

New beginnings

With a new beginning, there is often a sense of excitement. At ND EPSCoR, we share the enthusiasm for the start of ND-ACES (New Discoveries in the Advanced Interface of Computation, Engineering, and Science), and the seventh year of INSPIRE-ND (Innovative and Strategic Program Initiatives for Research and Education-North Dakota). We look forward to communicating the new opportunities we will explore and work to sustain with ND.

We want to offer our many congratulations to the members of the ND-ACES team as we embarked on a new cooperative agreement that began on July 1. For many researchers, one of the most exciting things to do is kick off a new project. The long-term goal is for the discoveries to inform the development of technologies and therapies that better address the treatment of metastasized cancer.

The research alone does not complete the picture. This new beginning brings together researchers, staff, and students with complementary strengths and areas of expertise. Like INSPIRE-ND, the ND-ACES project allows for increased capacity and competitiveness throughout the jurisdiction through numerous programs and activities to build faculty expertise and broaden the STEM pathway in ND.

New beginnings mark a time for us to develop a team identity and refine our collaborative skills as we dive deeper into our commitment to a Team Science approach. The research, education, and outreach potential of the ND-ACES team across ND is impressive. Each institution, from primarily undergraduate (PUI) to master's college/university (MCU), tribal colleges and universities (TCU), or research university (RU), has a unique mission. This award will help support the progress of each campus; thereby contributing to the growth of the entire higher education enterprise in the state.

Every NSF (National Science Foundation) EPSCoR Research Improvement Infrastructure (RII) Track-1 Cooperative Agreement starts with the development of a strategic plan. Last month, we held a productive two-and-a-half-day strategic planning session. The Strategic Plan will serve as a project roadmap. It provides the framework for the ND-ACES scope, pledges to specific goals and purposes, and describes the activities that will take place to realize them.

One of the most remarkable components of this new beginning will be the level of student engagement. In programs like Nurturing American Tribal Undergraduate Research and Education (NATURE), many students recognize that their research experience has changed their career focus or broadened their viewpoint.

As we enter the first year of ND-ACES and the seventh year of INSPIRE-ND, we applaud the work done by the faculty and researchers at all ND EPSCoR participating institutions. The growth of and impact on the students participating in world-class research and the ongoing benefit to our state's economic vitality make us all proud.

Beginning a new Track-1 Cooperative Agreement is an exciting time to assess new opportunities for growth and inspiration, and ND EPSCoR will continue collaborative efforts with researchers and students across ND. We are elated to be a part of these vital research efforts as we provide resources for students and faculty and support the STEM pathway that will grow our state's economy.

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



New research from CRCS

The Center for Regional Climate Studies (CRCS) has two new research studies almost ready for publication. **David Roberts**, an Associate Professor of Agribusiness and Applied Economics at North Dakota State University (NDSU), researches the impacts of agricultural production methods on the environment and natural resources and supervises graduate student researchers funded by the CRCS to conduct research in this area.

Roberts and his graduate students study the economics of agricultural land-use change in ND, including the effects of climate and weather on crop selection decisions throughout the state. The swift conversion from small grains-based agriculture to corn-soy rotations since the mid-1990s makes ND an ideal location for investigating how climate conditions have interacted with market forces to impact farming practices.

Robert's former graduate student, **Bayarbat Badarch** (NDSU), who recently graduated and finished his Ph.D. in Natural Resource Management, completed his dissertation. His CRCS-related study, which has implications for how ND farmers might manage their crop inputs in the future, developed a model to predict how the maximum potential yield for corn will change in North Dakota.

"The yield frontier is the maximum potential yield, the best yield that is possible for farmers. Typically the yield frontier is not reached because the biggest factor that affects how yield varies from one year to the next is the weather," said Roberts. "Responding to the weather appropriately by changing input levels could potentially make farmers more money, but what we don't have at an accurate scale and level [to incorporate into this model] right now is a seasonal weather forecast that could help farmers know in advance what the rainfall and temperature levels will be like, other than their personal knowledge of what history has been like at each field site."

