

Established Program to Stimulate Competitive Research

News & Notes

October 2020

Launching a new Track-1

As we celebrate the conclusion of the first quarter of ND-ACES (New Discoveries in the Advanced Interface of Computation, Engineering, and Science), ND EPSCoR's new Research Infrastructure Improvement Track-1 (RII Track-1), I send my sincere appreciation to all members of the ND-ACES team who have made our launch a great success.

RII Track-1 awards are designed to fulfill the mission of EPSCoR by enhancing research competitiveness by strengthening STEM capacity and capability. ND-ACES capitalizes on and supports the continued growth in research capacity and capability at 10 institutions across ND by building a tech-savvy workforce through diverse STEM education and professional development pathways, broadening participation by underrepresented and underserved populations, and sustaining impact through economic development. The vision of ND-ACES is to be the Northern Plain's leading scientific and educational driver in new and sustainable biosciences technologies, particularly in knowledge and translational activities in biointerfaces related to cancer progression and metastasis.

Every NSF EPSCoR RII Track-1 cooperative agreement begins with the development of a strategic plan. This plan's initial creation is an important first step in the journey of the five-year cooperative agreement. As the Principal Investigator (PI) and Project Director (PD), my appreciation goes to the entire team for the completion of this critical first step in this new Track-1 cooperative agreement, which was approved by NSF on October 19, 2020.

To get to this point, ND-ACES participants were involved in many preliminary meetings throughout May and June. In July, we held a productive strategic planning session with NSF, followed by the writing of the plan over the past few months. Our approved ND-ACES Strategic Plan serves as the project's roadmap. It provides the framework for the ND-ACES

scope, pledges to specific goals, objectives, outputs, and impacts, and describes the activities and the associated milestones that will take place to realize them.

Specifically, it starts with insights into how the research, education and outreach will benefit the citizens of ND. This knowledge informs how and why the cooperative agreement's work will be something that has lasting and transformative impacts.

Many hours of work by the team went into the creation of this authoritative document. Particularly important this year was the special attention placed on generating a detailed risk management section, considering the varying COVID-19 scenarios at all of our participating institutions (see more about this topic in Ostrom-Blonigen's article later in this issue). Having dedicated preparation time at the onset of this cooperative agreement helped us all to better understand and appreciate our varied needs amid fluctuating circumstances.

Via a true Team Science approach, the launch of the ND-ACES intellectual merit (Center for Cellular Biointerfaces in Science and Engineering [CCBSE]) and broader impact (PROSPER) activities, along with the development of a carefully considered Strategic Plan and the adoption of a Collaboration Agreement positions the team on the path to achievement. Embracing this approach throughout every step of our new Track-1 gives us the best chance of creating something of great and lasting value for the citizens of ND.

As we continue through the first year of ND-ACES, I applaud the faculty, researchers, staff, and students at all ND EPSCoR participating institutions.

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



The ND-ACES Computational Approaches Pillar

Working collaboratively within the CCBSE, the ND-ACES Computational Approaches Pillar researchers will work alongside the Materials Design (spotlighted in our August 2020 issue) and Cellular Systems (spotlighted in our September 2020 issue) Pillars to develop predictive capabilities of cancer progression, a fundamental understanding of how biology interacts with materials, and design rules to make materials that predictably influence cells' behavior.

The Computational Approaches Pillar is co-led by Dinesh Katti (NDSU) and Tao Yu (UND). Team members include Deniz Cakir (UND), Jerome Delhommelle (UND), Svetlana Kilina (NDSU), Lu Liu (NDSU), Trung Le (NDSU), and the liaison from the Materials Design Pillar Wenjie Xia (NDSU). Tao Yu also serves as the liaison to the Cellular Systems Pillar. This pillar is supported by cyberinfrastructure experts and leads of the research university high-performance computing centers (HPCs), Aaron Bergstrom (UND) and Dane Skow (NDSU).



The Computational Approaches Pillar comprises, from left to right, (top row) Dinesh Katti, Tao Yu, Aaron Bergstrom, Deniz Cakir, and Jerome Delhommelle, (row two) Svetlana Kilina, Trung Le, Lu Liu, Dane Skow, and Wenjie Xia.

