

# COLLEGE HAPPENINGS

April 2, 2019

## FROM THE DEAN

### To Measure is to Know: The Importance of Metrics

British mathematician and physicist William Thomson, better known as Lord Kelvin and the namesake for the kelvin unit of absolute temperature, claimed that without measurement, our knowledge of something—anything—is “meager and unsatisfactory.” Greek philosopher and mathematician Philolaus put it more bluntly nearly 2,400 years ago: “Everything that can be known has a number.”<sup>1</sup>

When I was a new professor at the University of Tulsa, I taught a mechanical engineering class called Instrumentation and Measurements where we focused on the importance of quantification in science and engineering. Students learned to think, not “that the aluminum beam is lighter than the steel beam” (meager and unsatisfactory knowledge), but rather “that the aluminum beam has a density of  $2.70 \text{ g/cm}^3$ , while the steel beam has a density of  $7.80 \text{ g/cm}^3$ .”<sup>1</sup>

Such quantification, by measuring things, in engineering applications is natural. It is similarly necessary to objectively gain knowledge about the quality and progress of the programs and activities in our college through the use of appropriate metrics. Defining and measuring appropriate metrics are key to the implementation of a successful strategic plan and the assessment of the plan’s major objectives. Through our strategic planning efforts this year, the college leadership team is currently working on a scorecard to track our progress on various strategic initiatives and the overall health of our college, where we are defining some of these metrics.

Of course, some things are more easily measured than others, which is an important consideration in choosing appropriate metrics. This point was illustrated by my teenage daughter when, responding to a humorous YouTube video, she asked, “How funny is that?”.



1. Henshaw JM. Does Measurement Measure Up?: How Numbers Reveal and Conceal the Truth. 1 edition. Baltimore: Johns Hopkins University Press; 2006

*“I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind.”*

—Lord Kelvin, “Electrical Units of Measurement” (1883)

## IN THE NEWS

[Engineering professor selected to present Faculty Lectureship](#)

[NDSU Research and Technology Park leader named](#)

[NDSU students raising money for teen fighting cancer](#) (NDSU News)

[NDSU hosts fundraiser for teen battling rare cancer](#) (Valley News Live)

[NDSU raises money for future Bison who is battling cancer](#) (Forum/WDAY)

[NDSU GeoWall team wins top regional honors](#)

[A win for North Dakota State engineers](#) (Spectrum)

## CONGRATULATIONS

**Chad Ulven** from the **Department of Mechanical Engineering** has been selected to present the **58<sup>th</sup> Faculty Lectureship** entitled “Societal Crossroads: Materials That Do Not Kill Us Will Make Us Stronger.” The lecture will be held **Tuesday, April 2 at 7:00 p.m. in the Memorial Union Century Theater**. All members of the NDSU community are invited.

**Jacob Glower** from the **Department of Electrical and Computer Engineering** has been selected as the recipient of the **Peltier Award for Teaching Innovation** for the 2018-19 Academic Year. Glower will be formally recognized during the annual NDSU Celebration of Faculty Excellence on May 9.

**Di Wu** from the **Department of Electrical and Computer Engineering** has secured funding from the **Department of Energy** for a real-time power simulation platform for use in research and education. The money comes from a collaboration with the University of Oklahoma.

The **NDSU Steel Bridge** team will have a chance to add to its already record total of 6 National Championships. The team placed 1<sup>st</sup> overall during the regional competition at SDSU and will be headed to nationals May 31-June 1 at Southern Illinois University.

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

## WELCOME

**Jamileh Shojaeiarani** joined the **Department of Mechanical Engineering** as a postdoctoral fellow. Shojaeiarani graduated from NDSU in December 2018. Her research project will focus on improving the barrier properties of biopolymers for packaging applications.

## SPAM EMAIL WARNING

Please be aware of a recent rash of emails sent out in the name of college administrators, including one sent Monday from someone pretending to be Dean Kessler. The goal of these “Phishing scams” is try to get faculty and staff to respond, and ultimately, take your money or personal information.