Roberts explains that this model will help farmers who have fields located throughout the state, especially if the locations are from north to south. "They will see different available planting dates according to when the thaw occurs and how hot the temperatures get," he said. "The length of the growing season has increased by 14 days in the last 100 years in North Dakota." According to Roberts, this has implications not only for the yield that can be attained but also what varieties of crops can be planted. Additionally, this research could be used to help develop a sound seasonal forecast for

temperatures and rainfall, allowing farmers to manage their inputs more efficiently.

A second CRCS research study was completed by Robert's graduate student **Eugene Nuworsu** (NDSU). The study details how land cover, especially the rapid change in the amount of corn planted in ND from the early 1990s to the present, may have affected temperatures and rainfall amounts in ND at different points during the growing season.

"We modeled each month from June through September based on the average temperature, how does that average temperature and amount of rainfall affect corn yield and then, through a feedback loop, how does that total amount of corn planted affect the temperatures and precipitation in turn?" Roberts explained. "What we found was that there were statistically significant impacts of the total acreage of corn on the temperatures, and while those changes are relatively small, they are certainly statistically discernable. They are not negligible, especially over the long term, as the acreages of corn [planted within ND] have changed very rapidly."

While the research is getting ready to be published soon, Roberts is looking forward to building on the two studies, "I'm going to expand the research into the feedback loops to include the influence of corn on more weather variables."

Increasing knowledge of biomaterial scaffolds: The ND-ACES Materials Design Pillar

Working collaboratively within the Center for Cellular Biointerfaces in Science and Engineering (CCBSE), the ND-ACES Materials Design Pillar researchers will be working alongside the Computational Approaches and Cellular Systems Pillars to garner an improved interdisciplinary understanding of biological and engineered materials biointerfaces.



Materials Pillar

The Materials Design at Biointerfaces Pillar is co-led by **Sanku Mallik** (NDSU) and **Julia Zhao** (UND). Team members include **Austin Allard** (TMCC), **Mikhail Bobylev** (Minot State), **Guodong Du** (UND), **Khwaja Hossain** (Mayville State), **Kalpna Katti** (NDSU), **Mike**

Parker (CCCC), **Mohi Quadir** (NDSU), **Brent Voels** (CCCC), and **Wenjie Xia** (NDSU).



The Materials Design Pillar comprises, from left to right, (top row) Sanku Mallik, Julia Zhao, Austin Allard, Mikhail Bobylev, and Guodong Du, (row two) Khwaja Hossain, Kalpana Katti, Mike Parker, Mohi Quadir, Wenjie Xia, and not pictured, Brent Voels.

Zhao and Mallik both agree that they are most enthusiastic about the collaborative nature of the ND-ACES project. "The strength is in the team science. The Materials Pillar alone cannot be a success; this is a synergistic scientific effort. The whole is more than the sum of the parts," said Mallik.

According to Mallik, the three research pillars are intertwined, instead of operating independently, "The Computational Approaches Pillar will give us the design principals for these scaffolds, and the Cellular Systems Pillar will do the biochemical mechanistic studies which will tell us what causes the cancer cells to selectively die. Based on that insight, [we'll ask] can we go back and change the design to make it better?"

The Materials Design Pillar objective is to progressively increase CCBSE researcher knowledge and application in the area of biomaterial scaffolds relevant to tissue engineering, particularly in the area of design methodologies of biologically inspired materials for diverse 3D tissue architectures.

The research will focus on designing bio-inspired materials (hard and soft tissue) as platforms for the growth of cancer cells in the primary tumor site (soft tissue) and a metastatic bone site (hard tissue). Mallik further explained, "Essentially, we are designing two types of materials. We want to see if we can make a material where the cancer cells and tissues can grow, and if we can, then that will serve as an artificial system to study breast and prostate cancer metastasis."

The team is also creating nanomaterials for cellular imaging with several essential features. Leading this component is Zhao. "We're also focused on making florescent nanomaterials to identify cancer cells. If we didn't have this color, we wouldn't be able to watch the cancer cells grow in great detail. The bright nanoparticles allow us to see even just one cancer cell." She added, "We also want them to be stable, many fluorescent particles are not stable. We want our particles to be very stable, so you have enough time to observe them. We want them to degrade and discharge from the body and not harm the body. We want them to be not toxic at all while also being environmentally friendly."

