

THE KEY

LAURENTIAN UNIVERSITY'S RESEARCH MAGAZINE

Curiosity • Creativity • Connectivity

2017 in Review

Our Research. Our Community.

Local impact, global reach.



LaurentianUniversity
Université **Laurentienne**

SUDBURY | ONTARIO | CANADA



Dr. Pierre Zundel
Interim President and Vice-Chancellor,
Laurentian University

Together we are stronger – relationships support research.

Our recently launched 2018-2023 Strategic Plan contains a number of outcomes obviously related to research.

We continue to focus on our long-standing strengths in areas such as mineral exploration and environmental stewardship. We set goals for our emerging strengths in mining, bimaadziwin and wellness. We support basic research through a plan to add four new research chairs. And we aim to support sustainable community development through social innovation and policy research. Some outcomes are not so obviously tied to research but have the potential to support and enable it. The first outcome named in the plan aims to enhance our relationships with social, economic, cultural, and government organizations to create beneficial initiatives for the North. Outcome Six focuses on creating opportunities for work and experiential learning in industry and community settings. Outcome Twenty-Five focuses on working with our nearly 60,000 alumni and many donors to create opportunities for mutual benefit. All three of these relate to our community engagement, and research is one of the most powerful ways we can engage.

In the six months I have been Interim President, I have had the opportunity to see many of our faculty and staff working closely with community and industry partners. On two recent trips to mining-related events, I saw faculty members from

the Harquail School of Earth Science, the Goodman School of Mines and the Bharti School of Engineering interacting with Laurentian University alumni and colleagues in the mining, mineral exploration and community relations fields. It was clear from my interactions with those same partners that our schools were building on long-standing relationships, which have led to many faculty and graduate student thesis research projects. The \$104 million Metal Earth project is the crowning example of the impact of broadly based engagement by members of the Harquail School of Earth Science with public and private sectors in the mining area. I know that other examples of long-standing relationships exist in many fields (e.g., particle physics, social work, occupational safety and health, Indigenous education, leakage in regional economies) and that others are emerging, for example in architecture and with the Maamwizing Research Institute, to name only a few.

Like the complex web of mutually beneficial relationships between organisms and communities in rich, resilient ecosystems, our linkages with community research partners make us stronger. As we celebrate Research Week this year, we should consider the role that community connections play in providing the projects, funding and support for research at this university and continue to build them *together, ensemble, maamwi*.

GROWTH IN RESEARCH ACTIVITIES

For more than a decade, we have been ranked among the top 40 universities in Canada in terms of research activity. This is a significant achievement for a university of our size.

AREAS OF RESEARCH

While research at the University encompasses many disciplines, our strategic research plan identifies five areas of strategic focus:

- Environment and Conservation
- Health and Wellness
- Social and Cultural Research and Creativity
- Engineering, Mineral and Materials Sciences
- Subatomic Physics

THE KEY

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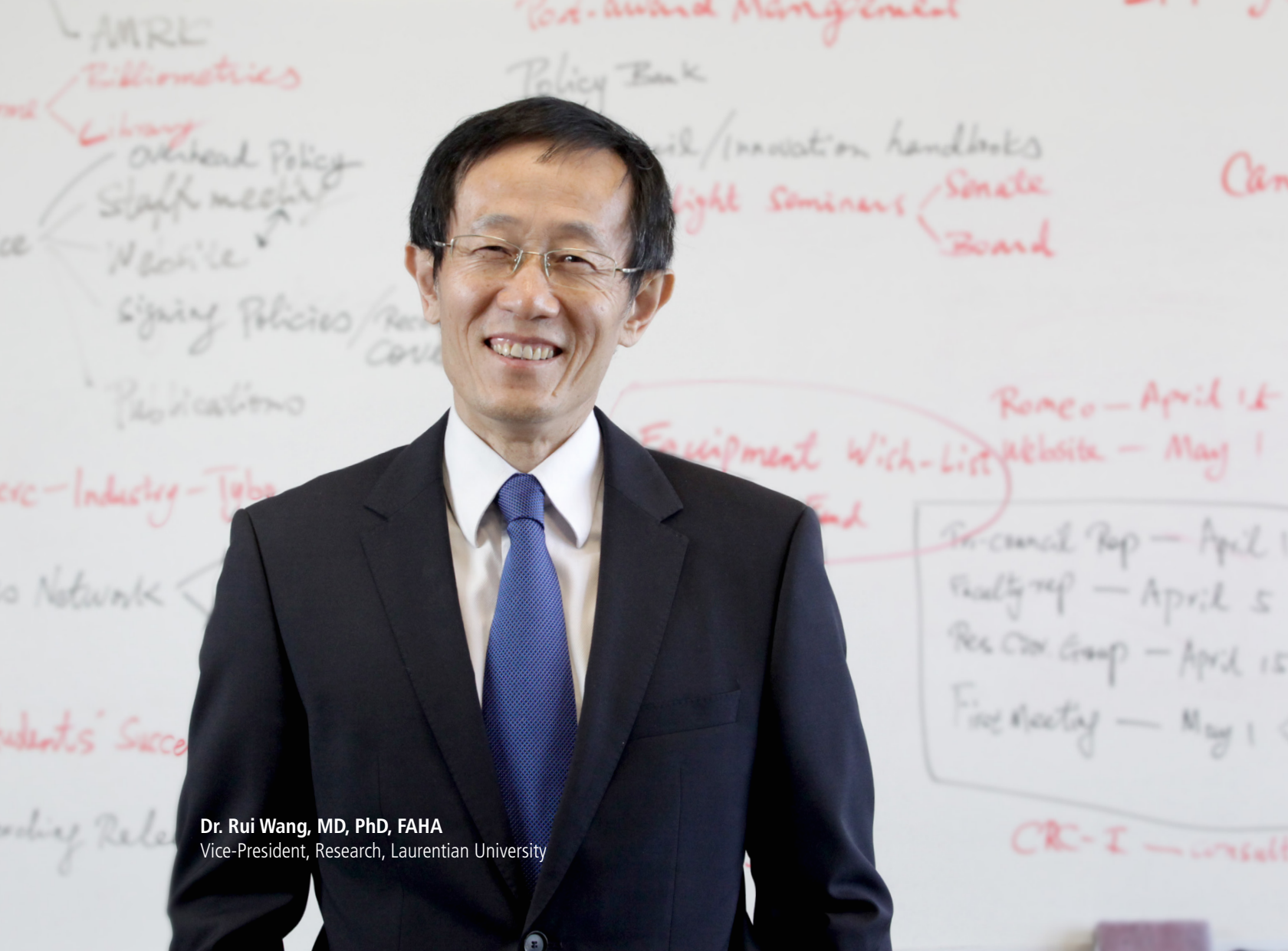
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Engineering Building

RESEARCH & INNOVATION

Highlights from the past 5 years



Dr. Rui Wang, MD, PhD, FAHA
Vice-President, Research, Laurentian University

Reflections on 2017

As Laurentian University's Vice-President Research, it is a distinct honour for me to share with you our research successes from this past year and to highlight some of our greatest achievements and the growth stemming from initiatives driven by our 2012-2017 Strategic Research Plan.