The Computational Approaches Pillar will use computational tools to investigate cells, materials, scaffold structures, and bio-interfaces from the length scale of atoms to cells and include artificial intelligence and machine learning. "We hope that these efforts will lead to in silico testbeds for the medical community to predict cancer progression and down the road to engineer new therapies," explained Katti.

According to Katti and Yu, The Computational Approaches Pillar plays a critical role in the project, with strong synergy with the Materials Design and Cellular Systems Pillars. "The Computational Approaches team will use and develop advanced computational tools and HPC platforms to create forecasting tools for predicting cancer progression and develop a fundamental understanding of mechanisms of cell-cell attachment and cell attachment to materials. The project will also involve the computational design of materials and tissue engineering scaffolds to achieve targeted properties that will predictably influence the behavior of cells that grow in the synthetic scaffolds," said Katti.

Support for this Pillar will come from the HPC centers at NDSU (Dane Skow) and UND (Aaron Bergstrom). Skow's areas of expertise include HPC; machine learning; and large volume, high-velocity data storage. Bergstrom's areas of expertise include HPC, artificial intelligence resources, and 3D/virtual reality. ND-ACES will also partially fund two Advanced Cyberinfrastructure Senior Research Education Facilitators, one at NDSU and one at UND and Cyberinfrastructure (CI) Assistantships (see UND's call under Funding Opportunities).

The Computational Approaches team is eager to engage in collaborative research across disciplines. Each of the three research pillars has liaisons to the other pillars. These liaisons ensure that the workflow is smooth and the project remains on track. Wenjie Xia, from the Materials Design Pillar, is a liaison to this team. "I am excited to work and collaborate with all the ND-ACES and Computational Approaches Pillar team members, including faculty and students, to achieve greater success. I hope that we will be able to make a whole new paradigm of material design via integration of experiments, computation, and modeling," he said.

Over the next five years of the ND-ACES project and beyond, the ultimate goal of the Center for Cellular Biointerfaces in Science and Engineering (CCBSE) is to expand interdisciplinary and transdisciplinary research in biointerfaces (the interface between engineered and biological materials) by using advanced research computing as a conduit for intellectual and translational advances. "I am looking forward to the collaborations and new cancer data, including electron microscopy images generated by the Cellular Systems and Materials Design Pillars," added Liu.

Ultimately, this pillar's research will highlight computational approaches as a powerful tool for leading discoveries in the biomedical field and supporting experimental research.

ND-ACES Partnerships and Collaborations

ND-ACES builds university-based scientific and translational research capacity to help drive the state's biosciences ecosystem's continued growth.

The ND-ACES STEM broader impact elements within, <u>PRO</u>moting <u>Sustainable Partnerships in Education and Research</u> (PROSPER), will be working simultaneously and synchronously to build a tech-savvy workforce through diverse STEM education and professional development pathways, broaden participation by underrepresented and underserved populations, sustain the ND-ACES' impact through the translation of research into the private sector, and communicate efforts to stakeholders and the citizens of ND.



PROmoting Sustainable Partnerships in Education and Research PROSPER stands for PROmoting Sustainable Partnerships in Education and Research.

With a passion for all participants' personal, educational, and professional success, the PROSPER team focuses on implementing activities that benefit many ND communities. Partnerships and Collaborations is one of PROSPER's four elements, working together with all participants on numerous ND-ACES activities. News & Notes featured PROSPER's other three elements in recent editions: Education and Workforce Development was spotlighted in the July 2020 issue, Broadening Participation was spotlighted in the August 2020 issue, and Communication and Dissemination was spotlighted in the September 2020 issue.

The Partnerships and Collaborations component of PROSPER is led by **Kelly Rusch** (NDSU, PI/PD, and ND EPSCOR Executive Director), and co-led by **John Mihelich** (UND, Co-PI and Interim Vice President for Research and Capacity Building) and **Jean Ostrom-Blonigen** (ND EPSCOR, Co-PI and Project Administrator).

The Partnerships and Collaborations PROSPER element works with all ND-ACES personnel on efforts to increase professional relationships with industry and research collaborators. This initiative builds research infrastructure and strengthens ND's research competitiveness through the development of these partnerships and other collaborations.



The PROSPER Partnerships and Collaborations element is led/co-led by, from left to right, Kelly Rusch, John Mihelich, and Jean Ostrom-Blonigen.

