

COLLEGE HAPPENINGS

March 2, 2021

FROM THE DEAN

Chegg and Academic Integrity

The COVID-19 pandemic prompted a move to online and HyFlex teaching across the world. That transition has accelerated and amplified a pandemic of a different kind, one that has long plagued universities: cheating. When I was a college student, fraternity-based archives of previous exam and assignment solutions gave fraternity members an unfair advantage if professors re-used exams and assignments. Today, with file-sharing sites like OneClass, Chegg, Course Hero, and Thinkswap, analogous digital archives exist for easy student access. In the [November 13, 2018 College Happenings](#), I wrote about the increased risk of recycling tests and homework assignments because of the availability of old tests, assignments, and solution keys, in these electronic depositories for students to easily search and access. It takes just seconds to look up answers on these sites. Chegg, the largest, has a database of nearly 50 million textbook and exam problems.

However, even creating original exam problems does not prevent students' cheating, especially when the assessments and exams are taken online, outside of a traditional classroom. For example, a [recent article in Forbes](#) describes how Chegg employs more than 70,000 experts, mostly from India, "with advanced math, science, technology, and engineering degrees. The experts, who work freelance, are online 24/7, supplying step-by-step answers to questions posted by subscribers (sometimes answered in less than 15 minutes)." These experts are available to students who subscribe to Chegg, and make contract cheating easy and accessible. Since the COVID-19 pandemic began, subscriptions to Chegg have skyrocketed. Their shares are up 345% since March 2020.

A [recent paper in the International Journal for Education Integrity](#) explained how students are using Chegg for contract cheating requests that are "put in live and answered within the short duration of an exam." The same paper showed that the number of student requests posted increased by nearly 200% from April to August of 2020 compared to the same period in 2019. This problem is not one that we are immune to here in the College of Engineering at NDSU. Last week, we discovered that a student posted several original exam questions on Chegg Study during a two-hour online exam with a request to "Please answer quick." Freelance experts posted the solutions for these exam questions on Chegg in as little as 30 minutes.

Chegg, a morally bankrupt company, is now valued at more than \$12 billion, money made by facilitating this increase in academic misconduct. Nonetheless, they pretend their platform exists to enhance students' educations and claim to be committed to eliminating cheating. They were cooperative in our investigation by providing account information (email address and IP address) on the NDSU student requesting the exam solution and the time stamps for when the question was asked and when the solution was provided. Chegg also recently started a new program called Honor Shield that enables professors to pre-submit exam or test questions, which prevents them from being answered on Chegg during the exam time specified by the instructor.

So, what is the solution? I'm not sure, but I believe that the first step is to improve our faculty and instructors' awareness that sites like Chegg are out there. I think that many of us have been naive to the extent to which students use these services. Some have recommended remote proctoring systems that lock students' web browsers and surveil students using webcams while they take exams. But this approach is controversial for being ineffective, invasive, and anxiety-producing. The International Center for Academic Integrity (ACAI) released a [statement against contract cheating](#), where they make the following recommendations.

- Creating strong syllabus statements telling students to avoid these sites and let students know that even looking at them for course help could be an academic offense.
- Talking to students about the difference between looking at an answer online and understanding the thought process necessary to generate the answer, which is the goal of learning.
- Creating and/or promoting a wide variety of resources (i.e., writing workshops, tutoring centers, counseling services, etc.) for students to support their academic success and maintain academic integrity.
- Developing course assignments and examinations that are resistant to cheating of any kind.

As I said in my 2018 message on promoting academic integrity, we need to do what we can to prevent academic misconduct. More importantly, "we need to talk with the students in our classes about the importance of fostering a culture of academic integrity, instilling a value of accountability and motivation to be honest. It may be the most important lesson we give our students."



IN THE NEWS

[NDSU engineering team wins international video contest](#)

[More women are paving the way as construction managers in North Dakota](#)

[Aly Cole: Confidence>Complacency](#)

[Zach Kubas: Fortitude>Fear](#)

[Aba Turner: Asset>Addition](#)

[On Her Way: Scholarship Recipient Lindsey Prestholdt Joins 3M](#)

[RCA Researcher of the Month: Dharmakeerthi Nawarathna](#)

CONGRATULATIONS

Babak Jahani, a Ph.D. student in the **Department of Mechanical Engineering**, has been selected as one of the **National Science Foundation Student Grant** recipients for the PowderMet2021/AMPM2021/Tungsten2021 conferences. Jahani was selected for his abstract: *Fabrication of Titanium-Based Porous Scaffold by Powder Metallurgy for Bone Tissue Engineering Applications*.

