



## Newsletter

October 2020, Volume 2, Issue 3

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### Cross-College Collaborations at UNO: The bedrock of the STC

#### Collaboration, Resources, Creativity.

These are some of the words that describe the initiatives at the STEM TRAIL Center. Last month we highlighted some of our collaborations across the Nebraska University campuses. This month we'll focus closer to home and describe new collaborations on projects that bring art, cartoons, media, public relations, youth programming, and STEM concepts together to generate some resources for all to use long into the future. We know first-hand the value of bringing together groups with various perspectives, passions, and expertise to add more creativity and impact to projects. Check out some of those in the pages that follow.

**At the STEM TRAIL Center, we are intensely passionate about lifelong learning.** We work ferociously to push the envelope on what innovations can be completed surrounding teaching and learning. Whether you're an industry professional looking to expand your skillset, a graduate student interested in mock grant preparation and review, or a faculty member interested in finding an instructional coach to aid your teaching repertoire, you're always welcome at the STEM TRAIL Center. We are so excited about the activities that we have going on and we're ready to share that excitement with you.

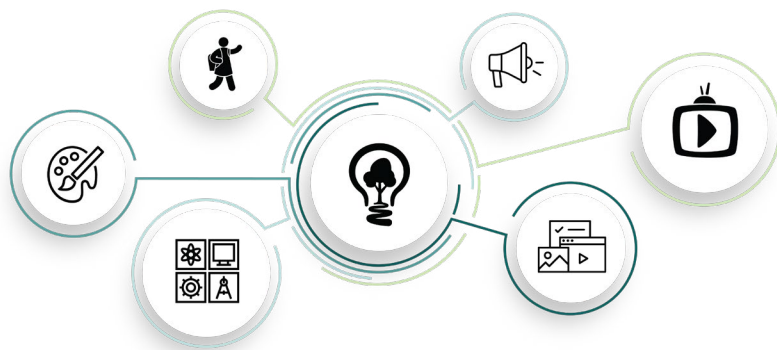


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# NE STEM 4U Center of Excellence Pilot Grant

## Emily and her friends conducted a chemistry experiment to make “elephant toothpaste.”

Emily is one of several characters being created in animated and print lessons as a part of the NE STEM 4U program to create and field test new educational experiences as a part of the Nebraska Children’s and Families Foundation and Beyond School Bells Expanded Learning Opportunities: Centers of Excellence grant.



The College of Communication Fine Arts and Media, School of Communication is collaborating with STEM TRAIL Center “Big Ideas” project, including this specific grant surrounding the NE STEM 4U program, which is led by faculty advisors Christine Cutucache, Ph.D., Department of Biology, College of Arts & Sciences, Neal Grandgenett, Ph.D., Department of Teacher Education, College of Education, Health, and Human Sciences, and William Tapprich, Ph.D., Department of Biology, College of Arts & Sciences. To-date, the program has welcomed 200 undergraduates and more than 6,000 youth across Nebraska.

Melodae Morris, APR, SHRM-SCP, lecturer in the School of Communication, began collaborating with the team over the summer on ways to develop and promote program materials for the \$30,000 pilot grant project. As a recent graduate from the communication master’s program at UNO, Hayley Jurek joined the team with graphic design and photography skills to create a large and engaging cast of characters, including Emily and her elephant toothpaste, to bring materials and existing program lessons to life.

“We are planning a little contest with the students in the program to give names to all of the characters,” Jurek said.

Specifically, this grant aims to help the team brainstorm innovative ways to expand the reach of NE STEM 4U using digital materials and novel content delivery approaches. First, it moves lesson designs into a web format and downloadable book format, using engaging best practices including interesting activities, marketing, public relations, and graphics to fully engage all learners while making them accommodating and accessible.

Another aim is to generate an innovative model for “STEMware,” for a mailed box-delivery system available for monthly or bi-weekly delivery to serve students without internet access and those in rural locations. Further, these science kits will enhance learning experiences for youth

in afterschool, in summer programs, and at home with their families via hands-on experiments and online guided learning (“STEM Kits”).

Christine Cutucache, Ph.D. had this to say about the project, “The NE STEM 4U program was created more than 8 years ago now and our long-term dedication to this program and supporting students remains steadfast. We aim to provide STEM learning for all students during their childhood, and then welcome them to UNO for their formative years to embed them into experiential learning opportunities and take them through an exceptional education.”