The materials design pillar team is comprised of researchers from across ND, all of whom are eager to engage in collaborative research. "I'm looking forward to working with researchers from NDSU and UND as we develop new materials and techniques to improve cell culture models. Hopefully, this research helps inspire undergraduate students to be creative problem-solvers," said Voels.

In addition to the collaborations, Katti is looking forward to the eventual research outcomes, adding, "The integration and synergy between the pillars will result in a fresh new look at cancer metastasis." Allard agreed, "I am excited for the opportunity to work with everyone in the pillar and hope to learn from them."

Xia, a member of both the materials design and computation approaches pillars, will be bridging these teams to develop and test some new tactics and strategies for the design of very sophisticated materials. "With the current experimental and computational techniques, we will be able to make our design of materials from the most fundamental building blocks at the molecular level. Hopefully, we will make a new paradigm of material design."

The creation of optimal interfaces between biological and engineered materials (biointerfaces) is of critical interest to many bio-based applications. ND-ACES builds research capacity to better understand design rules that govern *in vitro* (in glass or outside of the living organism) biointerfaces and influence *in vivo* (within the living organism) decisions surrounding the understanding of biochemistry and the cell biology of cancer cells and tumors.

Supporting people, pathways, and communities: Broadening Participation

North Dakota's new \$20M NSF EPSCoR RII Track-1 effort, which began July 1, New Discoveries in the Advanced Interface of Computation, Engineering, and Science (ND-ACES), will build university-based scientific and translational research capacity to help drive the continued growth of the state's biosciences ecosystem.

The ND-ACES outreach arm, Promoting Sustainable Partnerships in Education and Research (PROSPER), will be working simultaneously to build: a tech-savvy workforce through diverse STEM education and professional development pathways, broadened participation by underrepresented and underserved populations, and sustained impact through the translation of research into the private sector.



PROmoting Sustainable Partnerships in Education and Research

PROSPER stands for Promoting Sustainable Partnerships in Education and Research and is the ND-ACES outreach arm.

With a passion for the personal, educational, and professional success of all participants, the PROSPER team focuses on the implementation of activities that benefit many ND communities. Broadening Participation is one of the four components of PROSPER, which will collaborate on numerous ND-ACES activities, support the STEM education pathway in ND, and work to remove barriers to participation.

The Broadening Participation component of PROSPER is led by **Van Doze**, Associate Professor of Biomedical Sciences (UND) and co-led by **Scott Hanson** (ND EPSCoR Tribal Colleges Liaison and NATURE Manager) and includes the ND EPSCoR NATURE Coordinators from the four participating TCUs: **Austin Allard**, Engineering Instructor and Pre-Engineering Education Collaborative (PEEC) Project Director (TMCC), **Chris Dahlen**, Math Instructor and Registrar (CCCC), **Kerry Hartman**, Academic Dean, Environmental Sciences Instructor, and INSPIRE-ND Center for Regional Climate Studies (CRCS) researcher (NHSC), and **Mafany Ndiva Mongoh**, Science Instructor and INSPIRE-ND Center for Sustainable Materials Science (CSMS) researcher (SBC).



The PROSPER Broadening Participation team is comprised of, from left to right, (top row) Van Doze, Scott Hanson, Austin Allard, (row two) Chris Dahlen, Kerry Hartman, and Mafany Ndiva Mongoh.

The Broadening Participation team works collaboratively with all ND-ACES senior personnel on many efforts to increase STEM engagement and provide K-12 outreach activities. One such activity is the dREU coordinated by **Shireen Alemadi** (ND EPSCoR STEM Manager) of the Education and Workforce Development team. "A distributed research experience for undergraduates (dREU) means that the students are at different sites," said Hanson. "It's very much tied in with broadening participation because we seek to serve American Indian students and other underrepresented groups or underserved groups who traditionally live in rural areas or who are economically disadvantaged. STEM students from the three PUIs, the one MCU, and the four TCUs often also fit NSF's broadening participation category of first-generation college students as well."

