

COLLEGE HAPPENINGS

June 9, 2020

FROM THE DEAN

Supporting Minority Students

Scrolling through newsfeeds two weeks ago, when I last wrote my message for our biweekly College Happenings, I wondered to myself: When will we be talking about something other than COVID-19. And then, George Floyd's harrowing and tragic killing from a police officer's knee, ignited a movement and initiated two weeks of protests across the country against police brutality. Today, while Mr. Floyd's body is laid to rest, the national discussion and outrage about systemic racial injustice, and long standing racial divisions, is as alive as ever.

Unfortunately, we, in the engineering and academic community, are not immune to the discrimination, suppression, and silencing of minority students, colleagues, and voices. Which is why, as a community, we must strive to treat each other better and empathize with each other, especially with those in our underrepresented communities. The recent events are raw for many, and stir strong emotions, which makes these conversations more difficult. But, if we do not have those conversations now, then when? I have shared repeatedly about our intent to cultivate an inclusive and welcoming environment in the College of Engineering (CoE) and to be proactive about diversity. "We are Inclusive" is one of the four core values identified in our [2020-2025 strategic plan](#). We best exemplify this commitment through our moral actions when we see injustice.

Earlier this academic year, we began working on a Diversity, Equity, and Inclusion Plan for the CoE. Over the coming months, we will be sharing and refining that plan and following through on several initiatives, including increasing support for minority students. Lauren Singelmann, the college's Outreach Coordinator, created a list of best teaching practices to support minority students, based on some best practices in the literature.* These seven suggested practices, which are presented in the graphic below, are an outstanding first step in creating a more inclusive and equitable environment in our classrooms, and I encourage you to adopt them.

7

Best Teaching Practices to Support Minority Students

1

Learn more about what you can do to promote diversity and inclusion by reading publications, books, and social media posts written by people from underrepresented groups within engineering.

Frame engineering problems within a human, social or environmental context. Minority (and many majority) students connect with and retain information when put into these contexts. As an added bonus, this ties into ABET Student Outcome 2.

2

3

Allow your students to fail in the class without failing the class. By allowing students to make mistakes on their homework without having it negatively impact their final grade, you are creating a positive environment while still preparing students for the final summative assessments.

Promote active learning in the classroom. Activities like "Think, Pair, Share" and "Turn and Talk" allow students to discuss problems with their peers and can bring questions to light. Doing these activities early and often improves participation.

4

5

Allow students to take greater ownership for their learning. By creating open-ended assignments and projects, students can tie their own interests and culture into their work, strengthening both their understanding and self-efficacy.

Provide students with flexibility. Students from underrepresented groups are more likely to be affected by classes that grade attendance or have rigid rules and deadlines for assignments and exams.

6

7

Encourage your advisees to join extracurricular groups on campus. A list can be found at myndsu.ndsu.edu/organizations

We're building a new webpage that will include these 7 teaching practices and other resources on supporting diversity and inclusion in the classroom. I'll share the link with you once the site launches.

Until then, take care of yourselves and each other. And please share your thoughts, experiences and ideas, because we are far better together.



* (1) *Grading for Equity* by Joe Feldman; (2) *Culturally Responsive Teaching and the Brain* by Zaretta Hammond; (3) *Perceived supports and evidence-based teaching in college STEM* by Bathgate, Aragon, et al.

IN THE NEWS

[NDSU computer science professor remembered for contributions to college and community](#)

[College of Engineering launches STEM Kids Take Home program](#)

[NDSU researchers to explore effects of oregano on types of cancer](#)

[Elliott Stone Voted to Academic All-District Team for 3rd Straight Year](#)

[Trinity student awarded two big scholarships to NDSU](#)

CONGRATULATIONS

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

BRIAN SLATOR REMEMBERED FOR CONTRIBUTIONS TO COLLEGE AND COMMUNITY

Brian Slator, professor of computer science, died May 1. He was 67.

Slator spent almost 26 years as a faculty member in the NDSU Department of Computer Science and was head of the department from 2007–17. During his time NDSU, he served as a mentor and friend to students and colleagues across many disciplines and was instrumental in several interdepartmental collaborations.



