



University
of Windsor

Research Stimulus Fund Report 2018-19

December 2019

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Office of the Vice-President, Research and Innovation

Executive Summary

The University of Windsor's Strategic Plan "Thinking forward...Taking Action" (2010) sets the direction of the University of Windsor's research and scholarship enterprise to "create a more research-intensive university with graduate programs that build on academic and professional strengths". The Research Stimulus Fund (RSF) was established in 2013-14 to aid in building the University's research enterprise, especially in supporting research initiatives that will garner additional Tri-Council and other funding in the future. Under the purview of the Vice-President, Research and Innovation (VPRI), the RSF provides annual funding of \$500,000, which is allocated among the Faculties. The aggregate RSF funding for each of the individual Faculties is based on the previous three-year average of Tri-Council (NSERC, SSHRC and CIHR) funding dollars as calculated and reported by the Tri-agency Institutional Programs Secretariat (TIPS).

Each of the Faculties distributed its allocated funding to individuals or groups of researchers whose projects or activities were selected by the Dean and approved by the VPRI, a summary of which is outlined in this report. The RSF funds supported a diverse variety of research projects and activities, including the purchase of research infrastructure and equipment within the Faculties. The Faculty of Engineering used funds in support of scholarships. Through the allotted research stimulus funds, the Faculty of Science was able to fund several collaborative infrastructure grants, in addition to supporting other new collaborative research activities. The Faculty of Arts, Humanities and Social Sciences (FAHSS) also utilized funds to support several collaborative research grants, as well as providing contributions that supported externally funded research collaborations. Descriptions of each of the individual awards and funded activities/purchases are detailed in this report.

RSF-Funded Projects and Activities

Business

The Odette School of Business Research Stimulus Fund supports research in entrepreneurship, transportation management and banking. This research assists in developing solutions for real-world problems.

Dr. Yunbi An was granted \$6,000 for the project “Measuring Liquidity Risk at Banks”. This research deals with risk measuring, forecasting, and hedging. In addition, Yunbi also analyses the effectiveness of incorporating individual and systematic higher-order moments into investment strategies within a stochastic optimization framework with uncertain mean and covariance.

Dr. Guo Xiaolei received \$3,000 for the project “Express Lane Management to Improve Commercial Vehicle Border-Crossing Efficiency”. Commercial vehicle delays at border crossings lead to enormous trade costs. This project is the first step to develop and evaluate market-based instruments for commercial vehicle border-crossing management, including dynamic toll pricing to reduce peak hour delays, express lanes for time-sensitive cargo carriers, real time bidding for express lane usage, using express lane revenue to compensate general lane users, and distributing tradable permits for peak hour/express lane usage to achieve equity. This research will provide innovative border-crossing management tools and methods, leading to reduced trade costs, and produce HQP with highly valuable skill sets.

Dr. Minjie Zhang was awarded \$2,500 in support of the project “Entrepreneurship Spawning and Angel Investor Tax Credit”. The research analysis has shown that subsequent entrepreneurial spawning activities induced by angels, PE and VC funds are more pronounced for countries with more stringent disclosure regulation changes and more forgiving bankruptcy law changes.

Education

The Faculty of Education has continued to invest in strengthening the research culture within the Faculty with contributions to research projects, as well as promoting research through special seminars and workshops open to both faculty and students.

Dr. Dragana Martinovic project “Developing an educators' community of practice” was awarded \$2,500 from the RSF. This projects aims to positively impact the teaching and learning of mathematics education throughout Ontario schools.

Dr. Zuochen Zhang was provided with funding of \$2,500 from the RSF for his project, “An investigation of international students’ English proficiency and their academic performance”. The project examines the relationship between international graduate students’ English proficiency scores and their academic performance. The findings will be used to improve the graduate program at the Faculty of Education.

