

# COLLEGE HAPPENINGS

March 19, 2019

## FROM THE DEAN

### Undergraduate Research

NDSU sits at a sweet spot for undergraduate research. We are large enough, as a research university, to have many exciting, research active faculty working on cutting edge projects to advance knowledge in a wide range of fields. Yet, we are small enough that undergraduate students can get to know the faculty in their departments and work with them and their research groups without getting lost in the crowd.

Undergraduate research incorporates so many of the best practices of effective pedagogy, including inquiry-based learning, active engagement, and, often, a focus on collective/collaborative work. Benefits to the students are numerous and far reaching, and include a personal connection and mentorship with a faculty member, honing of critical thinking skills, exposure to new fields of study and research methods, and fueling interest in research careers and higher degrees. Undergraduate research also gives students an edge in their job searches and in applying for graduate schools.

Because of these benefits, we should strive to advocate more for providing undergraduate research opportunities for our students and for making them aware of such opportunities (both at NDSU and opportunities for summer research elsewhere – there are over [120 NSF REU sites in engineering](#) that our students could be encouraged to apply to). Unfortunately, we often overlook the level of “unawareness” among our undergraduates about opportunities for getting involved in research.

I would like to encourage our research faculty to include support for undergraduate researchers in your proposal budgets, so that we can grow our portfolio of undergraduate research opportunities. In addition, look to identify motivated students that may be a good fit for undergraduate research, and encourage them to get involved. This may be one of the most effective ways to help us recruit more high quality domestic students into our own graduate programs. Likewise, departments should consider ways to encourage participation by considering and promoting the earning of academic credit for research. Our Grand Challenges Scholars program is a good example of integrating undergraduate research with a credentialed program, since each participant is required to engage in research relating to their selected grand challenge.

If you are working with undergraduate researchers, encourage them to participate in the annual **NDSU EXPLORE Undergraduate Research Showcase** on April 11 at the Memorial Union by presenting their research with a posters or oral presentation. [Registration closes on Friday, March 22.](#)



## IN THE NEWS

[Construction students gain hands-on experience](#)

[NDSU GeoWall Team wins first place honors](#)

[Families engage in learning fun at local elementary school \(Valley News Live\)](#)

[Hellevang named NDSU Agricultural and Biosystems Engineering interim chair \(Ag Week\)](#)

## CONGRATULATIONS

**Beena Ajmera** from the **Department of Civil and Environmental Engineering** was re-elected to a three-year term as a **Councilor for the Engineering Division of the Council on Undergraduate Research (CUR)**.

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

## WELCOME

**Angela Thomassen** has joined the College of Engineering as the new **Office Coordinator and Assistant to the Dean**.

Angela joins us from Sanford Health, where she worked as a Senior Administrative Assistant. She has 14+ years of office management and coordination experience, along with extensive project and staff support experience

## FACULTY CANDIDATE SEMINARS

*Engineering Entrepreneurship and Innovation*

### **Wednesday, March 20**

Jessica Vold – Research and Development Engineer, c2renew; Research Scientist, Renuvix

- 9:00 a.m. – Coffee with faculty (Engineering Administration 106)
- 9:45 a.m. – Meet with students (Dolve 117)
- 1:00 p.m. – Presentation (Dolve 117)

### **Friday, March 22**

Arnab Chanda – Postdoctoral Research Scholar, University of Pittsburgh Department of Bioengineering

- 11:30 a.m. – Presentation (Dolve 117)
- 1:45 p.m. – Meet with students (Engineering Administration 106)
- 2:15 p.m. – Coffee with faculty (Engineering Administration 106)

*Industrial and Manufacturing Engineering – Assistant Professor*

### **Friday, March 22**

Lokesh Narayanan – graduating Ph. D. candidate in the department of Industrial and Systems Engineering at North Carolina State University.

- 3:00 p.m. – Presentation (CIE 101): “Engineered Tissues Manufacturing: A New Non-destructive Quality Monitoring Approach”

## UPCOMING EVENTS

Wednesday, March 20, **Department of Civil and Environmental Engineering Seminar.** Karen Ryberg, a Research Statistician in the U.S Geological Survey Dakota Water Science Center will present: “Flood trends – Detection, attribution and adjustment for flood-frequency analysis.” 1:00 – 1:50 p.m. in CIE 243.

Wednesday, March 20, **Doosan Bobcat’s Annual Scholars Social.** 4:00 p.m. – 5:30 p.m. in the Glenn Hill Center, Room 334. RSVP to Samantha Leingang by email [samantha.leingang@doosan.com](mailto:samantha.leingang@doosan.com).

