San José State University
Department of Art & Art History
Art 102, Section 1, 3D Modeling and Printing (Pandemic Edition)
Spring, 2021

Course and Contact Information

Instructor:	David Bayus
Office Location:	Email for Zoom link
Email:	david.bayus@sjsu.edu
Office Hours:	Mon/Wed 10-11:50am (subject to change)
Class Days/Time:	Tues/Thur 3PM - 5:50PM
Classroom:	Zoom link TBD
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.

Email

All emails MUST include Art 102 in the subject line. Emails that don't include Art 102 may not be 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

Introduction of experimental 3D methods along with professional modeling, sculpting, and texture painting workflows. This course will focus on conceptual and creative processes using Blender 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 workflows.
LO5: Demonstrate knowledge of contemporary 3D artists and their work.
LO6: Think critically about 3D methods from a digital media art context
LO7: Demonstrate the technical skills of a professional 3D workflow (modeling, sculpting, texture mapping, & animation)

Course Website/ Canvas Course Management System

Copies of course materials - the syllabus, readings and course updates - are available via the SJSU Canvas course management system (CMS) https://sjsu.instructure.com/ https:// sjsu.instructure.com All assignments must be submitted via the Canvas CMS only. All written paper papers must be submitted in PDF format only. All video clips must be submitted via Canvas as a YouTube link only. Canvas will also be used for periodic announcements and any changes to the course schedule. Please make sure your Canvas contact works by viewing the syllabus announcement during the first day of class.

Other technology requirements / equipment / material

Software (free)

- **Blender 2.91.0 -** Free download for SJSU students here: https://www.blender.org/download/
- **Adobe CC** - Request free download for SJSU students here: http://www.sjsu.edu/ecampus/teaching-tools/adobe/index.html.
- **Substance Painter-** We will be downloading a 30-day free trail of Substance Painter for a project in the 2nd half of the semester. https://www.substance3d.com/products/substance-painter/
- **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. This is MANDATORY
- 3-button Mouse: The use of a 3-button mouse is MANDATORY. There are many Middle and Right Click Operations in Blender. I recommend a scroll-wheel middle button design.
- A pen tablet is not required but is highly recommended https://www.wacom.com/en-us/products/pen-tablets/one-by-wacom

Classroom (Zoom) Protocol

The course schedule provides dates, topics, and assignments due on the day they are listed in the schedule, unless otherwise noted. As a workshop course, class participation is required. The coursework is cumulative and requires a commitment to practice to expand upon learned skills. Your ability to advance in the medium is directly linked to the amount of time you commit to learning software, creating content, troubleshooting projects, and in-class viewing and experimentation. You are expected to create work independently, on your own time, and in the classroom lab environment with your peers.

Please make sure you microphones are muted when you enter the zoom session (they should be by default). If you have a question during class or a comment for class discussion, please enter it into the chat, and then ill unmute your mic.

This is a unique social experiment! we are attempting to recreate an open and creative lab environment online. This means that I expect you to come to class as prepared as you would be if we were in person. This also means that we may change up protocols if need be.

Art and Art History Library Liaison

The Art and Art History library liaison is **Gareth Scott**, a resource for academic and creative research. You may contact Gareth via email at gareth.scott@sjsu.edu or via phone (408) 808-2094 at the Dr. Martin Luther King, Jr. Library/ 4th Floor

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Course Requirements and Assignments

Project 1: Virtual Vignette (Interface Overview, Modeling & General Basics)
Create a virtual environment with 3 or more objects/characters. Things to consider: How are virtual environments different from physical ones? Where is your environment 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 material of an object? How does lighting affect the scene? How does the orientation and position of the camera (and by extension the viewer) affect the way the scene is 'read'?

Project 2: Build Your Avatar (Modeling & Sculpting Intensive)
Use the modeling and sculpting tools along with the low/high poly workflow we have discussed in class to create an avatar. Beginning by modeling from low poly shapes, then sculpting the details in high poly. Be careful to keep vertices from overlapping, and be sure to create a character that can be modeled and sculpted in the time given to complete the project. Your Avatar can be as abstract or as literal as you like.

Project 3: Rig "n" Skin (Rigging & Animation Basics)
Use your avatar from Project 2 make a 15-30 second animation that seamlessly loops using basic inverse kinematic (IK) rigging, bendy bones, shapekeys, and simple 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?

Project 4: Substantive Object (Texture Painting Basics in Substance)
Using the techniques and fundamentals covered so far-- Model and Sculpt a 3d object derived from an object of your choosing. We will be using Substance Painter to create the texture maps for this object. The goal of this project is for you to be able to describe the history of this object through its surface qualities. What can a worn, organic surface say about an object? What happens if that surface is artificial and hyper smooth? How can these qualities work in tandem with one another?

Project 5: Distributed Object (3D Print) ***Project TBD***
This project's requirements are subject to change due to the ongoing pandemic.
We will have more info regarding 3D printing as the semester progresses.

