

## Spring renewal

We are at the end of the spring semester, and summer will be here soon. Spring is often a time of renewal and expectation, and that is also true for ND EPSCoR.

Schedules can be frantic, especially during the academic year. We often feel a sense of urgency about work, coupled with a feeling of falling behind. I hope there will be plenty of moments for each of you to enjoy warmer weather and activities we missed last summer due to the pandemic. Now is the time to take advantage of a much-needed period of renewal.

The break following the end of the spring semester is a chance for needed reflection – a time for renewal after a challenging yet productive year. The stress of the global pandemic makes it even more imperative to renew our attention to the opportunities around us.

There are many benefits to a period of pensive reflection after the conclusion of the school year. Getting outdoors and embracing the warmth of the seasonal changes is one way to lower stress, envision new ideas, and embark on new projects. Summer is a natural time for us to reflect on our sense of balance and look ahead to what is in store for our lives for the 2021-2022 academic year.

As the spring semester closes, please join me in recognizing the achievements of our recent graduates as they extend their academic time by attending graduate school or leave academic life to begin a career. Our graduating student researchers are listed [on page 8 of this issue](#). Summer also provides a fantastic opportunity for faculty to switch focus from teaching to research efforts. Yet, perhaps one of the most important elements of renewal is the time we take to reflect and plan for the future seasons of life.

Renewal also comes to other ND EPSCoR programs and provides the insights needed for innovation. In the [April issue of News and Notes](#), we talked about the wide variety of Nurturing American Tribal Undergraduate Research and Education (NATURE) programing being offered this summer. The NATURE

program is a North Dakota EPSCoR State Office-sponsored education outreach project. NATURE aims to improve STEM education among middle school, high school, and tribal college students and build a pathway for American Indians living in North Dakota interested in pursuing careers in STEM disciplines.

NATURE builds on a long-term collaboration between tribal colleges in North Dakota, North Dakota State University, and the University of North Dakota. NATURE programs are currently funded by the State of North Dakota and the National Science Foundation EPSCoR Track-1 Cooperative Agreement OIA #1946202.

This year's University Summer Camp will again consist of virtual lab tours, zoom meetings with NDSU and UND faculty, a cyberinfrastructure activity, and online research projects. In its third year, the virtual Bridge Camp for seniors graduating this May offers a variety of STEM projects for students as they prepare for college. The TCU Summer Camps will be conducted in a hybrid format by TCU faculty and K-12 instructors from tribal communities.

Another celebration of research and outreach this season occurred at the virtual ND EPSCoR Annual Conference in April. This year's conference communicated the impact of the research of ND EPSCoR's two NSF cooperative agreements (INSPIRE-ND and ND-ACES) and their extensive outreach efforts. The event also highlighted the importance of these collaborative efforts on the state's economy and STEM workforce development. If you could not join us live on April 14, we invite you to register for the event to view the recorded content on our [Symposium event page](#).

As we complete another academic year, the impact for our students are making across our state is significant. I hope that you are, and will continue to be, well.

Regards,  
**Kelly A. Rusch**, Ph.D., P.E., BCEE  
ND EPSCoR Executive Director

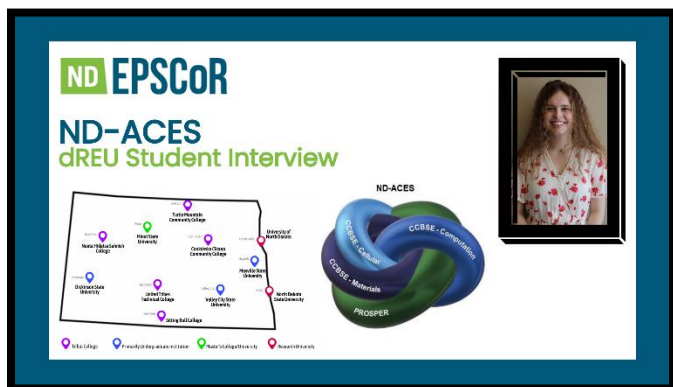


## Meet the Students video series

Students across North Dakota participate in ND EPSCoR events, programs, outreach, and research. ND EPSCoR encompasses programs that reach across the state, seeking to fulfill our mission of increasing North Dakota's competitiveness for merit-based grants supporting STEM research. In addition to research efforts, ND EPSCoR supports efforts to broaden the STEM pathway to increase ND's STEM workforce.