Another significant component of the Broadening Participation effort is ND EPSCoR's NATURE activities, which will continue as a part of the ND-ACES project. The NATURE program comprises four components, TCU Summer Camps, Sunday Academy, Bridge Camp, and University Summer Camp. "We are building on a long successful track record [20+ years] of NATURE programming," noted Hartman, "All of the programs are very beneficial, fun to participate in, and fun to lead. We always have culture included, which is a strength of our program, the inclusion of the culturally relevant material" that ties to the STEM activities being presented.

The Broadening Participation team will also be supporting underserved and underrepresented students through scholarship opportunities. "ND

EPSCoR will award scholarships to 10 students who are completing the junior and senior year of their bachelor's degree over the five years of the ND-ACES project," explained Hanson.

According to Doze, like the education and workforce development component, broadening participation efforts are part of a process that starts in middle school and high school, with activities all along the pathway to designed to encourage/increase students' interest in science, engineering, math, and technology.

"It's critically important to get the STEM pathway going up through the doctorate degree." According to Doze, only a small percentage of underserved and underrepresented students obtain a doctorate degree.

"We're hoping to increase the number of underrepresented individuals getting degrees in STEM and pursuing careers in STEM," said Hanson. Doze added, "With technology, we're going to be able to do more going forward compared to 20 years ago in terms of reaching a greater number of individuals who would not have been able to have had these opportunities before."

PROSPER's Broadening Participation goal is to open STEM pathways in ND's bioscience sector for increased interest, access, and contribution by underrepresented and underserved individuals. "Broadening participation is about inclusiveness and making sure all corners of North Dakota are touched by this project. The current project recognizes the value of unique groups and communities and what they bring to the research table. Balancing the growth of ND in every town, county, and reservation community is what the current project will achieve. The NATURE programs have served as a conduit and important strand for achieving this in Tribal communities. Through collaborations and partnerships with TCUs and K-12 institutions on reservations, it is a way of sharing knowledge and providing solutions to problems in these communities." said Ndiva Mongoh.

The Broadening Participation team will provide a greater breadth of insight, increased research, and a more robust economy in ND.

Allard, also a member of the ND-ACES Materials Design Pillar, is looking forward to his dual role. ND-ACES will be integrating research, education, and human resources with workforce development initiatives to strengthen the state's overall research competitiveness. "I'm looking forward to collaborating with other researchers in ND," he said.

Get to know the 2020 STTAR participants



ND EPSCoR

ND EPSCoR recently kicked off another season of STTAR (Students in Technology Transfer And Research) internships. We are featuring a Q&A series from our participating companies, this month, we will hear from Tiana Bohn, the Training Coordinator at **ComDel Innovation**.



Q: Tell us about your company?

A: ComDel Innovation is a contract manufacturing company that began operations in December 2007 on a 30-acre manufacturing campus in Wahpeton, ND. The site was founded in 1977 as a 3M manufacturing facility and later, Imation, in 1996. Using this history and knowledge base, the company provides integrated services relating to the full life cycle of the product.

In 2013, ComDel Innovation became an Employee-Owned company, CDI Services, and has a team of 300 employees and 264,000 square feet of manufacturing, process development, and materials characterization space in two state of the art buildings. From design, fabrication of tooling and manufacturing equipment, packaging, and distribution, ComDel provides a complete array of product support and solutions for customers all in one location.

The ComDel Innovation brand of the company services medical, commercial, and aerospace customers under ISO standards 13485 and AS9100. The Heartland Precision brand provides threading, forming, and zinc plating manufacturing services for agricultural and commercial customers under NADCAP and AS9001 standards.

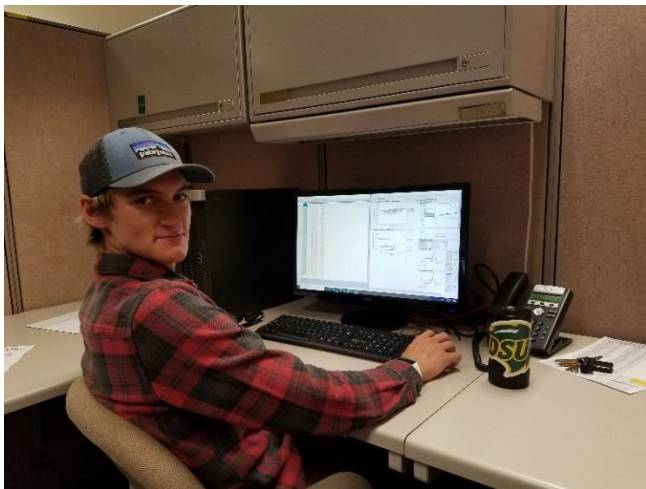
Q: What are the benefits of having STTAR interns (to your company and the student)?

