

# Digital Fabrication (Spring 2023)

ART 4642C ( 3 Credits )

**Instructor:** India Brooks

**Meeting Time:** T,Th 6:15 – 9:15 **Location:** FAC 306

**Office Hours:** T,Th 5:00 – 6:00 **Office:** FAC B4

**Email:** [indiabrooks@ufl.edu](mailto:indiabrooks@ufl.edu)

**Cell Phone:** 407-738-5534

## COURSE DESCRIPTION

Digital Fabrication is a course for students to learn to translate digital objects, images, and concepts into tangible forms through digital fabrication. Students will learn to work in Rhino, Photoshop, and Illustrator. 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 waterjet cutting. In addition to expanding our means and skills in production this course also encourages experimentation and invention through workflows.

## COURSE OBJECTIVES

Through in-class and formal assignments students will demonstrate an understanding of the following concepts and skills:

Learn to use advanced prototyping and manufacturing techniques in the production of art objects.

Develop a hands-on understanding of the multiple functions and processes of a fabrication lab.

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.

Consider issues of commodity surrounding consumer and art objects.

## Projects

The course begins with experiments in laser cutting using vector files and continues with 3D modeling, printing, CNC milling and waterjet cutting. 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.

Project 1: Laser Cutting    20 Points

Project 2: 3D Printing        20 Points

Project 3: CNC Milling        20 Points

Final Project:                    30 Points

Participation:                    10 Points

## Required Materials

Reading will be provided on Canvas

USB flash drive, for storage and transfer of digital files

Materials for laser cutting (paper, Basswood, Plexiglass, etc.)

Materials for CNC milling Water jet cutting  
(plywood, nylon sheeting, metal sheeting)

Software (Rhino, Illustrator, Photoshop) all provided in the FAC 306 Lab

\$100 of each students class fees will be credited to each students Fab Lab account to use as needed.

All charges for extra materials and Fab Lab fees will be charged to the students UF account.

## 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.

## 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. 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. 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 / 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.

94 – 100 = A	73 – 76 = C
90 – 93 = A-	70 – 72 = C-
87 – 89 = B+	67 – 69 = D+
83 – 86 = B	63 – 66 = D
80 – 82 = B-	60 – 62 = D-
77 – 79 = C+	Below 60 = E

## UNIVERSITY INFORMATION REGARDING COVID-19

Due to the surge in Covid-19 cases because of the Delta variant **all people, inside UF facilities are expected to wear approved face masks even if vaccinated.** UF also urges all people to get vaccinated <https://coronavirus.ufhealth.org/vaccinations/> Recent research and guidance from the CDC state that both unvaccinated and vaccinated individuals can transmit the current Covid-19 variant to unvaccinated persons.

- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- If you are experiencing COVID-19 symptoms <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> - please use the UF Health screening system and follow the instructions on whether you are able to attend class. COVID-19 testing remains available both on and off campus. Testing locations and schedules are available at <https://coronavirus.ufhealth.org/screen-test-protect-2/how/screen/#locations>.
- In addition, please complete the Weekly COVID-19 Symptom Screening you receive via email. This will help the UF Health Screen, Test & Protect team identify and contain any potential COVID-19 outbreaks. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
- Please maintain physical distancing (6 feet between individuals) during class.

## UF POLICY FOR IN-CLASS RECORDING

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

## Academic Resources

*E-learning technical support:* Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

*Career Connections Center:* Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

*Library Support:* Various ways to receive assistance with respect to using the libraries or finding resources.

*Teaching Center:* Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

*Writing Studio:* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

*Student Complaints On-Campus:* [Visit the Student Honor Code and Student Conduct Code webpage for more information.](#)

*On-Line Students Complaints:* [View the Distance Learning Student Complaint Process.](#)

## ATTENDANCE AND EXPECTATIONS

### ATTENDANCE

Full participation by showing completed work during all scheduled critiques is required along with active participation through shared ideas and commentary. You are required to work/participate for the entire duration of the scheduled class period. Students are expected to attend all classes. **Unexcused absences will be cause for a lowered grade. Your fourth absence will result in ONE grade drop.** Absences will be counted from the first class meeting onward. Appropriate documentation from the student health service should be obtained for medical excuses. In general, acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, severe weather conditions, religious holidays and participation in official university activities such as music performances, athletic competitions or debates. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) must be excused. Other sound reasons may be offered and considered on an individual basis. If an absence occurs it is the student's responsibility to make up all work. Students should check with the instructor or another student outside of class time when they miss a class (prior to missing the class if possible), as in- and out-of-class exercises are

spontaneously assigned. Students should bring a doctor's note for any class from which they expect to be excused. Please address any concerns, problems, and questions regarding this class to the instructor as they arise.

**Tardiness:** Arrival to class fifteen minutes after start of class will be noted and three such incidences will count as one absence. Leaving early from class will also be considered as tardiness, and will be counted as such.

