San José State University
Department of Art & Art History
Art 102, Section 1, 3D Modeling and Printing
Fall, 2019

Course and Contact Information

Instructor:	David Bayus
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Office Hours:	Tues/Thur 3:00PM-4:00PM
Class Days/Time:	Tues/Thur 12PM - 2:50PM
Classroom:	Art Building 241
Department Office:	ART 116
Department Contact:	Website: www.sjsu.edu/art Email: art@sjsu.edu

Course Format

Technology Intensive, Hybrid, and Online Courses

This course requires access to a computer which can support Blender 3D modeling program (plenty of memory and a good graphics card) and Adobe Creative Cloud . Mandatory Apps include Photoshop and After Effects. Students can use the lab computers or download Blender & 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.

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 116, 408-924-4320, art@sjsu.edu

Course Description

Introduce experimental 3D methods with a focus on conceptual and creative processes using Blender 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 Blender 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)

- **Blender 2.79 -** Free download for SJSU students here: hhttps://download.blender.org/release/Blender2.79/
- **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

Hardware

- External Hard-Drive: Students will need to purchase a hard-drive for this class. The hard drive must be 500 GB or bigger.
- 3-button Mouse: The use of a 3-button mouse is HIGHLY recommended. There are many Middle and Right Click Operations in Blender. I recommend a scroll-wheel middle button design.

Course Requirements and Assignments

Project 1: Virtual Still life (Modeling)
Using the techniques and fundamentals of modeling covered in lecture-- Create a 3d object derived from a real life object of your choosing. Beginning by creating a series of simple shapes, re-create the object as closely as you can. Be careful to keep vertices from overlapping, and be sure to choose an object that can be modeled in the time given to complete the project.

Project 2: Virtual Installation (Rendering + Textures)
Create a virtual art installation with 3 or more objects with unique textures/materials. Final renders will be submitted as prints using a large format printer. 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 3: Animation
Use the scene from Project 2 (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 4: 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 5: Self Portrait/Avatar
Use the modeling and rigging 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 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: Still Life (modeling) 12%
- Project 2: Virtual Installation (rendering + textures) 12%
- Project 3: Animation 12%
- Project 4: Distributed Object (3D print) 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.

Description & Documentation 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 Fall 2019 will be held between **August 21st through September 13th**
Sign up for a time on the orientation schedule located in Room 104A -or- Call the shop technicians at 44357
Please do not leave a time on the voicemail system as it may conflict with a previously scheduled appointment.

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 the Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

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Art 102, Section 1/3D Modeling and Printing, Fall 2019, 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 8/22	Course Introduction /Overview of Syllabus. Lecture: Screening of David Bayus's short film "Psyman's Acres" and Artist Introduction DMA Orientation --TBD
2	Tue 8/27	Lecture: Intro to Blender Workshop: 3D Modeling Overview Due: Adobe Request Submitted Due: 3-Button Mouse. External Hard Drive with Exercise Files saved.
2	Thu 8/29	Lecture: Intro to 3D Mesh. Workshop: Sculpting in Blender. In-Class Studio Time
3	Tue 9/3	Lecture: Modeling Techniques & Tricks. In-Class Studio Time Tutorial Due: Intro to Modeling in Blender.

3	Thu 9/5	Lecture: Introduction to Modifiers & Camera/Render Setting In-Class Studio Time Due: Reading 1
4	Tue 9/10	**Project 1 Due: Virtual Still Life**
4	Thu 9/12	Lecture: Intro to Lighting and Rendering. Workshop: Lighting your Sculptures In-Class Studio Time
5	Tue 9/17	Lecture: Intro to UV Textures Workshop: Materials / PBR Shaders In-Class Studio Time (Large format Printing demo) group 1
5	Thu 9/19	Group Meetings & In-Progress Reviews (test renders). In-Class Studio Time. (Large format Printing demo) group 2
6	Tue 9/24	**Project 2:Installation (Final Prints Due)**
6	Thu 9/26	Lecture: Intro to Keyframing Workshop: Animation Techniques & Tricks In- Class Studio Time
7	Tue 10/1	Lecture: Intro to Rigging Bones Workshop: Animating with Curves & Rigid Body Physics In-Class Studio Time
7	Thu 10/3	Workshop: Adding Simulations to Your Rig In-Class Studio Time Due: Reading 2
8	Tue 10/8	Workshop: Graph Editor & Parenting In-Class Studio Time
8	Thu 10/10	**Student Presentations: Artists Working with 3D** **Project 3 Due: Animation**
9	Tue 10/15	Lecture: Intro 3D Printing. Workshop: LULZ Printing. Introduction to 3D printing software. Due: 3D Printing Tutorial
9	Thu 10/17	Workshop: Preparing Files for 3D Printing In-Class Tutorial: Dual Filament Printing with Ultimaker
10	Tue 10/22	Individual Meetings & Model Reviews. Workshop: 3D printing demo In-Class Studio Time.

10	Thu 10/24	Visiting Artist: TBD In-Class Studio time Due: Reading 3
11	Tue 10/29	Individual Meetings and In-Class Studio Time. Project 4 Due: Distributed Object (3D Print File Uploaded)
11	Thu 10/31	(In-Class Work Time)
12	Tue 11/5	**MAKEUP WORK 1-3 Due: by MIDNIGHT Friday 11/8** **Project 4 Due: 3D Print**
12	Thu 11/7	Lecture: Compositing render layers and editing in After Effects In-Class Studio Time
13	Tue 11/12	Lecture: Narrative & Storyboarding. Workshop: Walk Cycle Video (Character Rigging) Draft Due: Artist Statement & Project 1-4 Research Statements.
13	Thu 11/14	Lecture: Avatars & Virtual Space Workshop: Looping Animation Due: Reading 4
14	Tue 11/19	One-on-One Meetings In-Class Studio Time
14	Thu 11/21	**Project 5 Due: Self Portrait**
15	Tue 11/26	Student Presentations: Proposal for Final Project MAKEUP WORK 4&5 Due: Sunday 12/1 by MIDNIGHT
15	Thu 11/28	THANKSGIVING no class
16	Tue 12/3	Individual Meetings and In-Class Studio Time Due: Final Scene/Animations/ Low res Test Renders
FINAL EXAM 16	Thu 12/5	----FINAL PRESENTATIONS
Paper Due	Sun 12/8	**Final Paper Due by Midnight Sunday December 8th**