

COLLEGE HAPPENINGS

June 23, 2020

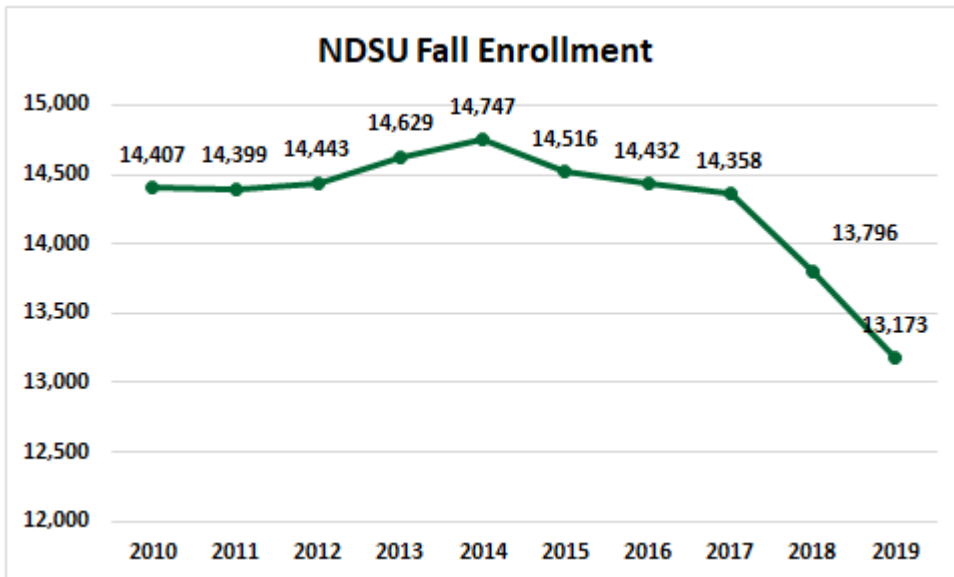
FROM THE DEAN

College Update

The long summer evenings and beautiful weather in Fargo is a welcome counterpoint to the challenges we have faced together the past three months dealing with COVID-19. As we continue to work together to address those challenges, I wanted to update you about some anticipated resources for the upcoming fall semester.

On Thursday of this week, NDSU expects to get final approval for [\\$19.8M of funding from the CARES Act](#) to respond to the pandemic. Much of that funding will be used to provide technology and support to allow our faculty to synchronously integrate in-person teaching with remote instruction. This model of instruction, called hybrid flexibility ([HyFlex](#)), uses technology to maintain traditional classes, while allowing students (and faculty) that are vulnerable, in isolation or in quarantine, to synchronously learn (or teach) and be an active part of the NDSU community. When the final funding approval is confirmed, we will be hearing more about the technology that will be available in our classrooms, along with additional training and support to enable us to deliver courses most effectively in a HyFlex model. In addition to the technology costs, some summer compensation to support course modification efforts for 9-month faculty to pivot their courses to the HyFlex model was included in the budget request. The funding from the CARES Act will need to be spent quickly, between when it is approved this week and the end of the calendar year, and more information will be forthcoming about how those funds will be administered. Thinking beyond the current crisis, the technology and tools that are implemented will enable NDSU to improve its educational services for years to come.

While we will likely be receiving this significant boost of short term funding to specifically respond to the COVID-19 pandemic, our long term budget, which is highly dependent on the number of enrolled students and state support, will continue to decrease. The number of new committed NDSU students for the fall semester is about the same now as last year at this time (2367 for Fall 2020 vs 2304 for Fall 2019), which suggests that NDSU's overall enrollment will most certainly be down overall. My rough estimate is that NDSU will be down about 600 students, and well below 13,000 students for the first time in at least a decade (see historical enrollment in the graph below). As a result, we are expecting a permanent budget reduction for the next fiscal year, perhaps in the range of 4.5%, but we have not yet been given details about the magnitude of the cut or exactly how it will be administered.



Finally, I would like to thank the nearly 20 faculty from the College of Engineering that participated in the National Effective Teaching Institute – Online (NETI-3) workshop this past weekend, which focused on effective teaching in a virtual environment. It is great to see so many faculty investing in their own professional development to become more effective in their teaching.

IN THE NEWS

[Student research team shines in NASA competition](#)

[NDSU engineering education builds career confidence](#)

CONGRATULATIONS

A paper by electrical and computer engineering students Almir Ekic and Bennett Strombeck and faculty member Di Wu, “Assessment of grid strength considering interactions between inverter-based resources and shunt capacitors,” has been selected as one of the Best Papers at the 2020 Power & Energy Society General Meeting.

