

COLLEGE HAPPENINGS

May 1, 2018

FROM THE DEAN

How We Teach Makes a Long-Term Difference

A few years ago a poll by Gallup identified six college experiences (labeled the “big six”) that have the most influence on the well-being and long-term work life success of graduates.¹ These findings, from interviews with more than 30,000 U.S. graduates, provide “insight into the relationship between the college experience and whether college graduates have great jobs and great lives.”²

These “big six” college experiences most linked to better life preparedness are all related to support and experiential learning and are listed below:

1. A professor who made them excited to learn
2. A professor who cared about them as individuals
3. A mentor who pushed students to reach their goals
4. Working on a long-term project
5. Completing a job or internship related to classroom lessons
6. Students being engaged in extracurricular activities & groups¹

It is interesting that the first three of these experiences are directly related to the quality of the relationship with one or more professors. For example, the report notes that “if graduates had a professor who cared about them as a person, made them excited about learning, and encouraged them to pursue their dreams, their odds of being engaged at work more than doubled, as did their odds of thriving in their well-being.”²

This impact resonates with my own experience in college. I had several outstanding undergraduate professors. One was Professor Lee, an energetic, Korean, mechanical engineering professor who also served as my undergraduate advisor. Dr. Lee inspired me to learn about solid mechanics, encouraged me to pursue a career in academia and showed a genuine interest in my success. Dr. Lee has since died, but his legacy lives on in the lives of the students he impacted.

Another inspiring college teacher was Professor Erickstad, who not only taught me calculus and engineering statistics, but also provided guidance and encouragement to me in my early years in college. A few weeks ago I had the opportunity to return to my alma mater to be inducted into their Academy of Engineering. At the banquet for the induction ceremony, I

¹ <http://www.gallup.com/poll/182306/big-six-college-experiences-linked-life-preparedness.aspx>

² The 2014 Gallup-Purdue Index Report, 2014, 2016 Gallup, Inc.

had a chance to catch-up with the now Emeritus Professor Erickstad, who had retired several years ago. Knowing that I was the new dean of engineering at NDSU, he was excited to let me know he was a mechanical engineering alumnus of NDSU from the late 1950's! We marveled at how things had come full circle, and I had an opportunity to thank him for the impact he'd had on my career.

As the semester comes to a close, I want to encourage you to continue to seek opportunities to build connections with your students, look for ways to provide mentorship and rise up to the challenge of making them excited to learn. As educators, and staff supporting education, we have a noble purpose, because we can have a profound impact in the lives of our students.



¹<http://www.gallup.com/poll/182306/big-six-college-experiences-linked-life-preparedness.aspx>

²The 2014 Gallup-Purdue Index Report, 2014, 2016 Gallup, Inc.

IN THE NEWS

[NDSU Steel Bridge Team gains hands-on experience](#)

[Mechanical Engineering Chair receives Chamber service award](#)

[University Distinguished Professor honored with research award](#)

[College of Engineering alumni to be honored](#)

[Lithium-ion batteries can be dangerous if not used correctly](#)

[3M awards NDSU Engineering students top prize in Disruptive Design Challenge](#)

[Student organization off to Guatemala](#)

[Summer STEM Kids camp segment on North Dakota Today](#)

[Electrical engineering senior selected to give commencement speech](#)

[New chair named for electrical and computer engineering department](#)

CONGRATULATIONS

Ben Braaten has been appointed as chair of the Department of Electrical and Computer Engineering. Braaten, who is from Rhame, ND, earned his bachelor's, master's and doctoral degrees in electrical engineering from NDSU. He conducted post-doctoral research at the South Dakota School of Mines and Technology and joined NDSU faculty full-time in 2010.

Gary Smith (Department of Construction Management and Engineering) was named a Life Member of the American Society of Civil Engineers (ASCE) at ASCE North Dakota's annual meeting on April 26. A Life Member is an individual who has made a lifetime commitment to ASCE and the civil engineering profession.

Dilpreet Bajwa (Department of Mechanical Engineering) has been approved for tenure by the North Dakota State Board of Higher Education and promoted to Full Professor by NDSU President Dean Bresciani.

Ying Huang (Department of Civil and Environmental Engineering) has been approved for tenure by the North Dakota State Board of Higher Education and promoted to Associate Professor by NDSU President Dean Bresciani.