ND EPSCoR thanks **Archana Dhasarathy** (UND), **Lu Liu** (NDSU), and **Sanku Mallik** (NDSU), all ND-ACES researchers, for allowing our cameras to capture the impact of their ND-ACES research on their students. You can learn more about the Materials Design at Biointerfaces pillar, of which Mallik is the NDSU Lead, in our [August issue of News & Notes](#). You can read more about the Computation, Machine Learning, and Predictive Modeling Pillar, of which Liu is a researcher, in our [October Issue of News & Notes](#). Dhasarathy is the UND Lead of the Cellular Systems at Materials Interface Pillar, and you can read about that work in our [September Issue of News and Notes](#).

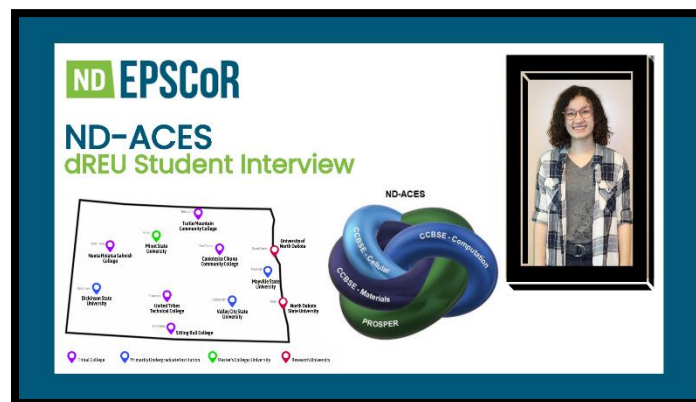
A research experience can make all the difference to a student and help them reach their academic and career goals. **Madison Koppelman** (NDSU), a current ND EPSCoR ND-ACES Distributed Research Experience for Undergraduates (dREU) awardee, discusses in the video linked below, the importance of research experiences for undergraduate students and reflects on the positive impacts of working closely with faculty researchers. Koppelman is a pharmaceutical sciences major and a student researcher in Mallik's lab.



The dREU program gives undergraduates from PUIs, TCUs, the MCU, and RUs the opportunity to work in the CCBSE, CRCS, or the CSMS alongside faculty on their cutting-edge research projects. The dREU program is coordinated by **Shireen Alemadi**, ND EPSCoR STEM

Manager. You can learn more about the ND EPSCoR ND-ACES dREU program [on page 7 of this issue](#).

Meet **Megan Heeren** (NDSU), an undergraduate researcher working with Liu at North Dakota State University, in the video linked below. Heeren is majoring in computer science. She is also an ND-ACES dREU awardee.



Watch **Ansley Schug** (NDSU; advisor: **Lu Liu**) explain the benefits of her area of study in the video linked below. Schug is graduating with a degree in computer science this month and has accepted a job offer; she is also an ND EPSCoR ND-ACES dREU awardee.



In the video linked on the following page, listen to **Carson Herbert** (UND) discuss the importance of a lab experience for undergraduate students to prepare for a STEM career. Herbert is an ND EPSCoR ND-ACES Undergraduate Research Assistantship awardee working with Archana Dhasarathy at the University of North Dakota. Under ND-ACES, the Undergraduate Research Assistantship program gives junior and senior undergraduate students - from the nine ND EPSCoR ND-ACES CCBSE participating campuses, the opportunity to

complete a STEM bachelor's degree while working in the center alongside NSF Track-1 faculty researchers.

After gaining experience through his student research on ND-ACES, Herbert received a Summer Undergraduate Research Fellowship, an eight-week program for students from underrepresented groups in the Biomedical Sciences from the University of California, San Diego.



You can find more information about how the ND EPSCoR State Office seeks to help improve STEM education and to build a pathway for students in North Dakota who are interested in pursuing careers in STEM disciplines on our [Education page](#). [Subscribe to our channel on YouTube](#) as we continue to feature the voices of student researchers across North Dakota.

