

School of Visual Arts  
Products of Design  
PDG-5080-A **Making Studio**  
Fall 2020  
Time: Wednesdays 8:30am to 11:30am ET  
Class blog: <http://makingstudio.blog>  
Instructor: Becky Stern

### Course Description

As the impacts and consequences of mass production become better understood, designers find new relevance in the fields of making, hacking, hand-crafting, and DIY. This course exposes students to techniques, tools, and resources for expanding what we can make ourselves, as well as sharing what we make. In-class workshops, field trips, and guest instructors will inform individual and group assignments around the creation of functional product prototypes. Students will combine traditional and novel techniques and materials in electronics, coding, crafts, fabrication, entrepreneurship, and other do-it-yourself areas. The course will provide great emphasis on participating in online communities about making, providing students with opportunities for exposure and access to a stellar network of innovators, hackers, hobbyists, and crafters producing DIY projects.

### Course Objectives

Makers today have all the resources available to them to fully develop a product idea into a small business. Methods of fabrication like laser cutting, CNC milling, and 3D printing— once only available to large corporations— have recently become easily accessible for just about anyone. Likewise craft techniques like sewing and knitting can be simple to learn and open up a wide new ability to express creative ideas. This course will offer an introduction to many kinds of making, including electronics/physical computing with Arduino, and will give the student the confidence to move well beyond ideation and concepts to creating products of design that are fully realized and fully functional.

### Course Outline

Schedule subject to change. Unless stated otherwise, **assignments are due via Canvas and class blog post 12 hours before class.**

Week 1	Sept 9	Intros, syllabus & class blog overview, Project 1 assigned (Teardown)
Week 2	Sept 16	Project 1 discussion, Arduino introduction
Week 3	Sept 23	Sewing/soldering introduction, introduction to Project 2 (Plush night light)
Week 4	Sept 30	In progress critique/ 1:1 meetings
Week 5	Oct 7	Project 2 presentations, introduction of Project 3 (Halloween costume)
Week 6	Oct 14	Arduino workshop
Week 7	Oct 21	1:1 meetings
Week 8	Oct 28	In progress critique
	Oct 31	virtual Halloween parade (time TBD)
Week 9	Nov 4	Project 3 presentations
Week 10	Nov 11	Video documentation introduction watch-a-thon, Final Project discussion
Week 11	Nov 18	Arduino workshop, work time/office hours
	Nov 25	No class (Thanksgiving)
Week 12	Dec 2	Final Project in-progress critiques
Week 13	Dec 4	Peer-supported writing workshop/1:1 meetings
Week 14	Dec 9	Final Project presentations
Week 15	Dec 16	Improvements and reflections - last class
	1 week later (tent. Dec 23)	<b>Final dossiers due</b> (required for passing grade)

## Learning Outcomes

- Experience new methods of making
- Develop knowledge and hands-on skills in basic electronics and physical computing
- Develop hands-on skills in student-selected crafts: sewing, soft circuits, knitting, jewelry, laser cutting, 3D printing, etc.
- Create portfolio-building products and projects
- Engage with a huge online maker community through sharing projects, groups, blogs, and events
- Document projects through photography, video, and writing
- Experience publishing projects as how-to manuals online
- Learn to self-promote online
- Cultivate resources and confidence toward creating a business around making

## Required Reading

The course Arduino exercises will loosely follow the [Instructables Arduino Class](#) and [Internet of Things Class](#).

The course book is [Getting Started with Arduino](#). Use it to look up Arduino terms and questions, and read the background chapters at your own pace— you will not be explicitly assigned readings from the book, yet are expected to read the entire book during the course.

Students are encouraged to use an RSS reader such as [NewsBlur](#) to research DIY and maker-related blogs.

Canvas will include links to all required readings. Class will include asynchronous elements where possible, such as assignments to watch videos, read specific texts, and contribute to video/voice feedback opportunities.

## Materials and Supplies

You will need access to a digital still and video camera for this course (your phone will likely suffice). Access to lighting equipment, microphone, and tripod are highly recommended. The computer(s) you use for this course must be capable of internet access, photo manipulation, and video editing. If your laptop only has USB C ports, you will need a C-to-A adapter to work with Arduino. Use of platform-agnostic and open source technologies are highly encouraged. Materials and supplies will vary based on each student or team project's needs.

To get started, there are some tools and materials every student should have/have access to including a basic Arduino kit, soldering supplies, and sewing supplies. Find the list, with suggested suppliers, on airtable: <https://airtable.com/shrvOj3T0KYGOwfOh>

Some resources for further shopping/downloads/services:

Supplies/materials

[Adafruit.com](#) - NYC based components supplier (ship via UPS ground for fastest delivery, or use same-day delivery before 11am)

[Sparkfun.com](#) - Colorado based components supplier

[lessEMF.com](#) - upstate NY - interesting conductive materials such as fabrics and paints

[Digikey.com](#) - Minnesota based components supplier

[Jameco.com](#) - supplier of new and surplus electronics components

[Mcmaster.com](#) - utility hardware supplier

[Polytek.com](http://Polytek.com) - moldmaking and casting supplier

#### Communities

[Instructables.com](http://Instructables.com) - general making community owned by Autodesk

[Hackster.io](http://Hackster.io) - electronics community owned by Avnet

[Hackaday.io](http://Hackaday.io) - electronics community owned by SupplyFrame

#### Services

[Thingiverse.com](http://Thingiverse.com) - 3D printing files and other CNC files (laser cutter, etc.) sharing site

[Shapeways.com](http://Shapeways.com) - on demand 3D printing service

[3dhubs.com](http://3dhubs.com) - distributed on demand 3D printing, CNC machining, and injection molding service

[Ponoko.com](http://Ponoko.com) - on demand laser cutting service

#### Software

[Arduino.cc](http://Arduino.cc) - electronics prototyping ecosystem

[Tinkercad.com](http://Tinkercad.com) - free browser-based 3D modeling and circuit prototyping software

[Autodesk Fusion 360](http://Autodesk Fusion 360) - free for students - 3D design software

[Gimp.org](http://Gimp.org) - free and open source photo editing software

[Inkscape.org](http://Inkscape.org) - free and open source vector drawing software

[Openscad.org](http://Openscad.org) - free and open source programmatic 3D modeling software

[Cura](http://Cura) - free 3D slicer/printer file prep software

#### **Criteria for Evaluation**

Participation and communication: Your participation in class will be evaluated not just in discussions and group project work, but also online through the class blog and other sharing outlets including photo, video, tutorial, and social media sites. Plentiful, frequent, high-quality, and well-organized contributions to class and the web are essential.

Individual and group assignments: You will be evaluated on your production of four projects over the course of the semester. Your projects will be evaluated based on cultural merit (benefit/relevance to target community), writing, photography, videography, and documentation online.

#### **Project Dossiers**

In addition to other requirements for the course, a passing grade will require the submission of a project dossier 1 week after the final class concludes. You will not receive a passing grade unless you provide the dossier on time. Please consult with your instructor and the class Google calendar for dossier due dates. Project dossier instructions will be sent from our department staff.

#### **Instructor Addendum**

Schedule office hours with me anytime you want to chat (in video or by email)— I can meet with you over Zoom. Please let me know as far in advance as possible if you must miss a class or will be late (by email or text message if necessary).