Slator and Astronaut Col. Al Worden who was at NDSU to present a NASA scholarship in 2008 (Courtesy: Guy Hokanson)

"He will be greatly missed by students, faculty and staff in our department and across the university," said Ken Nygard, professor and chair of computer science. "Although Dr. Slator was a recognized expert in Artificial Intelligence and Natural Language Processing, he became interested in the scholarship of learning through the use of educational games. Leveraging many collaborations, he was the primary designer and developer of multi-user games deployed for teaching in many areas, including programming, geoscience, economics and cell biology. For these highly successful efforts he was awarded the Ernest L. Boyer International Award for Excellence in Teaching, Learning and Technology, the only NDSU professor ever recognized in this way."

Slator was instrumental in developing NDSU's new Graduate Certificate Program in Computer Science Education intended to teach high school instructors to teach computer science.

"Lots of schools in North Dakota have key-boarding classes and Microsoft Office, but very few offer anything that resembles a computer science programming class," Slator said in a December 2019 interview. "We are hoping that eventually every K-12 school in the state will have at least one certified computer science instructor because we believe computer fluency is that important."

Slator was instrumental in the computer science department receiving the Advance FORWARD Department Award in 2013. The award is presented annually by the Commission on the Status of Women Faculty to recognize and reward significant department efforts to improve campus climate and gender equity within the faculty ranks.



Department of Computer Science accepting the Advance FORWARD Department Award. (Courtesy: Canan Bilen-Green)

Slator was raised in Minnesota and earned bachelor's degree from the University of Wisconsin - La Crosse in 1983. He earned his doctorate in computer science from New Mexico State University in 1988 and was hired as an assistant professor at NDSU that same year. After serving as a research scientist at the Institute for the Learning Sciences at Northwestern University from 1990-96 he returned to the faculty at NDSU.

His research interests included artificial intelligence and educational media.

UPCOMING EVENTS

Wednesday, June 10, **Academic Leaders Series: Communicating Intent and Impact in Conflict**. NDSU Ombuds, Kristine Paranca, will lead an interactive discussion about how our intentions impact communication with each other. **10:00 - 11:30 a.m.**, via Zoom

(<https://ndsu.zoom.us/j/98938238381?pwd=U1FubEhOVkozMS9QKzFDQ2NnVTJCQT09>). **Register** at:
https://www.ndsu.edu/pubweb/provostevents/event_20200325a1.php

Thursday, June 11, **Blackboard Annotate Overview**. Bb Annotate replaced the New Box View inline grading tool in Blackboard Assignments on June 1. Join Learning and Applied Innovation staff to learn how to use Bb Annotate. **1:30 – 2:30 p.m.** **[Register Here.](#)**

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.](#)

2020-21 PTE INFORMATION AND TRAINING

The 2020-21 PTE Materials are now available to download from the Promotion and Tenure website at: https://www.ndsu.edu/provost/administrative_units/facultyaffairs/promotion_and_tenure/. This website contains the NDSU PTE Timeline, Guidelines for Promotion and Tenure Portfolio Preparation, Probationary Period Extension Form (per NDSU Policy 352, 3.6), Policy and Procedure Checklist, the Portfolio Cover Sheet, and Information on University-Wide PTE Advisory Committee.

Portfolios are due to the Office of the Provost/Faculty Affairs no later than December 31, 2020. If you have any questions regarding PTE, please contact Canan Bilen-Green (canan.bilen.green@ndsu.edu, 1-7040).

Information Sessions for Fall 2020 Candidates

- Thursday June 18, 10:00-11:00 am, via Zoom
- Thursday July 23, 10:00-11:00 am, via Zoom
- Wednesday September 2, 1:00-2:00 pm, Arikara
- Thursday September 3, 3:00-4:00 pm, Rose

PTE Training for Fall 2020 Reviewers

- Thursday September 3, 9:30-11:30 am, Rose
- Friday September 11, 2:00-4:00 pm, Rose
- Wednesday September 23, 2:00-4:00 pm, Badlands
- Thursday October 1, 2:00-4:00 pm, Rose
- Wednesday October 21, 2:00-4:00 pm, Rose
- Tuesday October 27, 1:00-3:00 pm, Rose

New Faculty PTE Session – Faculty hired within the last three years

- Wednesday November 4, 3:00-4:00 pm, Rose
- Thursday November 5, 3:30-4:30 pm, Rose

Registration information for these sessions is forthcoming.

