Training undergraduate students in team science: the “LUGNuts” project

Osama Ahmed1, Jeremy Leathers2, Katy Nugent1, Tyler Prentice3, Matthew Sauer4, Helen Baulch1, Nora Casson2, Rebecca North4, Jason Venkiteswaran3, and Colin Whitfield1

1 School of Environment and Sustainability & Global Institute for Water Security, University of Saskatchewan, Saskatoon, SK S7N 3H5
2 Department of Geography, University of Winnipeg, Winnipeg, MB R3B 2E9
3 Geography and Environmental Studies, Wilfrid Laurier University, Waterloo, ON N2L 3C5
4 School of Natural Resources, University of Missouri, Columbia, MO 65211

There is a recognized need to train students to conduct collaborative, interdisciplinary research in order to address complex environmental problems. While there are some programs (e.g. NSERC CREATE) that provide opportunities to train graduate students in collaborative science, there are fewer programs tailored for undergraduate students. The objective of our project – Linked UnderGraduate experiments on Nutrients (LUGNuts) – is to create a network of Honours thesis students working on a common project related to nutrient cycling in the environment. This project will expose the students to the joys and challenges of collaborating with a diverse group of scientists across institutions at an early career stage and give them a skill-set to approach large projects and will serve them well as they continue to graduate degrees. Mentorship by a group of academics beyond their home institution is a distinct benefit of our approach.

In this pilot year, students from Wilfrid Laurier University, the University of Winnipeg, the University of Saskatchewan and the University of Missouri conducted lab experiments to assess the impact of freeze-thaw cycles on the release of nutrients from riparian and wetland vegetation. Through bi-weekly videoconferences, the students designed a common field and lab protocol, developed a template to facilitate data sharing and analysis, offered each other advice based on their experiences at various stages of the research, wrote a collaborative literature review and are currently analyzing their results. While each student will write an individual thesis, they will also collaborate on a common manuscript that will aim to extrapolate from site-based results and examine geographic variability in the response of vegetation to freeze-thaw cycles. We are in the process of designing a project for next year. If you are interested in participating, please get in touch with one of the participating researchers. We also have a talk at the upcoming CGU conference in Session B02a in Vancouver.