Dr. Guoqing Zhou was provided with funding of \$2,500 from the RSF for his project, “A study of Chinese international students' classroom participation in the International M.Ed. Program”. The project will investigate the factors that hinder and enhance Chinese International students’ classroom participation. The study aims to improve the programs offered at the Faculty of Education for international students.

The Faculty of Education also used a portion of the RSF (\$1,775) to hold guest speaker seminars and workshops for faculty and students to have discussions with leading experts in the field.

Engineering

The Faculty of Engineering continues to provide support for the NSERC/Ford Industrial Research Chair in Clean Combustion Engine Innovations. Support for collaborative research is providing scholarship funding and student exchange opportunities. These initiatives provide enriched opportunities for researchers and assist in providing enhanced training and internship opportunities for students.

Dr. Hanna Maoh established The Transportation Association of Canada (TAC) Foundation and the Norman Esch Foundation Undergraduate Scholarships in Transportation Science and Engineering in 2015-2016, through an agreement with the TAC and Esch Foundations and the Faculty of Engineering at the University of Windsor. Now in its final year of funding, the Foundations have provided scholarship funding in the amount of \$12,500 per year with a matching amount contributed equally by the RSF funds and the Faculty of Engineering (\$6,250 each). The scholarships provide additional benefits to undergraduate students who are furthering their training in transportation engineering and science. Each year, five undergraduate students will receive \$5,000 through an internship for a four-month work term with the Transportation Systems Innovation Lab or other transportation-related research facilities within the Faculty of Engineering.

Dr. Ming Zheng received \$50,000 together with \$10,000 from the VPRI in support of his senior NSERC/Ford/UWindsor Industrial Research Chair (IRC) in Clean Combustion Engine Innovations-Deterministic Ignition Control. This highly regarded IRC program continues to perform fundamental and applied studies which aim to improve fuel efficiency, emphasize efficient ignition techniques, and modify mechanisms that modulate power to distribute the sites of energy release during ignition.

Nursing

The Faculty of Nursing promotes research within the Faculty through its Internal Research Grants Program. The program aims to engage a larger number of faculty members in research activity and increasing the overall research portfolio within the Faculty, as well as enhancing the grant writing experiences of junior faculty members.

Dr. Lorna De Witt received \$5,000 for her project "Ontario Long Term Care Home Public Version Inspection Reports and Responsive Behaviours Analysis and Recommendations for Change". This study contributes to a knowledge gap about the management of responsive behaviours through the Long-Term Care home inspection process. Public apprehension concerning residential long-term care (LTC) safety is escalating. This participatory action research study's purpose was to develop/implement data collection tools enabling descriptive statistical analysis of Ontario LTC home public version inspection reports (2016-2018) concerning resident-to resident and resident-to-staff aggression. Public document examination precluded research ethics board clearance. Data collected from 561 LTC homes are in process of collation at two levels: provincial and service area (n=7). Preliminary findings suggest reports of aggression vary by geographical area and are often conflated with abuse. We anticipate findings will contribute to knowledge gaps about LTC inspection processes and responsive behaviors.

Science

The Faculty of Science invested in several collaborative infrastructure grants in addition to supporting other research activities, such as the acquisition of technology.

Dr. Tricia Carmichael was awarded \$44,873 for the purchase of a digital optical microscope. This is a state-of-the-art digital optical microscope that provides high resolution and 3D imaging. It is a key piece of instrumentation to support and grow industrial collaborations which forms the basis for external funding.

Dr. Jill Crossman was awarded \$45,000 to support the project "Tow-along current profiles for studying high resolution river and lake hydrodynamics, and their impacts on biochemistry and ecology in the Great Lakes". These funds supported an NSERC RTI application in October 2018, for an integrated ADCP system.

Dr. Stephanie Doucet received \$45,000 for the project "Deterring avian grape predation in local vineyards: development of new collaborative research project". The RSF supports a salary for a post-doctoral fellow to assist in developing a new research area focusing on avian grape predators. The grant will be leveraged to apply for additional funding from NSERC Engage Grants, Mitacs Grants and other industry collaborators. Doucet was also awarded \$10,000 for a new collaborative research study of animal ecology in an endangered ecosystem.