Please let [College Happenings](#) know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

NOVELUTION: NO MORE PROPOSAL TRANSMITTAL FORMS AFTER JULY 1

NDSU's process for preparing and routing proposals will be completely online starting July 1, 2020 with the rollout of the Novelution System. With the Novelution System, you will no longer need to prepare Proposal Transmittal Forms or manually route paper forms and you will be able to request no-cost extensions, changes to budgets, and PI changes online.

The Novelution Research Management System is a major upgrade to our processes and we are glad to offer it to our faculty and staff. Thank you to those who have been piloting the system and to all who have participated in training over the last month. If you have not yet had the opportunity to learn about or utilize Novelution, we are happy to help you. Please contact us at ndsunoehelp@ndsunoeh.edu.

Information on Novelution, including log-in and a brief User Guide, can be found on the [RCA website](#).

COE OUTSTANDING STAFF AWARD

Last year, we began the tradition of recognizing our staff with the creation of the outstanding staff award for the College of Engineering, presented at our annual scholarship and awards reception. This award identifies and honors unusual dedication and outstanding contributions by a staff member in the College of Engineering.

Any NDSU staff member, faculty member, or student may submit a nomination. The nomination consists of just a letter of two pages or less describing the nominee's contributions to the success of the College of Engineering.

Nominations for outstanding staff awards should be submitted to Angela Thomassen (angela.thomassen@ndsu.edu). The nomination deadline is **Wednesday, July 15** at 5:00 p.m.

VIRTUAL GRANT WRITING WORKSHOP

The NDSU Office of Research and Creative Activity is sponsoring a virtual grant-writing seminar with Lauren Broyles, PhD, RN, of [Grantwriters' Seminars & Workshops](#). This seminar will cover general grantsmanship as well as strategies focused on NSF & USDA proposals.

- The seminar will take place on June 24-25; sessions will run from 12:30-4pm both days.
- This workshop will be delivered via Zoom. Registrants will receive access instructions ahead of the event.
- Participation in the seminar is open to all faculty. **Registration is required.** Registration closes June 16.
- Each participant will receive one grant-writing workbook of their choice.

Contact ndsu.researchdev@ndsu.edu with questions. [Register Here](#).

FUNDING OPPORTUNITIES

DARPA Defense Sciences Office-Wide BAA

The mission of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is to identify and create the next generation of scientific discovery by pursuing high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and transforming these initiatives into disruptive technologies for U.S. national security. In support of this mission, the [DSO Office-wide Broad Agency Announcement \(BAA\)](#) invites proposers to submit innovative basic or applied research concepts or studies and analysis proposals that address one or more of the following technical thrust areas:

1. Frontiers in Math, Computation and Design;
2. Limits of Sensing and Sensors;
3. Complex Social Systems; and
4. Anticipating Surprise.

Proposals must investigate innovative approaches that enable revolutionary advances. DSO is explicitly not interested in approaches or technologies that primarily result in evolutionary improvements to the existing state of practice.

This opportunity is open through June 11, 2021.

Engineering and Computer Science – Limited Submission Program

[Limited submission grant programs](#) are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

NSF RET: [Notify RCA](#) by 7/1/2020, 4:00 p.m. if you are interested in submitting to this program.

The National Science Foundation (NSF) Research Experiences for Teachers (RET) in Engineering and Computer Science program [[NSF 17-575](#)] supports active long-term collaborative partnerships between K-12 Science, Technology, Engineering, Computer and Information Science, and Mathematics (STEM) in-service and pre-service teachers, full-time community college faculty, and university faculty and students to enhance the scientific disciplinary knowledge and capacity of the STEM teachers and/or community college faculty through participation in authentic summer research experiences with engineering and computer science faculty researchers. The research projects and experiences all revolve around a focused research area related to engineering and/or computer science that will provide a common cohort experience to the participating educators. The K-12 STEM teachers and/or full-time community college faculty also translate their research experiences and new scientific knowledge into their classroom activities and curricula.

This announcement features two mechanisms for support of in-service and pre-service K-12 STEM teachers and full-time community college faculty:

1. **RET supplements:** RET supplements may be included outside this solicitation in proposals for new or renewed ENG and CISE grants or as supplements to ongoing ENG- and CISE-funded projects.
2. **RET Site awards:** New RET in Engineering and Computer Science Sites, through this solicitation, are based on independent proposals from engineering and/or computer and/or information science departments, schools or colleges to initiate and conduct research participation projects for K-12 STEM teachers and/or full-time community college faculty.

