

COLLEGE HAPPENINGS

August 18, 2020

FROM THE DEAN

One Week Away

We are just one week away from the start of classes, which is always one of the most exciting times on campus. This year, that excitement is likely mixed with anxiety, uncertainty, and apprehension, as we launch classes amid the COVID-19 pandemic and navigate the new challenges of teaching in a HyFlex environment. Those emotions are natural. It has been over five months since we last held in person classes on campus before spring break. So, it's exciting to see our students face-to-face again, and to continue our important educational mission. At the same time, we're not back to business as usual. We'll be wearing masks. We'll be physically distanced, and some will be joining remotely through a screen. And even with those precautions, there will certainly be cases and spread of COVID-19 in our university community. Just yesterday, UNC-Chapel Hill made the decision to pivot to all-remote instruction for undergraduates after starting classes only a week earlier because testing already showed a rapid spread of the coronavirus on campus.

While uncertainty abounds, there are a few things that we as faculty and staff can do to try to make the semester as effective and safe as reasonably possible. First, set a good example by wearing a mask on campus and in the classroom, and insisting on the same from your students. Second, prepare for the unexpected. For instructors, check out the classroom where you'll be teaching well in advance of your first class, and make sure you are familiar with how the technology works in the classroom. Last Friday, I hosted a HyFlex retirement reception for Ken Nygard, who retired after 43 years of service to NDSU. The event was held in the Glenn Hill Auditorium and included guests both in person and remotely via Zoom. A few days before the event, I spent nearly an hour learning how the audio system, microphones, video, and smart podium worked, and I figured out how to overcome some technical obstacles, so that the quality of the event was not hamstrung by technical difficulties.

Finally, I would like to thank you all for your extraordinary hard work and can-do attitude in preparing for this semester. When I'm asked what makes me the most proud as the Dean of Engineering at NDSU, hands down, the answer is the outstanding faculty and staff that work hard every day to meet our mission of preparing innovative problem solvers and creating new knowledge to improve lives in North Dakota and beyond.



IN THE NEWS

[Engineering professor receives Fulbright award](#)

[NDSU civil engineering student awarded national scholarship](#)

[NDSU faculty member honored by engineering society](#)

CONGRATULATIONS

A figure from a recent journal paper by Xiangfa Wu, associate professor in the Department of Mechanical Engineering, was selected as the cover image by the [Journal of Applied Polymer Science](#).

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

COVID-19 UPDATES

Testing

Employees and students are encouraged to participate in the [COVID-19 testing](#) Aug. 18-23 starting at the west parking lots of the Fargodome. Non-NDSU employees who work on NDSU campus are welcome. No employee or student identification is required, and testing is free. You can preregister [here](#).

Cases and reporting web page

Please review a new [web page](#) for confirmed positive cases reported to NDSU in the past two weeks. The page also includes links procedures for students or employees to report to NDSU if they have tested positive.

INSTRUMENTED CLASSROOMS UPDATE

NDSU ITS has created a dynamic table of installation progress that is updated within a day of installs being completed. Please visit: <https://kb.ndsu.edu/100854> to see progress on your specific classroom.

- As classrooms are completed, they are added here. For example, you may notice a camera installed, but until it is programmed, it is not functional and therefore not on this table.
- Classrooms will gradually have links to documentation to help you use the equipment in your room as it is available.
- Sudro 24 and Sudro 27 are complete with Catchboxes for the audience mics and cameras installed, if instructors would like to see/test out new equipment.

Classrooms Scheduled by Registration and Records

If you are teaching from a classroom scheduled by Registration and Records, your room will have at least the following equipment:

- Ceiling-mounted projector
- Wireless microphone for you (voice capture for remote students and/or amplification in the classroom)
- Computer equipped with:
 - Monitor
 - CD/DVD drive for media or DVD playback
 - 2 USB ports (located on the left side of the monitor)
 - Standard mouse and keyboard
 - Wireless RF mouse
 - Speakers
 - Capture cards for recording instructor voice and content
- Document camera (see notes column for ceiling document cameras)
- Air media (allows wireless screen casting on mobile or portable device)

- HDMI and RGB cable for connection of portable devices
- AV Control System for easy switching between input devices
- YuJa, Zoom, Blackboard/Blackboard Collaborate ready
- Assistive Listening (submit request to [Disability Services](#))

We are working to install the following so students and faculty attending remotely can see and fully interact with people in the classroom. Without this equipment, faculty and students can still attend/participate with HyFlex, but they may not be able to see/hear the classroom audience or see the instructor.

