

COLLEGE HAPPENINGS

May 15, 2018

FROM THE DEAN

The Land-Grant University of the 21st Century

In the summer of 1862, in the very midst of the Civil War, President Abraham Lincoln signed the Morrill Act, one of the most significant laws in the history of American higher education. This law, named for congressman and champion of the bill, Justin S. Morrill, had one primary purpose: to bring higher education within reach of the people. It did this by donating public lands to the states and territories to provide colleges “for the benefit of agriculture and the mechanic arts...in order to promote the liberal and practical education of the industrial classes.”

At the time, fewer than 2 percent of the U.S. population continued into higher education to pursue formal education beyond the twelfth grade. However, with the creation of the land-grant colleges, for the first time, colleges were accessible to the people, not just the wealthy elites. The following quote by Abraham Lincoln captures the goal of the Act, the democratization of higher education:

The land-grant university system is being built on behalf of the people, who have invested in these public universities their hopes, their support, and their confidence.

ABRAHAM LINCOLN, upon signing the Morrill Act on July 2, 1862.

Many major universities, including North Dakota State, began as land-grant schools. There is now at least one land-grant institution in every state and territory of the United States. And what was “mechanic arts” in the 19th century, has evolved into engineering today. In 1887, the Hatch Act added to the land grant mission the charge to conduct research in the public interest, initiating federal support for research and stimulating economic growth.

So what does our heritage as a land-grant university mean for us today? And how does that heritage shape our activities now, in the light of 21st century realities? I believe it means we should embrace the land grant philosophy of:

- enhancing access to educational opportunities for all;
- expanding knowledge through research with practical applications;
- and engaging with diverse institutions, communities and people to improve lives.

In the various fields of engineering represented in the College of Engineering, these values are born into practice when we are pursuing research on the grand challenges facing our society and equipping and educating students to tackle these grand challenges in the future. Our land-grant heritage is a badge of honor that we should be proud to live up to. Thank you all for your work in making NDSU a distinguished land-grant university for the 21st century.



IN THE NEWS

[Rhame native named chair for NDSU Electrical and Computer Engineering](#)

[Senator Hoeven meets with NDSU researchers](#)

[NDSU takes 5th at national cybersecurity competition](#)

[Enterprise on the Prairie: COR Robotics](#)

[Commencement speaker to urge classmates to try to solve world's problems](#)

[NDSU ranked highly for precision ag education](#)

[Chair named for civil and environmental engineering department](#)

[Student writers excel during W-Challenge](#)

CANDIDATE SEMINARS

Assistant Professor in Biomedical Engineering

Dr. Dali Sun, Arizona State University

- May 18th, @ 1:45 p.m., in the Memorial Union Prairie Room

CONGRATULATIONS

Ying Huang (Department of Civil and Environmental Engineering) has won a National Science Foundation (NSF) CAREER award for \$500,000. The prestigious honor supports faculty who exemplify the role of teacher-scholars.

David R. Steward has been appointed chair of the Department of Civil and Environmental Engineering and awarded the Walter B. Booth Distinguished Professorship. Steward, who was a professor of civil engineering at Kansas State University, will join NDSU on July 1.