Deadline: September 16, 2020

NDSU Impact Fund Grant Program

The NDSU Foundation Grants Committee is now accepting applications for the Impact Fund Grant Program for the 2020 academic year. The application deadline is Monday July 27, 2020, by 5 p.m.

The NDSU Impact Fund Grant Program provides funding for projects that make a significant impact on excellence and the educational experience for students at North Dakota State University. This program is supported by annual contributions from alumni and friends of the university.

Applications are accepted from faculty, staff, and recognized student groups. The Impact Grant Fund Program offers grants of \$20,000 to \$75,000.

The application form and additional information about the NDSU Impact Grant Program can be found at the NDSU Foundation website: <https://www.ndsufoundation.com/impact-fund>.

For any further questions, please email Jennifer Reinhold, Grants Committee Liaison, at jennifer.reinhold@ndsufoundation.com.

DEPSCoR DoD Day at the University of South Dakota

On September 10, 2020, the University of South Dakota will host [DEPSCoR DoD Day](#), presented by the Department of Defense. Breakfast, lunch and refreshments will be provided. Program officers from the Army, Navy, Air Force and other DoD representatives will participate in the meeting, which will cover the following topics:

- How to work with the DoD, especially ARO, ONR, AFOSR;
- How to make connections with DoD program officers;
- How to pursue funding opportunities specific to DEPSCoR;

- How to pursue other programs within the Basic Research Office.

There is also a Speed Networking Opportunity with DoD Program Officers.

RECENTLY FUNDED PROPOSALS

- Kalpana Katti (PI), Dinesh R Katti (CPI). Design of Humanoid Testbeds of Breast Cancer Bone Metastasis. \$75,000 from the National Institutes of Health. 11/01/2019 – 08/31/2020.
- Long Jiang (PI). UV Curable Soy-Based Resin as a Versatile Platform for Chemical Delivery. \$33,132 from the ND Soybean Council. 07/01/2020 – 06/30/2021.
- Ravi Kiran Yellavajjala (PI). Novel Soy-Protein and Ionic Liquid Based Coating Materials for Corrosion Protection. \$30,430 from the ND Soybean Council. 07/01/2020 – 06/30/2021.
- Ravi Kiran Yellavajjala (PI), Hizb Ullah Sajid (CPI). An Economical Corn-Based Corrosion Inhibitor. \$49,080 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2022.
- Joao Paulo Cassol Flores (PI). Using UASs For Site Specific Weed Management in Corn. \$17,971 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2021.
- Nurun Nahar (PI), Ewumbua Monono (CPI), Ademola Monsur Hammed (CPI). Improvement of Ethanol Yield Prediction Model for the Corn Grown in North Dakota. \$52,316 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2022.
- Ewumbua Monono (PI), Nurun Nahar (CPI). Production and Characterization of Epoxidized Sucrose and Maltose Ester of Corn Oil. \$89,954 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2022.
- Xiangfa Wu (PI), Adam Curtis Gladen (CPI). Catalyst-based Oxidation of Corn-based Bioethanol for High-Efficiency Electricity Generation-Direct Bioethanol Fuel Cell. \$118,818 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2022.

RECENTLY SUBMITTED PROPOSALS

- Long Jiang (CPI). Novel Nano-Cellulose Formulated Bactericides to Control Bacterial Leaf Streak of Wheat and Barley in North Dakota. \$199,048 from the National Institute of Food and Agriculture. 09/01/2020 – 08/31/2022.
- Changhui Yan (CPI). Deep learning bioinformatics workflow and interactive web application for use in cancer genomics. \$398,735 from the National Institutes of Health. 05/17/2021 – 05/14/2023.
- Trung Quoc Le (PI). SenSE: Wearable Obstructive Sleep Apnea (OSA) Multi-sensory System for Diagnosis and Prediction. \$716,155 from the National Science Foundation. 06/01/2021 – 05/31/2024.
- Qifeng Zhang (PI), Danling Wang (CPI). Creating and Assessing the Effectiveness of a Virtual Electrical Engineering Lab for College Students. \$49,948 from the Spencer Foundation. 08/15/2020 – 08/14/2022.
- Abdulaziz Ali H Banawi (PI). Applying Virtual Reality in integrating Human experience with Artificial intelligence in the Building Industry. \$73,535 from the Facebook Corporation. 09/01/2020 – 08/31/2022.
- Xuefeng Chu (CPI). Wetlands for reduction of sediment and nutrient loadings in impaired watersheds. \$322,828 from the Environmental Protection Agency. 01/01/2021 – 12/31/2023.

