COLLEGE HAPPENINGS

October 1, 2024

FROM THE INTERIM DEAN

Fall 2024 Enrollment Update

Last week, NDSU announced the official student enrollment numbers for the fall 2024 semester, and the results were encouraging. After several years of enrollment declines, NDSU held steady in overall enrollment. But there was even better news for the College of Engineering. For the first time in seven years, undergraduate enrollment increased in the CoE, with a net gain of 51 students over last year. Graduate student enrollments were also up, by 18 students, resulting in an overall increase of 69 students in the college relative to last year. Our college led the university in overall growth, and we were the only college to see a net gain in undergraduate enrollment.

There are numerous reasons we can point to for this growth. In recent years, we have increased our K-12 outreach efforts, attended and hosted more recruitment events, and expanded our presence on social media and at other events that attract high school students. It is also likely that the excitement surrounding the Richard Offerdahl '65 Engineering Complex has motivated additional students to choose NDSU, as our current freshman students will benefit from this state-of-the-art facility in two years. When choosing a college, facilities are one of the factors that influence students' decision, and Offerdahl Hall will stand out as the premier engineering educational facility in the upper Midwest.

There is one additional factor that is helping our college achieve enrollment growth...our strong emphasis and success in retaining our current students. Notably, this year the College of Engineering had the highest rate of first-year retention of any college at NDSU, retaining 84.4% of our undergraduate students at NDSU and 74.5% within the CoE. This is compared to the university averages of 78% retention at NDSU and 66.1% within the same college. These numbers are remarkable, and reflect the outstanding work of our faculty, professional advisors, and other staff who strive to create a welcoming and supportive environment for our students. I want to thank all of you who have contributed to our efforts to enhance recruitment and retention of students in the College of Engineering. Your hard work is helping us to achieve success in enrollment growth!

Alan R. Kallmeyer, Ph.D.
Interim Dean | College of Engineering

IN THE NEWS

[NDSU celebrates groundbreaking for state-of-the-art engineering facility](#)

[NDSU breaks ground on $90M engineering complex](#)

[NDSU Breaks Ground for Richard Offerdahl '65 Complex](#)

[College of Engineering holds scholarship and awards celebration](#)

Engineering faculty honored for outstanding teaching

College of Engineering awards research excellence

College of Engineering staff members earn awards

NDSU researchers among top 2 percent in the world

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, October 31, **University-Industry Partnerships**. This talk featuring Tony Boccanfuso, President and CEO of UIDP, will provide valuable knowledge and tools to engage with industry partners. 10 – 11 a.m. in the Memorial Union Hidatsa Room. Register to attend

EMPLOYEE ENGAGEMENT INITIATIVE

Investing in the well-being of the people across the NDSU community continues to be one of President Cook's five strategic priorities. One way to improve well-being is by identifying and addressing barriers to employee engagement. When employees are engaged, they feel positive about their work, connected to colleagues, and valued for their contributions.

The President's Council for Campus Well-being is working with Gallup, a nationally recognized workplace survey and action firm, to help unit leaders understand and improve engagement by surveying NDSU staff, faculty and administration.

This brief 17-question survey will open on October 14 and is completely confidential, with no individual data being shared with NDSU personnel or leadership. Survey results will inform conversations and action planning across units on ways to strengthen employee engagement for our campus well-being.

Learn more about the Employee Engagement Initiative here and look for an email about this effort in October.

CAMPUS KUDOS

The nomination link for Campus Kudos is open for the academic year. Campus Kudos is a certificate of appreciation for NDSU employees (to include staff, faculty, and student workers), issued as a heart-felt thanks for contributions to campus and the people on campus.

*Recipients will receive a $10 gift card to the NDSU Bookstore and a $5 Caribou Coffee gift card, along with an award plaque.

Anyone at NDSU (students, staff and faculty) who exhibits one or more of the following valued behaviors can be nominated:

- Customer Service
- Continuous Improvement
- Teamwork
- Integrity
- Quality

Follow the link to the campus kudos nomination form: Campus Kudos Nomination Form | NDSU Staff Senate | NDSU

FUNDING OPPORTUNITIES

The NDSU Office of Research and Creative Activity has several internal funding opportunities available for researchers in 2024-25.

RCA BIG IDEAS RESEARCH SEED PROJECTS – STEM FIELDS
Application Deadline: Monday, November 4, 2024

These seed projects will provide up to $100,000 to support ideas that pursue innovative, ambitious solutions to impactful research questions that fit within NDSU's strategic priorities and/or the ND Science and Technology Plan. The purpose of the program is to support activities such as pilot studies or gathering preliminary data that will allow teams to advance ideas for the development of competitive proposals in pursuit of significant external funding, including NSF EPSCoR and EPSCoR-like programs (e.g. NIH COBRE). For this call, proposals must be for projects within science, technology, engineering, and mathematics (STEM) fields as defined by the National Science Foundation and/or the National Institutes of Health. This includes the social, behavioral, economic and science of STEM education fields. PIs must be at the Associate Professor rank or above and have a prior funding track record as a PI from the agency where submission is intended. *Learn more and apply>>*

