

## Maple League Funding Opportunities 2019: Accepted Proposals

In early September 2019, the Maple League was excited to launch four new funding opportunities to promote and facilitate collaborative research, innovative teaching, spring and international field study programs, and travel amongst our four campuses.

The following amounts were available for on-campus signature activities:

<b>Fund Name</b>	<b>Available Funding</b>	<b>Awarding Committee</b>
<b>Online Learning/Ideas-Based Course Fund</b>	<b>\$25,000</b>	The Maple League Academic Committee
<b>Spring Institutes &amp; International Field Studies Fund</b>	<b>\$10,000</b>	The Maple League Academic Committee
<b>Innovative Pedagogies Fund</b>	<b>\$10,000</b>	The Maple League Teaching & Learning Centre (MLTLC)
<b>Maple League Research Fund</b>	<b>\$30,000</b>	The Maple League Research Committee

Eighteen proposals were received: two each for the Academic Committee's Online Learning/Ideas-based Courses and Spring Institutes/Field Study funds; six for Innovative Pedagogies under the Maple League TLC; and eight research proposals.

The awarding committees met in October and November to review and adjudicate the proposals received, and we are delighted to share summaries of the 9 funded projects in this report.

### Maple League Online Learning/Ideas-Based Course Fund

- Maple League Incubator
- Data Science Training

### Maple League Spring Institutes & International Field Studies Fund

- Indigenous STEAM: Experiential and Land-Based Learning
- Spring Institute in Arts & Health

### Maple League Innovative Pedagogies Fund

- Interactive online concussion education tool

### **Maple League Research Fund**

- Accessibility as a Collective Practice
- The preservation and accessibility of audiovisual materials at the Maple League universities
- Semi-conductors: fundamental and applied photochemical research
- Mathematical graph theory

### **Maple League Online Learning/Ideas-Based Course Fund**

#### **Maple League Incubator**

- Project Coordinator: Dr. Michael Sheppard (Acadia)
- Student Lead: Brendan MacNeil (Acadia)

#### **Summary:**

The team's research has identified a gap in our entrepreneurial ecosystem for early-stage ventures for: (a) pre-seed funding, (b) mentorship, and (c) a means to collaborate to develop their ideas and bring them to the next stage. While most universities offer some form of support to student entrepreneurs, small universities are constrained by resource limitations to be able to offer support across these three areas crucial to the success of early-stage ventures.

The Maple League allows us to combine forces to achieve economies of scale. With an excess of twelve thousand students we will have a larger pool of entrepreneurial ideas and potential collaborators.

Our proposed solution is to establish a virtual pre-seed incubator for the students of Maple League of Universities. Student teams, from across campuses and across disciplines, would submit ideas to a pitch competition annually. Successful teams would be matched with a mentor from the pool and receive minimal funding for prototyping and incidental costs. Teams would be allocated time in telepresence rooms on-campus and have access to a project workspace to be able to collaborate with each other, meet with mentors, or connect with industry experts, key partners, suppliers and potential customers to help validate their business models. Mentors would be invited for regular workshops making use of telepresence facilities to reduce student travel time and cost. For each student team, the program would culminate in a presentation to a panel of potential investors.

### **Data Science Training**

- Project Coordinator: Dr. Trevor Avery (Acadia)
- Local Leads: Dr. Russell Wyeth (St. FX), Dr. Patrick Bergeron (Bishop's), Dr. Tyson MacCormack (Mount Allison)
- Bioinformatics Contributor: Dr. Cory Bishop (St. FX)
- Lead Pedagogical Trainer: Danielle Quinn (Ph.D. candidate, Memorial University)

### **Summary:**

Contemporary science now regularly generates large complex datasets that require structured computational methods for reproducible analysis. Furthermore, data collection may require specialized tools such as video, audio or image analysis and statistical analyses may require learning advanced methods such as Bayesian or molecular Biostatistics, which may require even more advanced tools such as High-Performance Computing (e.g., Compute Canada infrastructure). Therefore, it is incumbent upon modern science curricula to instill in our students good scientific computing skills and sound quantitative reasoning.

We propose to establish a framework through which 'data science' training is developed across the Maple League in collaboration with faculty and students. It is anticipated this framework would include how to enhance peer-to-peer training in addition to guidelines around how faculty can develop and deliver training in an effective way. The first objective will ascertain the typical student quantitative skills experience, faculty training, expectations as students progress through undergraduate programs, and overall student outcomes; the second objective will catalog the current state of quantitative training and training delivery; and the third objective will present a unified perspective for the Maple League and Administrators to consider with respect to tackling quantitative training.

