

# SI BRIDGES

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## NEWSLETTER

The SI Bridges is an NIH- funded program that support STEM students who transfer to SIUC from Community Colleges.



I have had the honor of being part of the SI BRIDGES program for about three years. Programs like this are essential to helping first-generation, low-income students who normally would not have representation or ability to transition from local community colleges to a full university such as SIUC. The sciences can seem very daunting and challenging to get started in. Students who are not introduced to the sciences and research, likely do not even consider it as a career option. Through the SI Bridges program students are introduced to research-based learning activities that develop their molecular biology, biochemistry, and microscopy skillsets. They take these developing skills into their research laboratories and under the mentorship of their SIU faculty starting their journey to becoming scientists.

We have seen a diverse group of young scientist grow professionally and academically after receiving assistance through this program. Some are still in the program right now and others have graduated. Those who graduate immediately establish themselves in the workforce contributing to the wellbeing of human society or pursue advanced training in graduate/medical school. Like all programs, funding drives the ability to provide opportunity to others. This program started with NIH funding, and we are very grateful for this. If we are to continue helping those who need help entering the sciences, then we will require support from other sources. More than ever, we need all undiscovered talent to add their abilities to solving the toughest of the worlds' scientific problems.

Sincerely,  
Scott Hamilton-Brehm  
Associate Professor of Microbiology  
Program Director- SI Bridges to the Baccalaureate



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# MEET THE NEW SCHOLARS!

This year we welcomed seven new scholars from John A Logan College (JALC) and Shawnee Community College (SCC)

Ashlishya Ghosh



Ashlishya graduated from JALC in Spring of 2023. She is currently studying physiology at SIUC. After completion of her bachelor, she would like to pursue medical school.

Cole Dumas



Cole is a sophomore at JALC. He will transfer to SIUC in Fall of 2024 to study electrical engineering. His ideal job would be to work for NASA one day.

Dale Sunny



Dale is a sophomore at JALC. She will transfer to SIUC in Fall of 2024 where she will study pre-medicine. After completion of her bachelor, she would like to pursue PA school.

Ian Crunk



Ian is a sophomore at SCC. He will transfer to SIUC in the Fall of 2024 to study computer science and maybe psychology.

Parmis Bizhanzadeh



Parmis graduated from JALC in spring of 2023. She is currently studying biomedical science at SIUC. After completion of her bachelors, she would like to pursue dental school.

Thierra Christopher



Thierra graduated from JALC in spring of 2023. She is currently studying microbiology at SIUC. After completion of her bachelor, she would like to pursue medical school and specialized in pathology.

Aiyana Houston

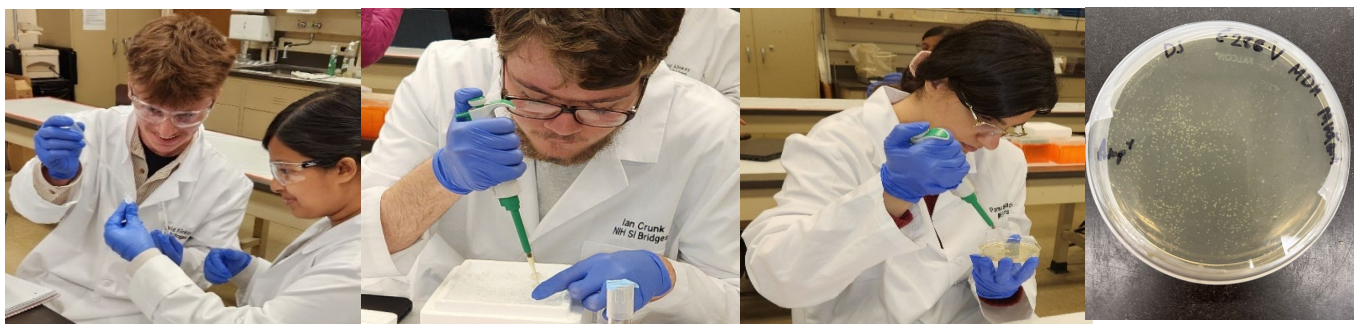


Aiyana is a sophomore at SCC. She will transfer to SIUC in fall of 2024 where she will study zoology especially focusing on animal behaviors and conservation efforts to save them.



