



Established Program to  
Stimulate Competitive Research

## *News & Notes*

*Providing leadership and coordination to broaden and diversify North Dakota's science, technology, engineering, and mathematics (STEM) workforce pathway and growing statewide STEM research and competitiveness at participating institutions of higher education.*

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October 2023

### **From the Executive Director**

Hello,

I am excited to announce that James Doolittle, Ph.D. has joined our team as the Project Manager. Jim is familiar with the NSF EPSCoR program from his time as part of the South Carolina EPSCoR program. He has been an incredible sport as his first week in the office involved meeting with project leadership at both NDSU and UND. Read more information about Jim and his professional experience below.

We are starting a mini-series highlighting the impact of the Sunday Academy program. The first installment is included below. Future articles will be published online with links published in future newsletters.

Jolynne



## Empowering Students Through Sunday Academy

The Sunday Academy Program is a monthly initiative created to spark a deep interest in science, technology, engineering, and math (STEM) among American Indian students. Held once a month throughout the academic year, this program gathers middle and high school students on Sundays, creating a welcoming and informal atmosphere where they tackle practical STEM challenges. These sessions, totaling seven at each of the five tribal colleges, commence in September and conclude in March.

Sunday Academy works to blend STEM and cultural significance, thereby igniting knowledge, curiosity, and passion in American Indian students. Sunday Academy has brought together over 1,000 enthusiastic young minds since 2019, nurturing their creativity, analytical thinking, and problem-solving abilities.

All lessons are firmly grounded in the local culture. This direct connection to cultural heritage serves as a strong motivator for students, enhancing the engagement and meaning of their learning experiences. In cases where the connection may not be immediate, a collaborative effort is made to establish a link between the lessons and the students' cultural background, ensuring that the content aligns with their personal experiences.

Sunday Academy has been continuing to grow in the enthusiasm it generates among students. Students often arrive over an hour early, eager for the lesson. This eagerness is a testament to the program's effectiveness in piquing students' interest in STEM subjects. The combination of cultural relevance and engaging hands-on activities captures the imagination of these young learners, making science and technology accessible and enjoyable.

The success of Sunday Academy relies on a collaborative approach. Lessons are developed by a diverse group of educators, including TCU faculty, PUI faculty, R1 faculty, and high school instructors. The NATURE coordinator, Britt Heidenger, associate professor of biological sciences at North Dakota State University (NDSU), curates the lessons for the year. The TCU coordinators and other instructors gather at NDSU for several days in June to fine-tune the lessons, ensuring they are ready for the fall. This collaborative effort ensures that the lessons are well-prepared and tailored to the needs of the students.

The data gathered from surveys conducted in the past year underscores the positive impact of the program. It indicates that students are not only gaining knowledge but also finding cultural relevance in the lessons. Moreover, the students report that they find the activities engaging and that hands-on experiments greatly enhance their learning experience. The positive feedback speaks to the dedication and careful planning that goes into creating these educational opportunities.

By blending STEM education with cultural relevance and hands-on activities, Sunday Academy ignites a passion for learning that goes beyond textbooks and classrooms. With a commitment to collaboration, continuous improvement, and a genuine desire to make learning enjoyable, this program sets an example for how education can be both impactful and fun.



## ND EPSCoR Welcomes New Project Manager

James (Jim) Doolittle, is joining the ND EPSCoR team as a project manager/project administrator. Jim served most recently as the director of the South Carolina EPSCoR Program and previously served as the director of the North-Central Sun Grant Center at South Dakota State University (SDSU), a \$57M program with funding from four federal agencies. He has familiarity with managing large, multi-institutional awards and was the associate vice president for research assurance and sponsored programs at SDSU. In this role, he oversaw a team of individuals who expanded pre-award services and increased the number of applications for extramural funding by 160%. Jim also served as the research/grants liaison on the SDSU Wokini Leadership Council building relationships with Tribal colleges, universities, and communities in South Dakota.



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## Nueta Hidatsa Sanhish College awarded \$1.9 million to fund drone project

Nueta Hidatsa Sanhish College in New Town has been awarded a grant of \$1.9 million to fund an innovative drone project. The project will enhance the college's technological expertise and improve transportation and healthcare for the Mandan, Hidatsa, Arikara Nation, and the wider region.

This drone project leverages state-of-the-art technology to revolutionize traditional delivery systems in a manner that is not only cost-effective but also inclusive. Its primary objective is to cater to communities that have historically been underserved and disadvantaged, with a particular emphasis on remote areas such as the Fort Berthold Reservation. The ultimate vision is to establish an extensive transportation network that spans across the state or even the entire region, harnessing the power of drone technology.



One of the most promising aspects of this initiative is its potential to transform healthcare delivery, especially concerning critical medications like insulin. It promises to be a lifeline in regions where travel is frequently hindered by adverse weather conditions.

They will collaborate with the University of North Dakota, the Northern Plains Unmanned Aerial System Test-Site, and partners like Thales and Airspace Link Inc. This initiative includes education, training, and financial support for current and prospective students to participate in aeronautics programs.