Dr. Aaron Fisk's project "Quantifying walleye movement in Lake Erie: Influence of anthropogenic stressors on a valuable recreational and commercial fish species" was awarded \$15,125. Dr. Fisk's research informs on the management of walleye, one of the most valuable fishery resources in the Great Lakes. This collaborative research helps government agencies manage the ecosystem and create policies which protect both the walleye and the ecosystem it lives in.

Dr. Drew Marquardt was awarded \$34,911 in support of an NSERC RTI grant for the purchase of oxidation stability tester to support research, collaboration and partnerships with pharmaceutical and nutraceutical industrial partners. Oxidation stability of a compound is necessary knowledge for any material, whether it be a commercial product or a starting material.

Dr. Bulent Mutus was awarded \$21,350 in support of an NSERC RTI for the purchase of equipment. The requested spectrofluorometer enables the measurement of the photophysical properties of matter. The ability to measure these parameters enables researchers to tune the structure of materials to optimize the performance of devices.

Dr. Lisa Porter was provided with \$15,000 as a contribution to the Windsor Cancer Research Group (WCRG). WCRG is an assembly of local researchers, healthcare professionals and community partners working together to build teams to strengthen local cancer research programs and bridge collaborations with neighbouring cancer centres.

Faculty of Arts, Humanities and Social Sciences

The Faculty of Arts, Humanities and Social Sciences (FAHSS) has supported several collaborative research projects and conferences as well as invested in infrastructure. These funds support collaborative research within a wide variety of stakeholders in the community and will help facilitate the knowledge mobilization through dissemination and training.

Dr. Christopher Abeare received \$9,996 for the project "Improving diagnosis and recovery from concussion combining novel and established methods". Dr. Abeare's research aims to promote collaborative research in sport-related concussions, brain health and safety of athletes and provide state-of-the-art training to students.

Dr. Thecla Damianakis' project "Interdisciplinary Aging Research Group" was awarded \$5,000. The Research identifies a key question for a society that is growing older: "How do we respect the diverse ways we age, remove barriers to aging well, and support older adults to maximize their full potential in their later years?"

Dr. Patti Fritz's research group, "Health Research Centre for the Study of Violence against Women (HRC-VAW)" was awarded \$9,996. HRC-VAW is an interdisciplinary group of faculty and graduate researchers with interests in the causes of violence against women/girls, its prevention, and the rehabilitation of its effects.

Dr. Catherine Kwantes's project "Trustworthiness Research Alliance" was awarded \$8,000. The Trustworthiness Research Alliance is an international and multidisciplinary group of researchers who investigate trust, and the role that perceptions of trustworthiness of individuals, organizations, and institutions plays in decisions.

Dr. Kim Nelson's "Propeller Project" was awarded \$5,000. The Propeller Project is comprised of a team of artists, artist-researchers, and scholars, working in the dissemination of research via multimedia across the disciplines of installation art, bio-art, documentary film, live performance, and digital storytelling. They aim to explore and experiment with research-creation both in terms of artist-led research and researcher/artist collaboration.

Dr. Robert Nelson's project "N-Terminus" received \$8,000. This funding will produce a rigorous program of interdisciplinary, cross-border analysis and an active body of faculty and graduate students working in the field.

Dr. Wansoo Park's project "Health, Equity and Social Inclusion" was awarded \$5,000. Wansoo does research using both quantitative and qualitative methods in the areas of health and mental health issues of immigrants, health access among immigrants, international adoption, Korean transnational educational migration, and international social work education.

Dr. Christopher Tindale received \$9,979 for the Centre for Research in Reasoning, Argumentation and Rhetoric (CRRAR). CRRAR is an internationally recognized leader in individual and collaborative research on the theory and practice of research in reasoning, argument and argumentation, and rhetoric from the perspective of all related academic disciplines.