



## STUDENT SUSTAINABILITY COMMITTEE

### Funding Criteria

#### A. General Rules

1. Students, faculty, and staff are encouraged to submit requests for funding. Student-led projects require a faculty or staff sponsor in order to have funds awarded.
2. Funding can only go to university-affiliated projects from students, faculty, staff, and departments.
3. All SSC projects must make a substantial impact on students. This may be a direct impact or an impact through education and engagement. All SSC funding is 100% from student green fees, so the projects funded by the students must benefit them.
4. SSC encourages innovation and new technologies – creative projects are encouraged to apply.
5. Unless a type of expense is specifically listed below as having restrictions, SSC can generally fund it. The items referenced below should not be taken as comprehensive list.

#### B. Things SSC Can Fund, On A Case-By-Case Basis

1. SSC can fund feasibility studies and design work; however, it must work toward ultimately addressing a sustainability need on campus.
2. SSC can fund staff positions that are related to improving campus sustainability. Strong preference will be given to proposals receiving matching funding from departments and/or plans for maintaining continuity of the position after the end of the initial grant.
3. SSC can fund outreach events with a central theme of sustainability, provided their primary audience is the general campus community.
4. SSC discourages funding requests for food and prizes but will consider proposals on a case by case basis that prove significant reasoning.
5. SSC can fund repairs and improvements to existing building systems as long as it works toward the goal of improving campus sustainability; however, a preference is shown to projects utilizing new or innovative ideas.
6. SSC can provide departments with loans for projects with a distinct payback on a case by case base. Loans will require a separate memorandum of understanding between SSC and departmental leadership pledging to repay the award in full and detailing the payback plan.

#### C. Things SSC Will Not Fund:

1. SSC will not fund projects with a primary end goal of generating revenue for non-University entities.
2. SSC will not fund personal lodging, food, beverage, and other travel expenses.
3. SSC will not fund any travel expenses.
4. SSC will not fund tuition or other forms of personal financial assistance for students beyond standard student employee wages.

**Your Step 1 funding application should include this application. You're welcome to submit optional supporting material such as letters of support or pictures.**

Please submit this completed application and any relevant supporting documentation to [Sustainability-Committee@Illinois.edu](mailto:Sustainability-Committee@Illinois.edu). The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the Student Sustainability Committee at [sustainability-committee@illinois.edu](mailto:sustainability-committee@illinois.edu).

## General & Contact Information

**Project Name:** A Carbon Garden and Compost System to Offset Research Lab Carbon Impact (Davenport Hall Carbon Garden)

**Total Amount Requested from SSC:** \$6425

**Project Topic Areas:**  Land & Water  Education  Energy  
 Transportation  Food & Waste

**Applicant Name:** Kyle Boshardy

**Campus Affiliation (Unit/Department or RSO/Organization):** Anthropology-Brinkworth Lab in Evolutionary Immunology and Genomics

**Email Address:** boshard2@illinois.edu

### Check one:

This project is solely my own **OR**

This project is proposed on behalf of (name of student org., campus dept., etc.): Dr. Brinkworth Lab

### Student-Led Projects (Mandatory):

Name of Faculty or Staff Project Advisor: Dr. Jessica Brinkworth

Advisor's Email Address: jfbrinkw@illinois.edu

### Primary Project Team Members

Name	Department	Email
Dr. Jessica Brinkworth	Anthropology	jfbrinkw@illinois.edu
Kyle Boshardy	Anthropology	boshard2@illinois.edu
Ripan Malhi	Anthropology	malhi@illinois.edu
Name	Department/Organization	

## **Project Information**

*Please review the proposal materials and online content carefully. It is highly recommended you visit a working group meeting to talk through your proposal before you submit it.*

### **Please provide a brief description of the project, its goals, and the desired outcomes:**

*We want to know: What is your project? What does it concretely produce, accomplish, or solve? Why is this project needed on campus?*