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

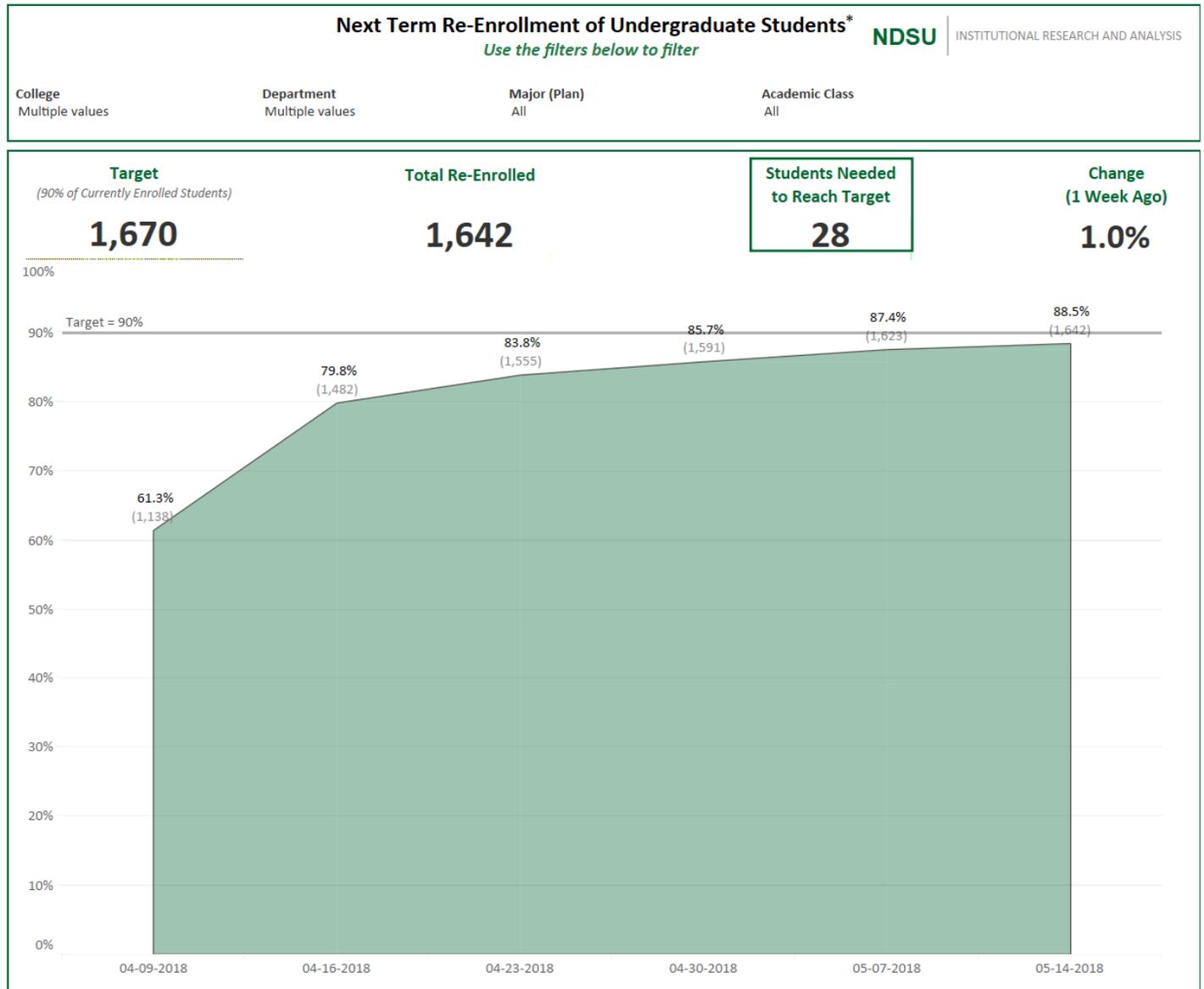
UPCOMING EVENTS

Tuesday, May 15th, **Bio Industry Summit 2018: Advances in Biofuels** will be held at the NDSU Memorial Union. This year's summit is focused on advances in corn-ethanol production, soybean oil-based biodiesel, and market development. [Registration is now open](#). Visit the [summit website](#) for more information.

Thursday, June 14th, **Grant Writing Workshop**. 8:00 a.m. – 12:20 p.m. Harry D. McGovern Alumni Center. The workshop will cover writing for publication, writing grant applications and speaking for success. [Register](#) by June 1st.

BY THE NUMBERS

Attracting new students is one piece of the enrollment puzzle, the other is keeping the ones we already have. The following chart is a look at the 2018 re-enrollment numbers for undergraduate students in the College of Engineering. Of course many of these students are not registering for classes because they will be doing a co-op or maybe even a study abroad. For others, they may be in no hurry because they are sure their 400-level engineering courses will not fill up. But there is some fraction of students who were too busy to register, or just weren't sure about their academic future. In any case, a student who registers for classes in the spring is more likely to actually come back in the fall. Having students return and stay on track is good for the student, the department, the college and the university. As advisors, faculty have an important role in helping these students, which also helps mitigate enrollment fluctuations.



* Excludes students classified as non-degree majors in current term.

Created by: Sidney A. Fisk Morrill Hall Rm. 211C ext. 6694 sidney.fisk@ndsu.edu Last Update: 5/14/2018 8:20 AM

NDSU RESEARCH PARK DATABASE

The NDSU Research and Technology Park has reached over one thousand items on the resource database. The database is a collection of materials and technology that anyone can use and benefit from. You can check out the database [here](#).

FALL CLASS FOR NSF GRADUATE RESEARCH FELLOWSHIP

The NDSU Center for Writers is asking CoE faculty to let them know about any potential candidates now so they can start preparing their applications before the busy fall starts.

Some guidelines for GRFP applicants:

- Must be a senior or early graduate student in STEM/STEM Ed
- Must be a US citizen, national, or permanent resident
- Must be able to propose independent, innovative research
- Must have potential for “significant achievements” in a STEM/STEM Ed. research career

More information about the GRFP can be found [HERE](#). More information about the class can be found [HERE](#) or by contacting Enrico Sassi, Director of the Center for Writers.

FUNDING OPPORTUNITIES

Department of Energy – BioEnergy Engineering for Products Synthesis

[BioEnergy Engineering for Products Synthesis](#) is a multi-topic Funding Opportunity Announcement (FOA) from DOE that seeks to develop highly efficient conversion processes for improving the affordability of fuels and products from biomass and waste streams. The FOA seeks early-stage research proposals that cover several topics pertaining to conversion processes:

- Innovative catalysts for thermochemical processing
- New biological approaches for higher conversion efficiency
- Novel bio-based products that outperform conventional materials (e.g., plastics, polymers, etc.)
- Conversion of wet organic wastes to biofuels, bioproducts, and biopower
- Conversion of carbon dioxide (CO₂) to make fuels and products
- New processes to break down lignin and synthesize higher value biofuels and bioproducts

Agency notice of intent deadline: May 30, 2018. Agency application deadline: June 27, 2018.

