

## **Intro to Laser Cutting, 3D printing & Vacuum Forming**

Summer Session 1 - 2014 Syllabus

Course Number: DANM 140 / ART 105

Instructor: Gene A. Felice II – [www.genefelice.com](http://www.genefelice.com)

Teaching Assistant: Nathan Ober - <http://nathanielober.com/>

Tuesday's & Thursday's: Lecture 11am to 2pm, Lab 3pm to 6pm

### **Classrooms:**

Lecture & Critique: Social Sciences 1 Mac Lab (<http://its.ucsc.edu/computer-labs/descriptions/socsci1-mac.html>)

Lab: DARC 225 & Laser Cutting Lab on the 1<sup>st</sup> floor of the Digital Arts Research Center.

Instructor contact: [gfelice@ucsc.edu](mailto:gfelice@ucsc.edu)

TA contact: [nober@ucsc.edu](mailto:nober@ucsc.edu)

### **Office Hours (by appointment):**

Gene Felice - DARC 225 - Monday's & Wednesday's 12 to 2pm

Lab Hours: Nathan Ober & Gene Felice - TBD

### **Course Description:**

2D & 3D design / Laser Cutting / 3D printing / Vacuum Forming:

Learn how to design functional objects, sculpture and other digitally inspired forms in a variety of 2D (Adobe Illustrator) & 3D applications (123D Design & Make, Sculptris and Rhino 3D) then produce those models as physical objects with a variety of rapid prototyping methods including: 3D Printing, Vacuum Forming, & Laser Cutting.

Laptops are encouraged, but we will also have access to the computers in the Social Sciences 1 Mac lab as well as the PC in the DANM prototyping lab.

A Materials Fee of \$50 per student has been charged to your account, which covers costs of a variety of 3D printing material, acrylic plexi for the Laser Cutter & polystyrene for Vacuum Forming as well as other alternative laser cutting materials such as leather, specialty paper, etc. and also a small portion to pay for machine wear & tear / maintenance.

### **Class Structure / Goals:**

The first half of each class day will begin in the Social Sciences 1 Mac lab and will be split between lecture and individual lab time working with computer instruction on both 2D and 3D software options, as well as one-on-one instructor time for each student. The second half of each day will take place in the Digital Arts Research Center either in DARC 225 or on the first floor Laser Cutter lab.

The method of instruction will include lectures, demos, and video as well as in and out of class assignments. Class content will include exposure to relevant artists and designers working with prototyping technology, software demos, tutorials and advanced techniques, as well as an introduction to a variety of processes used in 2D & 3D prototyping. Homework assignments will include outside readings, software tutorials and project reflections.

The primary goal of this course will be for you to understand the concepts and practices of utilizing 2D & 3D software as tools of ideation for visualizing & prototyping conceptually driven works of art & design. A secondary goal of this class is to learn about past and contemporary artists, designers and makers who are creating and pushing the boundaries of how to utilize these systems in fine arts, design and interdisciplinary contexts.

All students will be trained to use the prototyping equipment themselves with standard UCSC safety procedures. However, equipment will only be available to students while under the supervision of the instructor or TA during summer session 1. Future access will be determined by the DANM office / staff based on individual need and availability.

### **Objectives:**

- To produce conceptually interesting and formally compelling artwork & design.
- To understand the principles of 2D & 3D computer modeling and sculpture.
- To be able to relate traditional sculpture principles of form, material and site and utilize 2D design & 3D modeling to virtually give rise to an installation or sculpture
- To offer intelligent and informed critiques.
- To develop original ideas and concepts.
- To develop an awareness of artists working in the field.
- To develop and understand methods of rapid prototyping, laser cutting, vacuum forming & output from 3D models.
- To research and discover ecologically minded 2D & 3D prototyping processes and materials.

### **Requirements:**

Attendance is a required as this class only meets for 5 weeks with twice the weekly workload, so missing one class is the equivalent to missing an entire week of class in a normal quarter schedule. Only medical or family emergencies will be accepted. Please contact the instructor before class, in either of these cases. No exceptions.

Also required is at least one sketchbook. Your sketchbooks will be looked at during our in class critiques and during one on one time with the instructor, to observe your conceptual development and how your sketches relate to your 3D computer models. While everyone has different ability levels when it comes to drawing / sketching, even rudimentary sketches will be accepted. Stick figure are just fine for this class, but hopefully learning 3D modeling will help you to develop finer sketching / drawing abilities. Completion of your project sketches will be a part of your individual project grades.

In class participation during general discussions and especially during critiques, is required and is worth 10% of your grade!

Out of class reading and writing assignments will also be required and graded throughout the quarter as well as additional homework assignments given out in class, which are worth 20% of your final grade. This includes one-page reflections / self-critiques for each class project.

All projects and assignments will require students to work both inside and outside of class. Projects and assignments turned in late will be decreased by 1/4 points for each day the assignment is late. Example: 20 points will equal 15 after 1 day. 20 points will be 10 points after 2 days late.

### **Evaluation:**

Evaluation will be based on the following:

1. The quality of your class participation, including contribution to critiques, discussions and in class presentations.
2. The quality of your completed assignments, including:
  - a. Your comprehension of concepts.
  - b. Demonstration of your effort in achieving your goals.
  - c. The exploration of new ideas.
  - d. Research into an inspiring or empowering subject.
  - e. Your individual personal development.
3. The completion of a final project to be determined in the 3rd week of the class. Final projects can be individual or team based.

### **Grading:**

Class participation = 10 points

Reading, Writing & Tutorial Assignments / Homework = 20 points

Student Presentations = 10 points

Assignment 1 = 10 points

Assignment 2 = 10 points

Assignment 3 = 10 points

Final Project = 30 points

Total possible points = 100 points

**Grading scale:**

A = 94 - 100 A- = 90 - 93

B+ = 88 - 89 B = 83 - 87 B- = 80 - 82

C+ = 78 - 79 C = 73 - 77 C- = 71 - 72

D+ = 69 - 70 D = 64 - 68 E = 0 - 63