From the recruitment of new research chairs to the investment in research space and innovation activities, our outcomes are like none other in our university's history. I am incredibly proud that Laurentian has been ranked the number one Canadian undergraduate university in total research income. In a single year, our research income has grown by 18.3%, building on the successes of past years and bolstered by the accomplishments of our distinguished faculty members.

Universities are integral components of local and global communities, not only by contributing to the educational needs of societies but also by being active participants in the creation of knowledge that enhances social well-being. Laurentian's research extends beyond the walls of our university facilities as our surrounding communities provide dynamic and living laboratories. One great example of this

Laurentian impact is illustrated by the accomplishments of Dr. Carol Kauppi. Her research on homeless populations throughout the North has earned her the 2017 Social Sciences and Humanities Council of Canada's Partnership Award, one of the highest honours bestowed upon social scientists in Canada. This issue of The Key is but a glimpse into how our researchers create real and measurable impacts through community engagement and collaboration.

I congratulate each and every member of the Laurentian research community that has contributed to these historic and important achievements. Our teams of faculty, highly qualified personnel, and research staff are the driving force behind the successes. As Laurentian moves forward in setting new strategies and priorities for the next 5 years, we will continue to build on their strengths and expertise to ensure we remain relevant and contribute impactful knowledge that addresses the challenges our communities face.

As Laurentian University's Vice-President Research, it is a distinct honour for me to share with you our research successes from this past year and to highlight some of our greatest achievements and the growth stemming from initiatives driven by our 2012-2017 Strategic Research Plan.

#1

Canadian Undergraduate University in
TOTAL RESEARCH INCOME IN 2017¹



\$23.4M

TOTAL RESEARCH INCOME REACHED IN 2016

14



Patents pending or issued since 2012



100% INCREASE in collaborative research and development partnerships since 2015



Canada's **TOP 50** Research Universities
Ranked 30th – our highest ranking ever¹

#2

Canadian Undergraduate University in **CORPORATE RESEARCH INCOME FOR 2012-2016¹**

6

New RESEARCH CHAIRS
recruited since 2014



300%

increase in university supported innovation activities since 2012²




130 NEW graduate student positions since 2016



3 NEW internal research funding programs since 2016

15%

INCREASE in dedicated research space since 2014



230%

INCREASE IN ANNUAL TRI-COUNCIL FUNDING SINCE 2012

National Recognition for a Partnership with Impact

By Evan Bate



The man in the photograph holds a tattered cardboard sign that reads, “Broke and hungry. Any spare change will help.”

His greying beard is unkempt; his gaze is downcast; his eyes are obscured by the brim of a baseball cap.

He is sitting in the snow...

The picture was displayed as part of a public exhibition featuring photos taken by homeless or near-homeless people. With cameras in hand, their aim was to capture—in vivid detail—the harsh realities of their daily lives. It was organized as part of one of the country’s most unique interdisciplinary research projects—Poverty Homelessness and Migration (PHM)—funded with a \$1 million grant from the Social Sciences and Humanities Research Council (SSHRC) and led by Laurentian University social work professor Dr. Carol Kauppi.

Over the course of the last six-and-a-half years, the PHM team has utilized innovative data collection methodologies and art-based mediums such as photography and film to provide an engaging, emotionally resonant, and multi-dimensional view of homelessness in communities across northeastern Ontario, all the way to the James Bay coast. And while for many, the man in the aforementioned picture represents the face of homelessness in the region—male, middle-aged, unsheltered and exposed—the PHM project has shown that perception is very different from reality. Its results have been eye-opening.

“Nearly 80% of homelessness is invisible,” says Dr. Kauppi, who is also the Director of Laurentian’s Centre for Social Justice and Policy and a previous recipient of the University’s Research Excellence Award. “The true rate of homeless is much higher than what is being reported.” In Sudbury alone, for example, the size of the homeless population seemingly doubled between 2009 and 2015. This unsettling statistic was revealed using a combination of surveys conducted in partnership with service agencies, as well door-to-door canvassing. The latter strategy allowed for increased access to an often-ignored population segment Dr. Kauppi and her colleagues refer to as the hidden homeless. Members of this group work to conceal the reality of their circumstances by doing things like couch surfing and avoiding soup kitchens and shelters.

“In most of the research on the homeless,” says Dr. Kauppi, “the focus is on the observable—people living on the streets. Yet we always took the view that homelessness is broader. There are many people surviving in ways that are not visible.”

Women, older adults, families and, increasingly, children are counted among those living with hidden homelessness. The diversity in the composition of the homeless population, previously unrecognized, speaks to the fact that people from all walks of life can find themselves in dire straits, often without warning. “It’s easy,” Dr. Kauppi says. “Any exceptional event can lead to homelessness: an illness, either physical or mental, or a job loss. Housing is expensive—too expensive for many people. When faced with an extraordinary life change, the result is that many people lose their homes.”



Former Governor General of Canada David Johnston and Dr. Carol Kauppi

Over 60 separate research activities were completed as part of the PHM project, and there is no question that the work has had a tangible impact on a number of important fronts. The innovative methodology Dr. Kauppi and her team have employed in their research has been recognized as a best practice, and will likely inform future studies across the country. She credits the work done with helping drive the long-overdue development of Canada’s national housing strategy, and in communities where the homeless populations have been studied and quantified, the quality of supports has increased in response to identified service gaps.

Dr. Kauppi, a lifelong social activist and a firm believer in the importance of applied research, could not be more pleased. “The goal was always to provide all the information that community agencies needed to support their work. It has had that effect. The service system in Sudbury, for example, has been built up as a result. In Cochrane, the Chief Administrative Officer has set a goal of eliminating homelessness in the district as a result of the work we did. They’ve gone forward with planning on how they can do that. Having that kind of impact on the community makes the research worthwhile.”

In 2017, Dr. Kauppi’s exceptional work in leading the PHM project was recognized when she was presented with a SSHRC Impact Award—the organization’s highest honour. The prestigious award acknowledges her unequalled successes with respect to community engagement and capacity building.

With the award came an additional \$50,000 grant to further expand the focus and scope of the PHM project. Moving forward, Dr. Kauppi and a team of researchers from Laurentian, the University of Sudbury and Public Health Sudbury & Districts will be

examining Indigenous representation among homeless people as a way of contributing toward national goals of reconciliation. Workshops, a national conference and a book are all part of future plans to examine how the lasting impact of the trauma of colonization, residential schools and the ‘60s scoop has contributed to over-representation of Indigenous people in homeless populations. According to Dr. Kauppi, this represents another significant knowledge gap that she and her team can work to fill.

“In the Truth and Reconciliation Commission’s Calls to Action, you don’t see recommendations pertaining to homelessness. And yet Indigenous people make up a very large proportion of the homeless population. In the North, it’s up to 45% of homeless people. Indigenous people tend to live in the most extreme homeless conditions. We’re drawing attention to this, looking specifically at what needs to be done to address these issues.”

With more than 20 years of experience in the field of homelessness research (and seemingly many more ahead), Dr. Kauppi admits that at times she has felt overwhelmed by the emotional weight of the work.

However, now more than ever she remains committed to driving the change required to better the lives of those who are most in need of support.

