

[View results](#)

Respondent

12

Nicholas Goodwin

11:28

Time to complete

ACKNOWLEDGMENT

Please read and acknowledge the following:

- SSC funding can take ****1 MONTH OR LONGER**** to receive after the SSC has voted to approve a project because it includes several steps:
 - the authorization of an award letter by SSC, iSEE, Division of Student Affairs, the project's advisor (*student-led projects only*), and the project lead;
 - the creation of the CFOP by the project team's departmental financial contact in conjunction with the project team;
 - the transfer of funds from SSC to the project's CFOP.
- If you are a project lead for a new project that is approved by the SSC, be sure to check your email regularly for the prompt to sign the award letter to help facilitate the efficiency of the process.
- Project teams for funded SSC projects do NOT receive funds directly. After a project's SSC funds have been transferred to the project's CFOP, the project team must work with the sponsoring department to purchase the approved budgeted items on behalf of the project team.
- If this project is funded, this application will be shared publicly on our SSC Illinois Climate Action Plan (iCAP) portal so that others can learn from your project.
- Funded projects have grant reporting requirements. See our website for more information.

☐ I acknowledge that I have read this information.

APPLICATION INSTRUCTIONS

Prior to starting your application, make sure you have the following information available:

- Project personnel including project lead, confirmed faculty/staff advisor, departmental financial contact, other team members
- Working Group attendance information
- Project title and abstract
- Project description including timelines, deliverables, detailed description about the project, project feasibility information
- Intended student impact(s)
- Intended sustainability impacts
- Optional supporting documentation (e.g., Working Group presentation, letters of support)
- Detailed project budget information

See our website for a sample application.

2

Today's Date

4/24/2025



3

Is the Project Lead a currently enrolled Illinois student? *

NOTE: Only currently enrolled Illinois students are eligible to be a Project Lead.

- ☒ YES (by selecting YES, you affirm that the Project Lead is a currently enrolled Illinois student)
- ☐ NO

4

Project Lead's Name *

Project Lead must be a currently enrolled Illinois student.

Nicholas Goodwin

5

Project Lead's University Email Address *

nbg5@illinois.edu

6

Project Lead's Department *

Crop Sciences

7

Has someone from the project team presented their proposed project at a SSC Working Group meeting this semester? *

If not, please attend one and present your project. After presenting your proposed project (and attendance has been documented by the SSC), please return here to complete your application. The Working Group meeting schedule can be found on the SSC website.

☒ YES

☐ NO

8

Select the Working Group meeting at which you presented. *

☐ Energy + Transportation & Infrastructure Working Group Meeting

☐ Food & Waste + Land, Air, & Water Working Group Meeting

☒ Education & Justice Working Group Meeting

9

Enter the date of the Working Group meeting you attended. *

4/7/2025



10

What is the name of your project? *

Sustainable Food Production Education, Materials, and Resources

11

Total funding requested from the SSC for this project *

This application is restricted to students requesting \$10,000 or less. The amount entered here must match the amount reflected in your detailed primary budget spreadsheet that you will submit with this application.

10000

Please enter a number less than or equal to 10000

12

Project Category *

- ☒ Education & Justice
- ☐ Energy
- ☐ Food & Waste
- ☐ Land, Air & Water
- ☐ Transportation & Infrastructure

Project Abstract *

In 100 words or less, briefly describe the project.

To provide the campus community with educational courses on sustainable hydroponic agriculture, learning materials to assemble and grow in their take home kits, and workshop events to extend and allow all students to attend and participate in learning and growing using the different types of hydroponic systems to address the needs of food insecurity on campus and how they can grow in their dorms or countertops.

PROJECT DESCRIPTION

Describe your project in detail. Make sure you include sufficient details about your project so that the SSC can comprehensively evaluate the merits and feasibility of your project. *

Be sure to address the following:

- What are your project's goals and how do you intend to accomplish them?**
- What are your project's deliverables?**

Food insecurity affects almost a quarter of our student population. Food pantries provide ingredients to cook with, however, most of the dorms and residence halls on campus do not have kitchens for each individual unit. Our project plans to research and test methods to develop hydroponic educational material, instructions, and resources to promote sustainable agriculture and target food insecurity on campus. We will target food insecurity by developing various at home hydroponic kits that can be used in dorms and easily on countertops to grow fruits and vegetables without the need for soil.