The students in the Brinkworth lab are enacting novel in-lab approaches to reducing the carbon footprint of biological research programs. Part of these efforts includes the composting of lab member's food waste via fermentation (Bokashi composting), and the development of a "Carbon Garden" on campus that will capture carbon through plant growth and development of carbon sequestering mycorrhizal fungal networks in the soil, as well as provide a location for discrete fermented compost brick burial. We plan to place two large no-till, pollinator garden plots (27' x 8' and 36' x 8') on the Southeast side of Davenport Hall in the disused space between the building and the adjacent parking lot. These plots, ringed in decomposed gravel and manually watered from a rain barrel, would hold fast growing, showy native flowering plants and grasses that would, in addition to the benefits described above, beautify a sterile campus area frequented by students. Signage explaining the garden's purpose and use will educate students on often forgotten ways in which they can reduce their carbon use in their work and home lives (i.e. reducing/reusing food waste, reduce garden tillage, supporting carbon-hungry plants) and provide much needed support for local pollinators. In addition, the garden will be featured in an upcoming student-led peer-reviewed invited article for the journal Human Biology addressing how students and Principal Investigators in human biology labs can take next steps in reducing the carbon footprint of their research programs and demonstrate the ease with which such steps can be achieved on typical university campus. The garden will engage and train undergraduates in carbon reduction measures, as it will be maintained by undergraduate students in the Brinkworth lab and Anthropology Department. The proposed project has been positively reviewed by the responsible university administration (Brent Lewis, the UIUC Landscape Architect), and the undergraduates involved will gain experience in communicating with such authorities to complete future projects.

### **How will students be involved in the project?**

**Students from the Anthropology department and Dr. Brinkworth's lab are central in design and maintenance of the carbon garden, as well as the affiliated Bokashi composting effort. The entrance next to the planned garden has high student traffic, including the building's only entrance for students with limited mobility. A sign will be placed next to the sidewalk leading into Davenport Hall to inform passersby about the carbon garden. Students from the lab and department will also co-author the related journal article that features the garden and composting system as an example of next step lab-based carbon reduction efforts.**

### **How will this project improve environmental stewardship at UIUC?**

**The carbon garden encourages student and faculty -led stewardship at UIUC through both the sustainable practices of fermentation-based composting and garden-based carbon sequestration support (thereby reducing greenhouse gas emissions of food waste and supporting carbon sequestration by plant life and mycorrhizal fungi), and conservation by providing a pollinator garden and supported by captured rainwater. This garden will provide a well advertized example of environmentally friendly practices that can be supported on aesthetically unused but often traveled locations of the university, and will engage more trainees in leading stewardship on campus.**

### **How will this project inspire change at UIUC and beyond?**

**Through being featured in Human Biology, this garden will serve as an example of how biological labs worldwide can take next steps to reduce their carbon waste in novel ways. Within UIUC this project will**

show that disused space, such as the 8 foot section of soil between Davenport Hall and the parking lot, can be envisioned differently. More importantly, students can approach and work with the university administration to reuse and recycle such sterile locations to support environmental stewardship at UIUC. A group of people with green on their mind can change this tiny area in pursuit of environmental betterment. This carbon garden and the related composting represent a part of our efforts to inform students and labs of green methods and habits that can be feasibly achieved on almost any campus.

Please list the project timeline and any key milestones:

**December 1 - plants ordered for April delivery from [www.Prairienursery.com](http://www.Prairienursery.com), and [www.Prairiemoon.com](http://www.Prairiemoon.com)**

**March 1 - excavation and cartage of disused soil, replacement with compost from Urbana Landscape Recycling center begins**

**April 1 - steel posts for single chain fence put in place, chains in place, rain barrel set up, decomposed gravel border in place, monthly fermented compost burial below gravel begins**

**April 25 - plant bare roots and seedlings arrive, planting and mulching completed, Brinkworth lab and Anthropology students start daily maintenance rotation, signage put in place**

**May 25 - carbon garden twice weekly maintenance begins**

**June 25<sup>th</sup> - garden photographed for Human Biology publication, and publication Department of Anthropology website**

**June 30<sup>th</sup> - journal article for Human Biology submitted for review**

### **Additional comments (Optional)**

The student-led garden design is provided below with an aerial shot provided. We have chosen a mix of native flowering plants and grasses that provide year around interest, but are also showy at times when students tend to be in higher numbers on campus (Spring and Fall). In this design, approximately 80 plants are tiered short to tall from the parking lot edge of the garden to the building, in a modern-drift design (under review by Brent Lewis and the UIUC Architectural Review Committee, Landscape Architect and signing authority for exterior design on campus), with a rain barrel provided by the downspout at the southeast corner of Davenport Hall. Plants include:

Grasses: Prairie dropseed (*Sporobolus heterolepis*) and Side oats (*Bouteloua curtipendula*) - 1-2 ft and 2-3 ft high respectively, year long interest, the latter provides physical support for taller flowering plants

Spring Flowers: False Indigo (*Baptisia lactea* and *Baptisia australis*) 3-4 ft high, showy Spring flowers with interesting summer and fall seed pods, fast growing, supports early pollinators, white and blue, respectively  
Milkweed (*Asclepius sullivantii* and *Asclepius syriaca*) 4-5 ft high, showy late Spring-mid-Summer. All summer interest. Mandatory host plant for Monarch butterfly larvae. Pink and mauve.