Artist Research Paper
Select an artist using 3D modeling techniques in their practice and write a 1000 word paper on their work. Use the discussions from class to contextualize their practice within contemporary art/critical theory. Why is the work important and why is the use of 3D modeling necessary to their practice?

Final Project + 1500 Word PDF Artist/Project Statement
Create a work of art that synthesizes the ideas and techniques you learned in Art 102. Final projects may be presented in still 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.

Final Exam Day: Monday May 24th from 2:45-5pm

Grading Information

Date	Assignment	% Points
2/16	#1 Virtual Vignette (Modeling/Interface Basics)	10%
3/2	#2 Avatar (modeling/sculpting)	10%
3/18	#3 Rig "n" Skin (animation)	10%
4/8	#4 Substantive Object (texture painting)	10%
TBD	#5 Distributed Object (3D Print)	10%
5/6 & 5/11-5/13	#6 Proposal & Final Project	30%
5/11	#7 Artist/Project Statement	10%

5/24	#8 Research Paper	10%
Total		**100%**

Determination of Grades

Each Project will be graded on the following three categories
- The Work 50%
- Description & Documentation 25%
- Tutorials, & Participation in Class Discussions 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 me via Email & Canvas. You will not receive a grade until the following is submitted:

Portfolio-Ready Documentation
- Photograph (.jpg 1200 pixels on the long side)
- Video (link)

Work list
- Title
- Size/Duration

One paragraph description that includes
- Process/Tools
- 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

Late Work Policy: Work is considered late if posted after the due date/time. The default time for submission of work is the beginning of class, unless specified otherwise in the schedule. For each day the work is late (marked each 24 hours by the day and time of original deadline), the work decreases by half a grade (a B+ goes to B-, a B- to a C+, etc.)

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 2021 are TBD at the moment.

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, Spring 2021, 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 1/28	Course Introduction /Overview of Syllabus. Lecture: Meet & Greet and Faculty Introduction
2	Tue 2/2	Demo: Intro to Blender 2.9 Interface Overview Due: 3-Button Mouse. External Hard Drive with Exercise Files saved.
2	Thu 2/4	Demo: Intro to Modeling/Editing Meshes Multi-res Sculpting workflow in Blender. In-Class Studio Time
3	Tue 2/9	Demo: Modeling Techniques Cont./ Intro to Shader Materials In-Class Studio Time
3	Thu 2/11	Demo: Lighting, Camera Settings, Rendering, & Atmosphere One-on-Ones
4	Tue 2/16	**Project 1 Due: Virtual Vignette** **Group Critique**
4	Thu 2/18	Demo: Modeling a Character for Animation In-Class Studio Time
5	Tue 2/23	Lecture: Intro to UV Textures, UV Unwrapping Shader Editor, Node Wrangler One-on-Ones
5	Thu 2/25	One-on-Ones

6	Tue 3/2	**Project 2 Due: Build Your Avatar** **Group Critique**
6	Thu 3/4	Demo: Modeling a Character for Animation In- Class Studio Time
7	Tue 3/9	Demo: Intro to IK Rigging, Bendy Bones Workshop: Animating with Curves & Rigid Body Physics In-Class Studio Time
7	Thu 3/11	Demo: Intro to IK Rigging, Bendy Bones Cont. Workshop: Animating with Curves & Rigid Body Physics In-Class Studio Time
8	Tue 3/16	Demo: Rending your Animation, & Animating Your Camera One-on-Ones
8	Thu 3/18	**Project 3 Due: Rig "n" Skin** **Group Critique**
9	Tue 3/23	Demo: Intro to Substance Painter. In-Class Studio Time
9	Thu 3/25	Demo: Substance Painter cont. In-Class Studio Time
10	Tue 3/30	SPRING BREAK
10	Thu 4/1	SPRING BREAK
11	Tue 4/6	Demo: Substance Painter: Creating your own Alphas, Adding Emissive Maps In-Class Studio Time
11	Thu 4/8	**MAKEUP WORK 1-3 Due: by MIDNIGHT Friday 4/9** **Project 4 Due: Substantive Object**
12	Tue 4/13	**Final project: Production Phase 1** Production workshop intensives
12	Thu 4/15	**Final project: Production Phase 1** Production workshop intensives

13	Tue 4/20	**Final project: Production Phase 2** Production workshop intensives
13	Thu 4/22	**Final project: Production Phase 2** Production workshop intensives
14	Tue 4/27	**Final project: Production Phase 3** Production workshop intensives
14	Thu 4/29	**Final project: Production Phase 3** Production workshop intensives
15	Tue 5/4	**Final project: Production Phase 4** Production workshop intensives
15	Thu 5/6	**Final project: Production Phase 4** Production workshop intensives
16	Tue 5/11	**Final project presentations and critique I** Final project critiques – Group I **Assignment #6 due =** Final Project Screening
16	Thu 5/13	**Final project presentations and critique I** Final project critiques – Group I **Assignment #6 due =** Final Project Screening
EXAM	Sun 5/20	**Artist Research Paper Due on Monday May 24th** **Project 5 Due: 3D Print** (pandemic permitting)