“Homelessness is a difficult area to work in. You really learn a lot about the terrible challenges and experiences that people live through—some of the worst that you can possibly imagine. It has an effect on you. In one sense it’s difficult to hear these stories, but it underlines the importance of doing the work—to keep on raising awareness of it. I’m part of a national group of researchers who are making a difference.”

Research Awards

2017 Research Excellence Award



Dr. Harold Gibson, Professor of Volcanology and Ore Deposits at the Harquail School of Earth Sciences, was named recipient of the 2017 Research Excellence Award.

Dr. Gibson's research focuses on understanding the role of volcanic, magmatic and tectonic processes in the formation of ore deposits. His research is conducted across Canada, globally and on the modern ocean floor. He has supervised 45 M.Sc. and 13 Ph.D. students since joining Laurentian University in 1990. Dr. Gibson was instrumental in establishing the Mineral Exploration Research Centre (MERC), an exploration geoscience centre affiliated with the Harquail School of Earth Sciences, as a global leader in mineral exploration research. The Research Excellence award follows on the heels of the creation of Metal Earth, a seven-year research project funded by the Canada First Research Excellence program and partners in academia, industry and government. As Director of MERC, Dr. Gibson led the development of the proposal, the success of which has resulted in the largest funding announcement in the history of Laurentian University, and the most significant mineral exploration program undertaken in Canada and globally. As the inaugural Director of Metal Earth, Dr. Gibson has taken on the monumental task of launching and managing the activities and partnerships that will shape the research over the next seven years. The Laurentian University Research Excellence Award is presented annually to a faculty member whose research is recognized within the national or international academic community and is widely acknowledged as having enhanced the prestige and reputation of Laurentian University. Other honours bestowed on Dr. Gibson include the Duncan R. Derry and William Harvey Gross Medals from the Mineral Deposits Division of the Geological Association of Canada, the Julian Boldy Award and the Barlow Medal from the Canadian Institute of Mining and Metallurgy, and the Lang Lecture Award from the Geological Survey of Canada.



John A. Franklin Award

Dr. Ming Cai is the 2017 recipient of the Canadian Geotechnical Society's prestigious John A. Franklin Award.

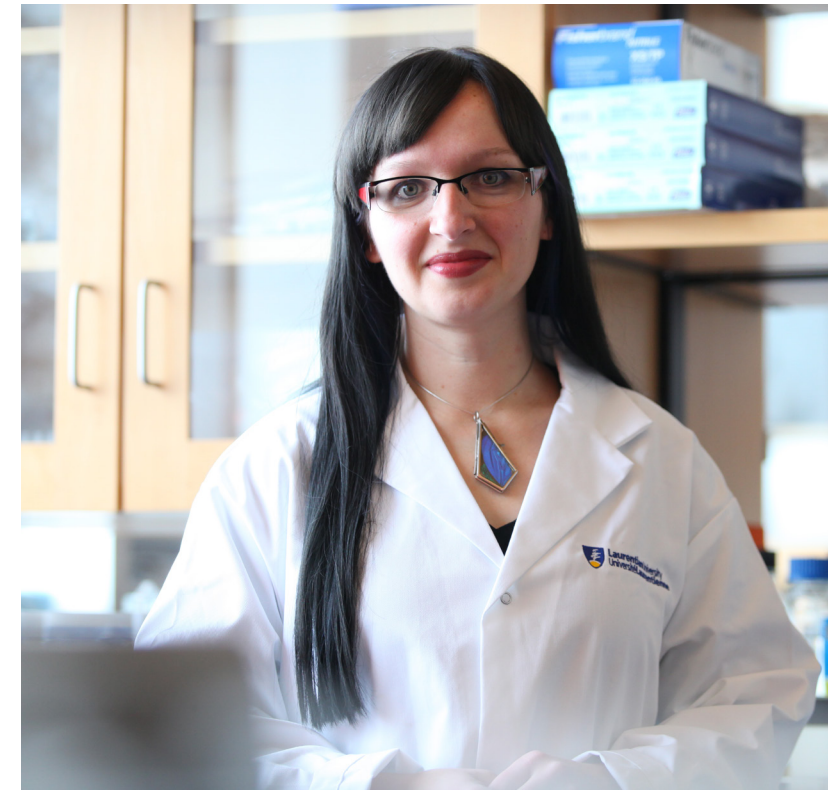
Presented every two years to one individual, this award recognizes the outstanding contributions made by the honouree in rock mechanics and rock engineering. Dr. Cai's research aims to improve safety and productivity in the mining industry in Canada and around the world. Part of this research includes developing ground support products such as dynamic rockbolts to mitigate and control damage from rockbursts, or violent rock failure, that can occur in deep mines. As the Geomechanics Research Chair at Laurentian University, Dr. Cai is a leader in developing cost-effective solutions to complex mining problems.

CARL Award of Merit

Laurentian University librarian Brent Roe has been awarded the Canadian Association of Research Libraries (CARL) Award of Merit in recognition of his outstanding contributions to research librarianship in Canada.



This award acknowledges his contributions to CARL during his time as Executive Director from 2008 to 2014. During that time, Mr. Roe had a lead role in CARL's successful advocacy to ensure balance in the Copyright Modernization Act of 2012. Also in his CARL role, he promoted open access to publicly funded research and the preservation and sharing of research data. His work helped inform government and stakeholders of the importance of effective data management in Canadian research. After his directorship at CARL, Mr. Roe was appointed to the role of University Librarian at Laurentian University, where he is responsible for overseeing library and archival services and, with his library colleagues, where he has worked to encourage open access and research data management on the Laurentian campus.



Early Researcher Award

Dr. Nadia Mykytczuk has received an Early Researcher Award for her project entitled "Extracting value from environmental liabilities: using microbes to recover metals and reduce impacts from mine waste."

The award is an initiative through the Ontario Ministry of Research, Innovation and Science to help accelerate the research activities of Ontario's leading career researchers. Dr. Mykytczuk is the Northern Ontario Heritage Fund Corporation (NOHFC) Chair in Biomining, Bioremediation, and Science Communication. Her research is focused on developing novel, cost-effective ways of preventing the release of contaminants into aquatic systems while using energy-efficient microbial methods to extract value from solid wastes. The majority of the \$100,000 award will be used to hire and train highly qualified personnel to help expand Dr. Mykytczuk's research team. This award will accelerate her contributions towards sustainable mining in Canada.



The 2017 awardees are Dr. Kobana Abukari, Assistant Professor of Finance at Laurentian University, and Dr. Isaac Otchere, Professor of Finance at the Sprott School of Business at Carleton University, who together submitted the winning paper "Dominance of Hybrid Contratum Strategies over Momentum and Contrarian Strategies: Half a Century of Evidence." Their study used more than 50 years of Canadian data to demonstrate how combining features of momentum and contrarian investment strategies to form hybrid strategies yields superior rewards than using either technique in isolation. This study has provided new avenues for investors to explore when choosing investment strategies.

OPHA Award of Excellence

At the 2017 Ontario Public Health Association (OPHA) Fall Forum, Dr. Jennifer Walker received the OPHA Award of Excellence.