For more information on spotting a Phishing scam and what to do if you’ve been hooked check out [THIS WEBSITE](#) created by NDSU Information Technology Services.

## UPCOMING EVENTS

Tuesday, April 2, **58<sup>th</sup> NDSU Faculty Lectureship**. Chad Ulven from the Department of Mechanical Engineering will present “Societal Crossroads: Materials That Do Not Kill Us Will Make Us Stronger.” The lecture will be held at **7:00 p.m. in the Memorial Union Century Theater**.

Wednesday, April 3, **Department of Construction Management and Engineering Research Seminar**. “Role of mixing two bacteria on compressive strength, water absorption and micro structure of mortar cubes” by Usmita Pokhrel. 12:00 – 1:00 p.m. Loftsgard 104.

Thursday, April 11, **NDSU EXPLORE Annual Showcase** at the Memorial Union. [Registration is now open](#). Encourage your students to present their research and creative work in posters, oral presentations, or in other formats.

Friday, April 12 and Saturday, April 13 **CoSearch NDSU**. Researchers will have 30 hours to share a research idea, hone the idea with an interdisciplinary team they meet at the event and pitch the idea to a panel of judges who will fund the winners. [Learn more about the event and sign up here](#).

Saturday, May 11, **NDSU Spring Commencement**. The ceremony for the College of Engineering will be held at 10:00 a.m. at the Fargodome. Faculty and staff who wish to participate in the academic procession will wear caps and gowns and march by academic rank and seniority. To register, please go to <http://www.ndsu.edu/commencement/facstaff/> and complete the necessary form.

## COLLEGE OF ENGINEERING AWARDS

The **Graduate and Research Committee** and the **Academic Affairs Committee** are now accepting nominations for the **College of Engineering Researcher and Teacher of the Year awards**.

Each year the college recognizes the outstanding research and teaching achievements of CoE faculty and graduate students.

Details about the awards, including nomination documents, instructions and previous winners can all be [found on the College of Engineering website](#).

Nominations and supporting materials are due by **Friday, April 5 at 5:00 p.m.**

## FUNDING OPPORTUNITIES

### Equipment Repair Fund

The Research and Creative Activity Office has a limited pool of funds for equipment repair. For departmental/unit requests, priority will be given to equipment that is used by multiple researchers and that has a match of at least 33%.

For Service/Recharge Centers and Core Facilities, priority will be given to requests that have at least a 50% match. Funds must be spent no later than June 15, 2019.

Please submit your request, including details of the equipment to be repaired, its use (departmental, college, institution-wide), and an estimate/quote of the repair cost, to Becky Hellman Tangen ([becky.hellman@ndsu.edu](mailto:becky.hellman@ndsu.edu)).

### NSF: Industry-University Research Centers Program (IUCRC)

The [Industry-University Cooperative Research Centers \(IUCRC\) program](#) develops long-term partnerships among industry, academe, and government. The Centers are catalyzed by an investment from the National Science Foundation (NSF) and are primarily supported by industry Center members, with NSF taking a supporting role in the development and evolution of the Center. Each Center is established to conduct research that is of interest to both the industry

members and the Center faculty. An IUCRC contributes to the nation's research infrastructure base and enhances the intellectual capacity of the engineering and science workforce through the integration of research and education. As appropriate, an IUCRC uses international collaborations to advance these goals within the global context.