EDRF INFRASTRUCTURE PROGRAM
Application Deadline: Monday, November 4, 2024

The Infrastructure Program will provide up to $50,000 for improvement of infrastructure in support of research and economic development goals that fit within NDSU's strategic priorities or align with prior and/or existing research investments at NDSU. This program can be used for acquisition of research instrumentation, equipment, and related installation services. Full-time faculty and research staff at NDSU are eligible to apply. *Learn more and apply>>*

NASA EPSCOR PILOT GRANTS
Application Deadline: Monday, November 4, 2024

NASA Established Program to Stimulate Competitive Research (EPSCoR) establishes partnerships with government, higher education, and industry that are designed to effect lasting improvements in a state or region's research infrastructure, research and development capacity, and its national research and development competitiveness. This grant program awards up to $58,000 to develop pilot projects that are in line with NASA's overall mission. Each proposed NASA EPSCoR pilot project shall perform scientific and/or technical research in areas that support NASA's strategic research and technology development priorities with the goal of ensuring a competitive submission to a NASA funding opportunity. All proposals should emphasize and clearly articulate how the pilot project develops capabilities to compete for funds from NASA. *Learn more and apply >>*

RECENTLY AWARDED GRANTS

- Umamaheswara Rao Tida (Principal Investigator). When SAM Meets Weeds: AI-driven Weed Identification for Herbicide Resistant Weed Control. $69,544 from the Agricultural Research Service. 6/1/2024 - 5/31/2025.
- Yan Zhang (Principal Investigator), Jordi Estevadeordal (Co-PI), Yildirim Bora Suzen (Co-PI), Yechun Wang (Co-PI). MRI: Acquisition of A Research Ultrasound System for Multidisciplinary Flow and Fluid-Structure Interaction Studies. $236,193 from the National Science Foundation. 5/1/2024 - 4/30/2027.
- Sulaymon Eshkabilov (Principal Investigator). Using machine learning algorithms for optimizing lettuce production, ensuring food safety, and mitigating environmental impact. $1,000,000 from the Agricultural Marketing Service. 9/30/2024 - 9/29/2027.

- Igathinathane Cannayen (Principal Investigator). Developing Remote Sensing and Image Processing Tools for North Dakota Agricultural and Rangeland Applications. $84,450 from the Agricultural Research Service. 5/1/2022 - 8/31/2027.
- Francis Casey (Principal Investigator), Xinhua Jia (Co-PI). Controlled Environment Agriculture. $429,812 from the Agricultural Research Service. 9/1/2024 - 8/31/2025.
- Yao Yu (Principal Investigator), Chau Le (Co-PI), Mijia Yang (Co-PI). Cost Benefit Analysis for Sustainable Energy Building Upgrades at Safety Rest Areas and Travel Information Centers. $165,541 from the Federal Highway Administration. 7/1/2024 - 8/31/2026.
- Benjamin Davis Braaten (Principal Investigator), Umamaheswara Rao Tida (Co-PI), Shuvashis Dey (Co-PI), Xin Sun (Co-PI), Ewumbua Monono (Co-PI), Minwei Xu (Co-PI), Sulaymon Eshkabilov (Co-PI), Qifeng Zhang (Co-PI). Fusion of Machine Learning and Electromagnetic Sensors for Real-Time Local Decisions in Agriculture. $1,237,337 from the Agricultural Research Service. 7/1/2023 - 10/31/2025.
- Carlos A Bonini Pires (Principal Investigator), Joao Paulo Cassol Flores (Co-PI), Chandler Gruener (Co-PI), Victor Gomes (Co-PI), Brady James Goettl (Co-PI). Dynamic Soil Properties Assessment and Digital Mapping Across Diverse Land Uses in the Northern Great Plains. $494,120 from the Natural Resources Conservation Service. 9/17/2024 - 9/29/2027.