The NE STEM 4U program seeks partners for resources and specialized skills like CFAM, which already has a history of collaborating with other organizations. Michael Hilt, Ph.D., Dean, College of Communication, Fine Arts and Media said, “We are pleased that our faculty and graduates can apply their skills to collaborative projects such as NE STEM 4U, supporting students in our communities, who are the STEM-educated professionals of the future.” The UNO “Big Ideas” process has already resulted in collaborations between CFAM and the College of Arts & Sciences in Health Humanities and the Bak Institute project, Hilt said.

CFAM interdisciplinary projects of the past included offering certificates to the military and intelligence communities. “Our biggest cooperative effort was with International Studies in training Afghan Professors,” said Hugh Reilly, Director, School of Communication.



The School of Communication was an essential part of two U.S. State Department grants over the last ten years totaling \$3.5 million. UNO faculty traveled overseas to help professors from two universities in Afghanistan to create journalism and communication studies programs, Reilly said.

“The School of Communication has a long and successful history of working with its UNO colleagues on cross-departmental projects,” Reilly said. “We are delighted to be able to participate in projects with the STEM TRAIL Center Big Ideas project and the Beyond School Bells grant.”



We're excited to welcome facilitators from the Racial Equity Institute on Oct 19th and 20th for our first cohort of participants, in collaboration with the Center for Faculty Excellence.

## 3rd Friday Programming - DBER Seminar Speakers

Micro-internships to improve MOOC outcomes for vulnerable learners

### Speakers:

**Dr. Michelle Friend**, Teacher Education Assistant Professor, College of Education

**Dr. Magie Hall**, School of Interdisciplinary Informatics, Assistant Professor, College of Information Science and Technology

The discipline-based education research (DBER) speaker series highlights significant research findings from our community and hosts prominent guest speakers engaged in STEM education research.

**Fri, October 23rd 11:00am - 12:00pm**

[Click here for more information and to RSVP](#)



## 4th Friday Programming - Grant Writing Workshop

Reading and Responding to a Request for Funding/  
Program Announcement

### Facilitator:

**Sara Myers**, PhD, Assistant Vice Chancellor for Research and Creative Activity, Office of Research and Creative Activity

This workshop will help researchers understand the basics of reading and responding to requests for funding (aka "RFAs" or "RFPs"). Dr. Myers will use a current case study to take the audience through development of such a response. Attendees are encouraged to bring any upcoming opportunities for their own work as they will be able to ask questions regarding their specific funding mechanism.

**Fri, October 30th 2:00pm - 3:00pm**

[Click here for more information and to RSVP](#)



## Upcoming Events

### Welcoming Back Our Alum for Undergraduate Professional Development, Special Feature

#### NE STEM 4U - A Journey in Three Parts

**Facilitator:**

**Bejan Mahmud**, Washington University in St. Louis, Division of Biology and Biomedical Sciences

Welcome all undergraduate and graduate students to the Wednesday Programming Series, which can be a real benefit to your professional development! The STEM TRAIL Center supports undergraduate and graduate student professional development, including areas of career preparation, networking, and a journal club focused on equity in STEM.

**Wed, November 4th 10:00am - 11:00am**

[Click here for more information and to RSVP](#)



### 1st Friday Teaching Practices Series

#### Rethinking Assessments! What Other Options are There Beyond the Final Exam?

**Workshop Facilitators:**

**Dr. Stephanie Cutler**, Assessment & Instructional Support Specialist, Leonhard Center, Penn State College of Engineering.

**Dr. Sarah Zappe**, Director, Assessment & Instructional Support, Leonhard Center, Penn State College of Engineering.

In this workshop, we will focus on assessment strategies that will be effective across various teaching environments (remote-asynchronous or synchronous, face-to-face, or mixed). We will discuss different assessment approaches and how they can be adapted to different learning environments. There will be lots of discussion and working together to figure this out!

**Fri, November 6th 11:00am - 12:30pm**

[Click here for more information and to RSVP](#)

### Do you know an exemplary STEM mentor?

Johnson & Johnson is accepting applications for its 2021 Women in STEM2D (WiSTEM2D) Scholars Award, aimed at supporting assistant or associate academic professors in the disciplines of Science, Technology, Engineering, Math, Manufacturing and Design. The deadline for applications is Oct. 15, 2020 at 9 A.M. HST, and guidelines and [additional details are available.](#)

## Attention Students! This event is for YOU!

### 10+ Things You Can Do NOW to Get a Job and Move Your Career Forward

#### Facilitator:

**Alaina G. Levine**, President, [Quantum Success Solutions](#), Author, *Networking for Nerds* (Wiley, 2015)

In this webinar, you will learn specific tasks you can do RIGHT NOW to get a job and advance in your career. You will emerge with a solid and strategic plan that you can adapt at any stage of your career, but is especially valuable for those who are about to graduate or finish their postdoc and haven't lined up a position yet.

