

# **Sticky Innovation and Swarm Intelligence: Exploring the Problem of the Bees through Engineering and Art**

Aronoff (DAAP) 5330-Art Education Lab

Tue and Thurs 2pm-3:20pm

Class website: [www.stickyinnovation.com](http://www.stickyinnovation.com)

## **Instructors**

**Dr. Whitney Gaskins, Assistant Professor**

Department of Engineering Education, 693 Rhodes Hall

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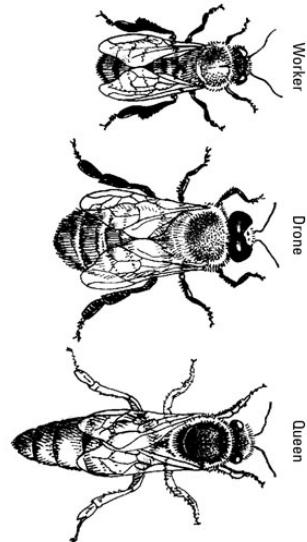
Office Hours: By appointment

**Nandita Sheth, Assistant Director Academic**

DAAP, 5470T Aronoff (DAAP)

[Nandita.Sheth@uc.edu](mailto:Nandita.Sheth@uc.edu);

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 the honeybee population. In this course students will learn multiple approaches to inquiry to consider this "wicked problem" of contemporary times. This course incorporates documentary film, fiction, arts based inquiry, scientific research, and multiple modes of reflection to design creative solutions to the problem with the bees. The course will seek to enhance interdisciplinary collaboration, foster discussion and investigate the links that connect artistic and scientific disciplines. Integrating engineering and art, students will gain experience in a variety of modes of inquiry that will develop creative research approaches, problem solving skills and innovative habits of the mind.

Following Massachusetts Institute of Technology (MIT) Center for Art Science and Technology (CAST) mission this course, "creates new opportunities for art, science and technology to thrive as interrelated, mutually informing modes of exploration, knowledge and discovery" (<http://arts.mit.edu/welcome/cast/about/#curricula>) that align with both the University of

Cincinnati's mission and the Honor's program mission to offer students creative sites of potentially transformative cross disciplinary experiential learning.

**Learning Objectives:** Students will

- Practice arts and science based approaches to inquiry, expression and presentation
- Present research findings in non-traditional ways (beyond PowerPoint and posters)
- Develop a toolbox of rhizomatic aesthetic and observation skills in order to analyze complex biological and scientific problems creatively
- 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

**Required Texts**

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

*The Bees*, Laline Paul

Other reading assignments will be posted as in pdf form in Course Documents section of Blackboard

**Required Technology**

Personal Website / Digital Portfolio

**Materials Provided**

Basic 3d scanning and printing access

Art Supplies-limited supplies will be provided for experimentation and technique development. Your final projects may require the purchase of extra materials dependent on the design and articulation.

**Field Trips** (please adjust your schedule for travel times to and from venues on the following dates. Transportation will be arranged from UC-DAAP)

Dates

Thursday September 1, Research trip to Greenacres (Indian Hill) Beehives. Meet at 1:20pm-Clifton Court Roundabout.

Tuesday October 11, Lunch at Sleepy Bee Cafe, 3098 Madison Rd, Cincinnati, OH 45209 to discuss Final Project Planning. Meet at 1:30pm and Clifton Court Roundabout.

**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.

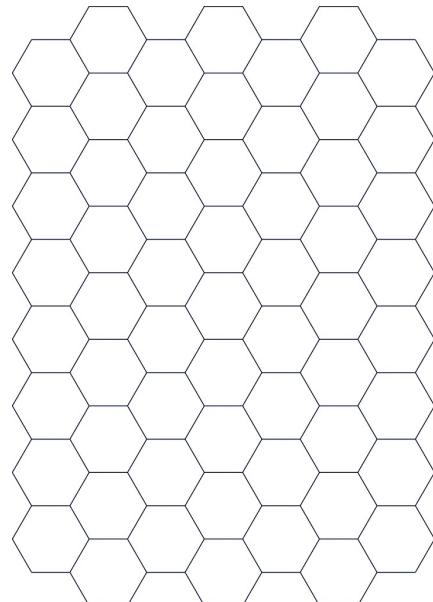
## **Attendance & Participation**

Attendance and class participation are integral parts of this course. We will take attendance at every class meeting. If you are going to be absent, we expect you to 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 outlined below. 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.



The following assignments will be used to determine your course grade (weightings in parentheses):

## **Assignments**

Participation/Discussion/Critique 10%  
Collaboration and Teamwork 10%  
Everyday Aesthetics Response 10%  
Blog Post for class website 5%  
3d Modeling/Sculpture Project 20%  
Final Project, Display, and Presentation 35%  
Digital Portfolio with all items outlined below 10%

## **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

## **Digital Portfolio requirements:**

Everyday Aesthetics Response

Link to your Blog post

Documentation of Ideal Bee Project

Documentation of Final Project

Self Reflection (guidelines will be provided)

The format of the Digital Portfolio allows for multiple modes of presentation including text, visual, video, music, and?

**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](http://www.uc.edu/titleix) or contact the office at 556-3349.

I have read and understand the above stated course requirements and classroom policies

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Signature

date