## Meet the ND-ACES Researchers video series

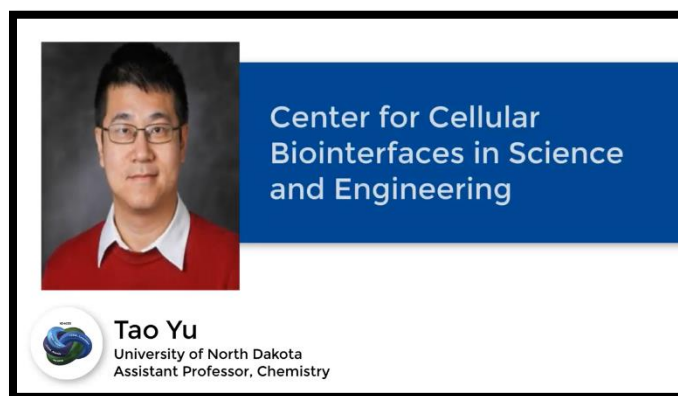
ND EPSCoR thanks ND-ACES Cellular Systems at Materials Interface Pillar UND lead **Archana Dhasarathy** (UND), Computation, Machine Learning, and Predictive Modeling Pillar UND lead **Tao Yu** (UND), and PROSPER Education and Workforce Development researcher **Ryan Summers** (UND) for allowing our cameras to capture their research and outreach efforts. These ND-ACES researchers talk with ND EPSCoR about teaching, research, and STEM outreach across ND.

In the video (linked in the next column), Summers, an Assistant Professor of Teaching & Leadership at the University of North Dakota, discusses the importance of the ND-ACES PROSPER Education and Workforce Development element activities and outreach efforts and the resulting impact on students in ND.

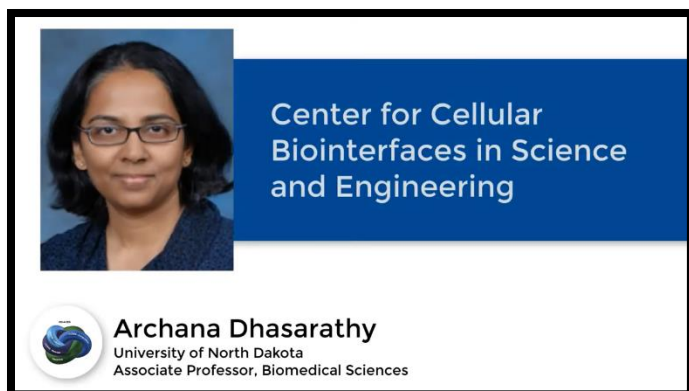


You can learn more about the Education and Workforce Development PROSPER element in our [July issue of News & Notes](#).

In the video (linked in the picture below), Yu, an Assistant Professor of Chemistry at the University of North Dakota, discusses the importance of the ND-ACES research within the Computation, Machine Learning, and Predictive Modeling Pillar and the resulting impact on students across ND.



In the video (linked on the following page), Dhasarathy, an Associate Professor of Biomedical Sciences at the University of North Dakota, discusses the importance of the ND-ACES research within the Cellular Systems at Materials Interface Pillar and the resulting impact on the students in her lab.



You can find details and videos of our earlier visit to Dickinson State University in News & Notes' [November issue](#). Videos from our prior visits to North Dakota State University and the University of North Dakota can be found in News & Notes' [December issue](#). Videos from our visits to Mayville State University and Minot State University can be found in News & Notes' [January issue](#). [Subscribe to our channel on YouTube](#) as we continue to feature ND-ACES researchers at participating institutions across North Dakota.