**Wed, November 18th 10:00am - 11:00am**

[Click here for more information and to RSVP](#)



## A Reflection on Programming for Students from the Director

Students are why we do the work that we do. Students are our motivation, our shining lights, and the outstanding manifestations of the hard work that we as educators put in to ensure their tremendous success. At the STEM TRAIL Center, we have a weekly programming series dedicated to students. This past month while listening to some of the great guidance from our speakers in the student series, it hit me. Wow, they want to see our students succeed as much as we do! When [listening to Dr. Lenagh](#), she outlined the local and state-wide need for additional STEM majors within various roles of biotech companies, such as Streck. She shared the process that she used to identify how to find the correct role for herself, and the importance of learning as much as possible and from as many people as possible. At the conclusion of her talk, Dr. Lenagh shared her contact information with students and concluded with “call, text, email—reach out as I’d love to help you.” Such generosity was echoed by [Alaina G. Levine at her presentation](#), first identifying the ways that networking can take place, and how to connect with others. Then, Alaina gave an action plan of the “how to” and followed with several case studies and tangible examples on how others have completed these processes and the resultant outcomes. She gave examples that spanned content areas and pushed us to think beyond our comfort zones. And, again, concluded with “stay connected—I’d like to help you. Reach me on social media, that’s where I share out free resources for you.” What joyous supporters of students. Later this month, we’ll welcome an NE STEM 4U alum, Bejan Mahmud, to share out his journey in STEM. Bejan is coming back to his alma matter to continue to support other students.

Thanks to these generous speakers for supporting our students. Students, we want to see you succeed and we’re ready to help you meet your next goals. Join us!

## Missed a program? Check out the recordings here!

#### **Katy Vitale**

Introduction to UNO’s Funding Databases

[View the recording here](#)

#### **Agnes Lenagh, PhD**

To Become Your Best Self, You Need a Landscape-Level View

[View the recording here](#)

#### **Alaina G. Levine**

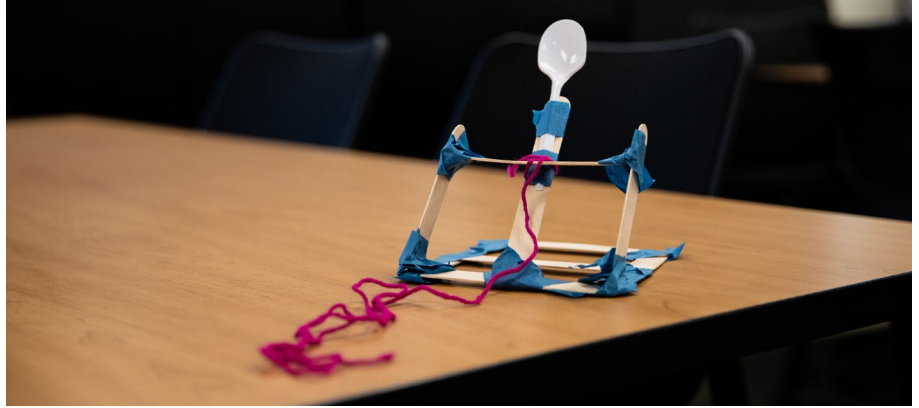
Virtual Networking for Nerds: How to find and build collaborations from afar

[View the recording here](#)

# Grant Awarded to Improve Accessibility and Inclusion for STEM Outreach Activities

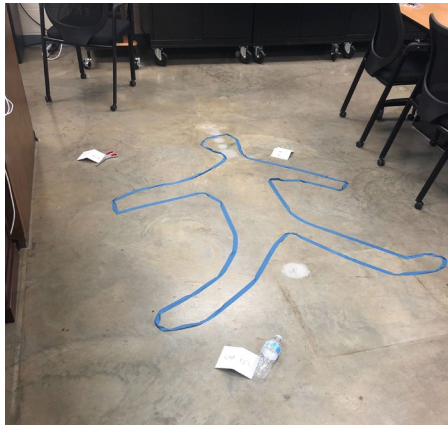
**“Turn your mic on please,  
we can’t hear you.”**

**“Oh, very cool catapult design, what  
made you use that material?”**



The COVID-19 pandemic may have altered the way the NE STEM 4U program traditionally provides out-of-school time programming, but the program quickly pivoted to tackle this challenge head-on. Staff are working to develop ways to better serve students in a remote setting, and for those without an internet connection via the NE STEM 4U “Train-the-Trainer”: OST Staff PD and STEM Programming grant awarded by Collective for Youth for \$48,228.00.