*Preliminary Proposal deadline: April 17, 2019 or October 16, 2019; Full Proposal deadline: June 19, 2019 or December 18, 2019*

## RECENTLY FUNDED GRANTS

- Nurun Nahar (PI), Dilpreet Singh Bajwa (CPI). Value Addition of Corn DDGS by Fiber Extraction (elurition by air) and Application of DDGS Fiber to Manufacture Low-Density Particleboards. \$47,280 from the ND Corn Utilization Council. 07/01/2019 – 06/30/2021.
- Ravi Kiran Yellavajjala (PI), Dilpreet Singh Bajwa (CPI). Corn Starch Hydrogel as Unpaved Road Dust Suppressant. \$49,580 from the ND Corn Utilization Council. 07/01/2019 – 06/30/2021.
- Ravi Kiran Yellavajjala (PI), Dilpreet Singh Bajwa (CPI). A New Corn Product for Winter Maintenance of North Dakota Roads. \$49,080 from the ND Corn Utilization Council. 07/01/2019 – 06/30/2021.
- Xin Sun (PI). Using UASs for Site-Specific Weed Management in Corn. \$20,525 from the ND Corn Utilization Council. 07/01/2019 – 06/30/2020.

## RECENT PUBLICATIONS

*For 2019, 33 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:*

- Annandarajah, Cindu, Edmund J. Norris, Ryan Funk, Chunhui Xiang, David Grewell, Joel R. Coats, Danny Mishek, and Benjamin Maloy. 2019. "Biobased Plastics with Insect-Repellent Functionality." *Polymer Engineering and Science* 59 (March): E460–67. <https://doi.org/10.1002/pen.25083>.
- Bao, Yi, Ying Huang, Matthew S. Hoehler, and Genda Chen. 2019. "Review of Fiber Optic Sensors for Structural Fire Engineering." *Sensors* 19 (4): 877. <https://doi.org/10.3390/s19040877>.
- Chatterjee, Subarna, Sudip Misra, and Samee U. Khan. 2019. "Optimal Data Center Scheduling for Quality of Service Management in Sensor-Cloud." *IEEE Transactions on Cloud Computing* 7 (1): 89–101. <https://doi.org/10.1109/TCC.2015.2487973>.
- Edstrom, Jonathon, Dongliang Chen, Yifu Gong, Jinhui Wang, and Na Gong. 2019. "Data-Pattern Enabled Self-Recovery Low-Power Storage System for Big Video Data." *IEEE Transactions on Big Data* 5 (1): 95–105. <https://doi.org/10.1109/TBDATA.2017.2750699>.
- Eslaminejad, Ashkan, Mariusz Ziejewski, and Ghodrat Karami. 2019. "Vibrational Properties of a Hemispherical Shell With Its Inner Fluid Pressure: An Inverse Method for Noninvasive Intracranial Pressure Monitoring." *Journal of Vibration and Acoustics* 141 (4): 041002-041002–7. <https://doi.org/10.1115/1.4042928>.
- Habib, Ahasan, and Bashir Khoda. 2019. "Development of Clay Based Novel Hybrid Bio-Ink for 3D Bio-Printing Process." *Journal of Manufacturing Processes* 38 (February): 76–87. <https://doi.org/10.1016/j.jmapro.2018.12.034>.
- Hao, Cheng, Tuan Liu, Shuai Zhang, Lucas Brown, Ran Li, Junna Xin, Tuhua Zhong, Long Jiang, and Jinwen Zhang. 2019. "A High-Lignin-Content, Removable, and Glycol-Assisted Repairable Coating Based on Dynamic Covalent Bonds." *Chemsuschem* 12 (5): 1049–58. <https://doi.org/10.1002/cssc.201802615>.
- Shojaeiarani, Jamileh, Dilpreet S. Bajwa, and Kerry Hartman. 2019. "Esterified Cellulose Nanocrystals as Reinforcement in Poly (Lactic Acid) Nanocomposites." *Cellulose* 26 (4): 2349–62. <https://doi.org/10.1007/s10570-018-02237-4>.
- Xu, Yuni, Xiang Fu, and Xuefeng Chu. 2019. "Analyzing the Impacts of Climate Change on Hydro-Environmental Conflict-Resolution Management." *Water Resources Management* 33 (4): 1591–1607. <https://doi.org/10.1007/s11269-019-2186-7>.

*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.