# GLIMPSE INTO PROGRAM ACTIVITIES

The newly recruited SI Bridges Scholars started their training with the Connecting Life course in Spring of 2023. Through this course, scholars began to develop essential skills in research design, collaboration, and use of laboratory equipment. The scholars conducted authentic research on understanding the function and structure of enzyme malate dehydrogenase (MDH) under the guidance of Principal Investigator Dr. Laxmi Sagwan-Barkdoll. Scholars used computational software Pymol to study the structure of MDH and molecular biology techniques to perform point mutations to change the structure of the enzyme. Scholars were successful in mutating two residues and cloning mutant MDH in bacteria.



**SI Bridges scholars performing DNA extraction, setting up PCR reactions and bacterial transformation of mutated MDH.**

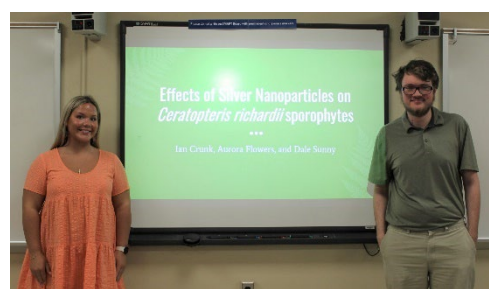
Before SI Bridges Scholars joined their respective mentors for their summer research projects, they continued to develop research skills with Dr. Renee Lopez-Swalls. The scholars engaged in two-week research intense sessions from May 22- June 02, focused on reproductive biology using *Ceratopteris* as model organism. Basic and specialized skills were acquired at this time including aseptic culturing, microscopy, annotating scientific literature, collecting data, statistical analyses, and communicating results. Scholars also toured research facilities like the IMAGE Center and Plant Biology Greenhouse on SIUC campus. In addition, scholars identified plant groups like bryophytes, pteridophytes, and angiosperms during a guided hike in the Shawnee National Forest.



**SI Bridges scholar Cole Dumas and Sam Deiters preparing culture plates.**



**SI Bridges scholar Aiyana Houston and David Altom at the greenhouse.**



**SI Bridges scholar Aurora Flowers and Ian Crunk presenting their two weeks research project.**



**SI Bridges scholars at a field trip to Cove Hollow Trailhead**



# INSIDE THE SUMMER RESEARCH IMMERSION



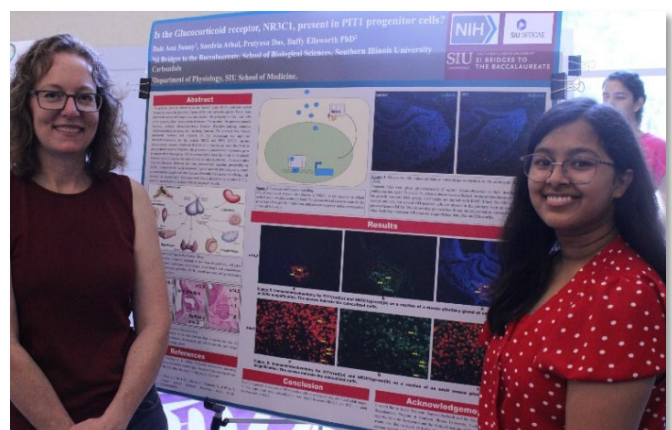
Left to right: Parmis Bizhanzadeh, Caleb Gentry, Cole Dumas, Hannah Phillips, Ashlishya Ghosh, Thierra Christopher, Dale Sunny, David Altom, Taryn Sauerbrunn, Braeden Irby, and Ian Crunk at the 2023 Summer Research Symposium.

The goals of the SI Bridges to the Baccalaureate program are to provide local STEM students with hands-on experiences in research and mentorship, as well as professional development and providing guidance and resources in transitioning from a community college to SIUC. Scholars gain experience in research and mentorship through the Summer Research Immersion (SRI). For 10-weeks during the summer, scholars worked full-time on designing, conducting, and completing a research project with a faculty or staff member at SIUC in their field of interest. This year SI Bridges scholars had research/mentorship opportunities in a variety of disciplines (Physiology, Psychology, Microbiology, Computer Engineering, Zoology, and Plant Biology).

At the Summer Research Symposium, scholars showcased their diligence and perseverance with a research poster and communicated their findings to faculty, staff, and fellow students at SIUC. To view each scholars' poster from the 2023 SRI symposium, see Pages 5-8.