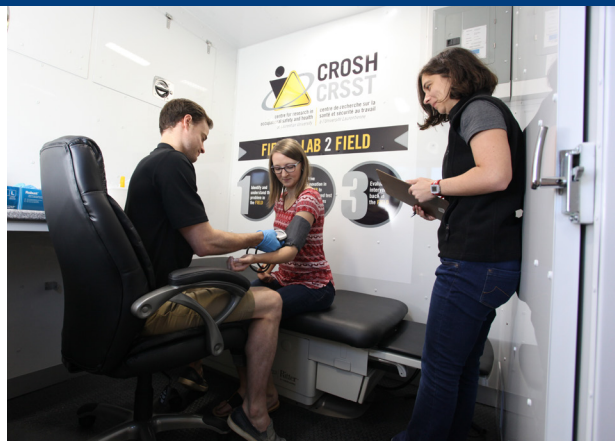
This award is given to Public Health Champions whose commitment to public health initiatives has changed lives and improved communities. Dr. Walker is the Canada Research Chair in Indigenous Health at Laurentian University, and a Core Scientist and Indigenous Health Research Lead at the Institute for Clinical Evaluative Sciences. Her research at Laurentian is focused on helping Indigenous communities use community-specific health data to improve health services and develop policies. Over the past year, Dr. Walker has been building relationships with nine Northern Ontario First Nations health organizations representing 73 First Nations communities to build the Mamow Ahyamowen health partnership. She recognizes the importance of community engagement, respect, and trust-building, establishing her reputation as a world leader in Indigenous health research.

Canadian Investment Research Award

The CFA Society Toronto & Hillsdale Canadian Investment Research Award is given to individuals who have produced a research paper that has significant implications for investment behaviour related to the Canadian capital markets.



Research Highlights



Canada's first mobile occupational health and safety research lab –

In June of 2017, Laurentian University's Centre for Research in Occupational Safety and Health (CROSH) unveiled Canada's first mobile laboratory for occupational safety and health research (M-CROSH) with the leadership of Drs. Sandra Dorman, Tammy Eger and other members of the research centre. The custom designed 40-foot integrated truck/trailer mobile laboratory, established with funding from the Ontario Ministry of Labour, includes laboratory, meeting, and clinic space to support field research in this area. In September, the "Driving Prevention Through Research Tour" took place, bringing M-CROSH to 12 communities across Northern Ontario. During the tour, visitors were asked to share key health and safety issues that workers and workplaces face in their community, and throughout the region. This input will help shape the next 5-year strategic plan for the Centre.

ICES North – Laurentian University, Health Sciences North, and the Northern Ontario School of Medicine have teamed up to provide Sudbury researchers with access to more than 13 million patient records in Ontario through the creation of ICES North. The Institute for Clinical and Evaluative Sciences (ICES) leads cutting edge studies evaluating health care delivery by providing researchers with access to a vast and secure array of Ontario's health-related data, including population-based health surveys, anonymous patient records, and clinical and administrative databases. The \$563,424 invested by all three levels of government will go towards building the infrastructure needed to house such sensitive data. Satellite ICES sites currently exist at Queen's University (Kingston), University of Ottawa (Ottawa), University of Toronto (Toronto), and McMaster University (Hamilton). The development of ICES North will help Laurentian University attract and retain more top researchers as they will have access to the same tools as if they were located in larger health centres like Toronto or Ottawa. The creation of this site will allow the generation of high-quality, locally informed health sciences research in Sudbury.



ICES North, a collaboration between Laurentian University, the Health Sciences North Research Institute and the Northern Ontario School of Medicine, is funded by the Government of Canada, the Province of Ontario and the Greater Sudbury Development Corporation.



Pan-Northern Mining Research Alliance – At Post-secondary institutions throughout Northern Ontario have banded together through a unique and timely partnership to support mining research on a global scale and enhance research strengths in mining-related areas for all of its members. The Pan-Northern Mining Research Alliance is composed of the four northern universities (Laurentian, Lakehead, Algoma and Nipissing) and six colleges (Cambrian, Boréal, Sault, Northern, Canadore and Confederation). It aims to actively seek industry engagement, support and collaboration through targeted research opportunities in order to influence government priorities based on industry needs, creating benefits for all of Northern Ontario.

The members met twice in 2017: an inaugural meeting was held at Laurentian University in the summer, followed by a second session in December at Lakehead University. In addition to the members, other participants included funding agencies, Northern government agencies and science partners. "We will work together with a stronger voice for mining research in the North. Our collective strengths will be an asset to work with, and for, our industry and government partners in mining and supply-sector research areas," states Dr. Rui Wang, inaugural Chair of the Alliance and VP Research at Laurentian University.

Priorities for the next year include supporting/researching/engaging Indigenous programs in mining; soliciting and supporting ecological mining/green mining opportunities; and defining how the Alliance can contribute to research and teaching excellence to promote and improve perceptions of mining. The next meeting will take place in June 2018 at Northern College.



International conference on Astroparticle and Underground Physics

– From July 24 to 28, Laurentian University hosted 350 delegates from 31 countries at the XV International Conference on Topics in Astroparticle and Underground Physics (TAUP). This was the first time the biennial conference was hosted in Canada. TAUP provides an opportunity for scientists from around the world to share updates on projects occurring in the fields of astroparticle and underground physics. Over the five-day conference, delegates gave 27 plenary talks. One of these plenaries announced the results from the DEAP-3600 collaboration, which were published mere hours before the talk. This project involves collaboration between ten institutions across Canada, Mexico, and the UK and is focused on the detection of dark matter using argon pulse-shape discrimination. Throughout the week, 175 delegates were able to tour the site of the DEAP-3600 study, SNOLAB, a research facility located two kilometres underground just outside of Sudbury. Delegates also presented 76 posters over the five-day conference. Those delegates who had the best posters received their awards from Nobel Laureates Dr. Art McDonald and Dr. Takaaki Kajita before the conclusion of the conference. Overall, the conference provided an opportunity for scientists collaborating on international projects to meet and discuss experiments in person.

Ontario Biology Day – In March of 2017, Laurentian University hosted Ontario Biology Day. This annual event provides an opportunity for fourth-year undergraduate students studying biology at universities across Ontario to showcase their honours' research in the form of posters and oral presentations. Each student presented in one of ten categories and prizes were awarded for the best poster and oral presentation in each category, and for the best poster and oral presentation overall. The event sold out this year with almost 200 students attending from 12 universities across Ontario. Of the participants, 30 students were from Laurentian University's biology thesis program. Laurentian University graduate students also participated as judges for the poster and oral presentations. Keynote speakers included Dr. Chantal Barriault, Director of the Science Communication Program at Laurentian University, Bob McDonald, host of the CBC program Quirks and Quarks, and Dr. Gregory Ross, biomedical researcher at the Northern Ontario School of Medicine. Overall, the event provided a great opportunity for students to network and to hone their research and science communication skills.



