

## **ART 4642C Section:2745 | Digital Fabrication**

*University of Florida School of Art + Art History Fall 2017*

Meets: T/Th Periods8-10 (3:00 – 6:00 p.m.) FAC 306

Instructor: Aaron "Ernie" Williams

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Office Hours: Thursdays12:00 – 2:00 p.m. (or by appointment)

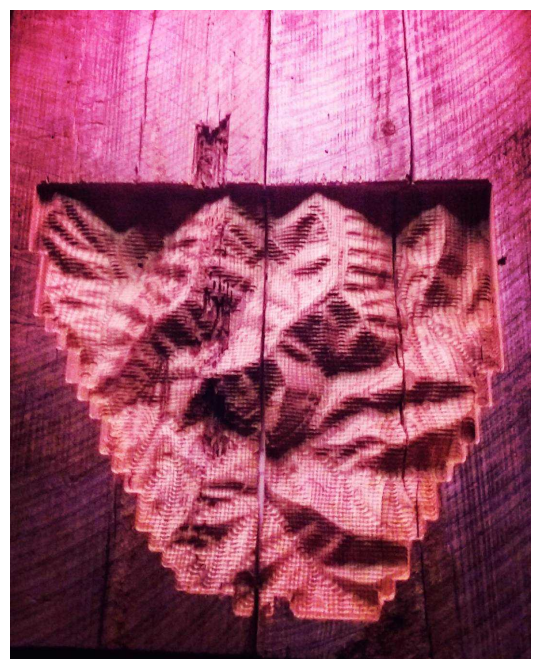
Office: FAC 302C

Fabrication Lab Manager: Mat Chandler - [mpchandler@dcp.ufl.edu](mailto:mpchandler@dcp.ufl.edu)

Graduate Assistant: Delvin Caldwell - [d.caldwell@ufl.edu](mailto:d.caldwell@ufl.edu)

Infinity Fabrication Laboratory: Infinity Hall, 978 SW 2nd Ave, on the ground floor room 117.

-Fabrication Lab website: <https://fablab.arts.ufl.edu/>



### *DESCRIPTION*

Digital Fabrication is a hands-on course for students to get acquainted with a suite of softwares to translate digital objects, images, and concepts into tangible forms through digital fabrication machining. Students can expect tutoring with Adobe Illustrator and Photoshop as well as Rhinoceros 5 along with a variety of specialty programs. Class will sometimes meet at the Infinity Fabrication Laboratory to get acquainted with the operation and maintaining of machines that will be used throughout the course including but not limited to laser cutters, 3D printers, CNC mill, and water-jet cutting. In addition to expanding our means and skills in production this course also encourages experimentation and invention through workflows.

### *Objectives*

- Learn to use advanced prototyping and manufacturing techniques in the production of art objects.
- Become adept at developing concepts that move from software to physical forms.
- Develop a hands-on understanding of the multiple functions and processes of a fabrication lab.
- Consider issues of commodity surrounding consumer and art objects.
- Learn to measure, print and cut with precision as well as produce error free objects.
- Apply research and methodologies from other content areas to the making of art works.

## *PROJECTS*

The course begins with experiments in laser cutting and CNC milling using vector files and continues with 3D modeling and printing via 3D modeling software and 3D scanning. These projects allow students to become familiar with the technical processes as well as the use of software essential for digital fabrication. Over the duration of the term, each student will be given the tools necessary to learn the functionality of fabrication equipment through applying proper hands-on maintenance procedures. Successful projects reflect a foundational understanding of proper measuring and error-free design, thoughtful, playful engagement with course topics and innovative use of lab technology as artistic tools.

## *REQUIRED MATERIALS*

- Ear plugs and goggles
- USB flash drive, 2GB minimum, for storage and transfer of digital files
- Materials for laser cutting such as paper, Plexiglas and Basswood, all available for purchase at the Infinity Fabrication Laboratory.
- Readings (available in .pdf on class website)
- Software: Photoshop, Illustrator, Rhinoceros (all available in the FAC 306 lab)
- Each student is charged a \$140 fab lab semester access fee

**\*all charges for materials, 3D printing materials and fees go through ISIS**

## *PARTICIPATION*

Participation, support, and respect in all phases of this course are imperative. The class dynamic depends on your energy, initiative, attitude, productivity, and willingness to get involved in group discussion and critiques. Participate in a responsive manner during critique and discussion. Complete all assigned readings and take notes so you can contribute to the discussion in class. Make safe and considerate choices with equipment and facilities. Become comfortable with the fabrication lab. Do your part to keep the lab clean. Ask questions! Offer constructive feedback during group discussions, class workdays, and critiques. Reflect on the comments you receive to gauge the effectiveness of your work. Examine the way your ideas change, evolve and influence formal and conceptual choices in your work. Development as an artist often hinges on your ability to make effective choices and express your ideas clearly. Lastly: have fun and invent!

## GRADING AND EVALUATION

Grades are meant to reflect effort, ideas, and execution. Your overall grade will be based on your projects (including creativity, critical thinking, engagement with course information, research, presentation, technical proficiency with hardware and software, aesthetic application of technologies, and problem solving) and participation. Expectations will be explained in detail for each project when it is assigned. If anything seems unclear, you are responsible for asking the instructor for clarification far in advance of the due date. The most successful projects will exhibit close connections between their conceptual, technical, and aesthetic dimensions.