A: Being able to cost-share through STTAR is hugely impactful for us. The classroom theory is done well, but when the students get on-site, they can experience the quality systems that define, analyze, investigate, and apply to projects that have real applications, not just case studies. The other benefit of STTAR is the fresh eyes to look at the operation and find better ways to conduct business based on their studies and research.

For the participants, these intern experiences give students the ability to interact with a variety of processes, equipment, customers, and mentors. The opportunity is extremely valuable when the student returns to the classroom and when deciding where they want to focus their efforts in the future. The networking contacts that the students experience can also be beneficial when applying for employment.

Q: During their internship, what will the students be working on?

A: Pierce Kvien (NDSU) - This activity generally includes determination of injection molding press process setpoints, creation of operating documents, validation of mechanical setpoints, and analysis of dimensional data to determine process capability.



STTAR intern Pierce Kvien. Photo courtesy of Tiana Bohn, Training Coordinator at ComDel Innovation.

Kvien learned how to operate injection molding presses, adjust machine parameters to address visual and dimensional issues, analyze data using software, create effective documentation and create reports to convey the results of his work to customers.

Prior to this summer, Pierce had an internship in design engineering, so being on the opposite end of the process was a much different experience that he can use to understand manufacturing best practices.

Su Sampson (NDSU) - Sampson is working on new product development activities, including developing

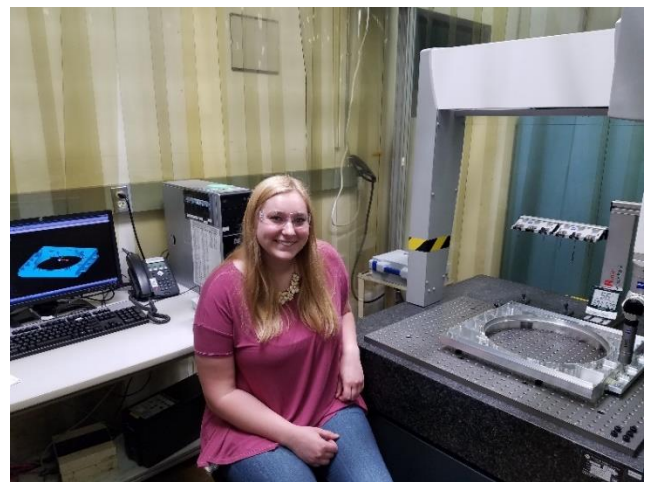
and documenting an ultrasonic welding process for a medical component. She has also been able to develop design skills using Solidworks to create test fixtures.



STTAR intern Su Sampson. Photo courtesy of Tiana Bohn, Training Coordinator at ComDel Innovation

Her experiences this summer have helped her see real-world applications of concepts learned in class. She has learned to have more confidence in her abilities and how to take the development process through the entire life cycle of a product.

Brook Anderson (UND) - Anderson has been working on collecting baseline data for a stability study on computer-controlled measurement (CMM) equipment. This study is used to determine appropriate calibration and repair intervals. Once the study data is analyzed, a known artifact will be measured regularly and compared to this gathered data. Shifts in the artifact data can be used as early detection of possible stability issues to allow for corrective activities. This allows the company to reduce possible defects and cost.



STTAR intern Brook Anderson. Photo courtesy of Tiana Bohn, Training Coordinator at ComDel Innovation.

Anderson has also been working on a project to create new templates for engineering resources to create uniform documentation for process information in the manufacturing environment.

Her experience has benefitted her by having the opportunity to work with a variety of manufacturing areas as opposed to working on a singular project or product.

Q: Have you partnered with the ND EPSCoR STTAR program before (if no, how did you hear about it)?

A: The STTAR program has been utilized at ComDel for several years. Many of our recent full-time engineers have greatly benefitted from participating in the ND EPSCoR STTAR program or similar experiences.