PROSPER's Partnerships and Collaborations goal is to ensure sustained educational and economic impact beyond the project through broadened collaborations leading to new lines of inquiry and funding; increased private sector interactions addressing near- and long-term commercialization potential; expanded researcher and student internship opportunities bridging science and practice; and, implemented new knowledge and technology allowing ND to expand its economic base. This will be achieved by supporting participant interactions with collaborators and engaging with prospective partners. The team will also identify workshops, conferences, and mentoring opportunities that become available throughout the five years of the cooperative agreement.

According to Rusch, the team will facilitate a variety of activities that assist participants in forming partnerships and collaborations (particularly with industry in ND and the wider region) and promote ND's research competitiveness, innovation, and bioscience pathway development. "There is already a small and growing biosciences sector in the state for which our researchers will continue to cultivate relationships and partnerships. North Dakota also has a vast entrepreneurial ecosystem throughout the state that can provide a series of resources and programming for our researchers interested in advancing his/her understanding of moving fundamental discoveries into the private sector. Specifically, there are four entrepreneur/innovation centers, located in Bismarck, Jamestown, Fargo, and Grand Forks, that provide programming and resources through the InnovateND program house within the ND Department of

Commerce." The Partnerships/Collaboration Leads will work with these entities and researchers to help identify opportunities and make connections that may result in expanding the ND-ACES partnership footprint within the state.

An example shared by Mihelich, which will occur during this first year, is to encourage ND-ACES participants to enroll in the Sustainable Heartland Accelerator Regional Partnership Hub (SHARPhub). "This NIH/STTR award (with partner institutions in Kansas, Nebraska, Oklahoma, North Dakota [through UND], and South Dakota) provides educational sessions and collaborative opportunities for the sharing of resources and best practices in the development of strong commercialization skills," said Mihelich.

"It's important to recognize that some of this expertise already exists in the academic institutions and communities throughout ND, but we can accomplish so much more by working together," Rusch stated.

Ostrom-Blonigen added that the team is working with the Communication and Dissemination team to develop a survey tool that will be used to establish a baseline for participants' existing partnerships and collaborations. Once established, this baseline will be used to monitor annual progress over the five years of the cooperative agreement.

Center for Regional Climate Studies publishes new research

CRCS participants (Graduate student Mohammad Hadi Bazrkar [NDSU], Professor of Atmospheric Sciences Jianglong Zhang [UND], and Professor of Civil and Environmental Engineering Xuefeng [Michael] Chu [NDSU]) recently published a paper in Stochastic Environmental Research and Risk Assessment, titled "Hydroclimatic aggregate drought index (HADI): a new approach for identification and categorization of drought in cold climate regions."

The research emphasizes the identification of drought as crucial to water resources management and planning. Previous drought indices have been developed, and their complexity and applicability vary. The key to this research is the development of a drought index that is capable of identifying drought and further customizing drought categorizations for cold climate regions like ND's. Specifically, a new hydroclimatic aggregate drought index (HADI) was

developed by coupling it with a grid-based hydrologic model and applying additional analysis.

The researchers are looking forward to pursuing more work in the development of predictive drought models. "Prediction means we essentially are going to make an identification based on the available data, and we're going to predict what will happen in the future, for example, predict 10 years in the future and draw the conclusion," said Chu.

"In this method, we consider precipitation, surface runoff, snowmelt, and soil moisture, which are very important, especially for a state like North Dakota," said Chu. Because of this, the HADI index will be helpful to the uniqueness of the Red River Basin. "We can see the importance of snowmelt and also the soil moisture condition for the agricultural economy. Clearly, they have a huge impact on crops," explained Chu.

Reflecting on collaboration: the journey of two Center for Sustainable Materials Science researchers

From instructor to student, it has been a unique experience for one INSPIRE-ND (CSMS) researcher. University of North Dakota graduate student in analytical chemistry **Audrey LaVallie** first met **Alena Kubátová**, Professor of Analytical Chemistry at UND, while the two were CSMS faculty researchers collaborating on outreach activities for INSPIRE-ND.



Audrey LaVallie (left) and Alena Kubátová (right) working together at UND.