RCA FACULTY FELLOW APPLICATIONS OPEN

The Research and Creative Activity Faculty Fellows program provides established faculty members the opportunity to enhance their academic leadership skills, bring a faculty voice and expertise to administrative offices, and gain insight into administrative practices and offices. This particular opportunity is intended to enhance research support with a focus on early career faculty research mentoring.

The program seeks to appoint one Faculty Fellow with a term of up to two years. The Faculty Fellow will report to the Vice President for Research and Creative Activity and will primarily work with the Research Development unit. The Fellow will be expected to spend approximately four hours per week working on program development, attending regular meetings, and implementing the focus area project. In return, the Fellow will receive \$7,500 in compensation for the 2020-2021 appointment. The Fellow must be eligible to receive such compensation in order to be selected. Applicants may be from any discipline at NDSU but must be at the rank of a tenured senior associate or full professor who has been at NDSU for at least five years. Appointments are for the 2020-2021 academic year with the opportunity for a one-year extension.

To apply, send a CV and a statement of interest providing details about your experiences in research mentoring, particularly with early career faculty, and leadership role experience to ndsuhdev@ndsuh.edu. Applications must be received by June 11, 2020. A selection is anticipated to be made by June 30, 2020.

FUNDING OPPORTUNITIES

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.

DOE: Enhance Manufacturing Competitiveness Through Innovation

The U.S. Department of Energy's (DOE's) Office of Energy Efficiency and Renewable Energy (EERE) announced a [funding opportunity](#) to stimulate technology innovation, improve the energy productivity of American manufacturing, and enable the manufacturing of cutting-edge products in the United States.

Projects selected under this funding opportunity announcement (FOA) will aim to improve energy efficiency in energy-intensive processes and facilitate the transition to emerging, cost-competitive energy technologies in domestic production. EERE's Advanced Manufacturing Office (AMO) supports the development of technologies that improve energy efficiency

in U.S. manufacturing as well as foundational, cross-cutting manufacturing processes, information, and materials technologies critical to efficient and competitive domestic manufacturing. This FOA focuses on three main areas:

1. Next-generation manufacturing processes that improve energy efficiency in energy-intensive and energy-dependent industries, including steel manufacturing;
2. Modular, hybrid, or catalytic processes to improve energy efficiency in chemical manufacturing; and
3. Connected, flexible, and efficient manufacturing facilities, products, and energy systems, including the integration of direct air capture at industrial facilities.

Industry partners must provide at least 20% of the funding for new research and development projects.

Concept Paper Deadline: June 25, 2020

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

- Di Wu (PI). Distributed Protection and Restoration Schemes for Integration of Large-scaled Solar PV Installations and Responsive Loads: Design, Testbed, Proof of Work and Impact Studies. \$599,613 from the Department of Energy. 06/01/2019 – 05/31/2022.
- Di Wu (PI), Dali Sun(CPI). A novel therapeutic target screening method for pancreatic cancer aided by efficient identification of critical pathways using graph theoretical framework. \$5,000 from the NDSU Foundation and Alumni Association. 06/01/2020 – 05/31/2021.
- Dali Sun (PI), Wenjie Xia (CPI). A novel treatment for pancreatic cancer aided by AI. \$5,000 from the NDSU Foundation and Alumni Association. 05/08/2020 – 04/12/2021.
- Wenjie Xia (PI). A Bioinspired Design Strategy for Multifunctional Performance of Nanocellulose. \$1,000 from the NDSU Foundation and Alumni Association. 08/16/2020 – 12/31/2020.
- Mijia Yang (PI). Cost-benefit Analysis of Structural Snow Fences in North Dakota. \$1,000 from the NDSU Foundation and Alumni Association. 05/01/2020 – 05/31/2021.
- Ivan T Lima Jr (PI). Preliminary Studies for the Development of Therapeutic Antibodies using Dielectrophoresis. \$5,000 from the NDSU Foundation and Alumni Association. 05/16/2020 – 06/15/2021.
- Danling Wang (PI). Integrated Study of Novel Nanocomposites Based on Two-Dimensional MXene and One-Dimensional Nanowires for Biomedical Sensing Applications. \$1,000 from the NDSU Foundation and Alumni Association. 06/01/2020 – 05/31/2021.
- Xinnan Wang (PI). The Effect of Surface Roughness on Functionality of Orthopedic Implants. \$4,978 from the NDSU Foundation and Alumni Association. 05/01/2020 – 11/30/2020.
- Benjamin Davis Braaten (PI). Support for Medium Voltage Gate Driver Design and Development. \$12,329 from UT-Battelle, LLC. 05/23/2020 – 08/07/2020.

