

# COLLEGE HAPPENINGS

April 19, 2022

## FROM THE ASSOCIATE DEAN

### Celebrating our enrollment wins

One of our strengths as engineers (and other problem-solvers) is our ability to identify areas where we can improve – and hopefully work on improving them! Something that we aren’t quite as good at is recognizing and celebrating what we are doing well.

Undergraduate student enrollment is at the heart of the budget-related challenges we have been facing at NDSU, and that will continue to be the case until those numbers turn around. So, it is important for us to think hard about our impact on enrollment from both student recruitment and student retention standpoints. We don’t have complete control or responsibility for either area, but we do have influence in each. While we work on improving, let’s pause to recognize the good work we are already doing.

Although we contribute to many facets of student recruitment, our most important role is getting admitted students to say “yes”. We do that by making on-campus visits as strong as we can. We have heard many stories from prospective students and their parents about how the experience they had on their visit day was much more personal than they had received anywhere else, and that personal attention is what made the difference. We measure our success in getting students to say “yes” through Application Yield (number of commits as a percentage of number of admitted students). Let’s take a quick look at how the College of Engineering is doing in that metric:

### Application Yield

	Fall ‘22 (as of 4/12)	Fall ‘21	Fall ‘20
<b>College of Engineering</b>	34.9%	44.3%	41.4%
<b>NDSU (all other Colleges)</b>	29.3%	35.5%	34.7%

The other major part of the enrollment equation is retention. I do think we need some systemic changes across-the-board to improve retention at NDSU, but we still have some reasons to be encouraged in the College of Engineering. Retention can be measured in several ways, but one of the best metrics is 1-year retention of first-year students. Despite room for improvement across campus, our students are among those most likely to stay here:

# 1-Year Retention of First-year Students at NDSU

	Fall' 21  (1-semester retention)	Fall '20	Fall '19	Fall '18	Fall '17
<b>College of Engineering</b>	93.7%	78.2%	85.1%	79.6%	81.2%
<b>NDSU (all other Colleges)</b>	89.4%	74.9%	80.9%	78.4%	77.7%

These numbers don't happen by accident. We attract a strong student body through our strong programs. Our faculty and staff do a great job of helping prospective students see the value of a degree from the College of Engineering, and in helping them to flourish once they are here. We shouldn't take this to mean we can't improve our interactions with prospective students, or that we shouldn't continue looking for ways to help the next struggling student that we encounter in class, in an advising session, or anywhere else. Of course, we need to do all of that!

But at this tough point of the semester, I want to take a moment to thank you for the amazing work you continue to do to support our students in an increasing challenging environment. Your work makes a difference to each student, to NDSU, and to the State. Well done!

*Scott Pryor, Associate Dean for Undergraduate Programs*

## IN THE NEWS

[NDSU faculty member works to find breakthrough cancer treatment](#)

[NDSU faculty member works to improve cybersecurity](#)

[The Glamour and Ingenuity of NDSU's First McGovern Scholar](#)

[Helping People Move Through Adversity](#)

[Dads and Daughters gather for engineering event](#)

[76-year-old Fargo woman loses \\$15,000 in computer scam](#)

## CONGRATULATIONS

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

## UPCOMING EVENTS

Tuesday, April 19, **61<sup>st</sup> NDSU Faculty Lectureship**. Dr. Paul Carson will present "Two Years on a Pandemic Frontline: Lessons Learned and Reflections for the Academy." 3:00 p.m. in the Memorial Union Anishinaabe Theater.

Wednesday, April 20, **Mental Health for Faculty and Staff.** Edmund Russel, Professor of History, Carnegie Mellon University will discuss his experiences with depression, how stigma affected his career as a professor, and how universities might take a few small steps toward improving mental health among faculty and staff. 12:00 – 1:00 p.m. on Zoom.