## ND-ACES Emerging Seed Awardees reflect on their projects

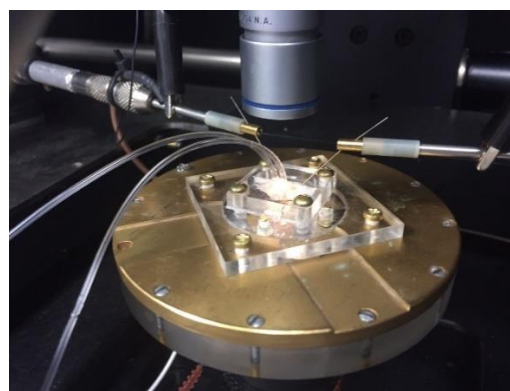
Under ND-ACES, funds to support spin-off and emerging research that expand the reach and capacity of ND-ACES and increase the opportunity for sustainability are provided each year to faculty (particularly early career, TCU, PUI, or MCU) in the form of seed awards that focus on high-risk, high-impact emerging areas or gaps in the current biosciences research that will also be linked to PROMoting Sustainable Partnerships in Education and Research (PROSPER) activities. Awards may range from a few months to one year. Faculty receiving awards are incorporated into CCBSE and encouraged to participate in the programmatic efforts of PROSPER.

**Yongki Choi** (NDSU), Associate Professor of Physics, joined the CCBSE Material Design Pillar. His project is "Nanosensing of Cancer Biomarkers Associated with Metastatic Propensity." The goal of Choi's project is to develop a new platform for the early detection of cancer. Choi hopes to detect the spread of cancer using small electronic devices. "Our lab is focusing on the interface between physical science, cancer biology, and technology," said Choi.

According to Choi (pictured right), this research is important because often there are no symptoms in the early stages of cancer, and current imaging technology cannot capture the early stages of cancer in patients. Choi is working to detect the small molecules made by cancer cells in a patient's blood to combat this problem and hopes to create a device to detect these cancer biomarkers. "We use a very, very small electronic device because they are extremely sensitive." Choi added, "So in that way, our final goal is that just using a drop of blood, this small device will tell you if you have early-stage cancer or not."



In addition to early detection, Choi's research aims to understand how biomarkers can indicate different stages of cancer progression. "So we're working on not only detection, but also on understanding the time of cancers. According to the stage, some cancers give different signals, like the first stage, second stage, and third. The stage and also their aggressiveness or spread. Using the small electronic device and the blood to determine that – that's the dream of ours," said Choi.



*Work on the nanoscale electronic sensor is shown above.*

With his ND-ACES Emerging Areas Seed Award, Choi has purchased several cell lines and chemicals and will be extracting the biomarker proteins and collecting preliminary data. Choi noted, "This grant was used to build an instrument in our lab that really helped fabricate a better, high-quality device."

The ND-ACES project, for Choi, is some of the most interdisciplinary research he has encountered. Choi, a physicist, collaborates with biologists, pharmaceutical scientists, engineers, and chemists. "I like to say to people that you need to have an open mind. There are multiple ways and tools that you need to develop to be

really innovative and imagine something new. You should open up and work with many other people, not just yourself. You need to accept different views and comments."

**Michael Kjelland** (Mayville State; pictured right), Assistant Professor of Biology, also joined the CCBSE Materials Design at Biointerfaces Pillar. His project is "3D Bioprinting Using Porcine Collagen Matrix Scaffolding for 3D Pancreatic Cancer and Mesenchymal Stem Cell Culture, Treatment/Differentiation, and Cryopreservation."



"We're trying to mimic the *in-vivo* tumor environment, so that's where the 3D matrix comes in, so that the tumor can actually grow in three dimensions," explained Kjelland. "Cancer affects a lot of people. If we can have a more realistic culture system where we can perform research or experiments with different cancer types and if you can have the right bioreactor that mimics the human body better, that's great. If you can do it in three dimensions to better replicate cancer spread within the body, instead of a two-dimensional space, that's wonderful."

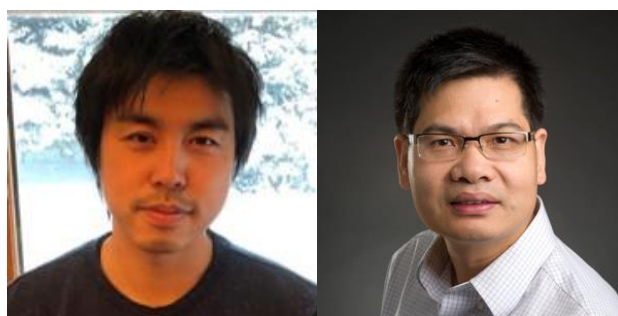
As a component of his ND-ACES Seed Award Project, Kjelland and his undergraduate student researchers are bioprinting with bio-ink and cells and applying different treatments once the cells grow in the 3D matrix. According to Kjelland, faculty members at Mayville State University also recently received an ND EPSCoR State Office equipment grant for a multigas (trigas) incubator that can be used for many aspects of cell culture research. "It's basically a multi-use incubator, for these and other potential research opportunities that might be coming in the near future."



