

COLLEGE HAPPENINGS

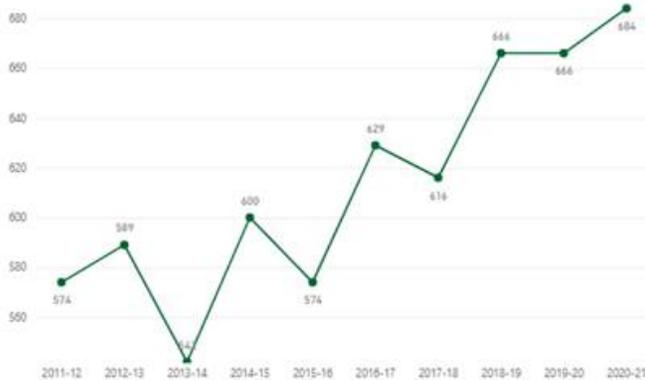
October 12, 2021

FROM THE DEAN

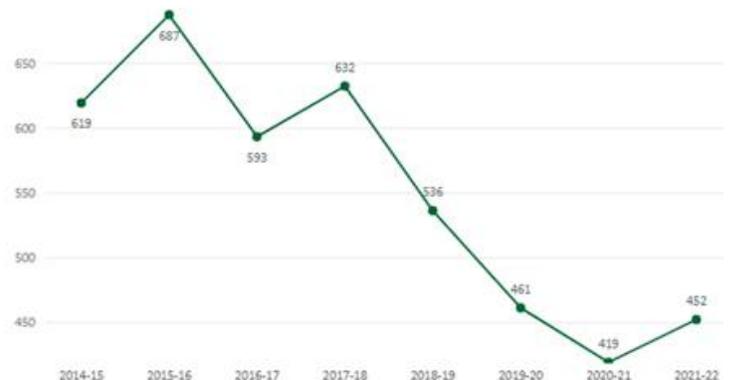
Enrollment and Our Value Proposition

Last academic year, the College of Engineering graduated a record 684 students, a 26% increase compared to the graduating class just seven years ago.¹ However, we are unlikely to see such large numbers of degrees awarded in the next few years because the number of freshmen enrolling in majors offered by the College of Engineering has decreased from a high enrollment of 687 in the fall of 2015 to a low of 419 last fall. This combination of large graduating classes and smaller freshman classes the past three years contributes to the lowest enrollment in our college's departments in the last decade. While our new 2021 freshman class of 452 is 8% higher than the low of 419 students we saw last fall, our overall enrollment dropped for the fourth year in a row, to a fall headcount of 2,688 students.

Degrees Awarded by Academic Year in the CoE



Unduplicated Freshman Enrollment (Fall) in the CoE



Numerous factors contribute to declining enrollments, including increased competition for students, especially Minnesota students, changing demographics, and a decrease in the number of graduating high school students choosing to attend college. That latter factor seems to be driven by a sentiment held by a growing proportion of people about the importance of a college education. A [2019 Gallup Poll](#) reported that the proportion of Americans who consider a college degree to be “very important” dropped from 70 percent in 2013 to 51 percent in 2019, a whopping 19 point drop in just six years. And, the demographics showing the most significant declines in the perceived value of higher education are young people, conservatives, and males, all demographics that affect our student body disproportionately.

However, the importance and value of a degree from the College of Engineering is an easy case to make. In a [recent analysis by Bankrate](#), which ranked the “most valuable” majors for college students’ earning potential, engineering degrees claimed eight of the top 10 spots and 14 of the top 20 spots. Construction management (services) was also in the top 5. Over half of the positions recruited for at the recent Career Expo in the Fargo Dome were for majors in our college. And, as our [Career Outcomes Report](#) shows, our students are being hired into high-paying positions.

Beyond the economic advantages, our students grow personally and intellectually due to the problem-solving and critical-thinking skills they develop at NDSU. The value proposition for a degree from our college is compelling. But, as a community, we need to do more to get that message to potential students and their families.



¹. While the Department of Computer Science joined CoE in 2020, they are included in the data shown here for all years for comparative purposes.

IN THE NEWS

[NDSU faculty member receives national award](#)

[College of Engineering honors distinguished alumnus](#)

[NDSU researchers use cell phones to measure road roughness](#)

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

UPDATE: **Department of Defense Regional DEPSCoR Day**. This event has been postponed until the Spring. Get more information here: www.usd.edu/research/depescor-dod-day

Tuesday, November 9, **Faculty Council meeting**. 12:30 – 1:30 p.m. FLC 122 or Zoom.

