Project Title: A multi-faceted approach to the redevelopment of undergraduate science teaching labs.

There were three main areas we wanted to address to further undergraduate science at Campus Saint-Jean. Developing and improving laboratory protocols, increasing sustainability and redeveloping online teaching and learning objects. Thanks to the generous support of the Center for teaching and learning we were able to finish projects in all of these areas.

The continued development of experiments ensures that students are able to learn and use current techniques in their studies. In that vein we redesigned organic chemistry experiments to use modern reactions. We also replaced two experiments with new protocols that explore recent synthesis techniques. In Biology we researched a new protocol for our photosynthesis lab which we hope to implement within the next year. A new PCR protocol for our polymorphisms experiment was also developed that yielded far better results than the current protocol.

The second phase of the project was the pursuit of greater sustainability in our labs. This centered around an application for the University of Alberta’s Green Labs program. All three of our labs obtained a gold level of certification. The main focus of changes was in the chemistry labs, as these are the most resource intensive. We replaced dichloromethane, a harmful pollutant, with mineral oil, an inert solvent, in a general chemistry protocol. We also designed and installed a water recycling system that will save more than 8600 liters of water each year, we hope to publish an article on this system in the near future.

The final phase of the project was the redevelopment of online teaching and learning objects. Our main focus was “SOS Labos” an online resource bank for undergraduate science labs. Our redesigned interface allowing better access from mobile phones is pending approval, but has successfully passed small scale testing. Additionally, new resources for article writing are in the final stages of approval and should be available to students before their first article writing assignment this semester. All undergraduate science teaching lab eClass pages now feature a uniform format meaning that students will always know where to find information in each course.

I am confident that the changes we have made will help further student learning and inspire future innovation, as well as help to grow the B.Sc. and B.Ed./B.Sc. programs at Campus Saint-Jean.