Responsible Conduct of Research requirements

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



“The Responsible Conduct of Research (RCR) encompasses a set of rules and recommendations about designing, performing, and reporting research. It establishes principles and procedures to ensure that research, regardless of the discipline, is carried out both in an ethical manner and in compliance with standard federal regulations” (Turrens and Springer 2019).

In June 2017, the North Dakota State Board of Higher Education adopted policy 410.0 that requires all undergraduate and graduate students and postdoc researchers participating in sponsored research activities to complete RCR training. This policy applies to ND university system institutions that receive support or external funding for research activities. In 2009, the NIH and NSF started requiring the RCR training of researchers receiving funding from them, and later similar requirements were adopted by all agencies that provided federal funding. Currently, multiple federal agencies, including “the National Institutes of Health (NIH), National Science Foundation (NSF), and U.S. Department of Agriculture (USDA) require certain categories of researchers to receive RCR training” (Collaborative Institutional Training Initiative Website).

During FY20, the ND EPSCoR State Office utilized “*How to Train Undergraduates in Research Integrity and the Responsible Conduct of Research*,” released in 2019 from the Council on Undergraduate Research along with information from the Office of Research Integrity, to

develop PowerPoints with information and case studies on “the nine core areas of RCR as defined by the ORI” (Terrens and Springer 2019). The nine core areas are: 1) Research Misconduct, 2) Data Management, 3) Conflicts of Interest and Commitment, 4) Collaborative Science, 5) Peer Review, 6) Publication and Authorship, 7) Human Subject Research & Institutional Review Boards, 8) Animal Research, and 9) Mentorship.

Personnel from participating institutions who are looking for assistance with RCR training or who would like to augment their existing training programs are encouraged to reach out to Alemadi for more information. Below are some helpful RCR resources. ND-ACES participants should consult the Track-1 Participant Handbook for their campus-specific requirements.

Resources:

- [Office of Research Integrity](#)
- [CITI Program](#)
- [Council of Undergraduate Research](#)

Learning to work in different ways

By **Jean Ostrom-Blonigen**, ND EPSCoR Project Administrator (right)



June/July were busy months for ND EPSCoR staff as we transitioned into FY21, began the \$20M ND-ACES National Science Foundation (NSF) EPSCoR RII Track-1 cooperative agreement, helped plan virtual NATURE summer camps, and finished the sixth year of the \$20M INSPIRE-ND NSF EPSCoR RII Track-1 cooperative agreement – all while working remotely due to COVID-19!

In preparation for our first year of ND-ACES, many of the 42 senior personnel across 10 campuses met virtually with NSF on July 29-31 to begin drafting the strategic plan that will guide the project over the next five years. As outlined in NSF’s Guidebook, the Strategic Planning process began with an analysis of ND-ACES’ Strengths, Weaknesses, Opportunities, and Threats – a SWOT analysis. The COVID-19 threat received special attention in this analysis as senior personal worked to determine how it could impact the project, what opportunities the pandemic might present to the project, what strengths the project brings to the table to offset the COVID-19 threat, and what weaknesses exist that should be addressed in order to run a successful project during this pandemic. The required

components with the Strategic Plan [Milestones, Metrics, Outputs, and Outcomes] will comprise the structure that implements the ideas outlined in the ND-ACES proposal and will be used by NSF to measure project success throughout the next years.

In March, when it became clear that COVID-19 would interrupt ND EPSCoR's NATURE summer camps, faculty and administrators from all five TCUs, faculty from NDSU and UND, and ND EPSCoR staff worked together to plan and deliver eight summer camps to 182 middle-, high-, and TCU students. This laudable effort shows what can happen when people from across the state work together to sustain outcomes because a program's mission matters.

Throughout the past six years, over 60 senior personnel and their students across 11 campuses provided efforts to advance the state's knowledge of regional climate and sustainable materials science. Scheduled to end June 30, 2021, during these next months, INSPIRE-ND participants will focus on finalizing outputs, disseminating outcomes, and continuing to pursue paths to sustain various project efforts.

Learning to work in different ways to continue to deliver research results and outreach activities demonstrates the strengths ND EPSCoR's participants bring to our projects and our programs. A continued thank you to all participants as we resolve to meet these challenges in creative ways.