The grant initiative is spearheaded by the program’s faculty advisors, Christine Cutucache, Ph.D., Department of Biology, College of Arts & Sciences, Neal Grandgenett, Ph.D., Department of Teacher Education, College of Education, Health, and Human Sciences, and William Tapprich, Ph.D., Department of Biology, College of Arts & Sciences. Additionally, Nik Stevenson, M.S., STEM TRAIL Center, functions as the Program Coordinator on the project.



The mentors created a crime scene to the lesson plans to further engage students.

“With primary school students in their home settings, we have been forced to pivot on providing programming to the middle school students enrolled in our program, but our NE STEM 4U undergraduate mentors have risen to the challenge” says Nik Stevenson. “I really think the innovations that our mentors are coming up with is helping propel this program onto another level.”

The NE STEM 4U program created an Innovation and Development team focused on ways to take the authentic lessons of the program and make them engaging in a virtual context. Currently, ideas are being generated to include virtual escape rooms and a spin on the popular TV show “MTV Cribs,” but with a focus on STEM labs throughout the disciplines.

One mentor team utilized a video from a Forensic Scientist to raise awareness to the career field, and further expanded to include lesson plans to investigate a crime scene using biological principles on the virtual call. The team-based approach to solving the “who done it?” fostered collaboration skills in real-time.

“We give it a 5 out of 5 stars,” said one student. “I think it was a 4.9 out of 5,” said another. “Wow, our fingerprints are so cool, I didn’t know about that,” said a third.

The sky is the limit and these undergraduate mentors are being challenged to think up new ways to consider STEM Programming for youth. And, whether students have access to Zoom, the internet, or experts, shouldn’t preclude them from seeing the excitement in science. NE STEM 4U is working to continue to expand the range of resources for students in the out-of-school space.



## Illuminate Nebraska: A UNO and NPPD Partnership

Dr. Derrick Nero (lead) and Dr. Neal Grandgenett, both of the Department of Teacher Education in the College of Education, Health, and Human Sciences, just received a \$55,000 award from Nebraska Public Power District (NPPD). The project, “Illuminate Nebraska, a Content Development Project” aims to generate, sponsored by the Nebraska Public Power District.

Drs. Nero and Grandgenett will coalesce in-service teachers to contribute content to NPPD lessons and information sheets for schools to use for assisting in STEM and engineering education. This project similarly supports teachers in developing additional curricula to integrate next-generation science standards for their own classrooms. The project synergistically supports the integration of engineering, and other STEM content such as energy, within various educational environments. These real-world connections will bring relevant, timely, and interdisciplinary STEM content to students while simultaneously supporting science teachers in Nebraska.

The outcomes of this project will aid in raising awareness to additional job opportunities for youth to include science, robotics, advanced manufacturing, energy, agriculture, innovation, and teaching.



[Register Now](#)

Use code: **OSERT2020**

### CELEBRATING CREATIVITY IN A COVID-19 CULTURE:

October 20, 2020 8:30AM - 10:00AM

Rachel Jacobson, President of Heritage Services, will provide the introduction and discuss the role the Kiewit Discovery Center brings to STEM learning in Omaha.



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As we navigate the challenges and opportunities in this new culture, we draw on the knowledge of our diverse network of thought leaders and experts to understand the implications to our work, education, and future workforce. Please join us for this final virtual Roundtable Discussions to share our experiences and lessons learned among a diverse set of stakeholders.