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, March 3, **Grand Challenges Scholars Program Induction Ceremony**. 7:00 – 7:30 p.m. on Zoom.

Tuesday, March 9, **Green Bandana Project Training**. This short session at 11:30 a.m. via Zoom will give tips, tricks, and resources to show you how to help those struggling with mental health through providing resources, describing signs and symptoms, and tips on how to have that intimidating conversation with others. Training Registration and Pledge link is [HERE](#).

Thursday, March 11, **Faculty Virtual Luncheon: Supporting Faculty During COVID-19**. 11:30 a.m. – 1:00 p.m. on Zoom. [Register Here](#).

NSF CAREER PROPOSAL DEVELOPMENT PROGRAM

The NDSU Office of Research and Creative Activity is offering some NSF CAREER-focused, virtual sessions over the next couple of months to assist potential applicants with preparing competitive proposals.

INTRODUCTION TO THE NSF CAREER PROGRAM

- March 30, 2021 | 12 - 1:15pm
- [Register to attend >>](#)

BROADER IMPACTS AND INTELLECTUAL MERIT

- April 14, 2021 | 12 - 1:15pm
- This session will focus on NSF's merit review criteria, and how to effectively address them in your CAREER proposal.
- [Register to attend >>](#)

NSF CAREER AWARDEE PANEL

- April 28, 2021 | 12 - 1:15pm
- For this session, four recent NSF CAREER awardees at NDSU will share their experiences and offer their tips for writing a successful proposal and answer your questions about the process.
- [Register to attend >>](#)

JOIN NDSU STAFF SENATE

NDSU Staff Senate is recruiting new members, and we would love for you to join us. [Nominate yourself or a colleague](#) by Friday, March 19. Voting will take place the last week in March.

If you have questions about joining Staff Senate, please reach out to any of our Elections Committee members.

- Elizabeth Cronin, elizabeth.cronin@ndsu.edu
- Alicia Laferriere, alicia.laferriere@ndsu.edu
- Amanda Reil, amanda.reil@ndsu.edu
- Jennifer Young, jennifer.m.young@ndsu.edu

Remember that all staff are welcome to attend our monthly [Staff Senate meetings](#) to learn more about what we're doing.

NDSU EXPLORE

Registration is open for undergraduate students interested in presenting their research and creative activity projects at the annual NDSU EXPLORE event. This year's showcase will be virtual and held during Undergraduate Research Week, April 19-23. The deadline for registration is March 31, 2021. Please remind your students about this opportunity and urge them to participate.

Details can be found on the [NDSU EXPLORE](#) website. If you have any questions about this event, please send an email to ndsu.researchdev@ndsu.edu.

NDSU FOUNDATION ACCEPTING GRANT APPLICATIONS

The NDSU Foundation Grants Committee is now accepting applications from NDSU faculty and staff for six grant opportunities for spring 2021. By providing funding for these grants, benefactors help enhance the NDSU experience by supporting faculty and staff innovation.

Faculty and staff can obtain application forms and additional information at the NDSU Foundation website: <https://www.ndsufoundation.com/grant-applications>.

The deadline to submit your application is March 29, 2021 by 5 p.m.

- **The Centennial Endowment** can provide maximum awards of \$5,000, with a total of \$22,000 available. This grant fund supports professorships, scholarships, biotechnology, faculty development, libraries, and cultural arts.
- **The Board of Trustees Endowment** can provide maximum awards of \$1,000, with a total of \$5,000 available. This grant fund supports general programs across campus.
- **The Library Endowment** has \$3,700 available to award. This grant fund supports requests from any academic unit on campus for materials that will enhance the collections and/or operations of university libraries.
- **The Gordon A. Larson Foundation Fund** has \$16,000 available to award. This grant fund supports competitive grants for agricultural research efforts conducted at North Dakota State University.
- **The Carl A. and Jean Y. White Memorial Endowment for Agriculture Research** has \$4,400 available to award. This grant fund supports faculty and research staff to encourage agricultural research initiatives.
- **The Engebretson Family Research Fund** has \$12,700 available to award. This grant fund is available every other year (odd years) and was established to support the advancement of pharmaceutical research by encouraging the discovery and development of new drug therapies and delivery systems.