Fall Flowers: Anise Hyssop (*Agastache foeniculum*) - 2 ft high, showy mid-Summer to Fall. Very attractive to bumble bees, many butterfly species and hummingbirds. Light purple spikes on branching plants

Sweet Joe Pye Weed (*Eupatorium purpureum*) - 4-5 ft high. Showy Summer and Fall, important food for pollinators end of season, particularly attractive to monarch butterflies and hummingbirds and bumblebees, mauve flowers that strongly smell like vanilla.

Student leadership over the carbon garden is currently headed by Kyle Boshardy but will pass down to another member of the Brinkworth Lab in the future. This is to ensure smooth transition and learning experience for the new student leader(s). Alexander Alvarado, e: [asalvar2@illinois.edu](mailto:asalvar2@illinois.edu), is another student in the lab and is willing to be Kyle's successor when the time comes (i.e. graduation).

### **Budget**

Chain Fence and steel posts- \$1175 (3/16 galvanized steel chain 120 ft at \$2/ft, 14 steel posts at \$50 a post, 840 lbs of Quickcrete \$100, concrete tubes \$100, buckets \$35)

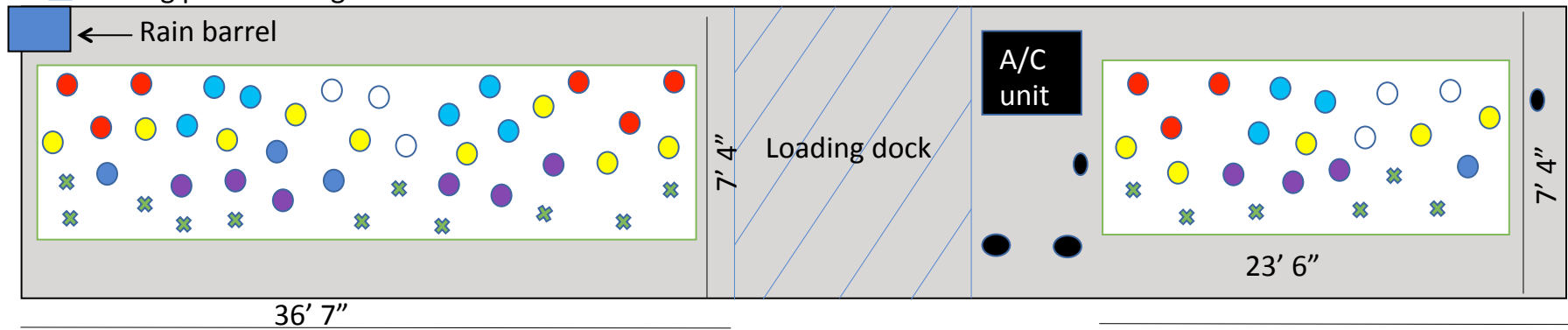
Soil removal - \$1750 (F&S labour \$1000, dumpster & cartage- \$600, Soil (Landscape Rec Ctr) - \$150  
Plants and bare roots- \$1100 (www.Prairienursery.com, www.prairiemoon.com)  
Decomposed granite - \$700 (3.5 cubic yards and delivery \$570+\$130 , Country Arbors, Urbana, IL)  
Rain barrel , watercans, shovels, signage - \$450  
Student labour for set up - \$1250 ( \$12.5/hour, 100 hours)    TOTAL: \$6425

**Legend**

- ✕ Prairie Dropseed
- Side Oats
- ▢ False Indigo
- Milkweed
- Anise Hyssop
- Sweet Joe Pye Weed
- Existing posts and signs



# Plant Layout







gn  
ages  
ing

Depth of space  
between lot line  
and building is  
7'4"

Garden beds (in yellow)