Debasis Dawn (Department of Electrical and Computer Engineering) has been approved for tenure by the North Dakota State Board of Higher Education and promoted to Associate Professor by NDSU President Dean Bresciani.

Zhulu Lin (Department of Agricultural and Biosystems Engineering) has been approved for tenure by the North Dakota State Board of Higher Education and promoted to Associate Professor by NDSU President Dean Bresciani.

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

Wednesday, May 2nd, **open meeting with Vice President of Research search firm.** 9:00 a.m. - 10:00 a.m. in the Memorial Union Century Theater.

Wednesday, May 2nd, **ABEN Annual Spring Potluck.** 5:30 p.m. ABEN 123.

Thursday, May 3rd and Friday, May 4th, **College of Engineering Advisory and Advancement Board Meeting.** Harry D. McGovern Alumni Center.

Friday, May 4th, **Mechanical and Electrical and Computer Engineering Senior Design Expo.** 11:00 a.m. – 2:00 p.m. Memorial Union Great Plains Ballroom.

Thursday, May 10th, **Celebration of Faculty Excellence.** 3:00 p.m. Memorial Union Plains Room. Registration is appreciated but not required. [Register here.](#)

Thursday, May 10th, **Summer Food Truck Fest.** The “Twisted Spork” will be at the Research and Tech Park Cul-de-sac from 11:00 a.m. – 1:00 p.m.

Friday, May 11th, **CoE graduation reception and Order of the Engineer induction.** Induction ceremony 3:00 p.m., AG Hill Center Auditorium (room 112). Graduation reception for students and faculty will follow in the Memorial Union Great Room.

Saturday, May 12th, **Spring Commencement ceremonies** for the College of Engineering will be held at 2:00 p.m. in the Fargodome.

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.

BY THE NUMBERS

You may have noticed some of the numbers on the most recent Career Outcomes report were much different than past years. The changes come from the Career Center using new categories prescribed by the National Association of Colleges and Employers (NACE) instead of NDSU's own choice of categories, and using percentages instead of raw numbers making interpretation faster.

The following chart shows 10 years of data for the College of Engineering using the new calculation methods:

| College of Engineering - Career Outcomes | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Agricultural and Biosystems Engineering | 94% | 92% | 100% | 89% | 81% | 69% | 89% | 90% | 89% | 100% |
| Civil Engineering | 78% | 97% | 89% | 94% | 90% | 86% | 81% | 78% | 88% | 96% |
| Computer Engineering | 89% | 88% | 83% | 86% | 100% | 88% | 50% | 59% | 80% | 100% |
| Construction Engineering | 100% | 88% | 100% | 100% | 90% | 77% | 89% | 75% | 83% | 85% |
| Construction Management | 100% | 97% | 94% | 91% | 95% | 93% | 85% | 73% | 78% | 97% |
| Electrical Engineering | 89% | 87% | 85% | 88% | 87% | 84% | 97% | 72% | 71% | 98% |
| Industrial Engineering and Management | 95% | 89% | 96% | 88% | 70% | 79% | 81% | 61% | 68% | 93% |
| Manufacturing Engineering | 90% | 91% | 100% | 91% | 63% | 82% | 100% | 50% | 33% | 100% |
| Mechanical Engineering | 82% | 86% | 91% | 95% | 91% | 80% | 85% | 74% | 82% | 96% |
| College Total | 86% | 90% | 90% | 92% | 88% | 83% | 85% | 73% | 79% | 96% |

FUNDING OPPORTUNITIES

Department of Defense: Air Force Office of Scientific Research (AFOSR)

The Air Force Office of Scientific Research is soliciting research proposals in areas that offer significant and comprehensive benefits to national warfighting and peacekeeping capabilities for two specific branches: 1) engineering and information sciences and 2) physical and biological sciences. Basic research areas of interest are outlined in their [Broad Agency Announcement \(PDF download\)](#).

NATURE SUNDAY ACADEMY

The ND EPSCoR NATURE Sunday Academy Program (<https://www.ndepscor.ndsu.edu/programs/nature/sunday-academy/>) is soliciting applications from NDSU Faculty members in STEM for the 2018-2019 academic year. NATURE Sunday Academy engages tribal middle-to-high school students in active-learning STEM lessons. NDSU and UND faculty members develop the lessons and travel to tribal colleges across the state to teach the lessons.