Our focus will be the assembling and testing of the Deep Water Culture, Nutrient Film Technique, Vertical Towers, and recyclable materials hydroponic systems. These systems will be documented and recorded to be used for the course development of hydroponic classes that can be taken online and in-person. They will serve as our large scale more commercial styled models. In the larger scaled models, we will be able to test strawberries and their nutritional content based on how they grow in hydroponic systems compared to potted and in-ground methods.

We will research and test the at home kits to see if they are comparable to larger scale commercial models to provide scientific based research on how to create, assemble, and grow produce with minimal issues. These at home kits will be assembled with recyclable materials like cardboard, plastic jugs, and 3D printed with PETG-HF. We will make the adjustments necessary to ensure students have successful growth. By having 3D printers for the Plant Science Laboratory, we will be able to host workshops to teach students how to print, assemble, and use the hydroponic system. These 3D printers will stay at a consistent speed and temperature to only print PETG-HF to ensure that the pieces are food safe and capable of holding water.

List your proposed project's timeline and major milestones. *

NOTE: SSC funding agreements remain active for two years. Thus, your timeline should reflect your activities over a two year period or less.

July 2025

- Various 3D printed models that are tested to be able to hold water.

August 2025

- Systems will begin growing and monitoring plants to create guides for users

November 2025

-Results for most plants and how they grow in the systems. Guides can be adjusted accordingly.

March 2026

-Results from Strawberry nutrients in NFT systems

September 2026

-Host First Workshop, recyclable materials (cardboard/plastic jugs) will be assembled and 25 will be created beforehand for students to take home with them.

October 2026

-Host Second Workshop, 3D printed models will be showcased and printed, this will be more of an instructional workshop where the parts are shown, what plants can be grown, and how to customize their 3D printed hydroponic system.

November 2026

-Host Third Workshop, 10 sets of 3D printed base containers, net pots, and plates will be printed beforehand for students to learn how to grow in them, change their water and adjust nutrient solution and how to manage them over breaks or what to do if not maintaining them during break.

Has the project team spoken with UIUC's Division of Facilities and Services (F&S) personnel about the feasibility of the proposed project? *

NOTE: While this step is optional for many projects, all projects involving infrastructure (e.g., internal or external physical infrastructure of university buildings) or grounds (e.g., plantings, installing structures on campus grounds) must have F&S approval prior to receiving SSC funding. If you need assistance evaluating the feasibility of your proposed project, please reach out to SSC-Advisor@illinois.edu PRIOR to submitting your application.

- ☐ YES
- ☒ NOT YET
- ☐ N/A

STUDENT IMPACTS

How many students will be directly impacted by this project? *

We are currently 5 students working together on a team to research and test these methods. We will be responsible for different parts of the hydroponic research to ensure we are creating a well rounded hydroponics educational resource. All of our research will tie in together to target education through course development, sustainability through recyclable materials, and nutrition with metabolomic analysis of hydroponically grown strawberries.

How many students will be indirectly impacted by this project?

*

We hope that almost all online and on-campus students will be impacted by this project. Through outreach, workshops, social media, and available hydroponic courses for every student to take, we hope that students will make use of these resources and be able to recreate them at home. We especially want to target students living on campus in the dorms to provide them with the ability to grow nutritious fresh produce for their consumption. When the research has been tested and completed, we will be able to develop guides for students to be able to grow with success in these systems and also attend workshops and be able to request for their system to be printed at the Plant Science Laboratory.

What are the intended student impacts? *

At the minimum, be sure to address the following:

-How will this project benefit students?

-How will students be involved with this project?

-What educational components are there in this project?

This project will benefit students by providing them an option and opportunity to grow fresh produce hydroponically in their dorms, apartments, and at home on their countertops. They sizes and materials can vary from extremely economical to affordable but they will all be made with recyclable materials such as cardboard, plastic milk and juice jugs, and PETG-HF 3D printing filament.