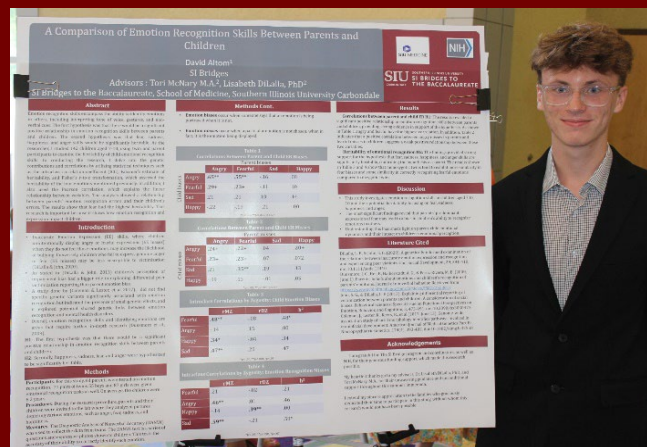


SI Bridges scholar Caleb Gentry presenting his research poster. This is Caleb's second year presenting a poster at the symposium.



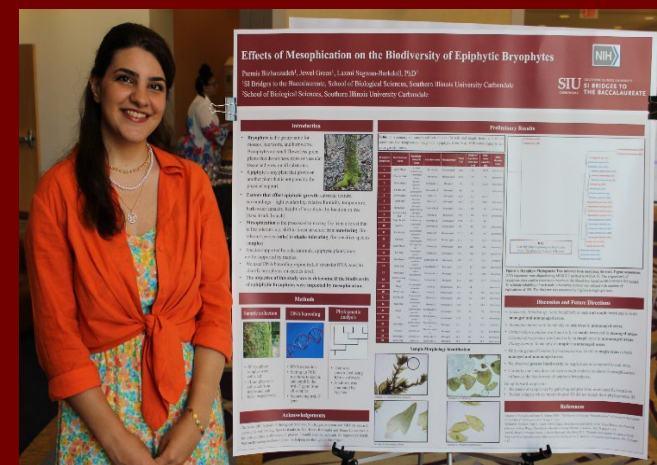
SI Bridges scholar Dale Sunny with her research mentor Dr. Buffy Ellsworth at the symposium. This is Dale's first time conducting authentic research.

# SCHOLARS AT THE 20<sup>th</sup> ANNUAL SUMMER RESEARCH SYMPOSIUM



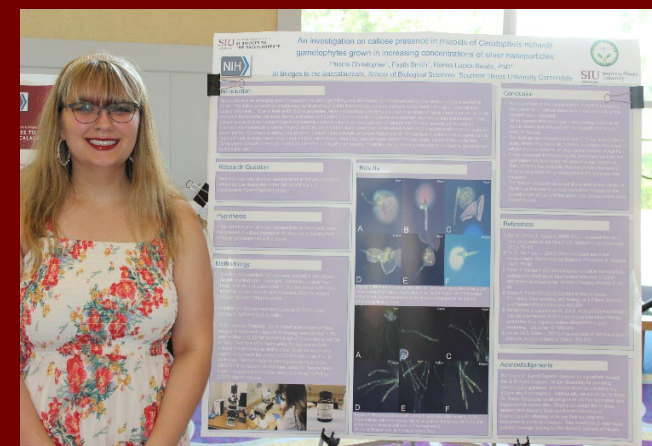
David Altom is a sophomore at JALC and will transfer to SIUC in fall 2024 where he will major in Psychology. David's mentor for his summer research project was Dr. Lisabeth DiLalla, Professor in the School of Medicine.

RESEARCH TITLE: "A comparison of emotion recognition skills between parents and children."



Parmis Bizhanzadeh is a junior at SIUC majoring in Biomedical Sciences. Parmis' mentor for her summer research project was Laxmi Sagwan-Barkdoll, Associate Professor of Practice in the School of Biological Sciences.

RESEARCH TITLE: "Effects of mesophication on the biodiversity of epiphytic bryophytes."