A Federal Apology –

On November 28, 2017, Justin Trudeau apologized to the LGBTQI2S+ community for the historic purge campaigns carried out in the civil, RCMP and military services, which ruined the lives and careers of thousands of Canadian citizens. For the last 3 to 4 years, Dr. Lynne

Gouliquer has worked with the "We Demand an Apology" network of researchers and activists to pressure the Federal Government into giving this apology. Dr. Gouliquer was ideally positioned to do so given her collaboration with Dr. Carmen Poulin (University of New Brunswick) on an earlier project funded by the Social Sciences and Humanities Research Council (SSHRC), which documented the impact of this discrimination on LGBTQI2S+ soldiers and their families. Their research represents the most comprehensive dataset on this question and forms the basis for much of the evidence used to pressure the Government to come to an agreement in principle regarding the "LGBT Purge" class action suit. Gouliquer and Poulin documented how, for over 20 years, specialized military police officers routinely engaged in identifying, spying, tracking, stalking, wiretapping and interrogating thousands of suspected and self-admitted "homosexual" soldiers, their families and friends (Gouliquer, 2000; Poulin, 2001; Gouliquer & Poulin, 2005; Poulin, Gouliquer, & Moore, 2009; Poulin & Gouliquer, 2012; Poulin, Gouliquer & McCutchen, 2018; Gouliquer, Poulin & Moore, accepted). Soldiers who experienced this LGBTQI2S+ purge campaign lived in constant fear, were traumatized, lost their careers and livelihood, suffered through mental and physical health challenges, and some committed suicide. Drs. Gouliquer and Poulin recently submitted a SSHRC IG application to do a follow-up study to investigate the "present" experiences of LGBTQI2S+ soldiers and their families in the aftermath of the 1992 Court Case that ended the legal discrimination and of the 2017 Apology.

RESEARCH Leaders

For a complete list of our research chairs, please visit laurentian.ca/research-chairs

GREGORY ROSS



Dr. Gregory Ross, professor at the Northern Ontario School of Medicine, has been named the MAG Aerospace Industrial Research Chair in Environment and Health Surveillance. In addition to the funding provided by the industrial partner, the research chair is also supported by the federal government through a contribution by FedNor, as well as by funds from the Northern Ontario Heritage Fund Corporation. MAG Aerospace Canada will work closely with Dr. Ross to track the spread of blue-green algae from the air. Blue-green algae is a serious threat to the environment and can be toxic to humans, animals and fish. Rising temperature levels caused by climate change have resulted in more frequent blooms and increased toxin levels in area lakes in recent years. The team will use a system of infrared cameras and sensors mounted on airplanes, drones, and satellites to measure the spread of the algae blooms throughout Northern Ontario. The project is funded for five years and it is anticipated that the partnership will result in significant international impact as the problem is now appearing in many regions around the globe.

ROSS SHERLOCK



Dr. Ross Sherlock, Research Chair in Exploration Targeting, joined Laurentian University in August 2017 as Director of the Mineral Exploration Research Centre. In June 2018 Ross will also assume directorship of Metal Earth, a seven-year, \$104M research project at the Harquail School of Earth Sciences. Dr. Sherlock completed his B.Sc. at McMaster University, his M.Sc. at Lakehead, and his PhD at the University of Waterloo. Following the completion of his appointment as a Post-Doctoral Fellow at the Mineral Deposits Research Unit at the University of British Columbia, Dr. Sherlock pursued a career as an exploration geologist with more than 28 years in the mining industry and academic research, including senior positions in several major mining companies. His research interests revolve around precious and base metal mineral systems in volcanic and intrusive terranes, mainly by examining the structural and stratigraphic controls on mineralization and how these fit into the evolution of the host terrane. His research is typically pragmatic, focusing on problems related to mineral exploration.

JEREMY RICHARDS

Dr. Jeremy Richards, a Tier 1 Canada Research Chair in Metallogeny and member of the Metal Earth research team, joined Laurentian University in July of 2017. Dr. Richards attended Cambridge University for his Bachelor of Arts (Geology), the University of Toronto for his master's degree, and the Australian National University for his PhD. Since completing his term as a postdoctoral fellow at the University of Saskatchewan, his career has taken him to a variety of locations around the globe—including as a lecturer at the University of Leicester, UK, a professor at the University of Alberta, and a guest research fellow at the Chinese Academy of Geological Sciences. Dr. Richards' research focuses on the formation and distribution of mineral deposits, specializing in copper and gold formation. He also studies economically sustainable mine development. These studies have taken him to interesting—and sometimes dangerous—locations, from Canada to Chile to Turkey to China.



Julie Boissonneault, PhD



Simon Laflamme, PhD



Images from the documentary *Truly and Humbly, Memories of the First Apology*

FACULTY

Arts

Dean: Elizabeth Dawes, PhD



CONNECTING WITH THE COMMUNITY

The Problem of Student Retention in Francophone Schools

Over the last few years, Dr. Julie Boissonneault (French Studies) and Dr. Simon Laflamme (Sociology) have investigated the reasons why students attending French-language schools choose to transfer to English-language schools. Their research has taken them to schools throughout the province to meet with both students and educators. Their results illustrate the complexity and sensitivity of the social dynamics at play within Franco-Ontarian communities, as well as their variability from region to region. The portrait thus obtained revealed that the actions and initiative of individuals and groups can and do affect those dynamics in decisive ways. A grant of \$121,765 from the *Centre canadien de leadership en éducation* (Canadian Centre for Leadership in Education) financed their research. They have presented their results nationally and internationally at both academic and governmental conferences, some of which were broadcast by Radio Canada, as well as in an article published by NPSS, 12/2 (2017).



A National Conference at Laurentian University on Italian-Canadian Studies

On September 15–16, 2017 the Italian Studies Program at Laurentian University, in collaboration with the Association of Italian Canadian Writers, presented a national conference in Sudbury on the Italian presence in Canada. The conference, with fifty speakers from throughout all of Canada and elsewhere, featured academic papers and literary readings that dealt with the themes of origins, acculturation and aspirations in Italian-Canadian literature and culture. While the presenters all had different objectives, they shared a common thread, which was to document, critique and represent the idea of an "Italian-Canadian cultural history." Dr. Diana luele-Colilli and Dr. Christine Sansalone, two of the co-organizers of the conference, are currently editing the selected proceedings of the meeting that will be published by *Italian Canadiana: The Journal of the Frank Iacobucci Centre for Italian Canadian Studies*, which is housed in the Department of Italian Studies, University of Toronto.

Learning from Memory and History

Dr. Hoi F. Cheu, Associate Professor of English, collaborated with Huntington University Librarian, Dr. Natasha Gerolami, to preserve a significant piece of Canadian history that took place on the Laurentian University campus. In 1986, our campus was the hosting site for the General Council meeting of the United Church of Canada. The meeting ended in tears, joy, and a new path, when the United Church gave a historic apology to Indigenous people: "We tried to make you be like us and in so doing we helped to destroy the vision that made you what you were." The apology was the first of its kind by any institution in Canada. After three decades, memories faded, wisdom grew—and the healing journey continues.

Truly and Humbly: Memories of the First Apology, a feature documentary that highlights the stories of the participants in this digital storytelling project, is now available: www.manitoulearningcommunity.com/2017/11/07/memory-project.



Volunteers at the inaugural Faculty of Education Research Symposium.