Students will be involved in this project after the research process has been completed. We hope that the students will be able to attend Hydroponic courses through Crop Sciences, attend workshops and outreach events, and use the requested 3D printers in the Plant Science Laboratory to customize and print their own hydroponic system.

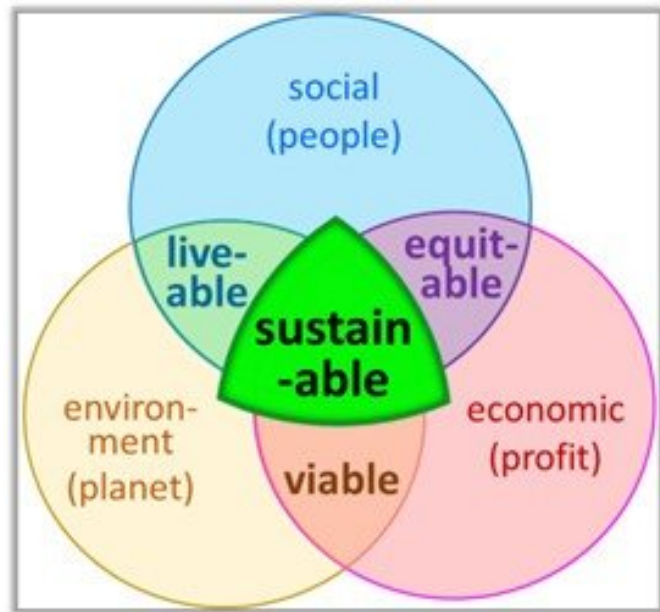
The hydroponic courses being developed will provide in-depth instructional material and information about various hydroponic systems and sustainable agriculture. The take home kits will come with guides on how to assemble, grow, and troubleshoot their plants in the systems. Students will also be able to join the workshops and outreach events in-person and online to learn about hydroponic systems, affordable recyclable materials, and 3D printed systems.

With these components, we hope to impact the students by giving them resources, materials, and highlighting sustainable compact growing methods for them to use and also target food insecurity that is affecting almost a quarter of our student body.

SUSTAINABILITY IMPACTS

Authentic sustainability consists of the overlapping area of 3 spheres: Environment, Society, and Economy.

Describe how your project addresses sustainability. *



Our project will promote sustainability by creating courses that will teach students about sustainable agriculture with the use of hydroponic systems. We will also develop the at-home kits using recyclable materials such as cardboard, old plastic juice and milk jugs, and 3D printing with PETG-HF. The 3D printing will allow the students to personalize and print the parts they need, reducing mass production and carbon emission of purchasing and shipping of store bought countertop kits.

People - We hope to focus on our students here at UIUC and target the food insecurity that is affecting the student body, especially in dorms and apartments that do not have kitchens and they must share a kitchen or must eat most of their meals from the dining halls. We also hope to keep them engaged and provide them information through courses offered through Crop Sciences, workshops, and outreach events. Providing hydroponic courses and educational materials to create, assemble and grow at home to target food insecurity and sustainability awareness. Outreach and workshops will engage and draw in the student community to increase awareness and make use of these resources.

Sustainability - We also are using recyclable materials to build and assemble these systems. Some of these materials like cardboard, plastic jugs, and cartons are can be found in almost every household. For the 3D printed models, PETG-HF is a food-safe recyclable plastic filament that is used in 3D printers. We hope to reduce carbon emission of students ordering countertop systems that do not take in account the needs of a variety of different plants or are mass produced by the personalization option of 3D printing.

Economic - recyclable materials costs are low and 3D printing allows for personalization and only printing necessary parts needed or wanted for their at home kit. It will also help students have a reduced cost on purchasing produce from stores because they will be able to grow their own. This is cost effective and an investments as we move towards sustainable agriculture and urban food production to address food insecurity and providing more nutritional fresher produce locally, whether it is in a home, apartment, or at the student sustainable farm.

How does your project promote and increase environmental stewardship at UIUC? *

If applicable, also address what the carbon, water, waste, and/or energy savings is associated with your project.

