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

Course and Contact Information

Instructor:	Rhonda Holberton
Office Location:	ART 319
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Email:	rhonda.holberton@sjsu.edu
Office Hours:	Tues/Thur 10:30-11:30
Class Days/Time:	Tues/Thur 12:00PM - 2:50PM
Classroom:	Art Building 237
Department Office:	ART 116
Department Contact:	Website: www.sjsu.edu/art Email: art@sjsu.edu

Prerequisite: ART 75 or instructor's consent

Course Format

Technology Intensive, Hybrid, and Online Courses

This course requires access to a computer which can support Autodesk's Maya 3D modeling program (plenty of memory and a good graphics card) and Adobe Creative Cloud . Mandatory Apps include Photoshop and Premiere. Students can use the lab computers or download the current edition of Maya & Adobe Creative Cloud.

Email

All emails MUST include Art 102 in the subject line. Emails that don't include Art 102 won't be answered. Expect a reply within 1-2 business days (Monday-Friday). See Classroom Protocol for emails regarding missed class.

Canvas

Course materials such as syllabus, schedule, handouts, notes, assignment instructions, etc. can be found on Canvas.

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 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.
        - External Hard-Drive: if the computer is low on disk space students may need to purchase hard-drive for this class.

- 3-button Mouse: scroll-wheel middle button design. There are many Middle and Right Click Operations in Maya.

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
- Process/Tools

- Inspiration (existing work)
- Concept

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

Library Liaison

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

Shop Safety

Shop safety test—Safety tests for Spring 2020 will ONLY be given between January 24th and February 15th.

Classroom Protocol

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. Everyone is required to find two partners that can help answer questions and fill you in on content if you need to miss a class.

- If you are absent, you are responsible for finding out what you missed from your team.
- I will respond to emails regarding makeup work only if they include an email thread showing that your team was unable to answer your questions.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

Department Advising

For information about majors and minors in Art & Art History, for change of major/minor forms and a list of advisors: http://www.sjsu.edu/art/ or the Art & Art History department office in ART 116, 408-924-4320, art@sjsu.edu.

Art 102, 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 1/23	Course Introduction /Overview of Syllabus. Lecture: Intro to 3D Animation & Artists using 3D modeling
2	Tue 1/28	Lecture: File Formats and Basic Maya Navigation. Prosthetic. Workshop: Sculpting in Maya. Due: Reading 1 Due: Adobe Request Submitted Due: 3-Button Mouse. External Hard Drive with Exercise Files saved. Maya.
2	Thu 1/30	Lecture: Intro to 3D Mesh. Workshop: 3D Scanning Tutorial Due: Maya Basics
3	Tue 2/4	Lecture: Lighting & Rendering. In-Class Studio Time. Tutorial Due: Maya Lighting/Rendering with Arnold.
3	Thu 2/6	**Project 1 Due: Prosthetic**
4	Tue 2/11	**AR Tutorial: Meet in Maker Lab in MLK Library**
4	Thu 2/13	Lecture: Intro 3D Printing. Workshop: LULZ Printing. Introduction to 3D printing software. Due: 3D Printing Tutorial PT1 Due: Reading 2
5	Tue 2/18	Workshop: Preparing Files for 3D Printing. In-Class Tutorial: Dual Filament Printing with Ultimaker Due: Reading 2 Tutorial Due: 3D Printing PT2
5	Thu 2/20	Group Meetings & Model Reviews. In-Class Studio Time.
6	Tue 2/25	Student Presentations: Artists Working with 3D Project 2: Draft Print File & Proposal Due
6	Thu 2/27	Lecture: Narrative and Placemaking. Workshop: Intro to Textures & Scene Setup. Tutorial Due: Textures PT1

7	Tue 3/3	Workshop: Textures PT 2 Tutorial Due: Textures PT2 Project 2 Due: Distributed Object (3D Print File Uploaded)
7	Thu 3/5	Workshop: Textures PT 3 Individual Meetings and In-Class Studio Time. Draft Due: Wireframe Sketches for Project 3 (Still Life)
8	Tue 3/10	Project 3 Due: Still Life (Rendering + Textures)
8	Thu 3/12	Workshop: Key Frames & Timeline. Due: Reading 4 Tutorial Due: Basic Animation EXTRA CREDIT POSTER DESIGN DUE
9	Tue 3/17	Workshop: Graph Editor, Parenting, & Rigid Body Physics Tutorial Due: Animation Pt 2
9	Thu 3/19	Lecture: Introduction to Animation. Workshop: MASH Networks, Batch Rendering. Due by End of Class: In-Class Animation Test
10	Tue 3/24	In-Class Workshop: Basic Rigging Individual Meetings & In-Class Studio Time. Draft Due: Storyboard Project 4 (Animation)
10	Thu 3/26	In-Class Workshop: Rendering images for Print Individual Meetings & In-Class Studio Time. Draft Due: Scene Setup for Project 4 Animation
11	Tue 3/31	*Cesar Chavez Day (Observed) - Campus Closed (CC)*
11	Thu 4/2	*Spring Recess, No Class* ***MAKEUP WORK 1-3 Due: Friday by MIDNIGHT***
12	Tue 4/7	**Project 4 Due: Animation**
12	Thu 4/9	Tutorial Due: Character Rigging PT 1 Due: Reading 5
13	Tue 4/14	Lecture: Narrative & Storyboarding. Workshop: Walk Cycle Video In-class Tutorial Due: Character Rigging PT 2 Draft Due: Artist Statement & Project 1-4 Research Statements.

13	Thu 4/16	Lecture: Avatars & Virtual Space **Project 2 Due: Distributed Object (3D Print)**
14	Tue 4/21	One-on-One Meetings Due: Storyboard Project 5 Avatars
14	Thu 4/23	**Project 5 Due: Avatar Animation** **MAKEUP WORK 4 Due: Sunday by MIDNIGHT**
15	Tue 4/28	Student Presentations: Proposal for Final Project
15	Thu 4/30	In-Class Tutorials: Cloth & Liquid Individual Meetings and In-Class Studio Time. Draft Due: Scene/Parts on Hand for Final
16	Tue 5/5	Individual Meetings and In-Class Studio Time Due: Final Scene/Animations/Test Render
16	Thu 5/7	**Final Presentations PT1**
Final 9:45-12:00	Wed 5/13	**Final Presentations PT2** **Final Paper Due by Midnight Wed May 13**