Monday, March 25 – Friday, March 29, **Battle of the Cents-es fundraiser.** The annual competition pits the Engineering Ambassadors against the College of Health Professions Ambassadors. Donations will benefit LJ Wells, a North Dakota teen fighting adrenal cancer.

Monday, March 25, **Broader Impacts: Collaborating with Institutions in North Dakota.** Are you interested in collaborating, but are unsure of how to start? This session will provide details about ND EPSCoR’s Broader Impacts initiative followed by an experienced faculty panel who have developed successful education and research collaboration projects. 11:15 a.m. – 12:15 p.m., Memorial Union Room of Nations.

Tuesday, March 26, **Search Committee Training: “Searching for Excellence”.** 1:00 – 3:00 p.m., Memorial Union Mandan Room. Anyone who plans to be a chair of an academic search (this includes faculty, lecturers and postdocs) is required to attend the in person training within three years prior to your position being posted. The training is also open and recommended to any and all search committee members. [Register Here](#)

Thursday, March 28, **Academic Leaders Series: Avoiding Burnout.** This interactive session, will talk about simple, research-based practices for preventing burnout in your work life and home life. 3:00 – 4:00 p.m., Memorial Union Room of Nations. [Register Here](#)

Thursday, March 28, **Interactive Biomedical Engineering Session.** Dr. Mark Jensen and Dr. Neville Alberto will be leading hands on activities with various surgical instruments and ultrasound equipment. 5:00 – 6:00 p.m. in ECE 125.

Tuesday, April 2, **Innovation Challenge Awards Luncheon.** 11:30 a.m. – 1:00 p.m. at the Fargodome. The event will recognize the winning teams from Innovation Challenge 2019 and feature a keynote address by Scott Meyer, the new Executive Director of Entrepreneurship Initiatives at NDSU. Tickets are FREE, [Register Here](#).

Thursday, April 11, **NDSU EXPLORE Annual Showcase** at the Memorial Union. [Registration is now open.](#) Encourage your students to present their research and creative work in posters, oral presentations, or in other formats.

Friday, April 12 and Saturday, April 13 **CoSearch NDSU.** Researchers will have 30 hours to share a research idea, hone the idea with an interdisciplinary team they meet at the event and pitch the idea to a panel of judges who will fund the winners. [Learn more about the event and sign up here.](#)

## BLACKBOARD MIGRATION

All 11 North Dakota University System campuses are moving to one NDUS Blackboard learning management system. The goal is to create a unified experience for faculty and students across the 11 campuses and the University System office.

Faculty are now able to log in to the new Blackboard Learn (NDUS) system to work on summer and fall courses.

Visit the [ITS Blackboard Migration webpage](#) for detailed information and FAQs, including how to prepare for the migration.

Consider attending an open forum on Tuesday, March 19 or Wednesday, March 20 at 11:00 a.m. in the Memorial Union's Century Theater. ITS staff will be available to answer questions related to the migration and will walk you through what it will look like and how features will work in the new Blackboard Learn (NDUS) system.

If you have specific questions, email the Help Desk at [ndsuhelpdesk@ndsu.edu](mailto:ndsuhelpdesk@ndsu.edu).

## BY THE NUMBERS

The NDSU Career Center has released the 2018 Career Outcomes report. It provides a snapshot of students who graduated in August 2017, December 2017 and May 2018.

Data is based on responses collected up to six months post-graduation through electronic surveys, telephone calls, academic departments/faculty, in-person surveys and other sources such as LinkedIn.

### COLLEGE OF ENGINEERING

	Degrees Issued	% Female	% Male	% Minority	# Survey Respondents	% Employed (FT, PT, MS)	% Continuing Education	% Seeking	% Not Seeking	% Employed Full Time	Salary Median	Bonuses Median
Agricultural and Biosystems Engineering	17	12	88	-	15	87	-	13	-	100	\$65,000	\$3,500
Civil Engineering	68	16	84	3	64	80	2	19	-	100	\$54,000	\$3,000
Computer Engineering	18	6	94	11	17	47	18	35	-	100	\$65,000	\$2,500
Construction Engineering	6	17	83	-	4	75	-	25	-	100	-	-
Construction Management	46	4	96	20	35	83	6	11	-	100	\$60,000	\$5,000
Electrical Engineering	53	11	89	13	39	74	5	15	5	100	\$65,000	\$2,250
Industrial Engineering and Management	18	17	83	6	17	82	-	18	-	100	\$53,500	-
Manufacturing Engineering	9	-	100	-	9	78	-	22	-	100	\$56,000	-
Mechanical Engineering	154	7	93	3	141	67	3	29	1	99	\$60,000	\$4,000
<b>Total</b>	<b>389</b>	<b>10</b>	<b>90</b>	<b>7</b>	<b>341</b>	<b>73</b>	<b>4</b>	<b>23</b>	<b>1</b>	<b>99</b>	<b>\$60,000</b>	<b>\$3,000</b>

## NICE SCHOLARS

NICE (NDSU Innovation, Creativity and Entrepreneurship) Scholars supports scholarship in the areas of innovation, creativity and entrepreneurship with up to \$10,000 per calendar year in funds for NDSU researchers.