RECENTLY SUBMITTED PROPOSALS

- Dharmakeerthi Nawarathna (PI). FMSG: Viral vector free CAR T-cell manufacturing at point-of-care for personalized therapy. \$498,260 from the National Science Foundation. 09/01/2020 – 08/31/2022.
- Dali Sun (PI). Validation of ExoIPThT a Novel Assay Targeting Exosomal Proteins' Secondary Structure as a Pancreatic Cancer Screening Assay. \$652,149 from the National Institutes of Health. 09/01/2020 – 08/31/2023.
- Ivan T Lima Jr. (PI). Biosensor for the Follow-Up of Cancer Patients in Rural Underserved Communities. \$412,145 from the National Institutes of Health. 09/01/2020 – 08/31/2023.

RECENT PUBLICATIONS

For 2020, 76 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:

- He, Pengfei, Wenfeng Du, Longxuan Wang, Ravi Kiran, and Mijia Yang. 2020. "Additive Manufacturing and Mechanical Performance of Trifurcated Steel Joints for Architecturally Exposed Steel Structures." *Materials* 13 (8): 1901. <https://doi.org/10.3390/ma13081901>.
- Kar, Sumanta, Haneesh Jasuja, Dinesh R. Katti, and Kalpana S. Katti. 2020. "Wnt/Beta-Catenin Signaling Pathway Regulates Osteogenesis for Breast Cancer Bone Metastasis: Experiments in an In Vitro Nanoclay Scaffold Cancer Testbed." *ACS Biomaterials Science & Engineering* 6 (5): 2600–2611. <https://doi.org/10.1021/acsbiomaterials.9b00923>.
- Lai, X., A. Qi, Y. Liu, L. E. Del Rio Mendoza, Z. Liu, Z. Lin, and M. F. R. Khan. 2020. "Evaluating Inoculation Methods to Infect Sugar Beet with *Fusarium Oxysporum* f. *Betae* and *F. Secorum*." *Plant Disease* 104 (5): 1312–17. <https://doi.org/10.1094/PDIS-09-19-1895-RE>.
- Rahman, Md Mahfuzur, Bibek Byanju, David Grewell, and Buddhi P. Lamsal. 2020. "High-Power Sonication of Soy Proteins: Hydroxyl Radicals and Their Effects on Protein Structure." *Ultrasonics Sonochemistry* 64 (June): 105019. <https://doi.org/10.1016/j.ultsonch.2020.105019>.
- Ramzanpour, Mohammadreza, Mohammad Hosseini-Farid, Mariusz Ziejewski, and Ghodrat Karami. 2020. "A Constrained Particle Swarm Optimization Algorithm for Hyperelastic and Visco-Hyperelastic Characterization of Soft Biological Tissues." *International Journal for Computational Methods in Engineering Science and Mechanics* 0 (0): 1–16. <https://doi.org/10.1080/15502287.2020.1767725>.
- Rashid, Umma Salma, and Achintya N. Bezbaruah. 2020. "Citric Acid Modified Granular Activated Carbon for Enhanced Defluoridation." *Chemosphere* 252 (August): 126639. <https://doi.org/10.1016/j.chemosphere.2020.126639>.
- Wang, Ke, Qian Ma, Yuanming Zhang, Shudong Wang, and Guangting Han. 2020. "Ag NPs-Assisted Synthesis of Stable Cu NPs on PET Fabrics for Antibacterial and Electromagnetic Shielding Performance." *Polymers* 12 (4): 783. <https://doi.org/10.3390/polym12040783>.
- Zhang, Song, Amirhadi Alesadi, Mariia Selivanova, Zhiqiang Cao, Zhiyuan Qian, Shaochuan Luo, Luke Galuska, et al. n.d. "Toward the Prediction and Control of Glass Transition Temperature for Donor-Acceptor Polymers." *Advanced Functional Materials*, 2002221. <https://doi.org/10.1002/adfm.202002221>.

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.