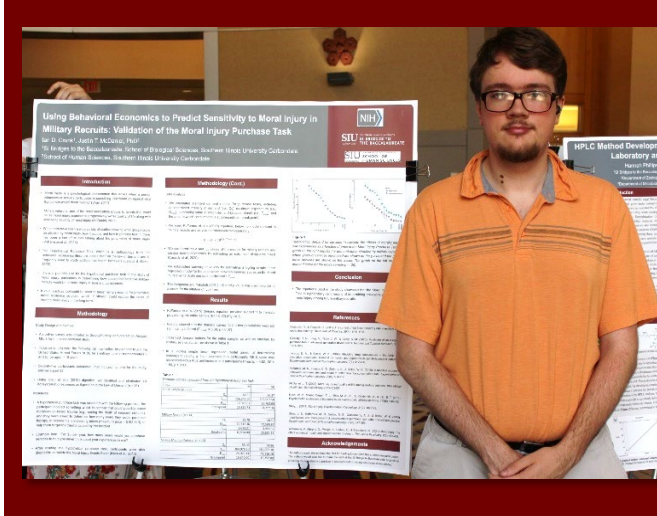


Thierra Christopher is a junior at SIUC majoring in Microbiology. Thierra's mentor for her summer research project was Dr. Renee Lopez-Swalls, Researcher III in the School of Biological Sciences.

RESEARCH TITLE: "An investigation on callose presence in rhizoids of *Ceratopteris richardii* gametophytes grown in increasing concentrations of silver nanoparticles."

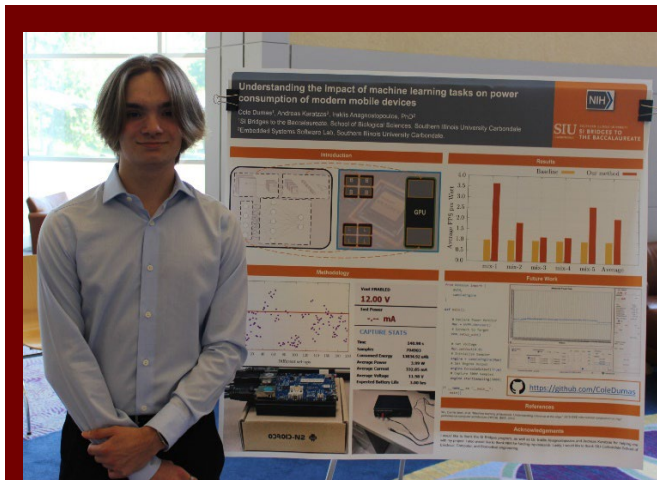


# SUMMER RESEARCH SYMPOSIUM CONTINUED



Ian Crunk is a sophomore at SCC and will transfer to SIUC in fall 2024 where he will major in Computer Science. Ian's mentor for his summer research project was Dr. Justin McDaniel, Associate Professor in the School of Human Sciences.

**RESEARCH TITLE-** "Using behavioral economics to predict sensitivity to moral injury in military recruits: validation of the moral injury purchase task."



Cole Dumas is a sophomore at JALC and will transfer to SIUC in fall 2024 where he will major in Electrical Engineering. Cole's mentor for his summer research project was Dr. Iraklis Anagnostopoulos, Associate Professor in the School of Electrical, Computer, and Biomedical Engineering.

**RESEARCH TITLE:** "Understanding the impact of machine learning tasks on power

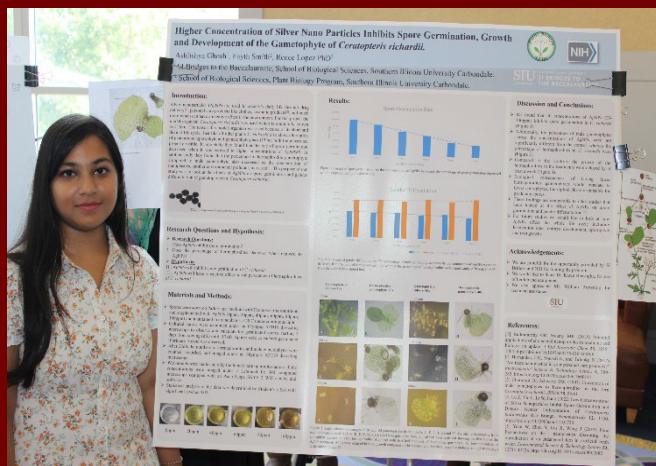


Caleb Gentry is a junior at SIUC majoring in Zoology. Caleb's mentor for his summer research project was Dr. Guillaume Bastille Rousseau, Assistant Professor in the School of Biological Sciences.

