



Applied Research Strategic Plan

Introduction

Applied Research is a relatively new venture at Loyalist College, however faculty at the College have been participating in research independently in various capacities for the past 12 years. The development of the Office of Research Services at the College in 2011 was designed to move the Applied Research agenda forward. Applied Research has been continuing to grow and has demonstrated tremendous success and demand over the past two years. For the first time in the College's history, Applied Research was highlighted in the strategic plan for 2015-2020 noting our recent 2014 eligibility status with the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC), as well as acknowledging the College's commitment to innovation and applied research.

This is Loyalist College's first Applied Research strategic plan and will help to guide the College over the next 5 years (2016-2021). This plan will acknowledge and strengthen the current research capacity at the College as well as build and define our capabilities moving forward, fortifying the relationship between Loyalist College and our local and regional community.

Applied Research at Loyalist College supports the overall mission and vision of the College by supporting development of highly qualified graduates through enhanced student applied learning and real-world experiences. The College is committed to providing opportunities for faculty, staff, and students to engage with community partners and small and medium enterprises (SMEs) to assist in providing solutions for real world challenges through shared inquiry, innovation, dissemination of new or improved knowledge, processes and technology.

Supporting Loyalist College Mission

From an Applied Research perspective, the Office of Research Services will support the College's strategic directions by:

- Supporting and furthering the development of inquiry, research and innovation activities at Loyalist College.
- Providing evidence, advice and support for the development of appropriate research and innovation resources and infrastructure.
- Providing resources and support for Research Ethics Board functioning.
- Providing project management, liaison and support externally funded applied research projects.
- Networking with external partners and agencies in relation to applied research opportunities.

Overall Objectives

- 1) Actively engage community, business and industry partners in innovation, technology transfer, and appropriate research initiatives.
- 2) Encourage Loyalist College faculty and staff to pursue research opportunities.
- 3) Support student success through applied learning initiatives by incorporation into college curricula.
- 4) Celebrate and recognize faculty for their commitment to applied research.
- 5) Collaborate and engage with community business partners, industries and other post-secondary institutions on mutually beneficial projects.
- 6) Facilitate, through applied research, the College's role in developing and expanding the local economy.

Strategic Direction

Applied Research at Loyalist continues to grow in many areas; however our major strategic direction moving forward will be with *Sustainable Science and Technology Research (SSTR)*. Loyalist College is equipped with state-of-the-art equipment and laboratories that meet or exceed industry standards in both health, natural sciences and manufacturing engineering. These include the Sustainable Skills, Technology and Life Sciences Centre which is dedicated to a wide range of skills training, including leading edge programs in biotechnology and environmental sciences, and skilled trades. Housed within the Sustainable Skills Centre is the highly regarded Supercritical Carbon Dioxide (SC-CO₂) Extraction Applied Research Laboratory. Not only is this laboratory industry driven, it also offers specialized training to students within biotechnology, chemical engineering and environmental sciences programs.

Applied Research at Loyalist College will be integrated across a spectrum. Firstly, students and faculty will have the opportunity to be involved with real world industry problems through curriculum integrated applied learning projects. Students will work with industry partners during their assigned course/s to help address a challenge they are facing. This method of learning allows students to achieve their learning outcomes while working on real world problems that industry faces on a constant basis and that they may face upon graduation. Secondly, students, staff and faculty at Loyalist College will have opportunities to participate in Applied Research projects, where Loyalist will collaborate with industry partners and seek provincial or federal funding support. Partners may also include other colleges or universities.

SSTR Research Capabilities

Supercritical CO₂ Extraction

As consumers demand higher quality products and more sustainable practices with less environmental impact, SC-CO₂ is becoming an increasingly sought after technology as it provides a safe and efficient method for targeted removal of biological active compounds. Sector focus for this technology includes: food, natural health product, pharmaceutical and agricultural industries.

Manufacturing/Automation Engineering

Capabilities in this area integrate skills from numerous areas and can see projects through from an idea to completion. This could include product design and drawings, prototype design and development, and product development.

Nursing and Health Sciences

Research capabilities in this area include implementation and evaluation of the effectiveness of human simulation technology, including medium and high fidelity simulated scenarios, as well as virtual learning environments. Technological demands continue to increase in the health care system and the availability of "real world" placement opportunities and the focus on interdisciplinary practice contribute to the increased need to implement evidenced informed practices into our post-secondary health care education. Research is essential to these initiatives.

Measures of Success

Loyalist College recognizes the importance of measuring our Applied Research successes not only by achieving the expected outcomes of all of our applied research projects, but also by collecting data on the below indicators.

- An increase in the number of outreach activities to faculty, community businesses and industry partners regarding Applied Research projects.
- An increase in the number of companies and industry contacts commissioning our services.
- An increase in the number of approved grants and Applied Research projects.
- An increase in faculty participating in research.
- An increase number of students and courses participating in experiential learning and research.
- Amount of cash and in-kind values of funded research.
- An increase in collaborations with industry partners and/or other post-secondary institutions.