Students at Mayville State University conduct research in the cell culture and bioimaging laboratory.

Faculty researchers at Mayville State have several student researchers participating in the ND-ACES project. "Over the past three years, we've been able to put together the Integrated Cell Culture and Bio-imaging Laboratory at Mayville State University, which we didn't have before," noted Kjelland. "The students are getting opportunities that I never had as an undergraduate student."

**Motoki Takaku** (UND; pictured below, left), Assistant Professor of Biomedical Sciences, joined the CCBSE Cellular Systems Pillar, and **Xusheng Wang** (UND; pictured below, right), Assistant Professor of Biology, joined the Computational Approaches Pillar. Their project is "Early Cancer Detection by Cell-free Chromatin and Machine Learning."



Takaku and Wang are working together to improve the predictive accuracy of cancer diagnosis by discovering new DNA fragment patterns by analyzing patient samples. Their project will analyze DNAs floating in blood (so called cell free DNAs) that are released from cancerous tissues and then develop a prediction system using machine learning algorithms. "By testing different AI (artificial intelligence) algorithms, we can figure out what's the best algorithm for the prediction. Once we get the genetic and epigenomic data from cell free DNAs with pancreatic cancer and healthy control individuals, and we can project the data to our AI model and test how accurately we can predict cancer patients," noted Wang. With their Emerging Seed grant, the two researchers hope to develop a new AI model that can be potentially used to guide pancreatic cancer treatment.

According to Takaku, developing a machine learning-based model to improve cancer diagnosis fits well with the emerging areas of ND-ACES CCBSE, "We have a strong collaboration between basic scientists, computational scientists, and clinicians so that we can expand our capabilities and analysis and make a prediction." With this project, Takaku and Wang also want to establish a new machine learning modeling

method to evaluate and improve the efficiency and reliability of the ND-ACES computational efforts.

"By using computational tools, we hope we can detect or identify cancer patients at a very early stage," said Takaku. "The AI technology is a future direction," added Wang.

**Ravi Yellavajjala** (NDSU; pictured right), Assistant Professor of Civil and Environmental Engineering, joined the Computational Approaches Pillar. His project is "A Complex-step Decoder for Interpreting Cancer Cell Growth Images."



Yellavajjala was featured in the [April issue of News & Notes](#). His Emerging Areas Seed Award Project uses the same artificial intelligence as his NSF CAREER Award Project. "I pursue science, and science will have a lot of applications in different areas and rightly so. In the end, this project is about artificial intelligence and how images that are obtained from the lab are interpreted, but the exact same AI, which I'm going to use for cancer applications is equally applicable for my project. So the underlying science is exactly the same."

You can find more details about ND-ACES, ND EPSCoR's most recent NSF cooperative agreement, on the [Track-1: ND-ACES page](#). You can also watch in-depth interviews with student and faculty researchers on our [YouTube channel](#).

## Congratulations to the ND EPSCoR STTAR interns

This year, the highest number of companies (12) since 2013, have hired interns as part of the Students in Technology Transfer and Research (STTAR) program. The STTAR program provides juniors through graduate students, who are majoring in STEM disciplines, with opportunities to use their academic training and experiences to address Science and Technology-based problems faced by ND companies. A total of 23 students will be part of the STTAR program this year, which is also the highest since 2013. The STTAR program internships will run for a minimum of eight weeks during summer 2021. The



STTAR program is a partnerships between ND EPSCoR and the company, cost-sharing the interns' salaries.

