



Lake Region
State College

SBHE Research Committee

Update on Research at Lake Region State College

1/20/2021

Research study in progress: Examining the impact of the COVID-19 pandemic on student achievement in online, undergraduate chemistry courses

The global COVID-19 pandemic is creating turmoil in many institutions of higher learning. Social distancing and quarantine guidelines have led many colleges and universities to rapidly shift their courses to distance learning modes. This ongoing study is attempting to measure the impact of the global COVID-19 pandemic upon students enrolled in fully online, undergraduate chemistry courses. Survey data is being used to examine the impact of the pandemic upon students' decisions to enroll in fully online courses.

To date, unpaired t-test analyses have been used to compare exam data from Spring 2020 (n=69) to Spring 2019 (n=101) and again from Summer 2020 (n=52) to Summer 2019 (n=62) in four different undergraduate chemistry courses. Statistically significant differences in exam scores have been observed in the chemistry course required for students enrolled in nursing degree programs.

Betsy Banner, PhD
Professor of Chemistry
Lake Region State College

Email betsy.banner@lrsc.edu

Dr. Bannier's Research Projects

2020:

Understanding the motivation and self-perception of undergraduate academic assistants. (Qualitative research study currently in publication consideration with *Mentoring & Tutoring: Partnership in Learning*)

2019:

Assessing student learning across delivery modes in chemistry (Assessment research presented at 2019 Higher Learning Commission Conference in Chicago, Illinois, and published in *International Journal of Learning & Teaching*; co-authored with K. Boehmer, C. Brown, L. Halvorson, B. Nelson, and T. Riggin)

Using the cosmos to cultivate curiosity among college students (Curriculum and instruction research presented in 2019 at ICDLE Conference in Amsterdam, Netherlands)

2018:

Distance education 408 km high: International Space Station global education programs (Open Education Resource research presented in 2018 at Tokyo Institute of Technology, Tokyo, Japan)

2020:

Understanding the motivation and self-perception of undergraduate academic assistants.
(Qualitative research study currently in publication consideration with *Mentoring & Tutoring: Partnership in Learning*)

2019:

Assessing student learning across delivery modes in chemistry (Assessment research presented at 2019 Higher Learning Commission Conference in Chicago, Illinois, and published in *International Journal of Learning & Teaching*; co-authored with K. Boehmer, C. Brown, L. Halvorson, B. Nelson, and T. Riggan)

Using the cosmos to cultivate curiosity among college students (Curriculum and instruction research presented in 2019 at ICDLE Conference in Amsterdam, Netherlands)

2018:

Distance education 408 km high: International Space Station global education programs
(Open Education Resource research presented in 2018 at Tokyo Institute of Technology,
Tokyo, Japan)

2017:

Eight weeks of chemistry: The advantage of accelerated online learning. (Quantitative
research study published in *International Journal of Learning and Teaching*)

Women learning mathematics (Qualitative research study published in *Journal of Advances
in Education Research*)

A decorative graphic consisting of several parallel white lines of varying lengths and thicknesses, arranged in a diagonal pattern from the bottom right towards the top right of the page.

Shaun Prince

ND NASA Space Grant Consortium

University of North Dakota

1. ND NASA EPSCor Proposal Reviewer

Lake Region State College

1. Faculty Fellowships

1. New Curriculum/Course Development in Precision Agriculture

1. Students with little-to-no background knowledge in chemical and biological sciences when they enter the program.
2. Two-year degree limited to 60 credits
3. Eventual formation of Biological Chemistry (Bio 130)

2. Research

1. Supervising Scientist for summer Precision Agriculture research project - UAV and Infrared Photography Use in Crop Health Prediction
 1. Evaluation and use of DJI Ground Station Software
 2. Evaluation and use of Geotility Software for creating infrared imagery field maps

2. Scholarships/Internships

- a. Encourage and facilitate STEM scholarships to qualifying LRSC students
- b. Facilitate and organize NASA summer internships for students through LRSC and other ND colleges.