RECENT PUBLICATIONS

For 2020, 86 publications by authors with the College of Engineering affiliation have appeared in various journals, according to the ISI Web of Science and submissions from faculty. Here are some of the most recent publications:

- Bigdeli, Yasser, Michele Barbato, Charles D. Lofton, Maria Teresa Gutierrez-Wing, and Kelly A. Rusch. 2020. "Mechanical Properties and Performance under Laboratory and Field Conditions of a Lightweight Fluorogypsum-Based Blend for Economic Artificial-Reef Construction." *Journal of Materials in Civil Engineering* 32 (7): 04020172. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003240](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003240).

- Hassanijalilian, Oveis, C. Igathinathane, Curt Doetkott, Sreekala Bajwa, John Nowatzki, and Seyed Ali Haji Esmaeili. 2020. "Chlorophyll Estimation in Soybean Leaves Infield with Smartphone Digital Imaging and Machine Learning." *Computers and Electronics in Agriculture* 174 (July): 105433. <https://doi.org/10.1016/j.compag.2020.105433>.
- Limon, Shah, Bimal Nepal, and Om Prakash Yadav. n.d. "Reliability Estimation Considering Multi-Stress Monotonic Degradation Test Data with Non-Constant Scale Parameter." *Quality Engineering*. <https://doi.org/10.1080/08982112.2020.1755686>.
- Lyu, Xiaofeng, Yanchao Li, Na Ren, Shuai Jiang, and Dong Cao. 2020. "A Comparative Study of Switched-Tank Converter and Cascaded Voltage Divider for 48-V Data Center Application." *IEEE Journal of Emerging and Selected Topics in Power Electronics* 8 (2): 1547–59. <https://doi.org/10.1109/JESTPE.2019.2928209>.
- Madbouly, Samy A., and Michael R. Kessler. 2020. "Preparation of Nanoscale Semi-IPNs with an Interconnected Microporous Structure via Cationic Polymerization of Bio-Based Tung Oil in a Homogeneous Solution of Poly(Epsilon-Caprolactone)." *ACS Omega* 5 (17): 9977–84. <https://doi.org/10.1021/acsomega.0c00297>.
- Wang, Shu-Dong, Ke Wang, Qian Ma, and Cai-Xin Qu. 2020. "Fabrication of the Multifunctional Durable Silk Fabric with Synthesized Graphene Oxide Nanosheets." *Materials Today Communications* 23 (June): 100893. <https://doi.org/10.1016/j.mtcomm.2020.100893>.
- Zhang, Liqian, Xueliang Fu, Honghui Li, and Juan Li. 2020. "An Improved Maximum a Posterior-Based Estimation Method Coping with Capture Effect for RFID Tags Identification." *International Journal of Pattern Recognition and Artificial Intelligence* 34 (5): 2050011. <https://doi.org/10.1142/S0218001420500111>.
- Das, Tonoy K., Tamil S. Sakthivel, Aadithya Jeyaranjan, Sudipta Seal, and Achintya N. Bezbaruah. 2020. "Ultra-High Arsenic Adsorption by Graphene Oxide Iron Nanohybrid: Removal Mechanisms and Potential Applications." *Chemosphere* 253 (August): 126702. <https://doi.org/10.1016/j.chemosphere.2020.126702>.
- Pan, Danguang, Kun Jiang, Xichen Zhang, and Ying Huang. 2020. "Sealant Delamination Detection of Structural Sealant Glazing Systems Based on Driving-Point Accelerance." *Shock and Vibration* 2020 (May): 7260438. <https://doi.org/10.1155/2020/7260438>.
- Zhang, Zhao, Paulo Flores, C. Igathinathane, Dayakar L. Naik, Ravi Kiran, and Joel K. Ransom. 2020. "Wheat Lodging Detection from UAS Imagery Using Machine Learning Algorithms." *Remote Sensing* 12 (11): 1838. <https://doi.org/10.3390/rs12111838>.

See your name on this list? Help us get the word out about your amazing work by submitting it as a **Breakthrough Alert**. [This online form](#) is an easy, step-by-step guide for summarizing published research for the general public.

College Happenings is distributed to the NDSU College of Engineering staff and faculty every other Tuesday.

Read past issues of *College Happenings* [here](#).

Deadline for submissions to *College Happenings* is 12:00 p.m. Fridays.

Contact kyle.bosch@ndsu.edu to submit items for *College Happenings*.

Follow the College of Engineering on social media.