**RESEARCH TITLE:** "Comparing survival and mortality rates of white-tailed deer fawns."

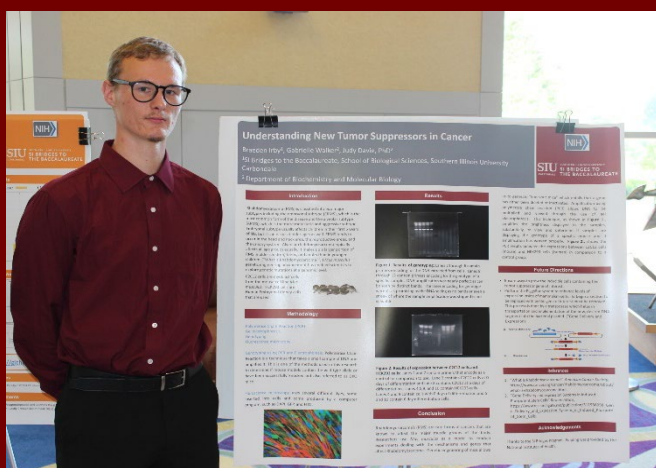
# SUMMER RESEARCH SYMPOSIUM

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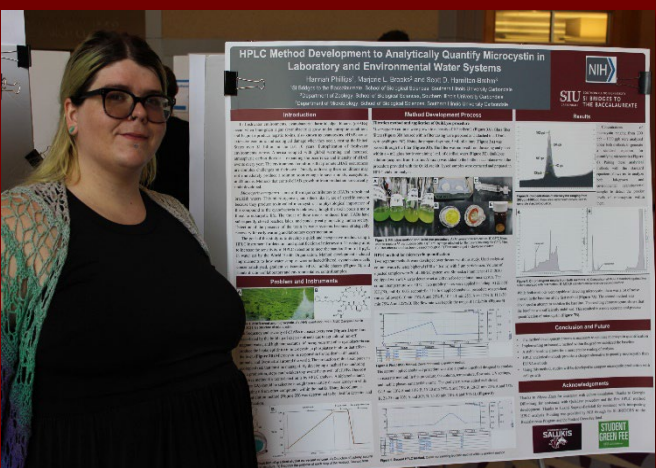
Ashlishya Ghosh is a junior at SIUC majoring in Physiology. Ashlishya's mentor for her summer research project was Dr. Renee Lopez-Swalls, Researcher III in the School of Biological Sciences.

RESEARCH TITLE: "Higher concentration of silver nanoparticles inhibits spore germination, growth, and development of the gametophyte of *Ceratopteris richardii*."



Braeden Irby is a junior at SIUC majoring in Physiology. Braeden's mentor for his summer research project was Dr. Judy Davie, Associate Professor in the School of Medicine.

RESEARCH TITLE: "Understanding new tumor suppressors in cancer."

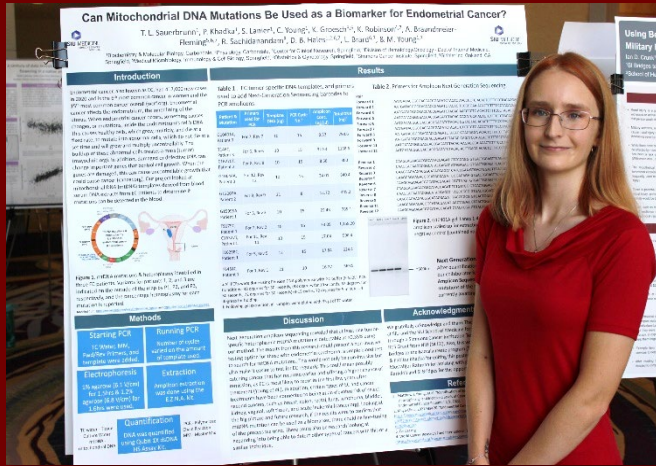


Hannah Phillips is a junior at SIUC majoring in Microbiology. Hannah's mentor for her summer research project was Dr. Scott Hamilton-Brehm, Associate Professor in the School of Biological Sciences.

RESEARCH TITLE: "HPLC method development to analytically quantify microcystin in laboratory and environmental water systems."