Congratulations to the following ND-based organizations and the student interns for their commitment to STEM in ND:

- **Airtonomy** – Grand Forks
  - **Ahmed Elsharti** (UND)
  - **Ramtin Kardan** (UND)
- **ComDel Innovation** – Wahpeton
  - **Alex Munchow** (NDSU)
  - **Jakob Sailer** (NDSU)
- **Ellingson Companies** – Harwood
  - **Brenden VanWechel** (NDSU)
  - **Emily Nelson** (NDSU)
- **F4 Conservation** – Manvel
  - **Amalie Joergensen** (UND)
  - **Lindsey Kallis** (UND)
- **Interstate Engineering** – Jamestown
  - **Alexandra Speidel** (NDSCS)
  - **Brayden Wahl** (NDSCS)
  - **Lindsay Hagerty** (NDSU)
- **Marvin** – Fargo
  - **Jackson Somsen** (NDSU)
  - **Zach Kuhn** (NDSU)
- **Mayo Construction** – Cavalier
  - **Michael Miller** (NDSCS)
- **Mobile Recon Systems** – Grand Forks
  - **Garrett Tjernagel** (UND)
  - **Jack Vetsch** (UND)
  - **Michael Turnbull** (UND)
- **Nodak Electric** – Grand Forks
  - **Branson Elliott** (UND)
  - **Tyler Workman** (UND)
- **Renuvix** – Fargo
  - **Avery Jorgensen** (NDSU)
  - **Zane Hensel** (NDSU)
- **Rugby Manufacturing** – Rugby
  - **Noah Kraft** (University of Mary)
- **WCCO Belting** – Wahpeton
  - **Gabriel Lothspeich** (NDSU)

## Spring dREU recap

By **Shireen Alemadi**, ND EPSCoR STEM Manager and dREU Coordinator (right)



The start of 2021 brought the beginning of the ND-ACES distributed Research Experience for Undergraduates (dREU). The first cohort was made up of five students; two from Mayville State University and three from North Dakota State University. These students are working with senior personnel on the ND EPSCoR Track-1 cooperative agreement: New Discoveries in the Advanced Interface of Computation, Engineering, and Science (ND-ACES), while conducting their various research projects listed below:

- **Hayle Boechler** (Mayville State), advisors: **Khwaja Hossain** (Mayville State) and **Mohi Quadir** (NDSU); Polymeric Scaffold with Wheat Bran Arabinoxylan for Tissue Engineering
- **Megan Heeren** (NDSU), advisor: **Lu Liu** (NDSU); Breast Cancer Image Classification with Deep Learning
- **Madison Koppelman** (NDSU), advisor: **Sanku Mallik** (NDSU); Synergistic effects of All-trans Retinoic Acid (ATRA) on Triple Negative Breast Cancer Cells
- **Ansley Schug** (NDSU), advisor: **Lu Liu** (NDSU); Breast Cancer Image Analysis with Autoencoder
- **Taylor Stegman** (Mayville State), advisor: **Khwaja Hossain** (Mayville State); The Effects of Arabinoxylan on Gut Flora Immunity

Throughout the dREU, students worked on their research projects and met weekly with dREU Coordinator Shireen Alemadi to engage in various professional development activities. "I have learned how to operate different kinds of lab equipment as well as learning different professional skills through the dREU program," said Hayle Boechler. Ansley Schug noted, "This experience has impacted my college career by allowing me to gain valuable research experience that I will use after graduation. It has allowed me to gain valuable knowledge that is not taught in class, so it was great to put those skills to the test."

Working on a research project as an undergraduate is not an experience that all students have the opportunity to do. For those in the dREU program, it helped to expand their knowledge. "This has increased my interest in science by allowing me to develop a deeper appreciation and understanding of the behind the scenes work I hadn't previously considered," said Taylor Stegman. Another dREU student, Megan Heeren, said, "I've learned more about how research and machine learning work, the basics of the programming language Python, and perseverance."

ND-ACES Track-1 researchers know that having students in the lab is an integral part of the research process. Hossain said, "Sharing and disseminating knowledge and moving research forward" was one of the benefits of having students in the lab. Mallik noted benefits such as the "free exchange of scientific and research ideas" and "collective brainstorming to solve research problems" as benefits to having students in the lab. Often undergraduate students who participate in research can learn "cutting-edge technologies that are not covered in undergraduate courses," added Liu.

Student researcher Ansley Schug noted, "Being in a research setting, I have learned that it is okay to fail. Research is about having an idea and trying it out – if it doesn't work like you hoped it would, learn from it and try again." The perseverance and joy of learning required for scientific discovery are evident in all the dREU students in this first ND-ACES dREU cohort.