Friday, April 22, **Lunch and Learn with a Program Officer.** Mark. S. Hurwitz, Ph.D., will be answering your questions about submitting to the NSF. 12:00 – 1:00 p.m. on Zoom. [Learn more.](#)

Friday, April 29, **Employee Recognition Social.** The event honors employees for their years of service to NDSU. 1:30 p.m. to 3:00 p.m. in the Memorial Union Oceti Sakowin Ballroom.

Thursday, May 5, **Senior Design Expo.** The Spring Senior Design Expo will showcase capstone projects from all departments in the College of Engineering. Noon – 4:00 p.m. in the NDSU Oceti Sakowin Ballroom.

Friday, May 13, **College of Engineering Ring and Pin Ceremony.** This ceremony is a blending of two significant and celebratory events, the Order of the Engineer and the Pledge of the Computing Professional. 3:00 p.m. in AG Hill 112.

Saturday, May 14, **NDSU 2022 Spring Commencement.** 10:00 a.m. in the Fargodome. Faculty and staff who wish to participate in the academic procession along with our graduation class will wear caps and gowns. [Register here.](#)

## SPRING COMMENCEMENT VOLUNTEER SIGN-UP

Spring Commencement is quickly approaching, and the Office of Registration and Records is looking for staff and faculty volunteers to assist students and their families as they celebrate this accomplishment. They are looking for traffic directors, photo stop assistants, student line-up assistants, and reader card table assistants for both ceremonies.

Volunteers are asked to be at the Fargodome at **8:15 or 9:30 a.m.** for the 10:00 ceremony and **12:15 or 1:30 pm** for the 2:00 ceremony depending on the role.

[Spring Commencement Staff Volunteer Sign-up](#)

[Spring Commencement Faculty Volunteer Sign-up](#)

## WRITE WINNING GRANT PROPOSALS VIRTUAL WORKSHOP

**June 1-2, 2022 | 8:30 a.m. – 12:00 p.m.**

Grant Writers Seminars and Workshops ([GWSW](#)), will present a virtual seminar titled "Write Winning Grant Proposals." This workshop, presented over two half-days by [John Robertson](#), PhD, comprehensively addresses the practical, conceptual, and rhetorical aspects of writing competitive grant proposals, including:

- critical steps for organizing and planning your proposal,
- understanding the role (and mindset) of your reviewers,
- strategy for writing a compelling specific aims (NIH), overview and objectives (NSF), or equivalent section, and
- specific strategies and tips for each major section of a grant proposal.

[Register to participate >>](#)

## FUNDING OPPORTUNITIES

### NSF: Gen-4 Engineering Research Centers

The Engineering Research Center (ERC) program [[NSF 22-580](#)] supports convergent research (CR) that will lead to strong societal impact. Each ERC has interacting foundational components that go beyond the research project, including

engineering workforce development (EWD) at all participant stages, diversity and a culture of inclusion (DCI) where all participants gain mutual benefit, and value creation within an innovation ecosystem (IE) that will outlast the lifetime of the ERC. The logical reasoning that links the proposed activities to the identified goals for each ERC should be clear.

### **NSF: Dynamics, Control, and Systems Diagnostics**

The Dynamics, Control and Systems Diagnostics (DCSD) program [[PD 19-7569](#)] promotes the fundamental science and engineering of dynamic systems to advance solutions to urgent societal problems. Such problems include mitigating the impacts of climate change; responding to epidemics, cyber-attacks, extreme weather, and other natural and man-made events; promoting efficient and equitable production and distribution of resources; developing resilient infrastructure; improving the experience of work and learning; and meeting the challenges of aging and illness.

Recognizing that dynamic systems lie at the heart of current and emerging imperatives, the DCSD program invites proposals that match innovative research in dynamic systems with compelling applications. DCSD also welcomes research that demonstrates how these applications inform our understanding of dynamic systems, and how foundational knowledge must be further advanced to broaden the usefulness of dynamic systems approaches to new areas of application.