We hope to save on carbon emission by providing students with the ability to personalize their recyclable materials hydroponic system and 3D hydroponic system printed systems and only print what is necessary for them to grow their selected produce. All materials used in these systems will be recyclable and are low costs.

Instead of wasting cardboard and plastic jugs, cartons, and bottles, these can be converted and assembled into the hydroponic systems so the students have the ability to grow in their dorms or apartments at really low prices.

Through the educational courses, workshops, and outreach events we can promote sustainability and awareness for sustainable agriculture to target food insecurity. Students will be able to learn about how hydroponics can benefit the environment, while also save on space, which makes it a viable option for urban growing and producing fresh produce.

Does your project aim to advance one or more of the Illinois Climate Action Plan's (iCAP) objectives? If so, indicate which and describe how. If not, enter N/A. *

A full list can be found

here: <https://icap.sustainability.illinois.edu/objectives>

We hope to really focus on education, engagement, research and zero waste.

Education - we will develop hydroponic courses for Crop Sciences for all students to have the ability and access to take. We will develop the guides on how to create, assemble, and grow a variety of different produce in either the everyday household recyclable materials systems or the 3D printed system.

Engagement - we hope to engage the student community in-person and online through workshops and outreach events where we teach students about sustainable agriculture through the use of hydroponics and also how to create, assemble and grow in their own systems.

Research - our larger systems will remain and stay in the greenhouse to continue being used by students hoping to test their research in these already built and assembled systems. We will have an NFT, DWC, and Vertical Towers.

Zero Waste - we are hoping that the systems will promote zero waste by using what is in an everyday household or printing only what is needed for their plants. All materials will be recyclable.

FACULTY/STAFF ADVISOR

All student-led projects require a Faculty/Staff Advisor. NOTE: Project teams must obtain confirmation from faculty/staff PRIOR to listing them as an advisor.

23

Faculty/Staff Advisor's Full Name *

Jack McCoy

24

Faculty/Staff Advisor's Department *

Crop Sciences

25

Faculty/Staff Advisor's University Email Address *

jemccoy@illinois.edu

PROJECT'S FINANCIAL CONTACT

The project's Financial Contact must be a full-time Illinois employee who has the authority to request a CFOP, manage the project's expenditures, and generate financial reports on behalf of the project.

26

Financial Contact's Full Name *

Jack McCoy

27

Financial Contact's Department *

Crop Sciences

28

Financial Contact's University Email Address *

jemccoy@illinois.edu

29

Are there additional members of your project team? *

☐ YES

☒ NO

SUPPORTING DOCUMENTATION

OPTIONAL: Please attach any letters of commitment or support here, along with any supplemental media that will support your application (Working Group presentations, photos, etc.).



Sustainable Education Materials Resources SSC_Nicholas Goodwin.pptx

PROJECT FINANCES

Describe how SSC funds will be used in your project.

NOTE: Only address the use of SSC funds, specifically, even if the project will be funded by multiple sources.

The funds will be used to provide materials for research, and continue being used to model during Hydroponic Courses, workshops, and outreach events. The 3D printers will be used and stay at the correct temp and speed to print the PETG-HF to print the systems and parts that students request. It will also be used to print free systems for students that attend some of the workshops.

If additional funding is required to achieve your project's goals, do you have a plan in place to obtain additional funding from other sources? *

NOTE: SSC cannot guarantee financial support beyond that provided in an approved funding agreement.

- ☐ YES
- ☒ NOT YET
- ☐ N/A

Has your project team or department previously been awarded funding from the SSC for the same or a similar project? *

- ☐ YES
- ☒ NO

Download, complete, and submit the **SSC-Budget-Timeline_NEW APPLICATION_template** file linked below.

<https://studentengagement.illinois.edu/sites/default/files/2024-09/SSC-Budget-Timeline-NEW-APPLICATION-template.xlsx>

*

Please be very detailed so that the SSC can fully evaluate the merit of your funding request. Your proposed budget should total the amount you are requesting and should correlate well with the the description of how you will spend SSC funds on your project on this application. The budget template allows you to also submit alternative budgets in addition to your main budget.



Below 10K Budget SSC-Budget-Timeline-NEW-APPL_Nicholas Goodwin.xlsx