*Facilitated by:*

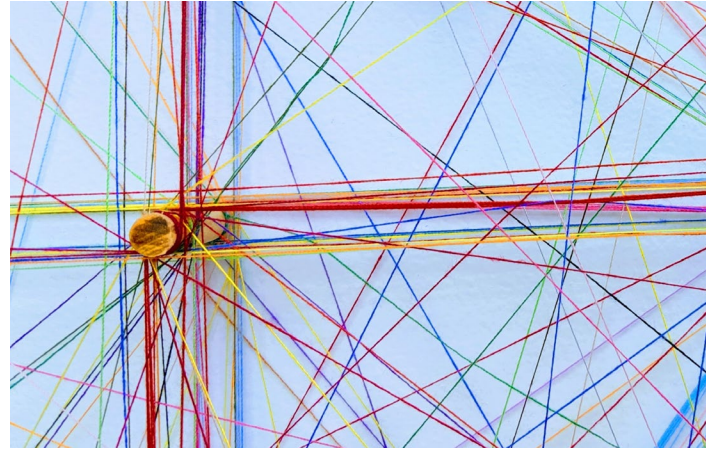
Beth Morrisette, MPA, MSW, CEO of Parlay Consulting Firm, will facilitate our Roundtable Series. She specializes in building organizational capacity through board governance, strategic planning and implementation coaching. Beth is a skilled facilitator and we look forward to working with her on this series.



# Understanding Learner-to-Learner, Learner-to-Instructor, and Learner-to-Content Networks to Support Student Retention in Science Courses

A new project funded as part of a pilot grant from the Unizin Data Consortium for \$10,000 awarded to UNO led by the PI: Dr. Tracie Reding, UNO STEM Outreach Coordinator, and College of Education, Health, and Human Sciences, with support from coPIs: Christine Cutucache, PhD (Department of Biology, A&S), Chris Moore, PhD (Department of Physics, A&S), Neal Grandgenett, PhD (Department of Teacher Education, CEHHS), Jason Buzzell (Digital Learning), Casey Nugent (NU-Information Technology), Jyotsna Ramanan (NU-Information Technology).

The coronavirus pandemic has led to dramatic increases in online and blended learning environments, bringing new urgency to the need to better understand how to effectively support student learning in such environments. Additionally, the move to online education and the greater subsequent reliance on EdTech companies has increased privacy concerns. Moreover, it's well-demonstrated in the literature the need to monitor student interaction within a course to identify potential warning signs of disengagement and likelihood of not completing the course. Therefore, this pilot project evaluates instructor-matched, course-matched student-engagement for courses both in-person and online (fall 2019 and spring 2020). Data for the project are available from the sponsor, via the Unizin Data Platform (UDP). The UDP allows Reding and team to apply social network analysis (SNA) to determine the types of course-specific interactions, using digital trace data, such as discussion board posts.



This information provides an algorithm for effective engagement and retention within the course, be that learner-to-learner, learner-to-instructor, and learner-to-content. The next iteration of this project will build a *bona fide* dashboard for instructors to monitor engagement and support students more comprehensively. Ultimately, the longer-term successful implementation will also result in the verification and refinement of a dissemination of innovations model within an undergraduate STEM context that can be replicated, modified, and used in various higher education contexts regarding innovation diffusion.

## Thanks to those that make the magic happen!

In our newsletter we highlight recent grant awards, as well as ongoing projects in order to welcome collaboration. None of these projects would be able to take place without the support of the [Office of Research and Creative Activity](#), [Grants Accounting](#), [Accounting](#), and the [Nebraska University Foundation](#). We thank all of our colleagues that support these tremendous activities that benefit our students, staff, faculty, and community. Would you like to see the smiling faces of our outstanding colleagues? Check out their websites!





# Delivering Faculty Professional Development Online

**Volker Ecke (Department of Mathematics, Westfield State University)**

**Patrick Rault (Department of Mathematics, UNO)**

Recently the ASCN ([Accelerating Systemic Change in STEM Higher Education](#)) hosted a workshop on “Delivering Faculty Professional Development online.” During the session, facilitator Stephanie Chasteen (CU Boulder) shared her rich and evolving [list of online professional development techniques](#):

**Here are a few selected excerpts, which may also be applicable to our online classes:**

- You should choose your online tool based on what your goals are for a given activity component. E.g., Do you want a quick check-in? Do you want participants to think individually?
- Generate accountability as much as you can. Call on people to share their ideas, and assign reporters from small groups. When people know they may be “on deck” they are more engaged, just like in the classroom.
- Everything will take longer online than in person. A good rule of thumb is to plan for things to take 30% longer.
- Each group will automatically have a number displayed at the top of their breakout room in zoom; refer to this number if you have them taking notes or sharing out by group.
- Give participants something that they can take with them to the breakout room that has the question prompts in them; do not rely on them to remember the prompts. If participants will be working in a Google Doc, write the prompts there. If you are giving participants a Google Doc link, emphasize that they need to click on the link before going to the breakout room, because they may lose access to the Main Room chat.