DCSD proposals should articulate clear **Intellectual Merit** through the advancement of knowledge in one of the following foundational areas:

- Modeling: mathematical frameworks for studying the behavior of dynamic systems.
- Analysis: theoretical and computational tools for discovery and exploration of structure in dynamic behavior.
- Diagnostics: data-based methods to infer properties of dynamic systems from observations.
- Control: methods to produce desired or mitigate undesired behaviors in dynamic systems.
- Integration: architectures that expand the reach of dynamic systems and overcome application-specific challenges.

Proposals should also clearly describe the intended **Broader Impacts** of the envisioned work, beyond the scientific merits of the proposal.

To ensure that a project is appropriate for the DCSD program prior to the submission of a full proposal, PIs are strongly encouraged to send a one-page draft Project Summary to [dcspd@nsf.gov](mailto:dcspd@nsf.gov) following the format for proposal submission described in the NSF Proposals & Award Policies & Procedures Guide.

*Full proposals accepted anytime.*

### **RECENT PUBLICATIONS**

*For 2022, 43 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:*

- Gudagunti, Fleming Dackson, Srilakshmi G. Gundlakunta, and Ivan T. Lima. 2022. "Dielectrophoresis-Based Biosensor for Detection of the Cancer Biomarkers CEA and CA 242 in Serum." *Chemosensors* 10 (3): 104. <https://doi.org/10.3390/chemosensors10030104>.
- Hance, Jack, Jordan Milbrath, Noah Ross, and Jeremy Straub. 2022. "Distributed Attack Deployment Capability for Modern Automated Penetration Testing." *Computers* 11 (3): 33. <https://doi.org/10.3390/computers11030033>.
- Oli-Uz-Zaman, Md, Saleh Ahmad Khan, Geng Yuan, Zhiheng Liao, Jingyan Fu, Caiwen Ding, Yanzhi Wang, and Jinhui Wang. 2022. "Mapping Transformation Enabled High-Performance and Low-Energy Memristor-Based DNNs." *Journal of Low Power Electronics and Applications* 12 (1): 10. <https://doi.org/10.3390/jlpea12010010>.

- Shahraki, Ameneh Forouzandeh, Sameer Al-Dahidi, Ali Rahim Taleqani, and Om Prakash Yadav. n.d. “Using LSTM Neural Network to Predict Remaining Useful Life of Electrolytic Capacitors in Dynamic Operating Conditions.” *Proceedings of the Institution of Mechanical Engineers Part O-Journal of Risk and Reliability*, 1748006X221087503. <https://doi.org/10.1177/1748006X221087503>.
- Singelmann, Lauren N., and Daniel L. Ewert. 2022. “Leveraging the Innovation-Based Learning Framework to Predict a Understand Student Success in Innovation.” *IEEE Access* 10: 36123–39. <https://doi.org/10.1109/ACCESS.2022.3163744>.
- Straub, Jeremy, and Matthew Spradling. 2022. “Americans’ Perspectives on Online Media Warning Labels.” *Behavioral Sciences* 12 (3): 59. <https://doi.org/10.3390/bs12030059>.
- Suttle, Ryan, Scott Hogan, Rachel Aumaugher, Matthew Spradling, Zak Merrigan, and Jeremy Straub. 2022. “Deceptive Content Labeling Survey Data from Two U.S. Midwestern Universities.” *Data* 7 (3): 26. <https://doi.org/10.3390/data7030026>.
- Tiwari, Binod, Beena Ajmera, Mohammed Al-Behadili, and Mohammed. 2022. “True and Base Friction Angles of Clays.” In *Geo-Congress 2022: Site and Soil Characterization, Computational Geotechnics, Risk, and Lessons Learned*, edited by A. Lemnitzer and A. W. Stuedlein, 333:56–64. New York: Amer Soc Civil Engineers. <https://www.webofscience.com/wos/woscc/full-record/WOS:000775850000006?AlertId=6be422b2-ea2e-40c5-8e21-3756db20c6af&SID=USW2ECOC77RMFjCQ2iUmK1ShLibqE>.

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](mailto:kyle.bosch@ndsu.edu) to submit items for *College Happenings*.

Follow the College of Engineering on social media.