These funds are a 1:1 match with NDSU departments to encourage campus-wide investment.

Researchers who have support from at least one department may [apply for matching funds here](#). There are two application deadlines. The deadline for the first cohort is May 1st. The second deadline for the second cohort is October 1st.

## COLLEGE OF ENGINEERING AWARDS

The **Graduate and Research Committee** and the **Academic Affairs Committee** are now accepting nominations for the **College of Engineering Researcher and Teacher of the Year awards**.

Each year the college recognizes the outstanding research and teaching achievements of CoE faculty and graduate students.

Details about the awards, including nomination documents, instructions and previous winners can all be [found on the College of Engineering website](#).

Nominations and supporting materials are due by **Friday, April 5 at 5:00 p.m.**

## FULBRIGHT U.S. SCHOLAR PROGRAM COMPETITION

The 2020-2021 competition for the [Fulbright U.S. Scholar Program](#) is now open. The Fulbright U.S. Scholar Program offers teaching, research and combination teaching/research awards in over 130 countries for the 2020-2021 academic year.

[Over 450 awards](#) are offered for college and university faculty and administrators as well as for professionals, artists, journalists, scientists, lawyers, independent scholars and many others. **The application deadline is September 16th, 2019.**

## FUNDING OPPORTUNITIES

### NIH: Team-Based Design in Biomedical Engineering Education (R25) - Limited Submission Program

[Limited submission grant programs](#) are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

**NIH Biomedical Engineering Education: [Notify RCA](#) by 3/25/2019, 5:00 p.m. if you intend to apply.**

This funding opportunity [[PAR-19-215](#)] seeks to support programs that include innovative approaches to enhance biomedical engineering design education to ensure a future workforce that can meet the nation's needs in biomedical research and healthcare technologies. Applications are encouraged from institutions that propose to establish new or enhance existing team-based design courses or programs in undergraduate biomedical engineering departments or other degree-granting programs with biomedical engineering tracks/minors.

Direct costs of up to \$20,000 per year may be requested, with project durations of up to five years. Programs that include a clinical immersion program outside the academic year and lasting 6 to 10 weeks may request an additional \$20,000 to cover participant costs, yielding a total of \$40,000 in direct costs. Total salary costs requested may not exceed \$10,000 annually.

*Letter of Intent deadline: April 29, 2019; Full proposal deadline: May 31, 2019*

## RECENTLY FUNDED GRANTS

- David Grewell (PI), Nita Yodo (CPI). Corn Based Multi-functional Mulching Systems. \$139,832 from the ND Corn Utilization Council. 05/01/2019 – 04/30/2021.
- Igathinathane Cannayen (PI). UAV Based Corn Population Stand Count and Weeds Distribution with Mapping. \$48,606 from the ND Corn Utilization Council. 07/01/2019 – 06/30/2021.