Meet your ND-ACES program coordinator



ND-ACES participants are now being (or will soon be) contacted by the ND-ACES Program Coordinator, **Kathy Wahlberg** (pictured left) to establish their ERcore database profile.

As the ND-ACES program coordinator, Kathy is responsible for the daily administrative functions of ND-ACES. Her main roles include:

- Work with, and maintain, the ERcore reporting database.
- Work with participants on how to complete their profile and enter activity (e.g. outreach, presentations, publications, etc.) in ERcore.
- Monitor activity entered in ERcore and follow up with participants where needed (e.g. check

for duplicates, gather, and add missing information to ERcore output entries).

- Work with data for annual reporting (e.g. run ERcore reports, review, and track data used for reporting metrics).
- Monitor and follow up on student RCR training compliance.
- Provide administrative support for ND-ACES researchers (e.g. meeting setup, send meeting notices, help with tracking metrics).
- ND EPSCoR web and social media site support.

Kathy has an Accounting Clerk diploma, B.S. in Elementary Education, and Master's Degree in Business Administration. Her relevant work experience includes 15 years working in higher education, in both administration and administrative support roles, and 11 years in accounting/payroll roles. She has been with ND EPSCoR since 2015.

Kathy can be reached by email:

kathleen.wahlberg@ndus.edu or by phone: 701-231-8618.

Awards and presentations

2019 ND EPSCoR State Office Equipment Award Project
Kenneth Hellevang, Ademola Hamed, Andriy Voronov, Senay Simsek, Zhulu Lin, Amanda Brooks, Halis Simsek, and Nurun Nahar (all NDSU) collaborated across four departments and three colleges to purchase a \$29,654 tangential flow filtration (TFF) unit.

This equipment award purchased a TFF unit that was received and installed in the Bioprocess Laboratory (Room 2b, Pilot Plant, 1400 17th Street N, NDSU) on January 28th, 2020. The TFF unit has been found useful to advance research in nanobiocatalyst recovery and reuse. The availability of TFF on campus has been instrumental in securing funding to conduct future soybean bioprocessing research.

The TFF unit has also been used to conduct teaching and extension activities in ABEN 263 (Biological Materials Processing) and ND EPSCoR NATURE online virtual laboratory tours and teaching. The TFF unit has proven to enhance the group's research, teaching, and extension activities.

Funding opportunities

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 as well as 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](#)

DEPSCoR Funding Opportunity

The funding opportunity announcement for the FY20 DEPSCoR Competition is now available. DEPSCoR is a capacity-building program designed to support the research capabilities at institutions of higher education to perform competitive basic research in science and engineering that is pertinent to the DoD mission and reflect national security priorities. The deadline for paper submissions is **September 21, 2020**. The deadline to register is **September 14, 2020**. For more information, please see: [DEPSCoR Funding Opportunity](#)

EPSCoR Workshop Opportunities

EPSCoR is designed to fulfill the mandate of NSF 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](#)

ND EPSCoR

The ND EPSCoR State Office is accepting proposals to fund STEM activities across seven broad categories (equipment, equipment repairs, undergraduate research, seed awards for faculty to collect preliminary data, external proposal reviews, seed awards for faculty and students engaged in K-12 outreach, and development of online/virtual modules for STEM laboratory courses) at EPSCoR participating institutions. The deadline for proposal submission is **Noon, September 21, 2020**. For more information, please see the [RFP](#) announcement.

Participating Campus Acronyms

- CCCC - Cankdeska Cikana Community College
- DSU – Dickinson State University
- Mayville State – Mayville State University
- Minot State – Minot State University
- NHSC – Nueta Hidatsa Sahnish College
- NDSU – North Dakota State University
- SBC – Sitting Bull College
- TMCC - Turtle Mountain Community College
- UND – University of North Dakota
- UTTC – United Tribes Technical College
- VCSU – Valley City State University

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- Prior newsletters, http://bit.ly/EPSCoR_Newsletters
- Submit stories to: <https://bit.ly/epscorsubmitnews>
- To be added to the newsletter mailing list, please email ndepscor@ndus.edu, subject line: newsletter.

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