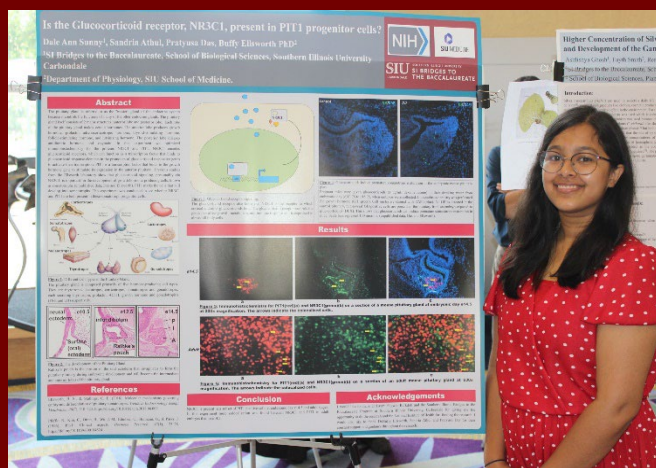


## SUMMER RESEARCH SYMPOSIUM CONTINUED



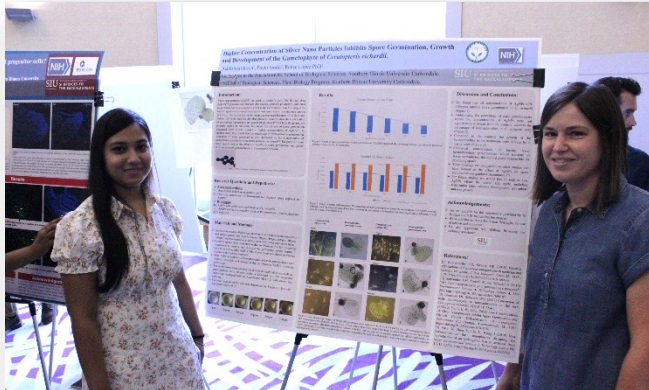
Taryn Sauerbrunn is a junior at SIUC majoring in Nutrition and Dietetics. Taryn's mentor for her summer research project was Dr. Matthew Young, Associate Professor in the School of Medicine.

RESEARCH TITLE: "Can mitochondrial DNA be used as a biomarker for endometrial cancer?"



Dale Sunny is a sophomore at JALC and will transfer to SIUC in fall 2024 where she will major in Physiology. Dale's mentor for her summer research project was Dr. Buffy Ellsworth, Associate Professor in the School of Medicine.

RESEARCH TITLE: "Is the glucocorticoid receptor, NR3C1, present in PIT1 progenitor cells?"



**SI Bridges scholar Ashlishya Ghosh and JALC instructor Dr. Hannah Henson.**



**SI Bridges scholar Tierra Christopher and Ashlishya Ghosh with summer mentor Dr. Renee Lopez-Swalls.**



# Student Spotlight Interview

## Q1: How did you discover the SI Bridges program?

I found out about SI Bridges through one of my biology professors at SCC before I transferred to SIU the following year. She approached me and discussed how it is a great opportunity that sounded like a chance I could not pass up.

## Q2: How has the SI bridges program helped you achieve your academic goals?

SI Bridges gave me more knowledge and experience than most of my classes at SIU have given me as it has provided me a chance to gain hands on experience and learning opportunities that are needed in the field I want to go into. I have gotten to work on multiple projects with the Wildlife Lab and as a zoology major, this is experience that will help me go farther in my career that I want to work hard for. This also helps me learn things that will come up in future classes here at SIUC.

## Q3: What are your plans for the future?

My ultimate goals with a career in zoology are to work at a zoo and/or aquarium for a few years and eventually get into wildlife filmmaking. I would also like to participate in any conservation or research projects should any opportunities arise. Working at a zoo and/or aquarium requires lots of experience in the field of animals, which is something that SI Bridges has provided me with. There is also a lot of research and conservation work that goes on at zoological facilities, so research skills will help me excel in a career at any animal facility, as it will allow me to be able to fill in multiple kinds of positions. Wildlife filmmaking also requires lots of experience with or around animals and in the field.