## RECENTLY SUBMITTED PROPOSALS

- Yao Yu (PI). Energy Simulation for Dean Residence. \$2,000 from Meadowlark. 03/01/2019 – 06/07/2019.
- Yao Yu (PI). Study of the Current Application of Geothermal Heat Pump System in North Dakota and its Potential in Future Development. \$27,720 from ND Department of Commerce. 07/01/2019 – 06/30/2020.
- Jordi Esteveordal (PI). An Optical Based Rain Drop Measurement System. \$46,000 from Spectral Energie, LLC. 08/01/2019 – 04/30/2020.
- Dali Sun (PI). Development of the Product-Oriented Learning in the “Instrumentation for Engineer” (ECE 483/693) course. \$500 from the NDSU Foundation and Alumni Association. 03/25/2019 – 04/12/2019.
- Long Jiang (PI), Mijia Yang (CPI), Zhibin Lin (CPI). A novel durable, healable & conveniently removable pavement marking material suitable for both permanent & temporary making uses. \$149,871 from The National Academies. 08/01/2019 – 07/31/2020.
- Long Jiang (PI). Improving bactericides effectiveness on wheat bacterial leaf streak by using cellulose nanofibers as the bactericides delivery vehicle. \$16,963 from the NDSU Foundation and Alumni Association. 07/01/2019 – 12/31/2020.
- Trung Bao Lee (PI). A novel parameter to predict aneurysm closure under pipeline embolization device implantation. \$25,000 from The Aneurysm and AVM Foundation. 06/01/2019 – 05/30/2020.
- Trung Bao Lee (PI). Hemodynamics of Aneurysms. \$4,500 from the NDSU Foundation and Alumni Association. 03/01/2019 – 05/30/2020.
- Trung Bao Lee (PI). RII Track-4: An Exascale Computational Framework for High-fidelity Simulations of River Hydrodynamics. \$250,000 from the National Science Foundation. 01/01/2020 – 12/31/2021.
- Zhibin Lin (PI). Developing a Lower Modulus Polymer Resin Binder Systems Specifications for High Friction Treatment (HFST) on Asphalt Pavements in Nevada. \$199,838 from the Nevada Department of Transportation. 09/01/2019 – 12/31/2021.
- Wenjie Xia (PI). Multiscale Modeling of Biopolymer Foams for Advancing their Mechanical Performance. \$5,000 from the NDSU Foundation and Alumni Association. 08/16/2019 – 11/15/2019.
- Shafiqur Rahman (PI). Mechanistic Exploration of the Role of Metal Nanoparticles in Mitigating Greenhouse Gases from Livestock Waste. \$379,376 from the National Science Foundation. 07/01/2019 – 06/30/2022.
- Nita Yodo (PI). Smart Material Handling towards a Resilient and Green Agricultural Supply Chain. \$25,000 from the Material Handling Industry. 07/01/2019 – 06/30/2020.
- Nita Yodo (PI). Development of a cloud-based manufacturing testbed towards Industry 4.0. \$5,000 from the NDSU Foundation and Alumni Association. 08/01/2019 – 07/31/2020.
- Di Wu (PI). Analysis of control interaction and control stability in power systems with large-scale renewable integration. \$5,000 from the NDSU Foundation and Alumni Association. 08/01/2019 – 08/31/2020.
- Di Wu (PI). Analysis of line failures in a graph theoretical framework for blackout prevention in power grids. \$1,000 from the NDSU Foundation and Alumni Association. 09/01/2019 – 08/31/2020.
- Di Wu (PI). Mechanism analysis of oscillation stability in power grids with high penetration of renewable resources. \$184,092 from the National Science Foundation. 07/01/2019 – 06/30/2021.
- Halis Simsek (PI). 7th International Conference on Sustainable Agriculture and Environment. \$5,000 from the NDSU Foundation and Alumni Association. 10/05/2020 – 10/07/2020.
- Halis Simsek (PI). Novel application of bacteriophage treatment for biocontrol of biological foaming and bulking in sugarbeet wastewater effluent. \$4,860 from the NDSU Foundation and Alumni Association. 06/01/2019 – 10/01/2019.
- Halis Simsek (PI). Effects of Different Water Table Depth and Water Table Salinity on Plant Water Consumption, Yield and Quality Parameters, Salt Distribution in Soil Profile and Antioxidant Enzyme. \$16,480 from the NDSU Foundation and Alumni Association. 08/01/2019 – 07/30/2020.
- Dean D Steele (PI), Thomas Scherer (CPI). Variable-Rate Irrigation for Potato Research. \$98,266 from the Agriculture Marketing Service. 10/01/2019 – 09/30/2021.