"From this experience, I have become interested in cancer research and will continue to work in the laboratory to build on my skills and knowledge gained from this project," said Madison Koppelman.

For information on the current dREU request for applications, visit our [Funding Opportunities for Students page](#). [Contact Shireen Alemadi](#), dREU program coordinator, with any questions.

## CIRCLES Alliance survey and interview opportunities

The ND EPSCoR State Office has joined with five other EPSCoR states (Idaho, Montana, New Mexico, South Dakota, and Wyoming) in a National Science Foundation-funded collaborative research project that forms an Alliance to connect with tribal community members within those states to gain a better understanding of each community's definition and perspective of STEM (science, technology, engineering, and mathematics). Initially, Alliance members planned

to visit each tribal community, but with COVID-19 continuing, the Alliance has decided to make virtual connections. Using a common set of questions across the six-state CIRCLES (Cultivating Indigenous Research Communities for Leadership in Education and STEM) Alliance, participants input is being gathered through virtual interviews over Zoom or through an online survey with tribal community stakeholders to gain their perspective on how indigenous based STEM education is currently being incorporated or might be incorporated in the future, to support student STEM learning. To participate in an interview or survey, you must be 18 years or older.

The ND EPSCoR State Office has created a [link to a 90-second video](#) that describes these efforts. The anonymous online survey is [available at this link](#). Additionally, ND EPSCoR is conducting individual virtual interviews. If you would prefer to participate in an individual interview, please [email Scott Hanson](#), ND EPSCoR Tribal Colleges/Universities Liaison Manager, or call 701-231-8606.

This effort aims to foster better connections with tribal communities and support STEM educational programming. Working toward that goal, the ND EPSCoR State Office humbly requests your assistance in completing this survey or contacting us to set up a virtual interview. The CIRCLES Alliance believes this is a particularly poignant time to reflect on observations regarding indigenous based STEM education the COVID-19 pandemic has brought some new challenges into focus. [Learn more about the North Dakota CIRCLES effort here](#).

## Events and trainings

### Responsible Conduct of Research (RCR)

RCR training with STEM Manager **Shireen Alemadi** is available upon request to augment initial campus or Collaborative Institutional Training Initiative (CITI) RCR trainings. Please [contact Shireen Alemadi](#) to schedule.

## Activities of note

### Co-Coordinator of NATURE Sunday Academy wins award

Congratulations to **Julia Bowsher** (NDSU) on receiving the Waldron Research Award. This award recognizes outstanding faculty members at North Dakota State University who make contributions to research and scholarship. Bowsher is also the PI on a

NSF EPSCoR RII Track-2 award: *Insect Cryobiology and Ecophysiology (ICE) Network: Integrating Genomics, Physiology, and Modeling*. Congratulations Julia!

## ND-ACES makes dREU awards to participating institutions

Distributed Research Experience for Undergraduates (dREU) awards tied to the RII Track-1 ND-ACES project were made to students for summer 2021. Student awards are designed to build ND's STEM workforce, particularly within underrepresented and underserved groups. Congratulations to the following student awardees:

- **Ethan Wells**, NHSC (ND-ACES CCBSE Computational Approaches Advisor: **Trung B. Le**, Civil and Environmental Engineering, NDSU)
- **Madisen Knudsvig**, Mayville State (ND-ACES CCBSE Materials Design Advisor: **Khwaja Hossain**, Biology, Mayville State)

## Congratulations to ND-ACES and INSPIRE-ND Spring 2021 graduates

Congratulations to the following **ND-ACES and INSPIRE-ND student participants** on their graduation in Spring 2021:

### Undergraduate students

- **Lexi Carpenter** (Mayville State)
- **Jevin Jensen** (UND)
- **Luke Kieffer** (NDSU)
- **Frida Garcia Kjelland** (Mayville State)
- **Marvellous Ngongang** (NDSU)
- **Creighton Pfau** (Mayville State)
- **Jake Reinholz** (NDSU)
- **Ansley Schug** (NDSU)
- **Brad Traver** (UND)
- **Quinton Vonesh** (VCSU)

### Graduate Students

- **Babak Mamnoon** (NDSU)

Thank you for your contribution to the INSPIRE-ND and ND-ACES ND EPSCoR Research Infrastructure Improvement (RII) Track-1 awards.