Faculty members can collaborate on a lesson, and travel support is included for graduate student assistants.

Lesson proposals should consist of the following: a description of the topic, learning goals, and brief outline of the hands-on activities. Proposals should be approximately 250 words (around a half a page) and can be submitted to Julia Bowsher (julia.bowsher@ndsu.edu) by Monday May 7th. We will select 5-7 lesson proposals to develop and refine during the summer workshop with participating Tribal High School and College instructors from around the state.

If you have any questions, please e-mail: britt.heidinger@ndsu.edu or Julia.bowsher@ndsu.edu

RECENTLY SUBMITTED PROPOSALS

- Dinesh Katti (PI), Kalpana Katti (CPI). Design the Next Generation Asphalt Using Engineered Nanoclays. \$142,486.50 from the Federal Highway Administration. 9/01/2018 – 8/31/2021.
- Ying Huang (PI). Fluorescent Chemical Sensor Array for Detecting and Locating Pipeline Internal Corrosive Environments. \$150,000 from the Department of Transportation. 9/30/2018 – 9/30/2021.
- Fardad Azarmi (PI). Development of a Computational Model to Predict Durability of Protective Coatings on Pipelines Using Finite Element Analysis and Artificial Neural Network. \$282,733 from the Department of Transportation. 10/01/2018 – 9/30/2012.
- Zhibin Lin (PI), Akm Bashir Khoda (CPI). New Bio-inspired 3D Printing Functionalized Lattice Composites for Actively Preventing and Mitigating Internal Corrosion. \$150,000 from the Department of Transportation. 10/01/2018 – 9/30/2021.

- Zhibin Lin (PI). Brain-inspired Learning Framework to Bridging Information and Human-machine Decision-making for Decoding Variance in Pipeline Computational Models. \$300,000 from the Department of Transportation. 10/01/2018 – 9/30/2021.
- Ravi Kiran Yellavajjala (PI), Ying Huang (CPI). Data-driven Prognosis/Diagnosis Model Based on Supervised Machine Learning for Identifying Root Causes of Pipeline Accidents. \$150,000 from the Department of Transportation. 10/01/0218 – 9/30/2021.
- Halis Simsek (PI). Conducting a Pilot Study to Treat Sugar Beet Industry Wastewaters using Electrochemical Method. \$35,010 from American Crystal Sugar Company. 5/01/2018 – 4/30/2019.

RECENT PUBLICATIONS

For 2018, 39 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:

- Amiri, Ali, Taylor Krosbakken, William Schoen, Dennis Theisen, and Chad A. Ulven. 2018. “Design and Manufacturing of a Hybrid Flax/Carbon Fiber Composite Bicycle Frame.” *Proceedings of the Institution of Mechanical Engineers Part P-Journal of Sports Engineering and Technology* 232 (1): 28–38. <https://doi.org/10.1177/1754337117716237>.
- Hoffmann, Bradley, Catherine Gruat-Henry, Pranothi Mulinti, Long Jiang, Benjamin D. Brooks, and Amanda E. Brooks. 2018. “Using Hydrodynamic Focusing to Predictably Alter the Diameter of Synthetic Silk Fibers.” *PLOS One* 13 (4): e0195522. <https://doi.org/10.1371/journal.pone.0195522>.
- Shojaeiarani, Jamileh, Dilpreet S. Bajwa, and Nicole M. Stark. 2018. “Green Esterification: A New Approach to Improve Thermal and Mechanical Properties of Poly (Lactic Acid) Composites Reinforced by Cellulose Nanocrystals.” *Journal of Applied Polymer Science* 135 (27): 46468. <https://doi.org/10.1002/app.46468>.
- Wang, Yong, Yechun Wang, and Long Jiang. 2018. “Freestanding Carbon Aerogels Produced from Bacterial Cellulose and Its Ni/MnO₂/Ni(OH)₂ Decoration for Supercapacitor Electrodes.” *Journal of Applied Electrochemistry* 48 (5): 495–507. <https://doi.org/10.1007/s10800-018-1183-5>.

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* are 12:00 pm Fridays.

Contact kyle.bosch@ndsu.edu to submit items for *College Happenings*.

Follow the College of Engineering on social media.