3. STEM Ambassadors

- a. Set up STEM Ambassador Candidates for NASA Space Grant Educational Programs

4. History of Space Exploration

- a. Organizer/Facilitator of collaborative educational project between LRSC's science, art and history departments

Community NASA Education Activities

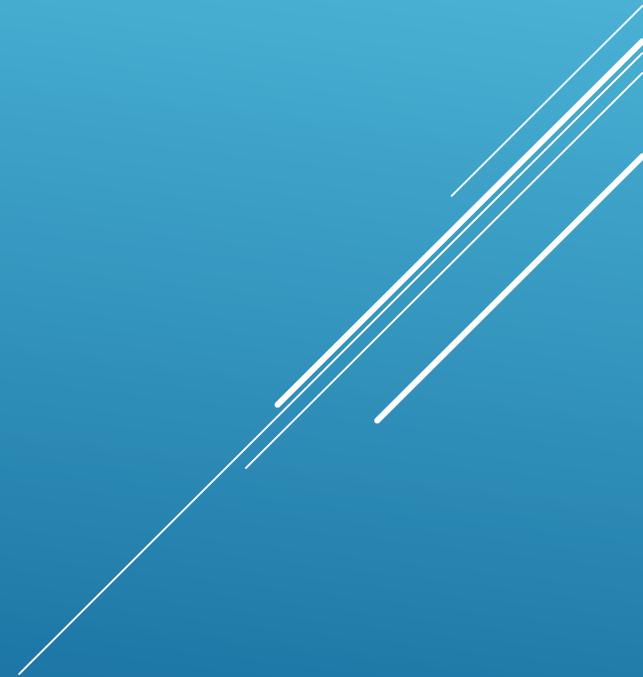
1. Star Party

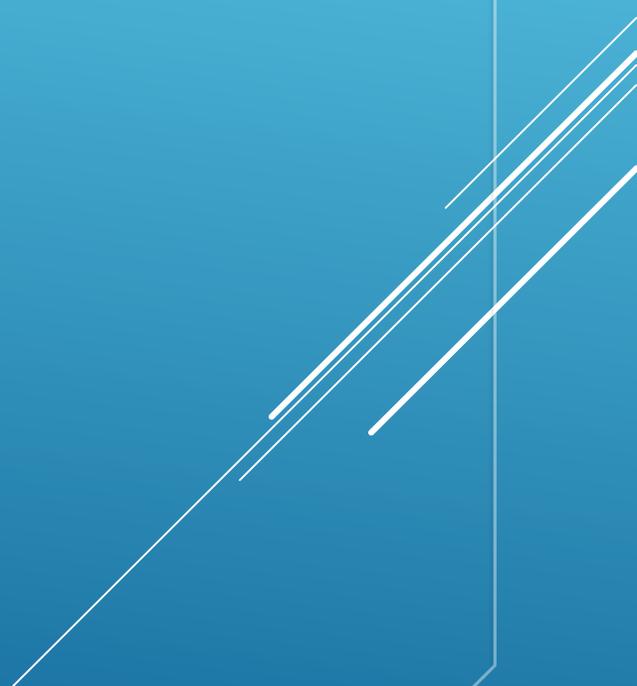
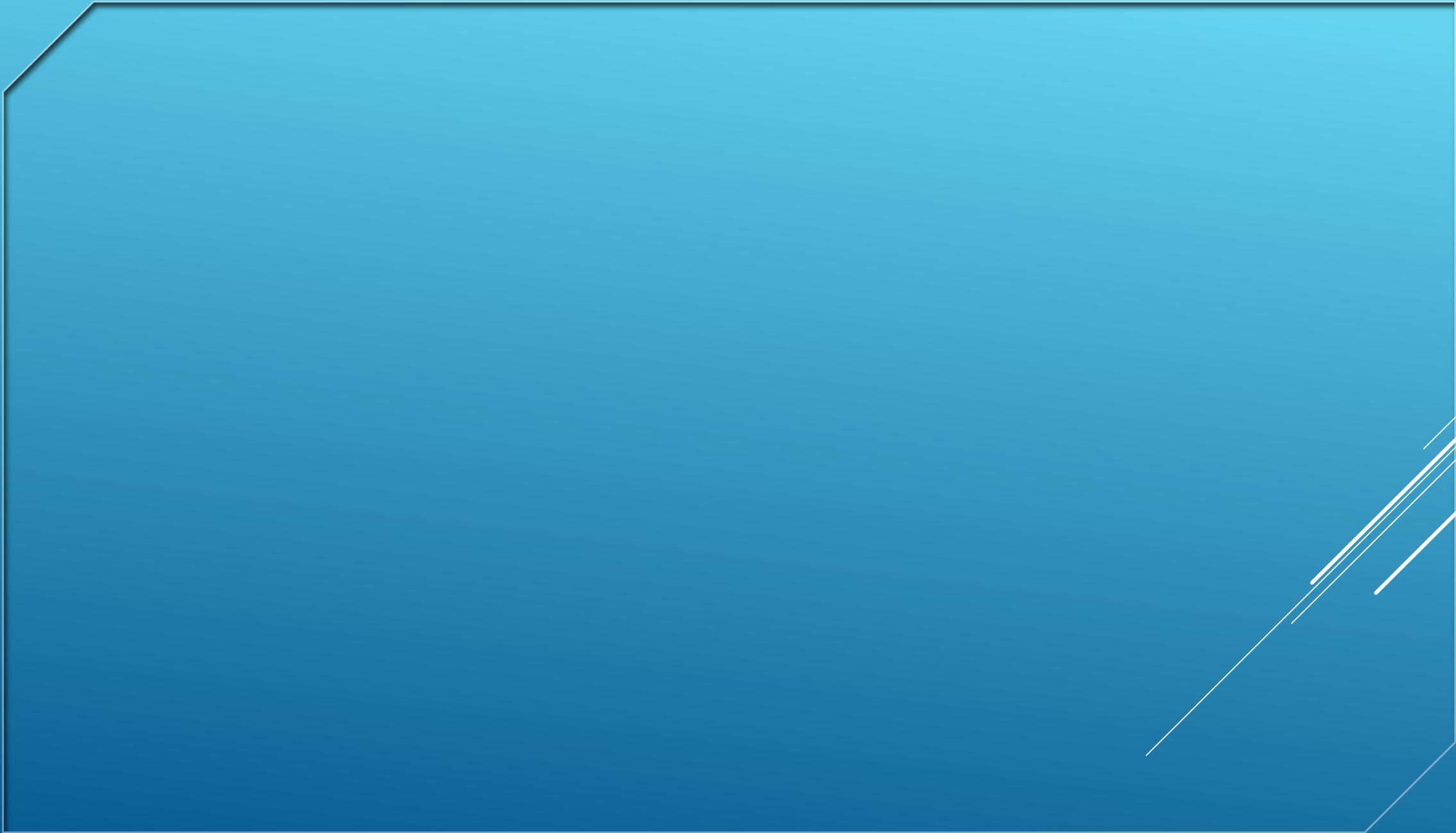
- a. Facilitated and organized LRSC students and campus clubs in a community night where area K-6 students learned about space exploration and were engaged in space-related activities.

Precision Agriculture

Every year we plant a corn, canola, soybean and canola variety plots for CHS. Some years these plots are replicated among multiple locations (Up to 7) and some years it is just west of Devils lake in one location. CHS uses the information internally and has had producer days where they invite the farmers to see any visual differences in yield potential or growing characteristics.

The LRSC 40 acre field has had corn plots in the past consisting of different corn varieties and population trials. We also can observe the yield based on our productivity of zones.





WIND ENERGY TECH

- ▶ 1. We have provided turbine access and turbine operation to support Airtonomy's technology development.
 - ▶ 2. DOE and NSF grant applications
 - ▶ 3. Opportunities for research in Renewable energy and other areas.
- 