ANTI-RACISM COALITION

You are invited to join the [Anti-Racism Coalition \(ARC\)](#), a grassroots group of NDSU employees who affirm the value of our BIPOC (Black, Indigenous, People of Color) students and colleagues.

The ARC recognizes the ways in which predominantly white institutions, such as our own, often perpetuate systemic racism and the injustices that are tied to it. The group is open to any like-minded NDSU employee. [Read more about the group here](#). Please [fill out this form](#) if you would like to join the group.

FUTURE OF NSF EPSCOR

The National Science Foundation (NSF) Committee on Equal Opportunities in Science and Engineering (CEOSE) has charged a subcommittee with envisioning the future of the NSF Established Program to Stimulate Competitive Research (EPSCoR). The subcommittee has opened up a public comment site for anyone to provide input and ideas:

<https://beta.nsf.gov/envisioning-future-nsf-epscor/epscor-public-comment>. The public comment form allows for open-ended comments around 3 broad questions:

1. What current NSF EPSCoR investment strategies have you found to be successful? What makes them successful? Please give examples of these successes, particularly for how NSF EPSCoR investments have led to sustained improvements to research competitiveness for individuals, teams, institutions, or jurisdictions.
2. What factors influence the effectiveness of NSF EPSCoR investments? How are you measuring their effectiveness and / or success?
3. Are there additional strategies or investment areas that could help NSF EPSCoR and its jurisdictional partners achieve their shared goals? What competitiveness gaps might such strategies address, and how might they work? Cite evidence where possible to support your ideas.

The deadline for submitting comments is October 29, 2021.

FUNDING OPPORTUNITIES

NSF-DCL: Enabling Secure and Trustworthy Cyberspace (SaTC) CISE-SBE Interdisciplinary Collaborations

The National Science Foundation's (NSF) Secure and Trustworthy Cyberspace (SaTC) program aims to promote research on the fundamentals of security, privacy, and trustworthy cyberspace as a multidisciplinary subject that will lead to new knowledge and approaches to design, build, and operate cyber systems, protect persons, organizations, and existing infrastructure, and motivate and educate individuals about cybersecurity and privacy. With this [Dear Colleague Letter \(DCL\)](#), NSF is announcing its intention to encourage the submission of EARly-Concept Grants for Exploratory Research (EAGER) proposals that will foster novel, excellent interdisciplinary research in the SaTC domain to be carried out in collaborations between one or more Computer and Information Science and Engineering (CISE) researchers and one or more Social, Behavioral, and Economic Sciences (SBE) researchers.

Deadline: December 10, 2021

DoD: Young Investigator Program

The Office of Naval Research (ONR) is interested in receiving proposals for its Young Investigator Program (YIP) [[N00014-21-S-F008](#)]. ONR's Young Investigator Program seeks to identify and support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, who have received their PhD or equivalent degree on or after January 1, 2014, and who show exceptional promise for doing creative research.

Proposals addressing research areas which are of interest to ONR Program Officers will be considered. See a full list [here](#).

Applicants are *strongly encouraged* to contact the appropriate Program Officer who is the point of contact for a specific technical area to discuss their research ideas before submitting a proposal. A list of most Program Officers and their contact information can be found [here](#). Please see full text of the [funding opportunity announcement](#) for more details.

Deadline: October 29, 2021

RECENTLY FUNDED GRANTS

- Yao Yu (PI), Huojun Yang (CPI). Building energy efficiency improvement of A. Glenn Hill Center at North Dakota State University. \$27,000 from the ND Department of Commerce. 07/01/2021 – 06/30/2022.
- Dali Sun (PI). A novel pancreatic cancer treatment without side effects. \$12,700 from the NDSU Foundation and Alumni Association. 06/01/2021 – 05/31/2022.
- Adam Curtis Gladen (PI). Developing a novel, molten salt torrefaction process to enable solar- or waste-heat driven torrefaction. \$310,425 from the National Institutes of Food and Agriculture. 07/01/2021 – 06/30/2023.

- Farhad Shirani Chaharsooghi (PI). Collaborative Research: CIF: Small: A New Paradigm for Distributed Information Processing, Simulation and Inference in Networks: The Promise of Law of Small Numbers. \$249,962 from the National Science Foundation. 10/01/2021 - 09/30/2024.
- Ravi Kiran Yellavajjala (PI). Synthesis of Soy-based Hydrogels for Infrastructure Applications. \$20,000 MN Soybean Research & Promotion Council. 09/01/2021 - 08/31/2022.