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## Opportunity board

- **Cyber Training and SCIFE Program Webinar**
  - November 7, 2023 from 1:30p.m. - 3p.m.
  - [Learn More](#)
- **Fall 2023 Virtual NSF Grants Conference**
  - December 4-7, 2023
  - Registration will open November 8, 2023 at 12p.m.
- **Sanofi Innovations in Data Exploration, Analytics, and Technology (iDea-iTech) Award Program**
  - 1-2 p.m. Wednesday, November 8, 2023
  - [Webinar Link](#)
- **ND NASA EPSCoR Request for Pre-Proposals**
  - Pre-Proposals are due at noon on November 9, 2023
  - [More Information](#)
- **Call for Inputs- Sustainable Computing for Sustainability**
  - Inputs accepted until November 20, 2023
  - [Form link](#)
- **Research on Innovative Technologies for Enhanced Learning (RITEL)**
  - Accepting projects until January 24, 2023
  - [Application link](#)
- **Centers of Research Excellence in Science and Technology (CREST Centers) in Social, Behavioral and Economic Sciences Research**
  - [More Information](#)
- **Inviting Proposals Related to Open-Source Software Security to the Secure and Trustworthy Cyberspace Program**
  - [Learn More](#)

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## 2024 National STEM Competition

Unleash Your Creativity and Innovation! Join this exciting competition designed for students in grades 6th to 12th. Participants must create a STEM project addressing a real-world challenge based on one of the 2024 themes. Projects can be presented in a 3-page PDF with a minimum 12-point font, excluding faces or names. Projects



**NATIONAL  
STEM  
CHALLENGE**

should be practical and tested if using the scientific method or physically/digitally constructed if using the engineering design process.

The best projects from all U.S. states and territories will become Challenge Finalists, with a chance to advance by submitting a video in the second round. Up to 200 National Champions will win a trip to the National STEM Festival in Washington, D.C., in April 2024 to showcase their projects to influential leaders. Canva offers free templates and graphics for project submissions.

Entries are due by November 12th, 2023, at 8:59 PM PT.

[Learn More](#)

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## Elementary and Secondary STEM Education

A national mathematics assessment in 2022 captured the largest decline in scores for 9-year-olds over the past 44 years, with disproportionate drops for students who are Black, Hispanic, from low-income families, or already scoring in the lowest 10th percentile.

These and other trends are in the [Elementary and Secondary STEM Education](#) report that the National Science Board published today as part of the 2024 congressionally mandated [Science and Engineering Indicators](#) suite of products on the state of the U.S. science and engineering enterprise. The reports are prepared by the National Science Foundation's National Center for Science and Engineering Statistics under the Board's guidance.



*Elementary and Secondary STEM Education* is the second of 10 *Science and Engineering Indicators* reports that the NSB will publish over the coming months through spring of 2024.

[Read Report](#)

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## 28th NSF EPSCoR National Conference

Join us at the 28th NSF EPSCoR National Conference from October 13 to 16, 2024, at the Hilton Omaha. Researchers, students, and staff from all 28 EPSCoR jurisdictions and NSF leaders will come together to collaborate and advance science.



*Connect and Collaborate to Keep Science Flowing*

Stay tuned for registration details in 2024. [Learn More](#)

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# STTAR PROGRAM

Students in Technology Transfer And Research

During Summer 2023, the ND EPSCoR [STTAR \(Students in Technology Transfer and Research program\)](#) helped 12 North Dakota businesses finance internships for 26 college students pursuing STEM-related careers. STTAR internships provide students opportunities to apply their academic STEM training to address real-world science and technology-based problems at North Dakota businesses across North Dakota. Businesses anywhere in North Dakota may [apply to participate in the STTAR program](#).



A Touchstone Energy® Cooperative

[Nodak Electric Cooperative](#) is a distribution electric provider whose mission is to safely provide reliable, competitively priced electric service for our member owners. Our members' service ranges from a rural cattle waterer to some of the largest industries in the state of North Dakota.

## Who are your STTAR Interns?

- **Charles Rieger**, University of North Dakota
- **Evan Pederson**, University of North Dakota

## What are the benefits of having STTAR interns at your company?

Electricity has changed very little the last 100 years, but our processes change all the time. Our STTAR students have help Nodak immensely over the years transitioning our GIS system from paper records to a much more useful digital system which allows us to locate, display, analyze and model more efficiently. The students get great hands-on experience both in the field and in the office and develop professional skills that they can carry on to a wide range of careers.

## Have you partnered with the ND EPSCoR STTAR program before?

Nodak Electric Coop has partnered with the STTAR program on and off for many years. We have had dozens of students come through the program. In fact, we have four current engineers who were at one time a STTAR student. Being able to house a student in the summer and keep them on for multiple semesters throughout the school year really gives us the opportunity to develop the student into a full time-like role. If at the end of their tenure there is an opening at Nodak they are always first on the list for a new hire. When there is not an opening, we have had students go to places such as Polaris, Arctic Cat, 3M, and Texas Instruments.