## **Maple League Spring Institutes & International Field Studies Fund**

### **Indigenous STEAM: Experiential and Land-Based Learning**

- Course Professor: Dr. Jesse Popp (Mount Allison)
- Knowledge Holder and Guest Instructor: Nicole Dubé (Fort Folly First Nation)
- Elder and Guest Instructor: Dr. Andrea Colfer (Elsipogtog First Nation)

**Summary:**

Working together with Elders and Knowledge Holders in Mi'kma'ki, we intend to enhance the ability of universities within the Maple League to offer students exceptional lands-based experiential learning opportunities in the spirit of reconciliation. We propose to develop and deliver a pilot Indigenous environmental science/Indigenous studies course to be implemented through Mount Allison University, but also available to Maple League undergraduate students.

“Indigenous STEAM: Experiential and Land-Based Learning” will be a third-year undergraduate course aiming to enrol 20 students, 11 from Mount Allison University and nine (3 each) from the remaining Maple League universities. Although the bulk of the course will be offered over one intensive week in the summer, the course will be listed as a fall semester course and students will reconvene either in person, or through multi-media, to share their final research reports in the fall.

This course will immerse students in Indigenous culture, ways of knowing, traditional ecological knowledge, and contributions to science, technology, engineering, art, and math (STEAM). Lessons will focus primarily on Mi'kmaq culture. The course will emphasize the relationship between Indigenous peoples and the land.

**Spring Institute in Arts & Health**

- Dr. Ann Fox (St. FX)
- Dr. Catherine Morley (Acadia)
- Ms. Paula Rockwell (Acadia)
- Dr. Karen Brebner (St. FX)

**Summary:**

The academic communities at both Acadia and St. Francis Xavier (St. FX) Universities are engaging in arts and health initiatives that provide a launching pad for collaboration. Faculty at Acadia have established a network of members interested in Arts-based research and teaching. St. FX leaders have worked with the University of Florida to learn about best practices identified in their Arts in Medicine initiatives, and are incorporating these into plans for future health innovation programming. Selected faculty at both universities are focused on blurring disciplinary boundaries to create a culture where artistic expression is incorporated into health-based teaching, research, and community partnerships.

We propose organizing and offering an inaugural Spring Institute in Arts and Health. In May 2020, St. FX, in partnership with Acadia University, will host a two-day Arts and Health Spring Institute

focusing on three ways in which arts and health can be explored: 1) creative teaching activities, 2) research activities, and 3) community partnership opportunities. With the goal of increasing each institution's capacity to develop and support Arts and Health initiatives, the Institute will help facilitate and encourage energetic research discussions, dynamic collaborations, and discoveries in arts and health. The Institute is planned for the Spring, as the end of the academic school year is a time where faculty transition from classroom teaching to intensive research and development, and therefore a time when centering and recharging is necessary for creative and intellectual work. The Institute will provide faculty with opportunities to workshop different forms of creative activities that promote health through arts-based pedagogy and inquiry.

## **Innovative Pedagogies Fund**

### **Interactive online concussion education tool**

- Principal Investigator: Dr. Colin King (Acadia)
- Co-Principal Investigator: Dr. Loriann Hynes (York University)
- Co-Investigators: Tara Sutherland (St. FX), Jocelyn Dowling (Mount Allison), Katrina Lambert (Bishop's), Curtis Arsenault (Acadia)

### **Summary:**

Recent research has found substantial gaps in knowledge surrounding concussion diagnosis and management in groups of Canadian health professionals. Similarly, results from a recent pilot project by the Co-Principal Investigators also identified gaps within a sample of Athletic Therapy students. This study discovered a large gap between theoretical concussion assessment knowledge and practical abilities in students as well as difficulties in assessing for concussion in "actual" field settings.

The purpose of this project is to build on these findings to design an interactive online educational tool that engages students in realistic concussion scenarios. These scenarios will integrate the knowledge and practical skills required to effectively recognize, assess, and manage concussions in different field settings. The scenarios will be created by experts in the field (with representation from each of the Maple League institutions) to ensure that they are contextually authentic and representative of many challenges that can occur when trying to assess and manage concussion in real life. This project will involve the collaboration of Head Certified Athletic Therapists from each of the Maple League institutions who also oversee undergraduate students who work with varsity teams at each institution.