Students are responsible for satisfying all academic objectives as defined by the instructor. Students who do not attend at least one of the first two class meetings of a course or laboratory in which they are registered, and who have not contacted the department to indicate their intent, may be dropped from the course. The university recognizes the right of the individual professor to make attendance mandatory. After due warning, professors may prohibit further attendance and subsequently assign a failing grade for excessive absences.

**Students must check their school email accounts regularly. Students are responsible for any information, deadlines, and updates emailed to their webmail accounts.**

### **LATE WORK**

All projects, reading responses, and research projects must be completed on time for full credit. Specific due dates are stated on each project sheet and are announced in class. Failure to complete any project on time will result in a drop of one full letter grade, and failure to complete any other assignment, such as response papers, in-class exercises, or other class work, on time will result in a drop of ½ letter grade for each day it is late. If the time line states that a project is due at the beginning of class, turning it in at the end or after class is considered late. You must have work finished and installed before the start of class on critique days or your work will not be critiqued and your project grade will be lowered. It is the student's responsibility to turn in all work on time. Full participation by showing completed work during all critiques is required along with active participation through shared ideas and commentary.

### **CELL PHONES**

Students in the School of Art and Art History will not be permitted to have cell phones turned on in class. If it beeps, chimes, rings or makes any type of noise, turn it off before entering the classroom. Continuous cell phone disruptions will result in lowered grades.

### **UNIVERSITY POLICY FOR RELIGIOUS HOLIDAYS**

The Board of Regents and state law govern university policy regarding observance of religious holidays: Students, upon prior notification of their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances. Furthermore, a student who is to be excused from class for a religious holy day is not required to provide a second party certification of the reasons for the absence.

### **UNIVERSITY ILLNESS POLICY**

Students who are absent from classes or examinations because of illness should contact their professors. If you're unable to attend class due to illness, please email the teacher

prior to class meeting time. Please state your name, class, as well as the reason you will not be attending class that day.

**ON-LINE STUDENT EVALUATIONS:** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the final 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>.

## UNIVERSITY AND SA+AH RESOURCES AND POLICIES

**GENERAL UNIVERSITY POLICIES AND SERVICES:** <http://www.dso.ufl.edu/>

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES:** Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. Disability Office — <http://www.dso.ufl.edu/drc/>

**UNIVERSITY COUNSELING SERVICES:**  
352-392-1575 <http://www.counsel.ufl.edu/>

Resources are available on campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. The Counseling Center provides counseling and consultation services to currently enrolled undergraduate and graduate students and their spouses/partners. The Center offers brief counseling and therapy to help students confront personal, academic, and career concerns. The primary goal of counseling is to help students develop the personal

awareness and skills necessary to overcome problems and to grow and develop in ways that will allow them to take advantage of the educational opportunities at the university. Counseling Center Web site: <http://www.counsel.ufl.edu>.

- University Counseling Center, 301 Peabody Hall, 392-1575, personal counseling.
- Student Mental Health, Student Health Care Center, 392-1171, counseling.
- Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling
- Student Healthcare Center, <http://shcc.ufl.edu/>

For medical emergencies call 911.  
352-392-1161 for urgent after-hours care.

352-392-1171 for after-hours mental health assistance.

### **SAFETY AND SECURITY:**

In an emergency call 911.

University Police Department — <http://police.ufl.edu/> 352-392-1111.  
ARCH Lab is designated as UF building 3451  
Norman Lab is designated as UF building

\*\*Please enter this important info into your phone!

**STUDENT NIGHTTIME AUXILIARY PATROL (SNAP):** SNAP provides nightly escorts anywhere on campus to persons on request. The service is staffed by students, equipped and supervised by the university police department. Escorts are routed on foot and driven trips. A person requesting an escort may contact SNAP via telephone at 392-SNAP (92-7627). The requester provides their first name, location of pick-up and destination to the dispatcher who determines the best method of meeting the requester's need. A walking or driving escort is dispatched, to their location.

## SA+AH HEALTH AND SAFETY POLICIES

### **HAZARDOUS WASTE SATELLITE ACCUMULATION:**

Please make yourself familiar with the SAAH Health and Safety Program at: <http://www.arts.ufl.edu/art/healthandsafety> during the first week of class. Refer especially to the H&S Rules by Area sections pertaining to Art + Technology. Each student will be asked to complete a H&S student waiver form (which will be given to you and signed during studio).

**DRUG-FREE SCHOOL & WORKPLACE & CLEAN INDOOR AIR ACT:** The School of Art and Art History is committed to upholding the policies set forth by the University of Florida in regards to drug and alcohol use and smoking in educational facilities. Possession and use of drugs or alcoholic beverages is not allowed in the classroom or outdoor areas. In addition, The Florida Clean Indoor Air Act of 1992 prohibits smoking in educational facilities. Violation of university policies and applicable laws is grounds for disciplinary action up to and including expulsion and does not preclude the possibility of criminal charges.