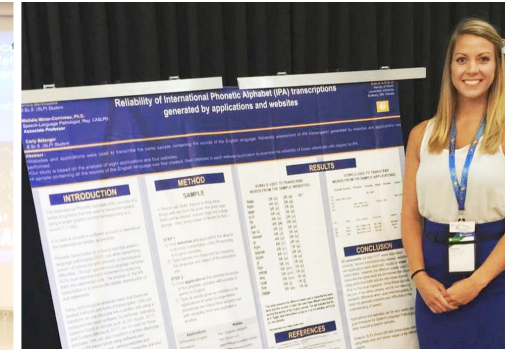
Ginette Roberge, PhD



The Active Sudbury initiative encourages physical activity within the community.



Doctoral student Thierry Middleton



Master's student Danica Berthiaume



Master's student Steven Bell at Barrie Subaru

FACULTY Education

Dean: Luce Marie Brogden, PhD



ENGAGEMENT IN EDUCATION

Educational Research AS and FOR Community Engagement

A master lecturer for the School of Education, Carolyn Crang is the Laurentian lead for *Active Sudbury—Physical Literacy for Communities*, a new Community Partnerships Initiative aimed at improving the health and physical activity levels of Greater Sudbury citizens. This three-year project has been awarded a \$450,000 Ontario Trillium Foundation Grow Grant.

The main goal of the project is to build community engagement through training and activities that support physical literacy in the community of Greater Sudbury. Joining Ms. Crang as project leads from partner institutions are: Jane Tousignant and Natalie Halushenski from the City of Greater Sudbury's Children Services Section; Randy Pascal, Executive Director of Sportlink; Natalie Philippe, RN, from Public Health Sudbury and Districts; and Lynn Kabaroff and Marty Dubec from Cambrian College. Together, these project leads are working to engage stakeholders from the community to deliver sustainable physical literacy programming aimed at improving the health and physical activity levels of its citizens.

Building success in a project of this size—aimed at community engagement—also requires the involvement of a broad network of stakeholders.

Consequently, the project design includes a focus on building the capacity of over 1,600 staff and volunteers to assess and deliver evidence-informed, high-quality physical activity programs.

As the lead for Laurentian's involvement in the project, Ms. Crang's extensive experience in health and physical education, combined with her extensive community contributions, make her well-positioned to champion this project within our campus community and beyond. Through her involvement, pre-service teachers in the concurrent education program will have first-hand opportunities to both learn from the project, receive training as Physical Literacy Instructors and contribute to its outcomes.

Educational Research AS and FOR Pedagogical Engagement

In the spring of 2017, the Faculty of Education was successful in its funding application to conduct a feasibility study for a new offering of hybrid and concurrent education options in French. Dr. Ginette Roberge, then acting director of l'École des sciences de l'éducation, accepted the appointment, by the Dean of the Faculty of Education, to act as principal investigator for

this important project funded by the Ministry of Advanced Education and Skills Development (MAESD). This study, completed in 2017, makes it possible to better identify the academic needs of our future candidates and to inform the development of programs aimed at meeting this increasingly diverse clientele. With the support of the Ministry for teacher education specific to the Francophone sector and with the involvement of dedicated faculty members, the Faculty of Education strives to be attentive to the community and is well poised to provide new and ongoing and program options to meet the needs of Francophone education in Ontario.

Inaugural Research Symposium

In 2017, the Faculty of Education held its first ever research symposium. This year, the planning committee, chaired by the Faculty's 2017–2018 Research Coordinator, Dr. Khaled Taktek and with conference support from the Office of Research Services, expanded this initiative from symposium to conference. With speakers from various regions of the province and broad student participation, including presentations of students' research projects, the conference represents one of the numerous ways the Faculty of Education engages in research activities with and for the campus and broader educational communities.

FACULTY Graduate Studies

Dean: David Lesbarrères, PhD



2017 ACHIEVEMENTS

So many Awards and Scholarships!

What a great year for our graduate students, with more than 100 publications, 68 presentations, and 85 scholarships awarded across all disciplines. Here is a glimpse of some of the most prestigious prizes:

- 2 Ontario Trillium Scholarships for International PhD students: Babak Mosavati (Engineering) and Ana Rafaela Moura (Boreal Ecology)
- 9 Canadian Graduate Scholarships: Christopher Beckett-Brown (Earth Sciences), Corey Bouwmeester (Human Kinetics), Valérie Caza (Orthophonie), Shannon McLean (Engineering), Joannie Quenneville (Psychology), Mostafa Torabi (Management), Kirk Unger (Chemical Sciences), Toni Valenti (Indigenous Relations), Jeremiah Yarmie (Science Communications)
- 27 Ontario Graduate Scholarships

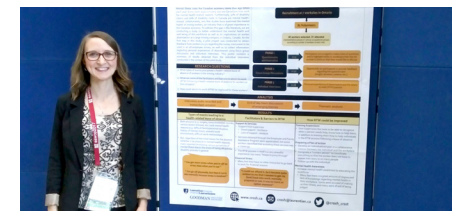
Want more?

- Steven Kell (Biology) was sponsored by the Barrie Subaru dealership, which gave him a vehicle to collect data for his research on the effects of roads on the population demographics of painted and snapping turtles in Algonquin Provincial Park.
- Damien Mullin (Biology) represented Laurentian University at the Ontario Universities 3MT competition.

- Brian Bird (MA, Psychology) was awarded the Governor General Gold Medal.
- Well-Shen Lee (Geology) received the Goodman School of Mines M.Sc. Scholarship.
- Christopher Beckett-Brown (Geology) received the SEG GSF Scholarship.

So far away!

- Bettina Brockerhoff-Macdonald (Human Studies) presented "The Reading of Children's Books and Empathy" at the European Society for Literature, Science and the Arts Conference in Basel, Switzerland.
- Steven Kell (Biology) travelled to South Carolina to present at the Turtle Survival Alliance and won the Best Overall Poster Award.
- Damien Mullin (Biology) gave a platform presentation at the Canadian Herpetological Society meeting in Brandon, Manitoba and won for best talk.
- Thierry Middleton (Human Studies) gave an oral presentation at the ISSP 14th World Congress in Sevilla Spain.
- Caroline Dignard (Rural and Northern Health) presented a poster at the European Association of Work and Organizational Psychology Conference in Dublin, Ireland.
- Marie-Josée Charrier (Science humaine) presented at the 3e Colloque international Langue et territoire in Kenitra, Morocco.
- Natasha Cyples presented at the American Geophysical Union Fall Meeting on "An integration of ground-penetrating radar, remote sensing, and discharge records of the modern Kicking Horse River, BC" in New Orleans, Louisiana.
- Danica Berthiaume (Orthophonie) presented a poster at The Learner Conference, University of Hawaii at Manoa, Honolulu.



Doctoral student Caroline Dignard

Congratulations to all our graduate students on these outstanding achievements!



Graduate level students actively engage in the many research projects led by CROSH.



