

COLLEGE HAPPENINGS

August 6, 2019

FROM THE DEAN

Good Practices in Undergraduate Education

It seems like the summer is flying by, with the first day of class just three weeks away. For faculty preparing their classes for the upcoming semester, I want to highlight some principles related to effectively teaching undergraduate (and graduate) classes. Over 30 years ago, Chickering and Gameson compiled a list of research-based best practices in a paper titled "Seven Principles of Good Practice in Undergraduate Education", which appeared in the March 1987 edition of the American Association for Higher Education bulletin. Since that time, these seven principles have become very popular in education circles. These seven principles are listed below.

Good practice in undergraduate education:¹

1. Encourages student-faculty contact.

Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.

2. Encourages cooperation among students.

Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions improves thinking and deepens understanding.

3. Encourages active learning.

Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves.

4. Gives prompt feedback.

Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. In getting started, students need help in assessing existing knowledge and competence. In

classes, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves.

5. Emphasizes time on task.

Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty. How an institution defines time expectations for students, faculty, administrators, and other professional staff can establish the basis for high performance for all.

6. Communicates high expectations.

Expect more and you will get it. High Expectations are important for everyone - for the poorly prepared, for those unwilling to exert themselves, and for the bright and well-motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations of themselves and make extra efforts.

7. Respects diverse talents and ways of learning.

There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learning in new ways that do not come so easily.

I challenge you to think about ways that you can incorporate some of these good practices into your classes this semester.



¹. Summary from

<https://www.ltrr.arizona.edu/fp/geog695c/PDFs/7+Principles+of+Good+Practice+in+Undergrad+Ed.pdf>

IN THE NEWS

[NDSU holds GenCyber Camp for high school students](#)

[LIVE: Sowing the Seeds of STEM at NDSU](#)

[Engineering grad named Summit League Scholar-Athlete of the Year](#)

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, August 13, **CoE Staff Luncheon**. 11:30 a.m. – 1:30 p.m. in the Memorial Union Mandan Room.

Wednesday, August 21, **Search Committee Training**. 10:00 a.m. – Noon in the Memorial Union Hidatsa Room.

[Register here.](#)

RESEARCH AND CREATIVE ACTIVITY FACULTY FELLOWS PROGRAM

The Research and Creative Activity Office is excited to announce a new Faculty Fellow opportunity. They are seeking a tenured senior Associate Professor or Full Professor to create and implement research development initiatives for associate professors who have cleared the tenure mark and are ready for new opportunities and challenges that often come with that milestone.

The program seeks to appoint one Faculty Fellow with a term of up to two years. The Faculty Fellow will report to the Vice President for Research and Creative Activity and will primarily work with the Research Development unit. The Fellow will be expected to spend approximately four hours per week working on the development of the program, attending regular meetings, and implementing the focus area project.

To apply, send a CV and a statement of interest providing details about your experiences in research mentoring; collaboration and interdisciplinary research experiences; and leadership roles to ndsu.researchdev@ndsu.edu.

Applications must be received by August 23, 2019. A selection is anticipated to be made by September 20, 2019.

COSEARCH NDSU – REGISTRATION OPEN

On **October 25th and 26th**, 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. CoSearch is open to all faculty members who are interested in collaboration and research, and it is an exciting opportunity for researchers from a variety of disciplines to bring their perspectives and work together to solve real-world problems.

For more information and to register, visit <http://cosearchndsu.com>.

FUNDING OPPORTUNITIES

ND EPSCoR Request for Proposals

The [ND EPSCoR State Office](#) has a mission to support the efforts of *EPSCoR participating institutions* across the State that result in increased STEM faculty capacity and competitiveness and a stronger STEM pipeline that produces our next generation workforce, educators, and researchers.

To help support the efforts of faculty and students engaged in STEM research and education, the ND EPSCoR State Office is requesting proposals for activities in the following categories:

1. equipment,
2. student travel to present at national conferences,
3. faculty seed awards,
4. faculty/student awards to support K12 outreach activities,
5. awards to fund external peer review of large collaborative/interdisciplinary proposals prior to submission to a federal agency, and
6. undergraduate research.

The link to the RFP and necessary forms can be found at:

<https://www.ndepscor.ndus.edu/funding-opportunities/resind/ndus-stem-rfp-2019/>

For full consideration, proposals must be submitted by September 20, 2019.

RECENTLY FUNDED GRANTS

- Yan Zhang (PI). Enhancement of Left Atrial Appendage Flow using Artificial Superhydrophobic Surface. \$150,887 from the American Heart Association. 07/01/2019 – 06/30/2021.

RECENTLY SUBMITTED PROPOSALS

- Jordi Estevadeordal (PI), Yildirim B Suzen (CPI). Advanced Optical Diagnostics for Supersonic/Hypersonic Wind Tunnel Research at NASA. \$25,000 from the National Aeronautics and Space Administration. 08/16/2019 – 08/15/2020.
- Danling Wang (PI). CAREER: Chemiresistive gas sensor based on new ferroelectric nanomaterial, K2W7022, for application in non-invasive breath acetone detection in diabetes. \$572,011 from the National Science Foundation. 06/01/2020 – 05/31/2025.
- Yan Zhang (PI). CAREER: Hydrodynamics of Bio-Inspired Magnetic Capsule Millirobot in Pulsatile Flow. \$503,688 from the National Science Foundation. 08/01/2020 – 07/31/2025.
- Yao Yu (PI). Development of a next-generation building thermal model for accurate load calculation and energy simulation. \$514,022 from the National Science Foundation. 02/01/2020 – 01/31/2025.
- Adam Curtis Gladen (PI). Development of novel torrefaction process using molten salts. \$717,242 from the Department of Energy. 01/01/2020 – 09/30/2022.
- Xin Sun (PI). Computer Vision System Development for Online Pork Loin Quality Evaluation. \$70,000 from the National Pork Board. 08/01/2019 – 07/31/2021.
- Jeremy A Straub (PI). Impacting the Future of Cybersecurity Students with Program Development and Enrichment. \$34,000 from the NDSU Foundation and Alumni Association. 10/01/2019 – 09/30/2022.
- Benjamin Davis Braaten (PI). Chip-Based ADS-B for High Density, Low Altitude UAV Operations. \$12,097 from the National Aeronautics and Space Administration. 08/15/2019 – 12/31/2019.
- Ravi Kiran Yellavajjala (PI), Dilpreet Singh Bajwa (CPI). Low-cost and sustainable corrosion mitigation products derived from agricultural feedstocks. \$198,558 from the National Institute of Food and Agriculture. 01/01/2020 – 12/31/2022.

RECENT PUBLICATIONS

For 2019, 76 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:

- Ashofteh, Parisa-Sadat, Taher Rajaei, Parvin Golfam, and Xuefeng Chu. 2019. "Applying Climate Adaptation Strategies for Improvement of Management Indexes of a River-Reservoir Irrigation System (Dagger)." *Irrigation and Drainage* 68 (3): 420–32. <https://doi.org/10.1002/ird.2336>.
- Cao, Qi, Quanqing Gao, Ruibin Wang, and Zhibin Lin. 2019. "Effect of Fibers and Expansive Agent on Shrinkage of Self-Consolidating Concrete under Two Curing Schemes." *Journal of Materials in Civil Engineering* 31 (9): 04019204. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0002761](https://doi.org/10.1061/(ASCE)MT.1943-5533.0002761).

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*.

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