- Student/audience microphones
- Cameras to view instructor and classroom members

Temporary (Non-traditional) Classrooms

If you are teaching from a temporary (non-traditional) classroom, it will have the following equipment, with more details coming soon:

- Projector
- Computer
- Microphone (to share voice with remote attendees, not for amplification in the classroom)

Why won't all the classrooms be ready by the start of classes with the newly funded equipment?

- Many pieces of equipment are back ordered and delivery estimates are difficult to determine.
- While most classrooms have had tremendous amounts of work done this summer, currently only SMART podiums (or dynamic panels) are fully functional. This is likely to be the case well into the start of the semester.
- Approximately 25 new spaces with little to no capacity for HyFlex were added as temporary classrooms last week to accommodate NDSU's shift to 50% occupancy and these are receiving our priority for installations.

2020 ANNUAL FACULTY AND ACADEMIC STAFF CONFERENCE

The 2020 Faculty and Academic Staff Conference is scheduled for Wednesday, August 19 from 8:30 a.m. to 5:00 p.m.

For more information see the [full schedule](#).

INNOVATION CHALLENGE IN YOUR CLASSROOM

Innovation Challenge (IC) is a national idea competition hosted by NDSU. It helps students learn essential skills of creativity, problem solving, public speaking, and collaboration. Participants bring an idea, receive mentorship and training, and share their final product with the entire state on Innovation Day - November 19th.

The Nice Center invites faculty members to include Innovation Challenge in your syllabus and add an innovation day to your class. The Nice Center will teach a 60-minute virtual design thinking workshop, training your students on problem solving and creativity in your specific field.

Contact Scott Meyer, scott.d.meyer@ndsu.edu, to schedule your design thinking workshop.

NDSU CARE TEAM

The Behavior Intervention Team will officially transition to the NDSU Care Team at the beginning of the 2020-2021 academic year. The team will continue to assess risk and threat, but will also partner with additional members of the NDSU community to offer a higher level of contact and referral for students who may not reach a threshold for threat

intervention, but could use a variety of additional support services during the semester. This transition will increase contact with students of concern and will offer additional support to connect with resources that assist students to navigate challenges and achieve success.

To refer a student to the NDSU Care Team, please complete the following form

https://cm.maxient.com/reportingform.php?NorthDakotaStateUniv&layout_id=1 or contact the Dean of Students Office at 701-231-7701.

FUNDING OPPORTUNITIES

The ND EPSCoR State Office has a mission to support the efforts of EPSCoR participating institutions across the state that result in increased STEM faculty capacity and competitiveness and a stronger STEM pathway that produces our next generation workforce, educators, and researchers.

To help support the efforts of faculty and students engaged in STEM research and education, the ND EPSCoR State Office is requesting proposals for activities in the following categories:

- Equipment
- Equipment repair
- Undergraduate research
- Faculty seed awards
- Awards to fund external peer review of large collaborative/interdisciplinary proposals prior to submission to a federal agency
- Faculty/student awards to support K12 outreach activities
- Development of online/virtual modules for STEM laboratory courses.

The link to the RFP and necessary forms can be found at:

<https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/SeedAwards/2020NDUSSTEMRFP.pdf>

For full consideration, proposals must be submitted by September 21, 2020.

NSF: Cyberinfrastructure for Sustained Scientific Innovation

The Cyberinfrastructure for Sustained Scientific Innovation (CSSI) umbrella program [NSF 20-592] seeks to enable funding opportunities that are flexible and responsive to the evolving and emerging needs in cyberinfrastructure (CI). This program emphasizes integrated CI services, quantitative metrics with targets for delivery and usage of these services, and community creation.

The CSSI umbrella program anticipates two classes of awards:

- Elements: These awards target small groups that will create and deploy robust services for which there is a demonstrated need, and that will advance one or more significant areas of science and engineering.
- Framework Implementations: These awards target larger, interdisciplinary teams organized around the development and application of services aimed at solving common research problems faced by NSF researchers in one or more areas of science and engineering, and resulting in a sustainable community framework providing CI services to a diverse community or communities.

Prospective PIs should be aware that this is a multi-directorate activity and that they are encouraged to submit proposals with broad, interdisciplinary interests. Further, not all divisions are participating at the same level and division-specific priorities differ. Prospective PIs should refer to the directorate/division-specific descriptions contained in Section II of the solicitation.