Chantal Mayer-Crittenden, PhD, at the Speech and Language University Clinic



Carol Kauppi, PhD



Professor Jean-Charles Cachon with colleagues at the Universitas Gunadarma in Jakarta



Laurentian Professor Patricia Orozco and Dr. Suniti Bandaranaike from James Cook University

FACULTY Health

Acting Dean: Céline Larivière, PhD



ENHANCING HEALTH AND WELLBEING OF COMMUNITIES NEAR AND FAR THROUGH RESEARCH

The Faculty of Health recognizes the research activities of its 82 faculty members, 234 Masters students, 31 Doctoral students and research collaborators. Collectively, our research productivity is diverse and covers a variety of disciplines and thematic areas including accessibility of health services in rural areas, training paradigms for medical students, indigenous health and wellbeing, treatment and factors associated with speech and language pathologies, cancer determinants, workplace health and safety, exercise science, sport psychology, midwifery practice, nursing education, mental health and health promotion, just to name a few. Overall, 34 books or book chapters, 129 peer reviewed articles and 99 conferences proceedings or research reports were published by Faculty of Health researchers this past year. Individual researchers, research centers and laboratories received a combined total of \$11,188,736 in research funding.

The Faculty of Health is proud to house four Research Chairs: Dr. Nancy Young (Research Chair in Rural and Northern Children's Health) from the School of Rural and Northern Health, Dr. Robert Schinke (Canada Research Chair in Multicultural Sport and Physical Activity – Tier I) from the School of Human Kinetics, Dr. Jennifer

Walker (Canada Research Chair in Indigenous Health – Tier II) from the School of Rural and Northern Health and Dr. Tammy Eger (Research Chair in Occupational Health and Safety) from the School of Human Kinetics.

The following Senate-approved research centres played an instrumental role in promoting research and scholarship within the Faculty and were led by passionate faculty members, most of whom are part of the Faculty of Health:

- Centre for Rural and Northern Health Research (CRaNHR): Dr. Wayne Warry.
- Evaluating Children's Health Outcomes (ECHO): Dr. Nicole Yantzi.
- Centre for Research in Human Development (CRHD): Dr. John Lewko.
- Centre for Research in Occupational Safety and Health (CROSH): Dr. Sandra Dorman.
- Centre for Research in Social Justice and Policy (CRSJP): Dr. Carol Kauppi.

2017 Research Highlights:

A team of researchers from Laurentian University's ECHO Research Centre and Wiikwemikong were awarded \$2,086,688 over the next 3 years from the Ontario Ministry of Health and Long Term Care as part of the Health Systems Research Fund grant competition. Their project titled "Evaluation to Action: Integrating the Voices of Aboriginal Children" is led by Dr. Nancy Young (Laurentian) and Mrs. Mary Jo Wabano (Wiikwemikong) and is being conducted in partnership with 8 Indigenous communities.

Researchers from the Faculty of Health are collaborating with investigators at the Health Sciences North Research Institute on two federally funded projects that will examine challenges faced by aging populations. Through these projects, Drs. Sheila Cote-Meek, Kristen Jacklin, Chantal Mayer-Crittenden, Taima Moeke-Pickering, Jennifer Walker will contribute their expertise to examine methods of supporting Indigenous populations dealing with dementia. Drs. Moeke-Pickering and Walker are also participating in a mentorship project with researchers at other institutions that will examine methods of supporting communities of Indigenous health researchers.

FACULTY Management

Dean: Stephen J. Havlovic, PhD



BUILDING RESEARCH COMMUNITIES GLOBALLY

Two thousand seventeen was a year of travel and partnership for the Faculty of Management at Laurentian University, with professors attending conferences and collaborating with researchers around the world.

In the fall of 2017, Professor Jean-Charles Cachon visited Universitas Gunadarma in Jakarta, Indonesia where he participated in the Seminar in Entrepreneurship Research for doctoral students and the Conference on Aboriginal Strategy. During this visit, Professor Cachon was instrumental in establishing an institutional research partnership between Laurentian's Faculty of Management and its counterpart at the Indonesian university. On September 7, 2017, the Rector of Universitas Gunadarma signed a General Memorandum of Agreement with Laurentian University, formalizing this new research relationship. In addition to the new partnership, the Faculty of Management maintained its affiliation with the Universidad de Nuevo Leon Business Faculty.

Back at home, Professor Patricia Orozco hosted Dr. Suniti Bandaranaike from James Cook University in Australia. Both Professor Orozco and Dr. Bandaranaike are members of the International Work Integrated Education Research Group (WACE), an organization dedicated to developing, expanding, branding, and advocating for cooperative and work integrated education

programs within industry and educational institutions. This visit allowed the researchers to expand current collaborations within the field of work integrated education, focusing on topics such as graduate employability and employability competencies.

Faculty were also actively involved in disseminating their research findings internationally, presenting at conferences such as the International Council for Small Business in Buenos Aires, Argentina, the Journée de recherches interdisciplinaires en santé at the University of Moncton, and the Faculty of Management Research Day at Laurentian University. Faculty also shared their research in the form of published conference proceedings



Official signing of General Memorandum of Agreement with Universitas Gunadarma.

at the Global Management Conference held in Lille, France and the Atlantic Schools of Business Conference hosted by Acadia University in Wolfville, Nova Scotia. Additionally, researchers in the Faculty of Management successfully published their research in the Journal of Developmental Entrepreneurship and La Revue du Financier.

In 2017, Professor Rana Haq, associate professor in Laurentian University's Department of Marketing and Management in the Faculty of Management, received a Membership Development Grant from the Shastri Indo-Canadian Institute (SICI). The purpose of this award is to provide the funding necessary to hold events promoting grant opportunities within SICI and highlighting research programs within Indian and Canadian member institutions. Professor Haq's research is focused on managing diversity, equality, and inclusion in the workplace.

By building collaborations, Dr. Charles Bélanger helped expand the graduate program within the Faculty of Management. A doctoral student and former Xerox executive is currently working with Dr. Bélanger to examine the skills needed to maximize sales within a new generation of sales personnel in this technological era. Dr. Bélanger is also collaborating with doctoral student Suchita Bali to understand the content type and content strategy used by Ontario hospital foundations on Facebook to maximize donations.



Dr. Marina Ulanova, NOSM Professor



Dr. Greg Ross, NOSM Professor and MAG Aerospace Chair in Environment and Health Surveillance



Pathways to Well-Being, pictured (left to right): Ms. Valerie Oshag; Chief Arlene Slipperjack; Mr. Jason Smallboy, Nishnawbe Aski Nation (NAN) Deputy Grand Chief; Dr. Charles Branch, Co-Chair, NOSM Indigenous Reference Group; Hon. Jane Philpott, Minister of Indigenous Services; Dr. Roger Strasser, NOSM Dean; Hon. Patty Hajdu, Minister of Employment, Workforce Development and Labour and MP, Thunder Bay-Superior North; and, Mr. Don Rusnak, MP, Thunder Bay-Rainy River.

FACULTY Medicine

Dean: Roger Strasser, MD, Northern Ontario School of Medicine



INNOVATIVE EDUCATION AND RESEARCH FOR A HEALTHIER NORTH

Outstanding Research

For many years, Canadian health research took place primarily in large cities, which meant that there were many health questions that were going unanswered in Northern Ontario. For example, how does working in mining or forestry affect one's health? Does living in Northern Ontario mean patients with mental illness have different outcomes? Why are chronic diseases more common in the North?