**SI Bridges Scholar Caleb Gentry pouring gel.**



**SI Bridges Scholar Caleb Gentry holding a deer fawn during his summer research project.**

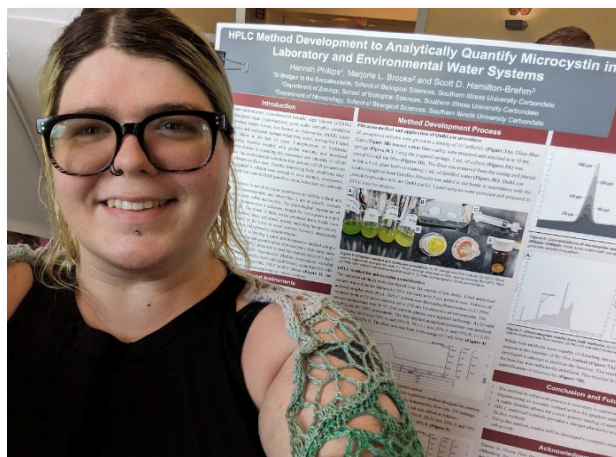
## Q4: Would you recommend the SI Bridges program to other students?

I would most highly recommend this program to other students, as I believe it is a great way for students to gain experience, learn new skills and knowledge, as well as get their foot in the door with people in the field they want to pursue which is essential in developing a good career in any scientific field. It has been a wonderful and beneficial experience.

# Student Spotlight Interview

## Q1: How did you discover the SI Bridges program?

I was in BIO-101 at JALC with Dr. Hannah Henson. She is the SI Bridges liaison for JALC and during one of our first lectures, she gave a short presentation to introduce the program to everyone in the class. As she was explaining it, it seemed like it was too good to be true. I had resumed my pursuit of education with hopes of eventually going into research, and this program would allow me to do so almost immediately while getting paid for it. It's like getting a head start on my career! I didn't immediately apply to the program, but later in the semester, Laxmi and Will Browning came to our class to perform CURE activity. Dr. Henson introduced me directly to Laxmi afterwards, and they both convinced me to apply to the program.



**SI Bridges scholar Hannah Phillips with her summer research poster**

## Q2: How has the SI bridges program helped you achieve your academic goals?

I resumed my education with hopes of eventually going into research, so this was the perfect first step to get that kind of experience under my belt. I resumed my education with hopes of eventually going into research, so this was the perfect first step to get that kind of experience under my belt. I've already experienced scientific techniques that are typically learned far beyond my current level of education. I feel better prepared to handle my classes as a result of my experiences in the program. I believe that my participation in this program will make me a more ideal candidate for graduate school and other research programs. It has also allowed me to begin networking academically and professionally, as I've made friends throughout the program and have developed meaningful relationships with the people in my lab. My mentors in the Bridges program and the people in my lab have assisted me with my transition to SIUC after leaving JALC to make it as painless as possible.



**SI Bridges scholar Hannah Phillips pouring bacterial culture.**

## Q3: What are your plans for the future?

I plan to continue my education into graduate school to eventually obtain a PhD. I plan to continue my education in graduate school to eventually obtain a PhD. I'd like to continue performing research throughout this process and even after I finish my education.

## Q4: Would you recommend the SI Bridges program to other students?

Absolutely! Any time I talk about my education experience, the Bridges program is an integral part of that discussion, and I cannot speak highly enough about the program. It has given me so many amazing opportunities and experiences that have honestly changed my life forever. I recommend this program to any student who is interested in STEM and would like to perform research. It will hugely benefit anyone who actively participates in the program, giving them a leg up on their peers and making them more attractive candidates in academic and professional settings. It's so worth it



# Accomplishments

## Awarded Scholarships

- ❖ Hannah Phillips – Deans Transfer Scholarship, Transfer Achievement Scholarship & McNair Scholar
- ❖ Braeden Irby – Deans Transfer Scholarship
- ❖ Ashlishya Ghosh – Deans Transfer Scholarship
- ❖ Parmis Bizhanzadeh – Deans Transfer Scholarship
- ❖ Tierra Christopher – Deans Transfer Scholarship

## Publications

McDaniel, J., McDaniel, M., Ryan, R., Eric, J., and **Crunk, I.** (2023) Using Behavioral Economics to Predict Sensitivity to Moral Injury in Military Recruits: Validation of the Moral Injury Purchase Task, Health Behavior and Policy Review, 10(4), 1358-1367.

<https://doi.org/10.14485/HBPR.10.4.4>

**Ian Crunk published his summer research project with his mentor, Dr. Justin T. McDaniel!**



Pictured from left: Dr. Lahiru Jayakody, SI Bridges scholar Hannah Phillips, Dr. Marjorie Brooks and Dr. Scott Hamilton-Brehm at SIUC campus lake.