It is strongly recommended that prospective PIs contact program officer(s) from the list of Cognizant Program Officers in the division(s) that typically support the scientists and engineers who would make use of the proposed work, to gain insight into the priorities for the relevant areas of science and engineering to which their proposals should be responsive. As part of contacting Cognizant Program Officers, prospective PIs are also encouraged to ascertain that the focus and budget of their proposed work are appropriate for this solicitation.

Deadline: October 28, 2020

Sony: Research Award Program

The [Sony](#) Research Award Program seeks to create new opportunities for university faculties to engage in pioneering research that could drive new technologies, industries, and the future. To that end, Sony welcomes applications for the [Focused Research Award](#), which seeks to foster collaboration with academic partners and facilitate the exploration of new and promising research. The program will provide up to \$150,000 in support of collaborative research projects. Focused research themes include countermeasures against so-called deep fakes on an image sensor level; the training of neural networks using unlabeled targets and without the need for prohibitively large and costly datasets; exploration of the under-explored deep fusion (or early fusion) of visual (camera) and radar sensor signals; the design and implementation of camera ISP algorithms using deep learning and computer vision; robust mesh tracking for volumetric capture; advanced image processing enabled by AI; machine learning / artificial intelligence for wireless communications; reconfigurable reflector type materials; acoustic meta-materials; novel technologies for GaN-based VCSELs; and intelligent sensing of patient-reported outcomes.

Deadline: September 16, 2020

RECENTLY SUBMITTED PROPOSALS

- Yao Yu (PI), Zhili Gao (CPI). Transportation Mobility Enhancement to Solve the Spatial Mismatch Between Housing Affordability and Employment for Low-Incomes in North Dakota. \$50,000 from the National Science Foundation. 11/01/2020 – 02/28/2021.
- Yao Yu (PI). CAREER: Development of a General Zonal Airflow Modeling Approach for Built Environment. \$573,895 from the National Science Foundation. 06/01/2021 – 05/31/2026.
- Michael Richard Kessler (PI). NSF I-Corps Hub: Networked East to West (NEW) Region. \$591,241.91 from the National Science Foundation. 01/01/2021 – 12/31/2026.
- Zhili Gao (PI). Mixed Reality Building Information Modeling (Mr. BIM) Laboratory. \$74,821 from the NDSU Foundation and Alumni Association. 01/01/2021 – 12/31/2023.
- Ravi Kiran Yellavajjala (PI). Integrity of Polyol-Soy Coatings in Aggressive Concrete Environment: Phase-2. \$25,202 from the MN Soybean Research and Promotion Council. 09/01/2020 – 08/31/2021.
- Ravi Kiran Yellavajjala (PI). CAREER: Reduced-scale Additive Manufactured Models for Quantifying the Behavior of Large Structural Steel Castings. \$500,000 from the National Science Foundation. 05/16/2021 – 05/15/2026.
- Danling Wang (PI). CAREER: A Novel Breath-Based Sensing System Using New Functionalized Nanomaterials for Early and Fast Disease Detection and Daily Monitoring. \$566,395 from the National Science Foundation. 01/01/2021 – 12/31/2025.
- Mijia Yang (PI). Collaborative REU Site: Research Experiences for Undergraduate Students on Biological Concrete Materials. \$403,644 from the National Science Foundation. 08/01/2021 – 12/31/2024.
- Mijia Yang (PI). An image-based impact monitoring and tracing method. \$29,000 from the National Aeronautics and Space Administration. 09/16/2020 – 09/15/2021.
- Yan Zhang (PI). Jugular Venous Blood Stasis in Microgravity: An Integrated Study of Pulsatile Flow-Vein-Valve Interaction. \$39,930 from the National Aeronautics and Space Administration. 09/16/2020 – 08/15/2021.

- Adam Curtis Gladen (PI). CAREER: Storing Solar Energy through the Catalytic Torrefaction of Biomass in Molten Salts. \$513,664 from the National Science Foundation. 08/01/2021 – 07/31/2026.
- Ying Huang (PI), Danling Wang (CPI). New Self-powered IoT Sensors Based on a Novel Multifunctional 2D Ti3C2Tx MXene Nanosheets for Potential Use on Space Probe to Venus. \$40,000 from the National Aeronautics and Space Administration. 09/15/2020 – 08/31/2021.
- Di Wu (PI). Career: Dynamic Stability Analysis and Control of Wideband Oscillation in Power Grids with High Penetration of Renewable Energy Resources. \$499,909 from the National Science Foundation. 05/01/2021 – 04/30/2026.