## Maple League Research Fund

### Accessibility as a Collective Practice

- Co-Principal Investigators: Dr. Katie Aubrecht (St. FX, Sociology), Dr. Erin Austen (St. FX, Psychology)
- Co-Investigators: Dr. Cynthia Bruce (Acadia, Education), Dr. Jane Dryden (Mount Allison, Philosophy)
- Collaborator: Dr. Mary Ellen Donnan (Bishop's, Sociology)

### Summary:

The Canadian government recently enacted the Accessible Canada Act; legislation that aims to make Canada accessible in key areas such as the built environment, communication, and education. Since the work of standards development is just beginning, it is important to establish and articulate the current state of accessibility on each of our campuses by developing benchmark data. It is equally vital to identify what needs to be done to become accessible in all areas and to be able to measure whether or not there are improvements in accessibility over time.

The overarching goal of the project is to generate evidence about current accessibility policy and practice in the Maple League universities. The results will lay the foundations for a 2020 Social Sciences and Humanities Research Council (SSHRC) Partnership Grant to analyze the implementation of accessibility legislation in rural liberal arts universities in Eastern Canada.

### The preservation and accessibility of audiovisual materials at the Maple League universities

- Principal Investigator: Jennifer Richard (Acadia)
- Team Members: Margaret Vail (St. FX), Anne LePage (Mount Allison), Sarah Heath (Bishop's)

### Summary:

This research project aims to collect data on what each of the four Maple League institutions are doing with audiovisual materials, within the libraries and within the broader universities. Data collection will start with a survey inquiring about records management plans, born-digital materials, copyright issues, at risk materials within our institutions, preservation and accessibility policies including plans for migrations of obsolete formats, and services, equipment and/or hosting solutions used for preservation and/or accessibility.

The outcome of the project is to gather data to support the creation of sustainable and cost-efficient strategies and policies for preserving and making accessible the audiovisual resources of the four Maple League institutions, so that futures students, alumni and researchers will have access to the exciting and innovative activities and digital scholarship that is being created in our institutions today, for many years to come.

### **Semi-conductors: fundamental and applied photochemical research**

- Principal Investigator: Dr. Geneice Hallett Tapley (St. FX)
- Team Member: Dr. Matthew Lukeman (Acadia)

#### **Summary:**

The two research groups at St. FX and Acadia are keen to begin a new collaborative project that will clearly demonstrate the link between fundamental and applied photochemical research. The primary focus of the described research will be to offer a unique experiential learning opportunity for undergraduate students at two of Canada's top undergraduate institutions in two vibrant, and active, research laboratories with state-of-the-art photochemical techniques.

The proposed work will allow undergraduate students a unique chance to participate in experimental design and implementation in both fundamental and applied chemical research. Students will gain experience in a myriad of photophysical techniques under the supervision of Dr. Lukeman at Acadia, while gaining an understanding of novel light-induced applications with Dr. Hallett-Tapley at StFX. The proposed research will also provide an opportunity for Dr. Hallett-Tapley and Dr. Lukeman to forge a new collaborative relationship that is built on a foundation of research and training commonality – photochemistry.

### **Mathematical graph theory**

- Co-Investigators: Dr. Margaret-Ellen Messinger (Mount Allison), Dr. Stephen Finbow (St. FX), Dr. Nancy Clarke (Acadia)

#### **Summary:**

Collaboration enables this team to draw on the strengths of their respective backgrounds while building each other's knowledge. Dr. Finbow has extensive knowledge of graph parameters and graph products; Dr. Clarke is a leading researcher in pursuit-evasion; and Dr. Messinger has a range of publications in graph searching problems. Thus, the co-investigators' complementary

backgrounds are uniquely suited for this project. Working collaboratively as opposed to individually will accelerate progress and expand their range of results.

The team will also hire an undergraduate summer research assistant, who will be actively co-supervised by all three researchers. This unique opportunity would provide the student with an enriched experience; benefiting from the expertise of all three researchers.

This existing strong mathematical team have successfully collaborated on three distinct projects over the past 12 years, each resulting in a peer-reviewed publication. Additionally, Drs. Messinger, Finbow, and Clarke all have relevant and rigorous research programs funded by NSERC; this project will help to support the continued success of all researchers in obtaining competitive external funding.

**For more information:**

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