For questions, please email Jennifer Reinhold at jennifer.reinhold@ndsufoundation.com.

FUNDING OPPORTUNITIES

NSF: Cyber-Physical Systems

The CPS program [[NSF 21-551](#)] aims to develop the core research needed to engineer these complex CPS, some of which may also require dependable, high-confidence, or provable behaviors. Core research areas of the program include control, data analytics, and machine learning including real-time learning for control, autonomy, design, Internet of Things (IoT), mixed initiatives including human-in- or human-on-the-loop, networking, privacy, real-time systems, safety, security, and verification. By abstracting from the particulars of specific systems and application domains, the CPS program seeks to reveal cross-cutting, fundamental scientific and engineering principles that underpin the integration of cyber and physical elements across all application domains. The program additionally supports the development of methods, tools, and hardware and software components based upon these cross-cutting principles, along with validation of the principles via

prototypes and testbeds. This program also fosters a research community that is committed to advancing education and outreach in CPS and accelerating the transition of CPS research into the real world.

Proposals for three classes of research and education projects—differing in scope and goals—are supported through the CPS program:

- **Small** projects may request a total budget of up to \$500,000 for a period of up to 3 years. They are well suited to emerging new and innovative ideas that may have high impact on the field of CPS. *There is no deadline for Small projects.*
- **Medium** projects may request a total budget ranging from \$500,001 to \$1,200,000 for a period of up to 3 years. They are well suited to multi-disciplinary projects that accomplish clear goals requiring integrated perspectives spanning the disciplines. *There is no deadline for Medium Projects.*
- **Frontier** projects must address clearly identified critical CPS challenges that cannot be achieved by a set of smaller projects. Furthermore, Frontier projects should also look to push the boundaries of CPS well beyond today's systems and capabilities. Funding may be requested for a total of \$1,200,001 to \$7,000,000 for a period of 4 to 5 years. *Deadline: December 15, 2021*

NSF: Stimulating Collaborative Advances Leveraging Expertise in the Mathematical and Scientific Foundations of Deep Learning (SCALE MoDL)

The National Science Foundation Directorates for Mathematical and Physical Sciences (MPS), Computer and Information Science and Engineering (CISE), Engineering (ENG), and Social, Behavioral and Economic Sciences (SBE) will jointly sponsor [\[NSF 21-561\]](#) new research collaborations consisting of mathematicians, statisticians, electrical engineers, and computer scientists. Research activities should be focused on explicit topics involving some of the most challenging theoretical questions in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration should conduct training through research involvement of recent doctoral degree recipients, graduate students, and/or undergraduate students from across this multi-disciplinary spectrum. This program complements NSF's [National Artificial Intelligence Research Institutes](#) and [Harnessing the Data Revolution](#) programs by supporting collaborative research focused on the mathematical and scientific foundations of Deep Learning through a different modality and at a different scale.

Deadline: May 12, 2021

RECENTLY FUNDED GRANTS

- Nurun Nahar (PI), Mijia Yang (CPI). CoRncrete: A Corn-based Construction Material to Replace Cement. \$52,316 from the ND Corn Utilization Council. 07/01/2021 – 06/30/2023.
- Long Jiang (PI). Cottonseed Oil Based Vitrimers for 3D Printing and Other Applications. \$56,383 from Cotton Incorporated. 01/01/2021 – 12/31/2021.
- Jordi Esteveordal (PI). Experimental Investigation of Dynamic Stall on a 30 Degree Swept Aspect Ratio Pitching Wing using Lifetime Pressure Sensitive Paint. \$40,552 from the Ohio Aerospace Institute. 11/09/2020 – 08/27/2021.