"I was working at Turtle Mountain Community College (TMCC), and I had taught quite a few courses there. I always welcome something new, and we got into doing little research projects, especially with instrumentation, and I thought, you know, I think I need to know more about this," recalled LaVallie. That is what first started their work together.

By all accounts, it was Kubátová's outgoing and collaborative nature that sparked the success of their initial work together while LaVallie was a CSMS faculty researcher and Science and Math Instructor at TMCC.

According to Kubátová, she can remember first meeting LaVallie at an ND EPSCoR Annual Conference years ago, glinting many new professional and outreach opportunities for the pair. After first working together on the Research Experience for Undergraduates, the two researchers joined forces on continued outreach.

"It is important to recruit, to get strong students, and to promote an interest in science," said Kubátová. She enjoys having opportunities to establish relationships with various colleges, like TMCC. "I had done a little bit of work with instrumentation at Turtle Mountain, even though really Alena and her students had to come in and actually set things up and show me how some of this worked," said LaVallie.

The two continue to see outreach as being at the forefront of what they do and are making plans to continue these efforts after LaVallie graduates with her Ph.D. this spring. According to LaVallie, Kubátová works tirelessly at expanding opportunities for collaborative research, always asking fellow researchers on campuses across the state what was important to them and how they can help each other. "We share data and discuss it and brainstorm, and that's how our lab works - each of us is contributing," noted Kubátová.

What drew LaVallie to pursue a Ph.D. at UND was learning from Kubátová while collaborating from different institutions. "We kind of have the same philosophy. I knew I really love science, and I really want to get it out there to as many people as possible; it's a fantastic experience."

Now near the end of her studies, LaVaille has enjoyed her time as a graduate student in Grand Forks. She is currently working on two papers focusing on lignin characterization following subcritical treatment and fractionation using advanced mass spectrometric methods. Both of the papers are near submission.

Through years of ND EPSCoR research and outreach, Kubátová and LaVallie have developed long-term relationships and networks. "This opportunity, which we wouldn't get anywhere else, helps you learn very unique things. Many of these students now have

jobs in industry, and I think part of it is because they have had this experience," said Kubátová.

Mayville State University planning virtual STEM carnival

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

In early March 2020, Jeni
Peterson, Education and Innovation
Center Coordinator at Mayville
State University, and Andi DulskiBucholz, the Center Director, were
working with faculty, staff, and



students to get the final touches completed for their annual STEM Carnival set for April 13, 2020. In mid-March, things changed due to COVID-19, and it was determined that the STEM Carnival had to be postponed.

Everyone was hoping that by fall, conditions would allow the STEM Carnival to be rescheduled, and people could come to campus and experience all the engaging and fun, hands-on STEM activities. Unfortunately, that was not the outcome. The STEM Carnival will now be held as a virtual event.

"Mayville State University has remained hopeful that we would be able to deliver a quality STEM Carnival for the surrounding communities. As the pandemic progressed, we began brainstorming ways to reach just as many area students as we have in the past. With a virtual platform, I feel as though we can raise those expectations and reach out to students all across the state," Peterson said.



The Mayville State University will offer a virtual STEM Carnival in lieu of an in-person event. The virtual STEM Carnival will have a variety of presenters.



Like those shown in the photo above, robots will be featured as a component of the virtual stem carnival.

This event is partially funded by a \$6,000 K-12 STEM Outreach award that Dulski-Bucholz (PI) and Peterson received in Fall 2019 from ND EPSCoR. Because of this past spring's unprecedented circumstances, many awards were extended to allow recipients to complete their proposed activities, events, and research. "These unique circumstances allowed Mayville State University students and faculty to share educational activities that will actually bring further outreach of the funded activities to students and teachers through the virtual platform," added Dulski-Bucholz.

If you are interested in sharing a presentation for the STEM Carnival, <u>contact Jeni Peterson</u> for more information.

Pathways to successful Team Science - Part 1: developing a SWOT analysis and a risk management plan

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

At the NSF's request, the ND-ACES team set time aside in May and June, prior to the July 1 start of our new EPSCoR RII Track-1 cooperative agreement, to develop a SWOT Analysis, a Risk Management Plan,



and a Collaboration Plan. This first article describes a SWOT Analysis and a Risk Management Plan. A second

article, describing a Collaboration Plan, will appear in the December issue.