UF grading policies website: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Final grades are based on:

- 10% - In Class 1: Laser Cutter
- 20% - In Class 2: 3D Printer
- 20% - In Class 3: CNC & Waterjet
- 30% - Semester Project
- 20% - Participation

## GRADING SCALE

- |                |                |
|----------------|----------------|
| •93 to 100 = A | •73 to 76 = C  |
| •90 to 92 = A- | •70 to 72 = C- |
| •87 to 89 = B+ | •67 to 69 = D+ |
| •83 to 86 = B  | •63 to 66 = D  |
| •80 to 82 = B- | •60 to 62 = D- |
| •77 to 79 = C+ | •below 60 = E  |

*\*Please note: a grade of C- or below will not count toward major requirements*

## *ATTENDANCE*

Tardiness and/or lack of appropriate class materials are unacceptable and may count as unexcused absences. All students are expected to attend every class, prepared to participate. Up to three unexcused absences will be overlooked from a grading standpoint. On the 4th unexcused absence the Participation Grade drops by 50% (5 pts), the 5th at 100% (10pts) and 6th is failure of the course. Projects reflect learning, so you will succeed more easily with perfect attendance. Please refer to UF attendance policies:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## *LATE WORK*

Grades for late assignments and projects will be penalized by a one letter grade drop. No work will be accepted after two class periods from the due date. All digital fabrication equipment require maintenance and supervision. They may be unavailable at any time so do not wait until the last minute to begin a project. 3D printing takes a long time, so you MUST meet A2 FabLab print deadlines for your projects to be included in print batches. Always attend class on project due dates. Even if you are not prepared to turn in your assignment, you still need to participate in discussion to receive project participation credit.

## *ACADEMIC HONESTY*

Please do your own work, or you will fail. Students are expected to abide by the UF Academic Honesty Policy, which defines an academic honesty offense as “the act of lying, cheating, or stealing academic information so that one gains academic advantage.” Familiarize yourself with the academic honesty guidelines set forth by the University of Florida: <http://www.dso.ufl.edu/sccr/honorcode.php>

## *UF MEDIA LABS*

Never bring food or drinks into the lab, not even water. Class periods will always include breaks so you can step outside. Save your work onto a portable drive before logging off. Files left on lab computers will be erased without warning through an automated service.

FAC 306 lab hours: <http://plaza.ufl.edu/mchristo/306-schedule.html>

UF Academic Technology lab hours: <https://labs.at.ufl.edu/Hours.php>

### *ACCOMODATION FOR STUDENTS*

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### *CELL PHONE POLICY*

UF requires all students have phones on silent, not off due to using this as an emergency notification system.

### *UF STUDENT GUIDE*

This resource covers important policies and procedures for students: <https://catalog.ufl.edu/ugrad/current/Pages/academic-regulations.aspx>

### *UF COUNSELING CENTER/COUNSELING SERVICES*

Counseling and Wellness Center  
3190 Radio Rd.  
PO Box 112662  
Gainesville, FL 32611-2662

Phone: (352) 392-1575.

<http://www.counseling.ufl.edu/cwc/Default.aspx>

### *EVALUATIONS*

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

### *HEALTH AND SAFETY*

Please familiarize yourself with the UF SA+AH Health and Safety Handbook, available online: <http://arts.ufl.edu/art/healthandsafety>. Sign and return the waiver distributed on the first day of class. You are responsible for helping maintain the safety of the labs, especially by keeping them clean and free of trash and debris. Pick up after yourself, or your final grade will be lowered at the instructor's discretion. Michael Christopher ([mchristo@ufl.edu](mailto:mchristo@ufl.edu)) is the area contact for health and safety issues. The following is an overview of the health and safety information specific to digital media art classes.

## Area Specific Information: Digital Media

### 1. Hazards of Materials

Batteries, old monitors, lamps from digital projectors if broken may release mercury. THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT.

### 2. Best Practices

Though not much is generated, the Digital Media technician is certified for handling Hazardous Waste by the University of Florida. For installations or sculptural elements, please cross-reference with other area specific information as needed.

### 3. Area Rules

- Follow all SA+AH Health and Safety handbook guidelines.
- Alcohol is not permitted (open or closed containers).
- No smoking in the building or within 50 feet of the entry.
- No eating or drinking in the lab.
- Shoes must be worn at all times.
- Protective equipment must be worn for hazardous work.
- Do not block aisles, halls or doors with stored items or when working. This is a violation of fire codes.
- Do not store anything on the floor. This impedes cleaning and creates a hazard.
- Do not park bikes in the building.
- Clean up spills immediately.
- Take items which do not fit into the trash to the dumpster, follow dumpster guidelines.

## *SA+AH CONTAINER POLICY*

There are 2 types of labels used in the SA+AH-- Yellow and White. Both labels are found at the red MSDS box and are supplied by the SA+AH. Each is used for a different purpose.

**White:** All new and or used product in containers (hazardous or what might be perceived as hazardous - i.e. watered down gesso, graphite solutions, satellite containers of solvents, powders, spray paints, fixatives, oils, solvents, etc...) must be labeled within the SA+AH to identify their contents. Labels can be found at the MSDS box in each studio and work area. All containers must be marked with your name, contents and date opened. All secondary/satellite containers for hazardous materials must be marked with content, your name and the date opened. All unmarked containers will be disposed of with no notice.

**Yellow:**

**WHEN HAZARDOUS ITEMS ARE DESIGNATED AS TRASH.** All containers must have a yellow label identifying the contents that are designated as trash for weekly EHS pick up.

- Flammable solid containers (red flip top) must have a yellow hazardous waste label on the outside (top).
- 5 gallon jugs must have a yellow hazardous waste label on the outside.
- Fibrous containers must have a yellow hazardous waste label on the outside (top).
- Each item in the blue bin must have a yellow hazardous waste label.

**Note:** Hazardous Waste labels should include all constituents in the waste mixture as well as an approximate percentage of the total for that item and must add up to 100%. Labels should also include the Building and room number of the shop generating the waste along with the Waste Manager for your area, this is located on the SWMA sign posted at the sink or at the Waste Management Area.