RECENTLY SUBMITTED PROPOSALS

- Jessica Lynne Lattimer Vold (PI). Advanced Materials for Biobased Packaging. \$549, 999 from the National Science Foundation. 08/16/2021 – 08/15/2024.
- Halis Simsek (PI), Dharmakeerthi Nawarathna (CPI). ECO-CBET Preliminary: Novel bacteriophage therapy to suppress biological foaming and biomass bulking in industrial wastewaters: An environmentally friendly approach. \$1,122,376 from the National Science Foundation. 01/01/2022 – 12/31/2025.

- Ivan T Lima Jr. (PI). Label-Free Bioelectronic Sensor for the Screening of Patients with Adenocarcinomas and Neuroendocrine Tumors. \$565,522 from the National Institutes of Health. 09/01/2021 – 08/31/2024.
- Beena D Ajmera (PI). Shear Strength of Fine-Grained Soils Subjected to Permafrost Thawing. \$353,384 from the National Science Foundation. 09/01/2021 – 08/31/2024.
- Yildirim B Suzen (PI), Jordi Estevadeordal (CPI). Experimental Investigation and Computational Modeling of the Fluid Dynamics of UAS Rotors and Multicopters. \$449,909 from the National Aeronautics and Space Administration. 10/01/2021 – 09/30/2024.
- Wei Lin (PI). Sampling Wastewater for SARS-CoV-2 (2021). \$48,672 from the ND Department of Environmental Quality. 01/01/2021 – 06/30/2023.
- Mijia Yang (PI), Yao Yu (CPI). A power-grid-readily-connectible and inclination adjustable solar snow fence. \$55,000 from the National Academies. 09/01/2021 – 08/31/2023.
- Wenji Xia (CPI), Dinesh R Katti (CPI), Simone Ludwig (CPI). NRT-QL: Theory, Informatics, Modeling, and Engineering (TIME) of Quantum Materials. \$2,999,997 from the National Science Foundation. 09/01/2021 – 08/31/2026.

RECENT PUBLICATIONS

For 2021, 37 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:

- Arshad, Hafsa, Hasan Ali Khattak, Zoobia Ameer, Assad Abbas, and Samee U. Khan. 2020. “Estimation of Fog Utility Pricing: A Bio-Inspired Optimisation Techniques’ Perspective.” *International Journal of Parallel Emergent and Distributed Systems* 35 (3): 309–22. <https://doi.org/10.1080/17445760.2019.1606913>.
- Faisal, H. M. Nasrullah, Kalpana S. Katti, and Dinesh R. Katti. 2021. “Molecular Mechanics of the Swelling Clay Tactoid under Compression, Tension and Shear.” *Applied Clay Science* 200 (January): 105908. <https://doi.org/10.1016/j.clay.2020.105908>.
- Gardner, Haley M., Vaclav Hasik, Abdulaziz Banawi, Maureen Olinzock, and Melissa M. Bilec. 2020. “Whole Building Life Cycle Assessment of a Living Building.” *Journal of Architectural Engineering* 26 (4): 04020039. [https://doi.org/10.1061/\(ASCE\)AE.1943-5568.0000436](https://doi.org/10.1061/(ASCE)AE.1943-5568.0000436).
- Tamang, Prabin, Jonathan K. Richards, Shyam Solanki, Gazala Ameen, Roshan Sharma Poudel, Priyanka Deka, Karl Effertz, et al. 2021. “The Barley HvWRKY6 Transcription Factor Is Required for Resistance Against Pyrenophora Teres f. Teres.” *Frontiers in Genetics* 11 (January): 601500. <https://doi.org/10.3389/fgene.2020.601500>.
- Ullah, Al Habib, Braden L. Rostad, and Jordi Estevadeordal. 2021. “Three-Cylinder Rotating System Flows and Their Effects on a Downstream Dimpled Airfoil.” *Experimental Thermal and Fluid Science* 124 (June): 110343. <https://doi.org/10.1016/j.expthermflusci.2020.110343>.
- Velmanickam, Logeeshan, Vidura Jayasooriya, and Dharmakeerthi Nawarathna. n.d. “Integrated Dielectrophoretic and Impedimetric Biosensor Provides a Template for Universal Biomarker Sensing in Clinical Samples.” *Electrophoresis*. <https://doi.org/10.1002/elps.202000347>.

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.