- Ghodrat Karami (PI), Mariusz Ziejewski (CPI), Ali Amiri (CPI). Biomechanics of Pediatric Brain Tissue - Characterizing Age-Dependent Mechanical Properties of Human Brains. \$1,096,841 from the National Institutes of Health. 10/01/2019 – 09/30/2022.
- Yechun Wang (PI), Long Jiang (CPI). Degradation of Silk Fibroin Scaffold for Knee Cartilage Replacement. \$5,000 from the NDSU Foundation and Alumni Association. 04/19/2019 – 10/18/2020.
- Dharmakeerthi Nawarathna (PI). Engineering safe and affordable T-cell therapy for cancer. \$10,000 from the NDSU Foundation and Alumni Association. 04/01/2019 – 03/31/2020.
- Dharmakeerthi Nawarathna (PI). MicroRNA and protein biomarker panel and a point-of-care detection platform for early detection of pancreatic cancer. \$490,000 from the National Institutes of Health. 08/01/2019 – 07/31/2022.
- Beena D Ajmera (PI). Rainfall-Intensity Duration Threshold Curves for Post-Wildfire Debris Flows. \$1,000 from the NDSU Foundation and Alumni Association. 06/15/2019 – 12/14/2020.
- Beena D Ajmera (PI). Earthquake Induced Strength Drops in Soils. \$5,000 from the NDSU Foundation and Alumni Association. 06/15/2019 – 12/14/2020.
- Qifeng Zhang (PI). Exploring the Feasibility of a Co-Pressing and So-Sintering Method for Fabricating Solid-State Lithium Ion Battery. \$5,000 from the NDSU Foundation and Alumni Association. 07/01/2019 – 05/15/2020.
- Danling Wang (PI). New sensing technology based on a novel 2D nanostructured, Vanadium Carbide MXene for application in Pancreatic Cancer prevention and treatment. \$5,000 from the NDSU Foundation and Alumni Association. 05/01/2019 – 10/01/2020.
- Danling Wang (PI), Qifeng Zhang (CPI). New Sensing Technology Based on Photocatalyst TiO<sub>2</sub> Nanomaterial for Application in Monitoring the Efficiency of a New Anti-Cancer Drug in Cancer Treatment. \$6,000 from the NDSU Foundation and Alumni Association. 06/01/2019 – 12/01/2020.
- Xiangfa Wu (PI). NDSU Development Foundation: High-Temperature Polymer Electrolyte Membranes (PEMS) for Direct Bioethanol Fuel Cells. \$5,000 from the NDSU Foundation and Alumni Association. 07/01/2019 – 12/31/2020.
- Xin Sun (PI). Computer vision system development for online pork loin quality evaluation. \$60,000 from the National Pork Board. 03/20/2019 – 03/19/2020.
- Ravi Kiran Yellavajjala (PI). Low cost bio-based ionic liquids from corn fructose for corrosion inhibition in pipelines. \$2,500 from the NDSU Foundation and Alumni Association. 05/01/2019 – 08/15/2020.
- Dong Cao (PI). A Real-Time Optimum Control Scheme for PV System Fleets to Improve Power System Resilience. \$281,492 from the Department of Energy. 08/16/2019 – 08/15/2021.

## RECENT PUBLICATIONS

For 2019, 24 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:

- Ajmera Beena, Brandon Thomas, and Tiwari Binod. 2019. "Characterization of the Reduction in Undrained Shear Strength in Fine-Grained Soils Due to Cyclic Loading." *Journal of Geotechnical and Geoenvironmental Engineering* 145 (5): 04019017. [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0002041](https://doi.org/10.1061/(ASCE)GT.1943-5606.0002041).
- Dong, Wei, Huanhai Xin, Di Wu, and Linbin Huang. 2019. "Small Signal Stability Analysis of Multi-Infeed Power Electronic Systems Based on Grid Strength Assessment." *Ieee Transactions on Power Systems* 34 (2): 1393–1403. <https://doi.org/10.1109/TPWRS.2018.2875305>.
- Keomanivong, Faithe E., Megan C. Ruch, Mary A. Rodenhuis, Matthew S. Crouse, James D. Kirsch, Marc L. Bauer, Md S. Borhan, Shafiqur Rahman, and Kendall C. Swanson. 2019. "Influence of Grain Type and Oil Concentration of Dried Corn Distillers' Grain with Solubles on Ruminant Fermentation and in Vitro Gas Production in Cattle Fed High-Concentrate Diets." *Canadian Journal of Animal Science* 99 (1): 160–67. <https://doi.org/10.1139/cjas-2018-0036>.

- Rahman, Ubaid Ur, Kashif Bilal, Aiman Erbad, Osman Khalid, and Samee U. Khans. 2019. "Nutshell-Simulation Toolkit for Modeling Data Center Network and Cloud Computing." *Ieee Access* 7: 19922–42.  
<https://doi.org/10.1109/ACCESS.2019.2894725>.
- Wang, Ning, Xiaodong Zhang, and Xuefeng Chu. 2019. "New Model for Simulating Hydrologic Processes under Influence of Surface Depressions." *Journal of Hydrologic Engineering* 24 (5): 04019008.  
[https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001772](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001772).
- Yang, Huojun, Yanmei Xie, and Jinchao Yuan. 2019. "Potential of Self-Drying Siding with Raised Air Cavities for Building Envelopes." *Building and Environment* 152 (April): 172–81.  
<https://doi.org/10.1016/j.buildenv.2019.02.002>.

*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](mailto:kyle.bosch@ndsu.edu) to submit items for *College Happenings*.

Follow the College of Engineering on social media.