RECENTLY SUBMITTED PROPOSALS

- Zhulu Lin (Principal Investigator), Miranda Ann Meehan (Co-PI), Xiaoyu Feng (Co-PI), Laxmi Raja Vara Prasad (Co-PI). PARTNERSHIP: Managing Vegetated Buffer Strips to Reduce Phosphorus Contribution From Agricultural land in Cold Climate Regions. $900,000 from the National Institute of Food & Agriculture. 3/1/2025 - 2/29/2028.
- Syeed Md Iskander (Principal Investigator). Partnership: PFAS Dynamics and Microbial Interactions in Agricultural Soils. $900,000 from the National Institute of Food & Agriculture. 1/1/2025 - 12/31/2028.
- Krishna Katuwal (Principal Investigator), Gautam Prasad Pradhan (Co-PI), Samiran Banerjee (Co-PI), Joao Paulo Cassol Flores (Co-PI). Diversifying and intensifying dryland wheat cropping system by integrating cover crops for improving water productivity, soil conditions, and sustainability in semi-arid northern Great Plains. $300,000 from the National Institute of Food & Agriculture. 5/1/2025 - 5/1/2027.
- Armstrong Aboah (Principal Investigator). Analyzing Qualitative Public Input Data Using an Efficient Natural Language Processing Technique. $91,200 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Long Jiang (Principal Investigator), Jiale Xu (Co-PI). PARTNERSHIP: Removal of Forever Chemicals from High Throughput Irrigation Water (RFC-HI): AI-Guided Design and Manufacturing of Novel Filtration. $236,988 from the U.S. Department of Agriculture. 5/16/2025 - 5/15/2028.
- Mijia Yang (Principal Investigator), Xiangfa Wu (Co-PI), Yao Yu (Co-PI). Feasibility of LED Solar Street Lighting. $132,973 from the MN Department of Transportation. 7/1/2025 - 3/31/2027.
- Juncheng Lu (Principal Investigator), Yao Yu (Co-PI). Innovative Solutions for Stormwater Solutions for Linear Projects. $128,505 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Yao Yu (Principal Investigator), Mijia Yang (Co-PI), Eric Asa (Co-PI). Use Of Artificial Intelligence In the Analysis Of Qualitative Public Input. $144,328 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Armstrong Aboah (Principal Investigator), Diomo Motuba (Co-PI). Long-Term Impacts of Speed Limit Reductions on Urban Road Safety in Minnesota. $144,170 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Armstrong Aboah (Principal Investigator). Using A Novel UNet and InSAR Data for Continuous Monitoring of Ground Deformation and Performance Tracking of Geotechnical Assets. $81,350 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Samiran Banerjee (Principal Investigator), Carlos A Bonini Pires (Co-PI), Syeed Md Iskander (Co-PI). The threat of PFAS in pesticides: Impact on soil health and soil microbiomes in a changing climate. $749,856 from the National Institute of Food & Agriculture. 7/1/2025 - 6/30/2028.

- Achintya Nayan Bezbaruah (Principal Investigator). Multifunctional Ditches fortified with Engineered Bio-based Carbon materials for Stormwater Management. $199,252 from the MN Department of Transportation. 7/1/2025 - 6/29/2029.
- Xiangfa Wu (Principal Investigator), Oksana Zholobko (Co-PI). Techno-economic analysis of integration of hydrogen fuel technology into vehicle fleets. $134,940 from the MN Department of Transportation. 7/1/2025 - 6/30/2027.
- Clairmont Clementson (Principal Investigator). Development of a novel rehydration model for corn. $107,856 from The Andersons, Inc. 1/1/2025 - 12/31/2026.
- Danling Wang (Principal Investigator), Qifeng Zhang (Co-PI). Partnerships: Nano-Enabled Smart Sensors for Plant Health Monitoring. $800,000 from the National Institute of Food & Agriculture. 6/1/2025 - 5/31/2028.
- Clairmont Clementson (Principal Investigator). Quantifying & Building a Reliable Database of the Physical Characteristics of Contemporary Major Grains. $45,000 from the Ohio State University. 1/1/2025 - 12/31/2026.
- Danling Wang (Principal Investigator). Collaborative Research: Combining novel nanomaterials, smart MEMS switches, and deep learning IC for ultra-sensitive and selective breath sensors of low power and cost. $284,388 from the National Science Foundation. 4/1/2025 - 3/31/2026.
- Laxmi Raja Vara Prasad (Principal Investigator). PARTNERSHIP: Wintertime Hydrology and Soil Salinity Dynamics in Cold Semiarid Regions: Implications for Sustainable Agricultural Management. $800,000 from the National Institute of Food & Agriculture. 5/1/2025 - 4/30/2028
- Laxmi Raja Vara Prasad (Principal Investigator). PARTNERSHIP: Hydromanure - A Multifunctional Manure Composite as a Soil Amendment and Efficient Alternative to Inorganic and Smart Fertilizers. $173,944 from the National Institute of Food & Agriculture. 7/1/2025 - 6/30/2028.
- Benjamin Davis Braaten (Principal Investigator). Electromagnetic Source Transformation-Based Devices. $360,001 from the University of Dayton. 10/1/2024 - 3/15/2027.

RECENT PUBLICATIONS

For 2024, 103 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:

- Karni, Awais, Omid Beik, Mahzad Gholamian, Mahdi Homaeinezhad, and Muhammad Owais Manzoor. "Multilevel Middle Point Clamped (MMPC) Converter for DC Wind Power Applications." *SUSTAINABILITY* 16, no. 17 (September 2024): 7563. https://doi.org/10.3390/su16177563.
- Mensah, Bright, Nitin Rai, Kelvin Betitame, and Xin Sun. "Advances in Weed Identification Using Hyperspectral Imaging: A Comprehensive Review of Platform Sensors and Deep Learning Techniques." *JOURNAL OF AGRICULTURE AND FOOD RESEARCH* 18 (December 2024): 101388. https://doi.org/10.1016/j.jafr.2024.101388.

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.