NSF Planning Grants for Engineering Research Centers (ERC)

The Planning Grants for ERC solicitation, [NSF 18-549](#), is a mechanism for increasing capacity across the engineering academic community to develop ideas, facilitate team formation, and foster stakeholder community networks. As a result of planning grant activities, potential ERC teams should be better equipped to carry out center-scale convergent engineering research with large societal impact. It is anticipated that the solicitation for the next ERC competition will be released during the 2018 calendar year. Planning grants should not exceed \$100,000 and are for one year. The anticipated start date of the planning grants is September 1, 2018. Participation in the planning grants program should not be construed as a proposal for the next ERC competition, and the information presented in a submitted planning grant will not limit in any way a future ERC proposal submission. Note also the [FAQ's](#) webpage for more information. *Application deadline: June 6, 2018.*

RECENTLY FUNDED GRANTS

- Shafiqur Rahman (PI). Odor Reduction and Green Energy Production from Livestock Manure and Other Wastes. \$7,460 from the NDSU Foundation Alumni & Association. 5/1/2018 – 11/30/2019.
- Alan R Kallmeyer (PI). Bison BEST Robotics Competition. \$1,000 from the NDSU Foundation Alumni & Association. 9/8/2018 – 10/20/2018.
- Di Wu (PI). A Study of Optimal Power Outputs of Renewable Energy Generators in Weak Power Grids. \$1,000 from the NDSU Foundation Alumni & Association. 5/1/2018- 12/31/2018.
- Qifeng Zhang (PI). The Development of a Portable Laboratory to Integrate Demonstrations into the Classroom of Circuit Analysis Courses. \$1,000 from the NDSU Foundation Alumni & Association. 5/1/2018 – 4/30/2019
- Danling Wang (PI). Novel Nanomaterial based Breath Sensor in Application of Diabetes Related Fat-loss Program and Weight Control. \$5,000 from the NDSU Foundation Alumni & Association. 5/1/2018 – 9/1/2019.
- John F Nowatzki (CPI). The Utility of Unmanned Aerial Systems for Monitoring Sharp-tailed Grouse Leaks. \$12,294 from the Forest Service. 01/01/2018 to 10/31/2020.
- Yao Yu (PI), Yan Zhang (CPI). A Novel Dual Purpose Solar Collector Design. \$14,999 from the Environmental Protection Agency. 09/01/2017 – 08/31/2018.

RECENTLY SUBMITTED PROPOSALS

- Akm Bashir Khoda (PI), Michael Richard Kessler (CPI). Development and 4D Printing of Liquid Crystalline Epoxy Networks with Tunable Shape Memory Properties. \$543,340 from the Department of Defense. 08/01/2018 to 07/31/2021.
- Danling Wang (PI), Qifeng Zhang (CPI), Kristine Steffen (Co-Investigator). A low-cost, portable breath sensor module for diabetes: Fat-loss monitoring for Diabetes Treatment and Prevention. \$72,291 from the Sanford Health - NDSU Research Seed Grant program. 06/15/2018 to 06/14/2019.

RECENT PUBLICATIONS

For 2018, 45 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:

- Luo, Jun, Yanxiang Wang, and Qifeng Zhang. 2018. "Progress in Perovskite Solar Cells Based on ZnO Nanostructures." *Solar Energy* 163 (March): 289–306. <https://doi.org/10.1016/j.solener.2018.01.035>.
- Petersen, Derek, Zhibin Lin, and Jian Zhao. 2018. "Design of Anchor Reinforcement for Seismic Tension Loads." *Engineering Structures* 164 (June): 109–18. <https://doi.org/10.1016/j.engstruct.2018.02.015>.
- Roy, Palash, and Debasis Dawn. 2018. "Fully Integrated CMOS Power Amplifier Using Resistive Current Combining Technique." *IET Microwaves Antennas & Propagation* 12 (5): 826–32. <https://doi.org/10.1049/iet-map.2017.0370>.
- Wang, D., Q. Zhang, M. R. Hossain, and M. Johnson. 2018. "High Sensitive Breath Sensor Based on Nanostructured K₂W₇O₂₂ for Detection of Type 1 Diabetes." *IEEE Sensors Journal*, 1–1. <https://doi.org/10.1109/JSEN.2018.2825302>.
- Zhang, Yuehong, Yuzhan Li, Vijay Kumar Thakur, Liwei Wang, Jiyou Gu, Zhenhua Gao, Bo Fan, Qiong Wu, and Michael R. Kessler. 2018. "Bio-Based Reactive Diluents as Sustainable Replacements for Styrene in MAESO Resin." *RSC Advances* 8 (25): 13780–88. <https://doi.org/10.1039/c8ra00339d>.
- Pan, Hong, Mohsen Azimi, Fei Yan, and Zhibin Lin. 2018. "Time-Frequency-Based Data-Driven Structural Diagnosis and Damage Detection for Cable-Stayed Bridges." *Journal of Bridge Engineering* 23 (6): 04018033. [https://doi.org/10.1061/\(ASCE\)BE.1943-5592.0001199](https://doi.org/10.1061/(ASCE)BE.1943-5592.0001199).

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.