Since opening in 2005, Northern Ontario School of Medicine's (NOSM) research has focused on questions of importance to the health of Northern Ontarians. There are many faculty members—physiologists, psychologists, biochemists, medical anthropologists, sociologists, biologists, immunologists, physicians, and more—who conduct leading-edge health research in laboratories, as well as in many community settings across the North.

NOSM currently has three research chairs. These researchers were awarded these positions based on the contributions they have made through their work and knowledge of their field of speciality:

- Dr. Douglas Boreham, Bruce Power Chair in Radiation and Health
- Dr. Gregory Ross, MAG Aerospace Chair in Environment and Health Surveillance
- Dr. Sheldon Tobe, Heart and Stroke Foundation - NOSM Chair in Aboriginal and Rural Health

Pathways to Well-Being

NOSM hosted a one-day workshop titled Pathways to Well-Being to address the high rates of youth suicide in Northern and Indigenous communities. The event brought together 90 participants, including Indigenous Elders, youth, leadership, community members, and community-based health-care providers, to develop an action plan to create a future in Indigenous communities without suicide.

"As a medical school with an explicit mandate to be accountable to the peoples we serve, we continually seek the guidance of our Indigenous partners to ensure activities are directed towards the priority health concerns of Northern Ontarians," says NOSM Dean, Dr. Roger Strasser. "We hope the work started here today will support Indigenous communities in creating a future where youth thrive and envision exciting opportunities for themselves throughout their lives."

NOSM Researcher Participating in Nationwide Study

Dr. Marina Ulanova, researcher and professor at NOSM, received a grant of \$423,518 awarded by the Canadian Immunization Research Network (CIRN) for the project titled 'Studies in support of a new vaccine to prevent invasive Haemophilus influenzae type a (Hia) disease in Canadian Indigenous communities.'

Dr. Ulanova, one of 15 principal investigators in Canada collaborating on the project, says she knew from her previous research in Russia and Sweden that there were specific population groups who are vulnerable to infections—one of those groups being North American Indigenous Peoples. "I was always puzzled as an immunologist," says Ulanova. "What is behind this? Why would people be more prone to develop certain infections in certain population groups? This is why I initiated the research, and it evolved from there."

"The goal of our current project is to provide evidence in support of immunization to prevent Haemophilus influenzae type a in Indigenous communities," says Dr. Ulanova.



Dr. Jackie "The Turtle Lady" Litzgus



The North inspires us.

FACULTY Science, Engineering and Architecture

Dean: Osman Abou-Rabia, PhD



UNIVERSAL SOLUTIONS INSPIRED BY THE NORTH

Dr. Alessandro Ielpi, Assistant Professor of Sedimentology at the Harquail School of Earth Sciences, recently travelled to western Nunavut to undertake two field-based projects, respectively, in the area surrounding Bathurst Inlet (to the southwest of the hamlet of Cambridge Bay) and along the lower course of the Coppermine River (south of the hamlet of Kugluktuk). The two projects involved the supervision of as many master's students and stemmed from collaborations with the Canada-Nunavut Geoscience Office in Iqaluit (Nunavut) and the Geological Survey of Canada in Ottawa (Ontario). Field activities were designed to minimize environmental impacts, and involved remote camps sustained by solar power and downriver geotraverses explored through whitewater canoeing.

The scope of the two projects is to further our understanding of sedimentary environments (and their economic relevance) in the Precambrian era, a long timespan of Earth's history that preceded the evolution of macroscopic biotic communities. Arctic Canada holds among the best exposures of Precambrian rocks on Earth, many of which are still virtually unexplored by geoscientists. Throughout his career, Dr. Ielpi has organized and co-led a number of field projects in Nunavut and the



Northwest Territories, and results of his research will be contributing to the scientific advancement and sustainable economic development of Canada's North.

Dr. Jacqueline Litzgus: The way researchers communicate science is expanding.

This past fall, Dr. Jackie "The Turtle Lady" Litzgus wrote a pair of popular science articles for The Conversation, a web-based independent magazine that gives a public voice to the academic and

research communities. The first article is an examination of the illegal turtle trade which threatens turtle populations, both globally and here at home. The interest in this article led to a second about turtle hibernation and the ability of many turtle species to use cloacal respiration—breathing through their butts. Needless to say, butt-breathing has sparked a lot of interest. The pair of articles were picked up by 20 different publishers, including Discover, PBS, and the Weather Network. They've been seen by 130,000 people and led to a follow-up interview by National Public Radio out of Chicago. That's quite an impact. And the articles are still drawing readers—over 10,000 in the last month—and emails from across the globe asking about the present, and future, of turtles.

These new online venues give scientists like Dr. Litzgus the opportunity to reach out to a broad audience, crossing geographic and disciplinary boundaries and, maybe most excitingly, reaching beyond the traditional ivory tower. Laurentian University is one of 18 partner universities of The Conversation, and nine faculty members have written articles for the site—with over 550,000 reads in the last year. That's an impressive reach.



Construction on the new **CLIFF FIELDING RESEARCH, INNOVATION AND ENGINEERING BUILDING** is entering the final stages as the new building is set to open its doors to students, faculty and staff in the fall of 2018. In addition to the modern and fully equipped engineering labs and spaces, the 3-story, 60,000-square-foot facility will also feature two centres for research and innovation, providing 15,000 square feet of dedicated space for faculty and students to innovate, collaborate and discover.

The Perdue Central Analytical Facility is a research facility dedicated to enhancing the research assets of Laurentian University and promoting research excellence by facilitating access to the University's comprehensive suite of research tools and instruments. The centre will feature state-of-the-art instrumentation for scientific analysis that can be accessed by both internal and external users. It will enable and accelerate collaborative, multidisciplinary, inter-institutional and regional, provincial and international research using major research instrumentation. Staff and faculty are currently working together to identify the existing inventory of analytic equipment that would be most suited for the centre. The goal is to offer a comprehensive and diverse suite of research infrastructure tools under one umbrella that will foster innovative research, encourage more faculty to access advanced analytical instrumentation, assist in the training of highly qualified people (HQP), minimize analytical costs by maximizing instrument utilization, and provide a mechanism for long-term instrument maintenance, repair and renewal.

The building also includes the **Jim Fielding Innovation and Commercialization Space**, a 5,000-square-foot centre designed to provide students, faculty and staff with space to advance and enhance their digital literacy and technical skills, develop new technologies and work collaboratively. In addition to the open and collaborative workspaces, lounge areas and private meeting rooms, innovators, inventors and entrepreneurs will also have access to the **Fielding Discovery Lab**, an experiential learning laboratory designed to provide students from all disciplines with the resources to acquire new skills and knowledge through hands-on experimentation. The laboratory will be equipped with the tools and equipment necessary to build prototypes and create digital solutions, allowing users to design products and services for real-life application. Activity and programming such as workshops, pitch competitions, and community events with regional partners will be designed to support creativity and entrepreneurship while accelerating the growth of university startups. The Jim Fielding Innovation and Commercialization Space will be THE hub for entrepreneurial activity at Laurentian University.