Loading dock

Davenport  
Hall

Level 1

Google



## COLLEGE OF LIBERAL ARTS & SCIENCES

Department of Anthropology  
109 Davenport Hall, MC-148  
607 S. Matthews Ave.  
Urbana, IL 61801-3636

September 13, 2018

Student Sustainability Committee  
1101 W. Peabody, Room 388 (NSRC)  
Urbana, Illinois  
61801

Re: Kyle Boshardy Student-Led SSC Application for Davenport Hall Carbon Garden

Dear Members of the Committee:

As his project's faculty advisor, I am writing to affirm my full support of Kyle Boshardy's proposal "A Carbon Garden and Compost System to Offset Research Lab Carbon Impact (Davenport Hall Carbon Garden)", and my commitment to assisting Kyle in his pursuit of this effort to increase environmental stewardship at UIUC and in research labs worldwide. I am an Assistant Professor in Anthropology at the University of Illinois Urbana-Champaign (UIUC). I first met Kyle when he joined my Spring 2018 course "Ethics in the Genomic Era". He quickly proved to be a precocious and dedicated student very interested in the environmental ethics of human biological research. He soon joined my lab, which focuses on evolutionary immunology and genomics, and helped launch our "next step" green lab efforts including fermentation-based composting (Bokashi composting) of our food waste and developing a field-wide white paper on how to reduce research program carbon footprints outside of institutional-based initiatives. He did this while taking on responsibilities associated with my research program, including completing bacterial count assays and providing support during our regular cell infection experiments. I have come to know Kyle as an excellent communicator of scientific knowledge and a compassionate human being who tries to be the change he wants to see in the world. He is within the top 5% of undergraduate students I have mentored in 20 years of university level teaching. I have every confidence that he will complete this carbon garden project on schedule and will promote it effectively via our upcoming "Green Labs" invited peer-review journal article in which it will be featured.

In April of 2018 I was invited by Ripan Malhi, editor of the journal Human Biology, to develop a carbon reduction efforts in my research program and the nascent ideas on carbon offsetting students discussed in the Ethics and Genomics class into an article that would outline what additional measures principal investigators and students can undertake to reduce greenhouse gas emissions and carbon waste in research programs. Kyle eagerly agreed to help lead this effort and together he and I laid out a plan to engage lab interns in limiting emissions stemming from food waste and sequestering greenhouse gases as well through a joint Bokashi composting and pollinator carbon garden project featuring native plants on campus. This project will be featured in this article, which is a large multi-author paper with international authorship and includes a host of other recommendations for reducing carbon footprint including plastic reduction in the lab and during travel, energy saving habits and advice on material reuse, to name a few. We have met with Dr. Malhi who is very excited by the prospect of featuring this



composting-garden project as an example of carbon reduction, animal conservation and overall sustainability that models the ease with which these measures can be achieved on many other campuses and in many homes.

I can also confirm that Kyle and I have met with Brent Lewis (UIUC Landscape Architect), the chief decision-maker on campus landscape aesthetics and maintenance, who has guided this project and has offered practical support in its execution. We have also met with Morgan White (Director of Sustainability, Facilities and Services, UIUC), who has been very active in helping connect Kyle and I to campus decision makers and is fully supportive of this project. I can confirm that the project has been assessed by key campus decision makers as important and feasible and that the plans Kyle has described in his application have been prepared for review by the UIUC Architectural Review Committee and are currently in the hands of Brent Lewis, UIUC Landscape Architect. Overall, Kyle has made considerable progress in launching this compost-garden project.

In closing, I wish to impart upon you the dedication and energy that Kyle has brought to this project, and my total commitment to helping him bring it to fruition. The Carbon Garden project not only promotes conservation (e.g. supporting native pollinators), and next step sustainability initiatives (e.g. reduced emissions from lab food waste, sequestering carbon), but will engage UIUC students and an international readership in reducing carbon footprints. It is a fantastic student-led initiative to make now and future principal investigators and students mindful of personal practices that increase and lower emissions. I can assure that my lab will be responsible for the consistent maintenance of this project over the years and I am very excited to help bring new students into this particular practice of environmental stewardship. My experience with Kyle is that he is a dedicated student, deeply engaged in not just evolutionary immunology but personal steps one can take to reduce environmental impact in pursuit of one's studies. He is a burgeoning thought leader in this regard. I encourage you to consider his application more seriously.

Sincerely,



Jessica F. Brinkworth