SWOT Analysis

This important tool outlines the strengths, weaknesses, opportunities, and threats (SWOT) of a project. Strengths and weaknesses are internal to the project; whereas, opportunities and threats are considered external to the project. In conducting a SWOT analysis, the team identifies its Strengths and Opportunities by recalling and recognizing the rationale that brought them together. Among ND-ACES' Strengths is that its participants form a strong team with diverse and relevant expertise, an established track record of collaborative efforts, and confidence in and belief of the importance of this project. An Opportunity for ND-ACES is its potential to build research capacity, expand the workforce, and stimulate industry growth in ND. Team strengths are important building blocks to realizing opportunities.

In the identification of Weaknesses and Threats, the team realistically identifies the issues it faces. An identified Weakness of ND-ACES is that the technical resources are not equal on all 10 participating campuses. Finally, an identified Threat to the ND-ACES project is the potential unfavorable impact of COVID-19.

Risk Management Plan

Linked to the SWOT Analysis, the Risk Management Plan identifies approaches the team will take to minimizes its Weakness and mitigate its Threats. Recognizing that technical resources are not equal across the project, ND-ACES participants **Aaron**Bergstrom (Advanced Cyberinfrastructure Manager for UND's Computational Research Center [CRC]) and Dane Skow (Executive Director for NDSU's Center for Computationally Assisted Science and Technology [CCAST]) will work with participants at the TCUs, MCU, and PUIs to develop additional accessibility options and alternative lines of access as determined necessary.

The ND-ACES plan for mitigating the Threat of COVID-19 to the project was developed under three NSF-recommended scenarios: 1) a new normal under which project activities continue without accommodations, but in conformity to new Personal Protective Equipment (PPE) standards; 2) a hybrid - between a new normal and continued restrictions, which has the potential to slow the research, outreach,

and education activities and requires a case-by-case approach with accommodations applied as consistently across the campuses as possible; and 3) full restrictions during which in-person outreach is not possible and restricted access to facilities impedes research, which requires more frequent monitoring of activities with decisions regarding which will be postponed and which will be modified to occur remotely.

These important tools form the basis for strategic planning.

ND EPSCoR State Office makes STEM awards to participating institutions

In its Fall 2020 STEM awards, the ND EPSCoR state office made 39 awards to six participating institutions totaling \$629,924; including 13 equipment awards to five campuses totaling \$411,917; three undergraduate research awards to two campuses totaling \$14,453; 18 preliminary data seed awards to two campuses totaling \$173,640; one K-12 outreach award totaling \$6,000; and four awards to three campuses for the development of online/virtual modules totaling \$23,914.

Participating campuses funding included: one award to Mayville State University for \$25,500; five awards to Minot State University totaling \$100,497; 15 awards to North Dakota State University totaling \$230,879; 16 awards to the University of North Dakota totaling \$234,918; one award to United Tribes Technical College for \$26,130; and two awards to Valley City State University totaling \$12,000. Please join the ND EPSCOR State Office in congratulating the individual awardees listed on our Building STEM Capacity and Competitiveness and Impact on Workforce webpages.

ND EPSCoR funding registration fees for students to present at the National Conference on Undergraduate Research

Each year, the Council of Undergraduate Research (CUR) hosts the National Conference on Undergraduate Research (NCUR) to highlight all the great research conducted by undergraduate students across the

country. Recently, CUR announced the <u>2021 NCUR</u> conference will be a virtual event.

ND EPSCoR is excited to support student professional development in STEM and will fund the registration fee of 15 students (from ND EPSCoR participating institutions) who have their abstracts accepted by NCUR. Contact: shireen.alemadi@ndus.edu if you have questions about this opportunity.

Eligibility requirements for this grant:

- 1. Students need to email ndus.edu, using the subject [NCUR Student Registration], and stating their interest in this opportunity.
- 2. Students must submit their abstracts to NCUR by November 1 (for Early Decision) or December 1 (the final deadline).
- 3. Students must register for NCUR by January 31, 2021 (if their abstract is accepted).

Conference grants will be awarded by priority. Priority for this grant:

- 1st priority to students who have not had the privilege of previously presenting their research in any other venue.
- 2nd priority to ND-ACES and INSPIRE-ND students.
 - 3rd priority goes to all other students.

