

Sticky Innovation

Exploring the Problem of the Bees Through Engineering and Art

ENED | DAAP 3040 FA19

website:

stickyinnovation.com

Room 210 B (2nd floor)
and
Ground Floor Makerspace
1819 Innovation Hub
2900 Reading Rd.

Tuesdays and Thursdays
9:30am-10:50am

Field trip to Greenacres
Tuesday September 10
Meet at 8:45am at 1819 IHUB
*please adjust your schedule
accordingly and notify instructor of
any potential conflicts*

instructors

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Office Hours: By appointment



course overview

While humans are reliant on bees for pollinating essential food crops, the worldwide emergence of colony collapse disorder threatens the vitality of honeybee populations. The course immerses students in the theme of bees (including native species) as an arena within which to develop and practice a variety of creative problem solving skills. Students will learn multiple approaches to inquiry to through deep consideration of this “wicked problem” of contemporary times.

We meet in the UC’s 1819 Innovation Hub and will utilize the Ground Floor Makerspace. This course incorporates documentary film, fiction, arts based inquiry, scientific research, engineering design, prototyping, and reflection. Student use content knowledge and methodological approaches to design innovative solutions. Learning through making, students will gain skills in prototyping processes, including 3d modeling, 3d printing, and laser cutting. The course develops interdisciplinary

collaboration through weaving together of creative and scientific disciplines. Integrating engineering and art, students will gain experience in a variety of modes of inquiry and making that will develop creative research approaches, problem solving skills and innovative habits of the mind.

Following Massachusetts Institute of Technology Center for Art Science and Technology **mission** this course, “creates new opportunities for art, science and technology to thrive as interrelated, mutually informing modes of exploration, knowledge and discovery”. These goals align with the University of Cincinnati’s Honor’s program mission to offer students creative sites of transformative, cross disciplinary, and experiential learning.

Students may have the option to continue research in the spring and participate in the international Biodesign Challenge in NYC. More information may be found on the course website. Details of Spring options will be forthcoming.

learning objectives

Students will:

- Practice arts and science based approaches to inquiry, expression and presentation
 - Learn basic 3d modeling, 3d printing, and laser cutting methods.
 - Present research findings in non-traditional ways (beyond PowerPoint and posters)
 - Develop a toolbox of aesthetic and observation skills i
 - Incorporate a variety of points of view and contexts in the design of innovative solutions through empathetic understanding of complex problems
 - Develop cross-disciplinary collaborative team-working skills
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readings and viewings

Readings (besides the book club reading below) for the course will be provided for you as PDF files (USB/Website/Blackboard). Links to videos, podcasts, and websites will be in the class calendar. Please keep up with the various media assignments most are short and will greatly add to your understanding. The majority of readings are in the beginning of the semester to provide the intellectual grounding for your projects at the end of the semester.

[The Superbowl of Beekeeping](https://www.nytimes.com/2018/08/15/magazine/the-super-bowl-of-beekeeping.html), NYT (2018) online
<https://www.nytimes.com/2018/08/15/magazine/the-super-bowl-of-beekeeping.html>

Optional research and readings are linked to on the class arena page found here:
<https://www.arena.nandita-sheth/sticky-innovation>

Untangling Wicked Problems, McCall, Burge (2016) PDF

Read: [Building Your Creative Confidence: Mindmaps, Tom Kelly, IDEO](https://www.ideo.com/blog/build-your-creative-confidence-mindmaps) online
<https://www.ideo.com/blog/build-your-creative-confidence-mindmaps>

Andrea Geyer: Revolt they Said (artwork) <https://www.moma.org/collection/works/196058>

Listen: Bloomberg Business of Bees:
https://www.bloomberg.com/podcasts/business_of_bees
or on Itunes: <https://podcasts.apple.com/us/podcast/business-of-bees/id1462288566>

Chapters from *Handbook of Arts Based Research*, Leavey (2018) PDF

Ch 4: Exercises in Attention, *How to Do Nothing*, Jenny Odell PDF

Field Guide to Human Centered Design, IDEO, PDF. If you would like a hard copy order here
<http://www.designkit.org/resources/1>

Bloomberg the Business of Bees Podcast: https://www.bloomberg.com/podcasts/business_of_bees

Chapter 5, *Engineering Design* 4th Edition, by Clive L. Dym and Patrick Little PDF

Book Club Reading List

For the Book Club you will sign up to read ONE of the following books on the first day of class, you will only be required to read ONE of the books listed.

To purchase on Amazon: <http://a.co/4YB8PVD>

- The Bees, Paul
- Bee Time: Lessons from the Hive, Winston
- Buzz: Urban Beekeeping and the Power of the Bee, Moore, Kosut
- History of Bees: A Novel, Lunde
- The Beekeeper's Lament: How One Man and Half a Billion Honey Bees Help Feed America, Nordhaus
- Buzz: The Nature and Necessity of Bees, Thor Hanson

ground floor maker space

The Ground Floor Makerspace + Microfactory is excited to welcome Sticky Innovation back to our space! We are all set up on our end for the class to register for orientation and certification trainings. Please have each student complete the following steps:

- 1. Enroll & Sign User Agreement.** Each student will need to complete the General User Agreement on Blackboard. Navigate to our Blackboard page: GF_Makerspace, and enroll in the course. This link will guide you through the process: <https://uc.box.com/s/4gvq48ontcg8uk97qqjllrcdg6s8cxdz> Once students have enrolled in the GF_Makerspace Blackboard course, have them complete the General User Agreement. Then they will have full access to our schedule, equipment list, etc.
- 2. Register for Orientation.** Each student will need to register for a private orientation session. Click on this link <https://app.acuityscheduling.com/schedule.php?owner=16690666&appointmentType=8908166> and choose **Tuesday, September 24 9:30 AM.**
- 3. Register for Certification training**
 - **3D Printing:** To register, click on this link <https://app.acuityscheduling.com/schedule.php?owner=16690666&appointmentType=10704664> and choose **Tuesday, September 24 10:00 AM.**
 - **Laser Printing:** To register, click on this link <https://app.acuityscheduling.com/schedule.php?owner=16690666&appointmentType=9724019> and choose **Thursday, September 26 9:30 AM.**

assignments/projects

The following assignments will determine your course grade

10 % Participation in Class Discussion and Critique, Collaboration, and Teamwork

what does this mean? ask questions, listen carefully, ask for feedback, incorporate feedback, respect classmates and teammates, don't interrupt, provide "space" for others to participate, ensure teamwork is completed fairly and presented equally.

Be(e) collaborative, congenial, and constructive

15% Book Club Presentations (10) and Documentation (5) posted on website

25% Ideal Bee: 3d Prototyping Project

30% Final Project

20% Reflections with Documentation on the following class experiences to be posted on a tab or blog on your personal website. Details will be provided.

1. Greenacres Field Experience reflection
2. Interview with an Innovator
3. Ideal Bee Project/documentation and reflection
4. Final Project: documentation, research abstract, and reflection

Note that Schedule may change over the course of the semester.

required technology for digital documentation and reflection requirements

Personal Website / Digital Portfolio

You will create a tab or blog on your personal website (required for Honors students) for this class. Please provide a link to that tab by email to the instructor. We will add the link to the class website. Your Sticky Innovation tab or blog will have: Reflections (as outlined in the guidelines) and Documentation of projects (as outlined below). These reflections are due at specific times throughout the semester as indicated on the course calendar.

classroom policy & electronic device use policy

Students should demonstrate respect, professionalism, and collegial behavior in class. This includes maintaining focus on the class, guest speakers, and seminar leaders. Students are expected to refrain from electronic, laptop, and cell phone use that is not directly related to our class. Consequences for repeated disregard and respect for this policy will be enforced after one warning. Consequences may include: confiscation of the device for the remainder of the class period and negative impact on your participation grade.

attendance & participation

Attendance and class participation are integral parts of this course. Field experiences and Makerspace trainings are scheduled for our class. Attendance will be taken at every class meeting. If you are going to be absent, please notify us well in advance. Each unexcused absence will lower your final grade by one interval (For example, an A- would become a B+ for 1 unexcused absence and a B for 2 unexcused absences). The following reasons will be considered **EXCUSED**: travel for official varsity sporting events, a medical condition or appointment excused in writing by doctor, a personal matter discussed with the instructor prior to absence, jury duty, and military duty. Note: University policy allows students to request excused absences for religious and ethnic holidays.

Preparation and participation in class discussions, small group work, and in-class assignments are essential to your success. Our learning community benefits when you ask questions, come prepared, and participate willingly.

course assessment

Assignments are to be turned in by the dates indicated. Assignments that are completed after deadlines may still be turned in, but deductions will be made for a late assignment such

that you lose 10% for each day it is late. Deadline extensions may be requested for unusual situations beyond your control (e.g., emergencies that occur with you or your family) and may be granted solely based on the instructor's discretion. Plan on providing documentation (i.e. doctor's note) for extenuating circumstances. Asking for an extension for non-emergencies is discouraged—requests should be made via email). If you have travel planned, you still should find a way to submit assignments on time. Course grades will be assigned following submission of the final assignments.

grading scale

Final courses grades will be assigned based on the following scale

93 – 100%	A
90 – 92%	A-
87 – 89 %	B+
83 – 86 %	B
80 – 82 %	B-
70 – 79%	C
60 – 69%	D
0 – 59%	F

university policies and notices

Special Needs Policy If you have any special needs related to your participation in this course, including identified visual impairment, hearing impairment, physical impairment, communication disorder, and/or specific learning disability that may influence your performance in this course, you should meet with the instructor immediately to arrange for reasonable provisions to ensure an equitable opportunity to meet all the requirements of this course. At the discretion of the instructor, some accommodations may require prior approval by Disability Services.

Counseling Services Clifton Campus Students have access to counseling and mental health care through the University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, Counseling and Psychological Services (CAPS) can provide professional counseling upon request; students may receive five free counseling sessions through CAPS without insurance. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and

substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue of concerns. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours students may call 513-584-7777.

Title IX Policy Title IX is a federal civil rights law that prohibits discrimination on the basis of your actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also covers sexual violence, dating or domestic violence, and stalking. If you disclose a Title IX issue to me, I am required forward that information to the Title IX Office. They will follow up with you about how the University can take steps to address the impact on you and the community and make you aware of your rights and resources. Their priority is to make sure you are safe and successful here. You are not required to talk with the Title IX Office. If you would like to make a report of sex or gender-based discrimination, harassment or violence, or if you would like to know more about your rights and resources on campus, you can consult the website www.uc.edu/titleix or contact the office at 556-3349