artists, & Reading Quotes Proj2 In-Class Studio Time (time permitting)
6	Tue 9/22	**Student Presentations: Artists Working with 3D** **Project 2: Draft Print File & Proposal Due**

6	Thu 9/24	Lecture/Discussion: Narrative and Placemaking. Workshop: Intro to Textures & Scene Setup. Tutorial Due: Textures PT1
7	Tue 9/29	Workshop: Textures PT 2 Tutorial Due: Textures PT2 Project 2 Due: Distributed Object (3D Print File Uploaded)
7	Thu 10/1	Workshop: Textures PT 3 Breakout Groups: Review Sketches, Artists, & Reading Quotes Proj 3 Draft Due: Wireframe Sketches for Project 3 (Still Life)
8	Tue 10/6	In-Class Worktime & One-on-One Meetings Draft Due: Rendering for Project 3 (Still Life)
8	Thu 10/8	**Project 3 Due: Still Life (Rendering + Textures**
9	Tue 10/13	Lecture: Introduction to Animation. In Class Tutorial: Key Frames & Timeline. Due: Reading 4
9	Thu 10/15	Workshop: Depth of Field, Batch Rendering, & Premiere Review. Due by End of Class: In-Class Animation Test Tutorial Due: Bouncing Ball & Graph Editor
10	Tue 10/20	Workshop: Rigid Body Physics & MASH Networks Breakout Groups: Review Sketches, Artists, & Reading Quotes Proj 4 Draft Due: 3 Concept Sketches for Project 4
10	Thu 10/22	In-Class Workshop: Basic Rigging Draft Due: Storyboard Project 4 (Animation)
11	Tue 10/27	**Project 4 Due: Animation**
11	Thu 10/29	Lecture: Avatars & Virtual Space Workshop: 5 Second Source Video In-Class Tutorial: Rigging & Posing a Humanoid Mesh Tutorial Due: Character Rigging PT 1 MAKEUP WORK 1-3 Due: Friday by MIDNIGHT
12	Tue 11/3	Lecture: Narrative & Storyboarding. In-class Tutorial Due: 5 second animation Due: Reading 5
12	Thu 11/5	Tutorial Walk: Walk Cycle Peer Reviews of Final Paper Draft Draft Final Paper Due: Artist Statement & Project 1-4 Research Statements.

13	Tue 11/10	**Breakout Groups: Review Sketches, Artists, & Reading Quotes Proj 5** **Due: Storyboard Project 5 Avatars**
13	Thu 11/12	In-Class Worktime & One on One Meetings MAKEUP WORK 4 Due: Sunday by MIDNIGHT
14	Tue 11/17	**Project 5 Due: Avatar Animation**
14	Thu 11/19	In-Class Tutorials: Cloth & Liquid Breakout Groups: Brainstorm Final Project & Peer Review Final Paper Due: 3 Sketches for Final
15	Tue 11/24	**Student Presentations: Proposal for Final Project** **Project 2 Due: Distributed Object (3D Print)** **Draft Due: Scene/Parts on Hand for Final**
15	Thu 11/26	*Holidays - Campus Closed*
16	Tue 12/1	Individual Meetings and In-Class Studio Time Due: Final Scene/Animations/Test Render
16	Thu 12/3	**Final Presentations PT1**
Final 9:45-12:00	Thu 12/10	**Final Presentations PT2** **Final Paper Due by Midnight Wed May 13**