## GUIDELINES FOR USE OF CAMPUS FACILITIES AND GROUNDS

### **SHARED STUDIO:**

Please leave the studio clean. Regardless of the condition you find it in, we request that you leave it clean for the next person. Remember to place all work in progress on the storage shelves or designated area. Leave work space clear and clean. This is a shared studio and we all need to work together to keep it a clean and productive environment.

### **STUDIO PRACTICE**

The instructor and the School of Art and Art History are not responsible for student work left in workspaces, installation spaces, the critique space, the shops, or the classrooms. Projects/materials are not to be stored in the group working space. **Each student is responsible for ensuring that his/her projects and materials are safely stored, displayed, installed, and removed from the classroom and critique space. Projects must be set up and removed from the critique space at the times and spaces designated for each project.**



**POLICIES REGARDING BEHAVIOR IN LECTURES, CLASSROOMS, STUDIOS & OTHER INSTRUCTIONAL SPACES:** Please make every effort to maintain the facilities and grounds of the WARPhaus, the School of Art and Art History, the College of Fine Arts and The University of Florida.

**Specifically we ask that you follow these guidelines:**

- Do not mark, paint on or deface any interior or exterior of the school or college facilities. Take care to always use protective tarps, drop cloths or masking material when working with paint media or similar materials to protect the floors in public spaces such as hallways and classrooms. That applies also to the sidewalks walls, and grounds.
- If a special project requires temporary modification to a wall surface or to the grounds you must obtain specific permission from your instructor prior to undertaking the project. The site must be returned to its original condition immediately following the project unless prior written permission has been obtained from the School of Art and Art History.
- No Art project may interfere with or impede access to, classrooms, hallways or other public spaces.
- All site-specific art projects must be installed and engineered with the safety of the general public in mind.
- Grades will not be issued for the project, or the class, until the project has been completely removed, and the site has been restored to its original condition.
- Failure to comply with these rules will result in disciplinary action, withholding of grades, the possible lowering of a grade, or failure of the course.

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Student Conduct Code: Violations, Penalties and Procedures for Adjudication  
<http://www.aa.ufl.edu/aa/Rules/4016.htm>

## **GUIDELINES FOR WORK IN THE SURROUNDING COMMUNITY**

Proper care should be taken in order to assure all property in the surrounding area is respected and well maintained, and projects should be executed with public health and safety in mind. Vandalism of any kind will not be tolerated. As on campus, students doing site-specific work off-campus will be legally and financially accountable for any illegal or destructive actions. In addition, projects involving the greater community should be carefully considered and faculty must be consulted throughout. All public projects must be cleared by faculty and permission granted. Remember, that the School of Art and Art History at The University of Florida retains the power to require a more appropriate solution to any project that may violate any of the guidelines outlined above. Please do not litter or leave materials out in the area. Respect property, surrounding businesses and the rights of individuals in the community. Failure to comply with these rules will result in disciplinary action, withholding of grades, the possible lowering of a grade, or failure of the course.

## GUIDELINES FOR CONDUCT

Student Conduct Code; Violations, Penalties and Procedures for Adjudication.  
<http://www.aa.ufl.edu/aa/Rules/4016.htm>

**UF PHILOSOPHY:** The University of Florida is an institution that encourages the intellectual and personal growth of its students as scholars and citizens. As an educational institution, the University recognizes that the transmission of knowledge, the pursuit of truth, and the development of individuals require the free exchange of ideas, self-expression, and the challenging of beliefs and customs.

In order to maintain an environment where these goals can be achieved safely and equitably, the University promotes civility, respect and integrity among all members of the community. As stated in the Standard of Ethical Conduct, students are expected to exhibit high standards of behavior and concern for others.

**ACADEMIC HONESTY;** As a result of completing the registration form at the University of Florida, every student has signed the following statement: " I understand that the University of Florida expects its students to be honest in all of their academic endeavors and understand that my failure to comply with this commitment may result in disciplinary action to and including expulsion from the University. Detailed Academic Honesty Guidelines may be found at <http://www.aa.ufl.edu/aa/Rules/4017.htm>

**DISRUPTIVE BEHAVIOR:** Faculty, students, Administrative and Professional staff members, and other employees [hereinafter referred to as "member(s)" of the University], who intentionally act to impair, interfere with, or obstruct the mission, purposes, order, operations, processes, and functions of the University shall be subject to appropriate disciplinary action by University authorities for misconduct, as set forth in the applicable rules of the Board of Regents and the University and state law governing such actions. A detailed list of disruptive conduct may be found at <http://www.aa.ufl.edu/aa/Rules/1008.htm> Be advised that you can and will be dismissed from class if you engage in disruptive behavior.