## Funding opportunities

### Distributed Research Experience for Undergraduates (dREU)

This ND EPSCoR ND-ACES program gives undergraduate students – from the nine participating campuses - three Primarily Undergraduate Institutions (PUIs), one Master's College/University (MCU), three Tribal Colleges/Universities (TCUs) located in ND, or the two Research Universities (RUs) – the opportunity to work in the CCBSE alongside NSF Track-1 faculty researchers on their cutting-edge research projects. For more information, see the [Request for Applications](#). Please be aware of the following application deadlines:

- Academic Year 2021 Application Deadline:  
Noon, July 29, 2021
- Full Year 2021 – 2022 Application Deadline:  
Noon, July 29, 2021

### Doctoral STEM Teaching Assistantship ND-ACES (NDSU/UND only)

ND EPSCoR ND-ACES Doctoral STEM Teaching Assistantship program is designed to increase NDSU/UND doctoral students' understanding of and experience in STEM teaching and research involving undergraduate students. These semester-long placements (Fall 2021 or Spring 2022) at a Tribal College/University (TCU), Primarily Undergraduate Institution (PUI), or Master's College/University (MCU) in North Dakota involve teaching and research duties under the direction of faculty research participants in ND EPSCoR's National Science Foundation (NSF)-funded New Discoveries in the Advanced Interface of Computation, Engineering, and Science (ND-ACES) project in the areas of materials design, cellular systems, or computational approaches. [Click here](#) for more information about ND EPSCoR's ND-ACES project. [Click here](#) for a list of ND-ACES faculty researchers at the TCUs, PUIs, and MCU. For more information, see the [Request For Applications](#). Please be aware of the following application deadlines:

- Fall 2021 Application Deadline: Noon, July 15, 2021
- Spring 2021 – 2022 Application Deadline: Noon, July 29, 2021

### DEPSCoR Regional DoD Day

The Department of Defense (DoD) has asked the University of South Dakota to host a regional DEPSCoR DoD Day, where DoD program managers will provide information about the DEPSCoR program and general information about working with the DoD. The

regional DEPSCoR Day will be held on a date to be determined in Vermillion, SD. For more information, please see: [DEPSCoR Regional DoD Day](#)

### EPSCoR Workshop Opportunities

EPSCoR is designed to fulfill NSF's mandate to promote scientific progress nationwide, and NSF EPSCoR welcomes proposals for workshops in Solicitation NSF 19-588. These workshops focus on multi-jurisdictional efforts of regional to national importance related to EPSCoR's goals and NSF's mission. For more information, please see the RFP: [EPSCoR Workshop Opportunities](#)

## Acronyms

Participating Institutions:

- Master's College/University (MCU)
  - Minot State – Minot State University
- Primarily Undergraduate Institutions (PUIs)
  - DSU – Dickinson State University
  - Mayville State – Mayville State University
  - VCSU – Valley City State University
- Research Universities (RUs)
  - NDSU – North Dakota State University
  - UND – University of North Dakota
- Tribal Colleges/Universities (TCUs)
  - CCCC – Cankdeska Cikana Community College
  - NHSC – Nueta Hidatsa Sahnish College
  - SBC – Sitting Bull College
  - TMCC – Turtle Mountain Community College
  - UTTC – United Tribes Technical College

Funding:

- National Science Foundation (NSF) EPSCoR Research Infrastructure Improvement (RII) Track-1 Collaborative Agreements
  - ND-ACES – New Discoveries in the Advanced Interface of Computation, Engineering, and Science (NSF OIA #1946202) and
  - INSPIRE-ND – Innovative and Strategic Program Initiatives for Research and Education-North Dakota (NSF OIA #1355466)

- NSF Collaborative Research
  - CIRCLES Alliance - Cultivating Indigenous Research Communities for Leadership in Education and STEM Alliance (NSF OIA #2038196)
- ND EPSCoR State Office
  - STEM programing identified within the newsletter and state match funding for ND-ACES and INSPIRE-ND

## **Acknowledgement**

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

## **Stay in touch**

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