## Center for Faculty Excellence Events

Tue Oct 27th 9:00am - 10:30am

[Creating Inclusive Learning Experiences with Universal Design](#)

Thu Oct 29th 2:00pm - 4:00pm

[Campus Conversations on DEI: Mentoring Students of Color and Cultivating a Pipeline](#)

Fri Oct 30th 10:00am - 11:00am

[CDPD Facilitated Conversation: Supporting Faculty and Mentoring](#)

Wed Nov 4th 10:00am - 11:00am

[Keep Teaching: Usability and Visual Design](#)



# Resources & Opportunities

## Equity events hosted by Research for Inclusive STEM Education Center at ASU

The Research for Inclusive STEM Education Center (@ASU\_RISE\_Center), a newly launched Arizona State University initiative, is striving to make higher education more inclusive through innovative research, ongoing events and campus wide interventions. [ASU Now news article](#)



One of the center's early initiatives has been the development of a series of virtual events focusing on anti-racism and racial justice. Created in response to the resurgence of the Black Lives Matter movement, protests against the killing of George Floyd and other national issues, the "A call to action: RISE Up for racial justice," events range from discussions and workshops to student listening sessions and seminars. "We decided to develop this series to help promote awareness and provide information around what it means to be anti-racist," said Sara Brownell, a cofounder of the Center. "We don't think that these events are going to solve the problems, but we do think that it's an important first step in a much longer series of conversations and concrete actions to help our university, specifically STEM environments, become anti-racist."

## Upcoming "RISE Up for racial justice" events

**But is it really "just" science? Engaging critical race theory to unpack racial oppression with implications for Black student science engagement**

Seminar

When: Wednesday, Oct. 21, 11 a.m. (CT)

Speaker: Terrell Morton, University of Missouri

Zoom: [asu.zoom.us/j/92158713296](https://asu.zoom.us/j/92158713296)

**An exploratory investigation of the experiences of Black immigrant women in undergraduate STEM**

Seminar

When: Tuesday, Dec. 1, 2 p.m. (CT)

Speakers: Meseret Hailu, Arizona State University; and Brooke Coley, Arizona State University

Zoom: [asu.zoom.us/j/98196412224](https://asu.zoom.us/j/98196412224)

**Black women and belongingness: An interrogation of STEM education as a white, patriarchal space**

Seminar

When: Thursday, Nov. 19, 2 p.m. (CT)

Speakers: Luis Leyva, Vanderbilt University; and Nicole Joseph, Vanderbilt University

Zoom: [asu.zoom.us/j/94696434185](https://asu.zoom.us/j/94696434185)



**A call to action:**

## Striving for racial justice in academic biology

A portrait of Terrell Morton, PhD, a Black man with a beard wearing a colorful cap and a dark jacket.

**But is it really "just" science?: Engaging critical race theory to unpack racial oppression with implications for black student science engagement**

**Terrell Morton, PhD**  
University of Missouri



## Resources & Opportunities

### WiSTEM Digest

#### Articles

- [Promoting diversity and advancing racial equity in the biomedical sciences](#)
- [#BlackInTheIvory documents anti-blackness in the academy](#)

#### Resources

- [If/Then Collection](#) - a digital asset library of women STEM innovators for educational and other noncommercial use.
- [Blackillustrations.com STEM illustration pack](#)

#### Workshops/Seminars/Training/Events

- [HERS Leadership Institute](#)
- [Annual Biomedical Research Conference for Minority Students](#), November 9-13, 2000, virtual

### Grant Opportunity

[Toshiba America Foundation - Grants for grades 6-12](#)



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### Consider a Gift, Support an Intern at your Company, or Volunteer!

**Interested in donating? Please consider contributions to our UNO STEM TRAIL Center Excellence Fund #01149830 at the Nebraska University Foundation:**

#### Checks can be mailed to:

University of Nebraska Foundation  
PO Box 3465

Omaha, NE 68103-0465

reference: 01149830 - UNO STEM TRAIL Center Excellence Fund

[Or gifts can be remitted electronically.](#)

Let us know how we can support you:

[unostemtrailcenter@unomaha.edu](mailto:unostemtrailcenter@unomaha.edu)

**Have an idea for future programming? Interested in contributing your time or talents to the STC? Contact us!**

STEM TRAIL Center [unostemtrailcenter@unomaha.edu](mailto:unostemtrailcenter@unomaha.edu)

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