Gateway to Science-ND EPSCoR Partnership wraps up summer programming

ND EPSCOR is proud to partner with **Gateway to Science**, and fall programming is now underway at with afterschool STEM Club, Girls Who Code, and one-day mini-camps. Fall is also when the <u>Gateway to Science</u> on the Go van usually begins putting on a lot of miles. As with everything in 2020, COVID-19 has introduced many new considerations for Gateway to Science as well as the schools served by its outreach programs. The STEMzone program, a carnival-style event set up in a school's gym, can be designed to fit an individual school's needs and space limitations. Gateway to Science is developing several new programs to offer educators, including STEM activity kits, workshop presentations in the classroom, virtual workshops, and online resources.

In addition to on-and off-site programming, Gateway to Science offers a STEM at Home section as well as a Resource Center for families and educators on its website. Students, parents, and teachers will find hands-on STEM activities to do at home or in the classroom, a list of recommended STEM books, and a wide variety of STEM-related websites.



The Gateway to Science On the Go van brings STEM programming to schools and organizations across ND.

Gateway to Science is North Dakota's science center. Its mission is to inspire the discovery of science through hands-on experiences. Gateway to Science fulfills its mission by operating an interactive exhibit gallery in Bismarck and developing and delivering mobile educational outreach programs across the state through the Gateway to Science on the Go van.

Awards and presentations

Faculty Lectureship

Dinesh Katti, Professor of Civil and Environmental Engineering (NDSU) and ND-ACES Computational Approaches Pillar Lead, will be presenting "Materials Engineered Byte by Byte" at the 59th Faculty Lectureship at NDSU on October 27.

The Faculty Lectureship, one of the oldest and most prestigious of the University's awards, recognizes sustained professional excellence in teaching, scholarly achievement, and service among current faculty at NDSU. The Faculty Lectureship is conferred on an individual who has demonstrated excellence in all three areas. Congratulations Dinesh!

Funding opportunities

<u>Future Topics for NSF Convergence Accelerator Request</u> for Information

The NSF Convergence Accelerator issued a Request for Information (RFI) for future topics. The RFI is the outset of the Convergence Accelerator's ideation process. Selected ideas will be asked to submit a conference proposal to further develop the proposed idea and to determine convergence research topics for 2022. Join the NSF Convergence Accelerator for an informational webinar on October 21 or 27, 2020 to learn about the program's ideation process, specifically focusing on the FY 2022 Request for Information (RFI) on future topics. Registration links are available here. Please see the RFI for more information. Deadline: November 9, 2020.

Track-1 ND-ACES: Emerging Area/Seed Award Proposals

ND EPSCoR seeks to provide \$26,000 in individual seed awards to new researchers from the NSF EPSCoR RII Track-1 New Discoveries in the Advanced Interface of Computation, Engineering, and Science (ND-ACES) participating institutions in areas of emerging high impact and transformative research related to the Center for Cellular Biointerfaces in Science and Engineering (CCBSE). For more information, please see the RFP. Deadline: noon, November 16, 2020.

ND EPSCoR's Graduate Student Cyberinfrastructure (CI) Assistantship Program – UND only

ND EPSCoR's Graduate Student CI Assistantship program is designed to (1) increase student understanding of advanced research computing in hardware and software as it applies to their discipline; (2) provide additional support to faculty in the Center for Cellular Biointerfaces in Science and Engineering (CCBSE); and (3) provide student/faculty training at all ND EPSCoR-participating institutions on potential CI uses/benefits. Support will be available for one semester (Spring 2021 [January 16, 2021 – May 15, 2021]) for a one-half time assistantship in the UND Computational Research Center (CRC). Please see the Request for Student Applications for more details.

Deadline: due to UND Office of Research and Sponsored Programs: 5:00 pm, November 10, 2020. Due to ND EPSCoR: noon, November 16, 2020.

ND NASA EPSCoR Request for Proposals – NDSU only

The NDSU campus of ND EPSCoR issues this supplemental RFP to fund additional research that is in alignment with ND NASA EPSCoR research foci. For more information, please see the RFP. Deadline: noon, November 16, 2020.

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

Participating campus acronyms

- 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

Stay in touch

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- Prior newsletters, http://bit.ly/EPSCoR_Newsletters
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- To be added to the newsletter mailing list, please email newsletter.

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