## In the News

[SIU researchers get 194K grant to stop algae from making toxins](#)

**SI Bridges scholar Hannah Phillips is a member of this research team.**

**@ALTO VINEYARDS**

8515 IL-127, Alto Pass, IL

**SEPT 30, 2023**

**1 - 5pm**



# **Family Eco Festival**

## **SI BRIDGES IN THE COMMUNITY**

The SI Bridges program participated in a science-filled community event called Family Eco Festival sponsored by the Robert Noyce River Region Master Teaching Fellowships in Environmental Sustainability Program and the Alto Vineyard. The mission for the festival was to ignite curiosity in school-aged kids through fun scientific activities that break from the regular school structure. Furthermore, the event brought awareness to the local community about the impact of humans on the environment.

The annual Family Eco Festival centered on an environmental sustainability theme. All STEM activities, demos, games, and art incorporated aspects of sustainability. Festival activities for the children included arts and crafts, live animals, and microscopes. For adults, there were demonstrations of solar ovens, composting, electricity generating bikes, and solar panels. Food and music from local artists topped off the day. Parents and children were engaged in the activities making it a successful event.



SI Bridges scholars (left to right): Aiyana Houston, Caleb Gentry, Thierra Christopher, Hannah Phillips, Parmis Bizhanzadeh, Cole Dumas, Dale Sunny, Jewel Green, and Ashlishya Ghosh.

At the SI bridges tent, scholars set up a strawberry DNA extraction experiment using everyday household items. DNA extraction is a widely used technique in the field of biological sciences. Kids extracted strawberry DNA by mashing strawberries with a lysis mixture and adding ethanol to further separate DNA from cells. DNA was collected and put in tubes with ribbon to make necklaces. The stream of eager kids never ceased until the end making the SI Bridges table a hit!

A child successfully extracting fresh DNA from strawberry.



SI Bridges scholar Parmis Bizhanzadeh demonstrating DNA extraction.



# Transfer Scholarship Opportunities at SIU

*\*The following awards are given upon admittance*

## Transfer Maroon Scholarship

- Criteria
  - 2.0 - 2.99 cumulative transfer GPA\*
  - 12 or more transferable credit hours\*
- Value
  - \$1500/year for two years, with a total value of \$3,000

## Transfer Silver Scholarship

- Criteria
  - 3.0 - 3.49 cumulative transfer GPA\*
  - 12 or more transferable credit hours\*
- Value
  - \$2500/year for two years, with a total value of \$5,000

## Dean's Transfer Scholarship

- Criteria
  - 3.5 or higher cumulative transfer GPA
  - 12 or more transferable credit hours\*
- Value
  - \$4000/year for two years, with a total value of \$8,000

*\*The following awards require supplemental applications for consideration*

## Phi Theta Kappa Scholarship

- Criteria
  - Recipient of Dean's Transfer Scholarship
  - Member of PTK for at least one academic year
- Value
  - \$3000 for first year

## Transfer Achievement Scholarship

- Criteria
  - Recipient of Dean's Transfer Scholarship
  - Scheduled to earn an associate's degree from a regionally accredited community college before enrolling at SIU\*
  - Complete Scholars Program Application
  - Complete an interview if selected as a finalist
- Value
  - \$6,000/year for two years, with a total value of \$12,000

## Provost's Scholarship

- Criteria
  - Recipient of Dean's Transfer Scholarship
  - Scheduled to earn an associate's degree from a regionally accredited community college before enrolling at SIU\*
  - Complete Scholars Program Application
  - Complete an interview if selected as a finalist
- Value
  - Full tuition and mandatory fees for two years
  - Total value of more than \$30,000

More information about these scholarships and others can be found at [Transfer Student | Undergraduate Academic Scholarships | SIU](#)



# SI BRIDGES PROGRAM



## A Partnership MEET THE TEAM

### SIUC

Scott Hamilton-Brehm  
Karen Renzaglia  
Laxmi Sagwan-Barkdoll  
Renee Lopez-Swalls  
Fayth Smith  
Jewel Green

### JALC

Stephanie Hartford  
Hannah Henson  
Jo Forer

### SCC

Lori Armstrong

SI Bridges to the Baccalaureate Program

Facebook: [@SIBridges](#)

Website: [sibridges.siu.edu](http://sibridges.siu.edu)

Youtube: [SIBridges](#)

Blog: [sibridges.siu.edu/blog/](http://sibridges.siu.edu/blog/)