RECENTLY SUBMITTED PROPOSALS

- Adam Curtis Gladen (PI). Developing a novel, molten salt torrefaction process to enable solar or waste-heat driven torrefaction. \$69,696 from the National Institute of Food & Agriculture. 8/1/2021 - 7/31/2022.
- Kalpana Katti (PI), Dinesh R Katti (CPI). Next Generation Testbeds of Breast Cancer Bone Metastasis. \$639,307 from the Department of Defense. 7/1/2022 - 6/30/2025.
- Yao Yu (PI), Zhili Gao (CPI). Needs Assessment Real-Time Survey System for North Dakota Low-Income Community. \$9,734 from The Consensus Council, Inc. 1/1/2022 - 12/31/2022.

RECENT PUBLICATIONS

For 2021, 183 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:

- Bai, Xin, and Mijia Yang. 2021. "UAV Based Accurate Displacement Monitoring through Automatic Filtering out Its Camera's Translations and Rotations." *Journal of Building Engineering* 44 (December): 102992. <https://doi.org/10.1016/j.jobbe.2021.102992>.
- Dey, Arup, Isnala Nanjin Roan Eagle, and Nita Yodo. 2021. "A Review on Filament Materials for Fused Filament Fabrication." *Journal of Manufacturing and Materials Processing* 5 (3): 69. <https://doi.org/10.3390/jmmp5030069>.
- Du, Wenfeng, Hui Wang, Liming Zhu, Yannan Zhao, Yingqi Wang, Runqi Hao, and Mijia Yang. 2021. "Innovative Joint for Cable Dome Structure Based on Topology Optimization and Additive Manufacturing." *Materials* 14 (18): 5158. <https://doi.org/10.3390/ma14185158>.
- Huda, Md Sanaul, Nurun Nahar, Ewumbua Monono, and Sagar Regmi. 2021. "Oil Recovery from Fractionated Dried Distillers Grains with Solubles (DDGS) Using Enzymes." *Processes* 9 (9): 1507. <https://doi.org/10.3390/pr9091507>.
- Liu, Chan, Hu Liu, Yang Yu, Wenzhi Zhao, Zhao Zhang, Li Guo, and Omer Yetemen. 2021. "Mapping Groundwater-Dependent Ecosystems in Arid Central Asia: Implications for Controlling Regional Land Degradation." *Science of the Total Environment* 797 (November): 149027. <https://doi.org/10.1016/j.scitotenv.2021.149027>.
- Miao, Rui, Xiaou Hu, Yao Yu, Yan Zhang, Mark Wood, and Gaylord Olson. 2021. "Experimental Study of a Newly Developed Dual-Purpose Solar Thermal Collector for Heat and Cold Collection." *Energy and Buildings* 252 (December): 111370. <https://doi.org/10.1016/j.enbuild.2021.111370>.
- Olson, Brittany Korynta, Matthew Brooke, Zhuoyu Wang, Andrej Svyantek, John Stenger, and Harlene Hatterman-Valenti. 2021. "'Frontenac' Grape Response to Canopy Management in North Dakota." *Horticulturae* 7 (9): 288. <https://doi.org/10.3390/horticulturae7090288>.
- Rahman, Atikur, Joseph Fehrenbach, Chad Ulven, Senay Simsek, and Khwaja Hossain. 2021. "Utilization of Wheat-Bran Cellulosic Fibers as Reinforcement in Bio-Based Polypropylene Composite." *Industrial Crops and Products* 172 (November): 114028. <https://doi.org/10.1016/j.indcrop.2021.114028>.
- Straub, Jeremy. n.d. "Impact of Techniques to Reduce Error in High Error Rule-Based Expert System Gradient Descent Networks." *Journal of Intelligent Information Systems*. Accessed October 11, 2021. <https://doi.org/10.1007/s10844-021-00672-7>.

- Tan, Xiao, Liang Fan, Ying Huang, and Yi Bao. 2021. “Detection, Visualization, Quantification, and Warning of Pipe Corrosion Using Distributed Fiber Optic Sensors.” *Automation in Construction* 132 (December): 103953. <https://doi.org/10.1016/j.autcon.2021.103953>.

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.