## During their internship what did the students be working on?

This year we have had two electrical engineering students working with us, Charles Reiger (UND) and Evan Pederson (UND). Over the majority of the summer they would job shadow and assist an engineer with the physical staking and design of dozens of projects out in the field. After they gained some experience, they were often sent in the field as a team to locate existing facilities and design the new lines on their own. After the design is complete, they would collect measurements with a Trimble GPS that we pair with our ESRI based GIS software back in the office. At this point our students assist in the drafting of work orders and maintaining our system map so it reflects the new construction. They also have the primary responsibility of closing work orders and developing material lists for the crews while upholding the requirements of the National Electrical Safety Code (NESC). They update our digital records to keep our crews up to date and as safe and efficient as possible. All of this work continues through the construction season and we are lucky enough to keep both of our students on part time through the fall and spring semesters. Charles and Evan have developed into critical assets to our engineering team.



## Meet the researcher



**Giancarlo Lopez-Martinez Ph.D. - Assistant Professor of Biological Sciences  
at North Dakota State University**

**What are your primary research and scholarly interests?**

I'm interested in how environmental exposures affects animals across multiple timescales (short-term, long-term, transgenerationally). My lab focuses on whether this effect is at the molecular, tissues, and/or organismal level and we primarily work with insects. We study the positive

(hormesis) and negative (stress) effects of many common factors (temperature, oxygen, radiation, dehydration, heavy metals, etc).

**How does this tie into the work you are doing with ND-ACES? (Please include reference to your primary Pillar/Element.)**

As the lead of Broadening Participation my research does not directly tie into my work in ND-ACES, but as a professor I do a fair amount of work towards broadening participation of underrepresented groups in science.

**Where are you from and where did you pursue your education?**

I was born and raised in San Juan, Puerto Rico and after graduating high school I moved to Ohio for my education. My multiple bachelor's degree, my Masters, and my PhD were all earned at the Ohio State University. All four in different fields: Animal sciences, EEOB, Acarology, and Insect molecular physiology.

**What excites you about ND EPSCoR?**

The opportunity to reach students across North Dakota that have historically been underrepresented in our universities and in science. As well as making science more available to a wider audience.

**What motivates you?**

Three things motivate me above anything else. 1st my children motivate me to work hard and be better every day. 2nd getting things done and moving forward while only looking back for inspiration on how to change the future. And lastly, baked goods. So when my children bake treats for me, the sky is the limit!

**If you could time travel, where would you go?**

I would go back home to Puerto Rico somewhere around 1492. I would happily stand with my ancestors to resist the colonizers and their ensuing genocide of my people.

**If you could have coffee / tea with anyone, who would it be?**

If I am lucky, I will be able to have hot chocolate weekly with my kids for a very long time.

**What was your first job?**

I worked for Physical Facilities at Ohio State doing landscaping and irrigation on campus.

**What does your very best day include?**

Baked goods, hot chocolate, low temperatures and snow, my kids, my wife, and a very complicated Lego set (or two).

**What's your favorite quote?**

"Failure has a thousand explanations. Success doesn't need one" -Sir Alec Guinness



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## Funding opportunities

### DHHS

- [Cancer Tissue Engineering Collaborative: Enabling Biomimetic Tissue-Engineered Technologies for Cancer Research](#)
- [R21, R01 Basic Research in Cancer Health Disparities](#)
- [Innovative Research in Cancer Nanotechnology](#)
- [Cancer Research Education Grants Program - Research Experiences](#)

### DOD

- [Defense Sciences Office \(DSO\) Office-wide BAA \(DARPA\)](#)

### DHS

- [Fiscal Year \(FY\) 2023 Tribal Cybersecurity Grant Program](#)

### NSF

- [Enabling Partnerships to Increase Innovation Capacity](#)
- [Research on Innovative Technologies for Enhanced Learning](#)
- [Ideas Lab: Personalized Engineering Learning](#)

### Other

- [National Artificial Intelligence Research Institutes](#)  
Supports the development of new AI Institutes that focus on one of the following themes: astronomical sciences, materials research and new methods for strengthening AI.

#### **Preliminary proposal deadlines**

October 31, 2023 (Group 1 themes) and January 12, 2024 (Group 2 themes).

#### **Full proposal deadlines**

February 16, 2024 (Group 1 themes) and May 17, 2024 (Group 2 themes).

- [Ethical and Responsible Research \(ER2\)](#)  
Supports research on what constitutes and promotes responsible research conduct and how to instill that knowledge in researchers, practitioners and educators across all career stages.  
**Full proposal deadline**  
January 25, 2024.

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## ND EPSCoR wants to hear your news

Given the opportunity to communicate with both the public and internally within our own program, the ND EPSCoR team invites you to provide content that can be used in stories, social media, press releases, and ND EPSCoR News and Notes.

Send us your news, events, accomplishments and most importantly, your BRIGHT SPOTS!

[Submit a story>>](#)

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Have questions, ideas, or suggestions for News and Notes?



[We are now on LinkedIn](#)

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*Acknowledgement*

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