RECENT PUBLICATIONS

For 2020, 121 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:

- Ajayi-Banji, A. A., S. Rahman, L. Cihacek, and N. Nahar. n.d. "Comparison of the Reactor Performance of Alkaline-Pretreated Corn Stover Co-Digested with Dairy Manure Under Solid-State." *Waste and Biomass Valorization*. <https://doi.org/10.1007/s12649-020-01116-z>.
- Azimi, Mohsen, and Asghar Molaei Yeznabad. 2020. "Swarm-Based Parallel Control of Adjacent Irregular Buildings Considering Soil-Structure Interaction." *Journal of Sensor and Actuator Networks* 9 (2): 18. <https://doi.org/10.3390/jsan9020018>.
- Eslaminejad, Ashkan, Mohamad Hosseini-Farid, Mariusz Ziejewski, and Ghodrati Karami. 2020. "Constitutive Properties Determination of Human Cranium by an Experimental-Computational Modal Analysis." *Journal of Vibration and Acoustics-Transactions of the ASME* 142 (1): 011013. <https://doi.org/10.1115/1.4045216>.
- Ghasemi, Shokoofeh, Mukund P. Sibi, Chad A. Ulven, Dean C. Webster, and Ghasideh Pourhashem. 2020. "A Preliminary Environmental Assessment of Epoxidized Sucrose Soyate (ESS)-Based Biocomposite." *Molecules* 25 (12): 2797. <https://doi.org/10.3390/molecules25122797>.
- Hosseini-Farid, Mohammad, MaryamSadat Amiri-Tehrani-Zadeh, Mohammadreza Ramzanpour, Mariusz Ziejewski, and Ghodrati Karami. 2020. "The Strain Rates in the Brain, Brainstem, Dura, and Skull under Dynamic Loadings." *Mathematical and Computational Applications* 25 (2): 21. <https://doi.org/10.3390/mca25020021>.
- Huang, Ying, Fodan Deng, Luyang Xu, and Fardad Azarmi. n.d. "Two-Dimensional Pitted Corrosion Localization on Coated Steel Based on Fiber Bragg Grating Sensors." *Journal of Civil Structural Health Monitoring*. <https://doi.org/10.1007/s13349-020-00424-1>.
- Iftikhar, Adnan, Jacob M. Parrow, Sajid M. Asif, Adnan Fida, Jeffery Allen, Monica Allen, Benjamin D. Braaten, and Dimitris E. Anagnostou. 2020. "Characterization of Novel Structures Consisting of Micron-Sized Conductive Particles That Respond to Static Magnetic Field Lines for 4G/5G (Sub-6 GHz) Reconfigurable Antennas." *Electronics* 9 (6): 903. <https://doi.org/10.3390/electronics9060903>.
- Jachens, Elizabeth R., Holly Hutcheson, Matthew B. Thomas, and David R. Steward. n.d. "Effects of Groundwater-Surface Water Exchange Mechanism in the National Water Model over the Northern High Plains Aquifer, USA." *Journal of the American Water Resources Association*. <https://doi.org/10.1111/1752-1688.12869>.
- Silbert, Samantha D., Patrick Simpson, Raul Setien, Michael Holthaus, John La Scala, Chad A. Ulven, and Dean C. Webster. 2020. "Exploration of Bio-Based Functionalized Sucrose Ester Resins for Additive Manufacturing via Stereolithography." *ACS Applied Polymer Materials* 2 (7): 2910–18. <https://doi.org/10.1021/acsapm.0c00417>.
- Zhang, Z., C. Igathinathane, J. Li, H. Cen, Y. Lu, and P. Flores. 2020. "Technology Progress in Mechanical Harvest of Fresh Market Apples." *Computers and Electronics in Agriculture* 175 (August): 105606. <https://doi.org/10.1016/j.compag.2020.105606>.
- Zhao, Baoyun, Xiaoping Wang, Mijia Yang, Dongyan Liu, Dongsheng Liu, and Shuguo Sun. 2020. "Experimental Study on Static Load of Large-Diameter Piles in Nonuniform Gravel Soil." *Advances in Civil Engineering* 2020 (July): 6291826. <https://doi.org/10.1155/2020/6291826>.
- Zhlobko, Oksana, Xiang-Fa Wu, Zhengping Zhou, Ted Aulich, Jivan Thakare, and John Hurley. 2020. "A Comparative Experimental Study of the Hygroscopic and Mechanical Behaviors of Electrospun Nanofiber

Membranes and Solution-Cast Films of Polybenzimidazole.” *Journal of Applied Polymer Science* 137 (39): e49639. <https://doi.org/10.1002/app.49639>.

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.

