



October 2023 - Issue 69

Discovery Digest is a glimpse into how University of Saskatchewan research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. Curated by the Research Profile and Impact unit, Office of the Vice-President Research. [Feedback welcome!](#)

This Month's Stories



[USask climbs higher than ever in Times Higher Education rankings](#)

The University of Saskatchewan (USask) has reached its highest-ever position in the Times Higher Education (THE) World University Rankings, an indicator that gauges university performances at an international level.

THE World University Rankings measure the overall performance of higher learning institutions based on 17 key indicators across five pillars of teaching, research environment, research quality, industry, and international outlook, per the THE website.

USask leapt more than 100 spots in the rankings to enter the 351-400 tier this year, after reaching an overall rank in the 501-600 tier of universities in the prior year's rankings.

[New USask Indigenous health department first of its kind in Canada](#)

The Department of Indigenous Health and Wellness received University Council approval in April 2023, and will serve as a welcoming space for Indigenous health researchers, learners, and faculty in the college. Indigenous health is a priority for the college and its new department will include collaborations across the university.



“We’re creating the structure that will allow Indigenous voices to tell us where we need to go,” said **Dr. Janet Tootoosis (MD)**, interim vice-dean Indigenous health. “We’re creating a community but we’re also creating a physical space where people can connect and learn about what’s happening in the College of Medicine.”



[USask researchers aim to make cancer fertility preservation program a reality](#)

Dr. James Benson (PhD) is an associate professor in USask’s Department of Biology in the College of Arts and Science. He and **Dr. Laura Hopkins (MD)**, a professor in the Division of Oncology in USask’s College of Medicine and the provincial lead for gynecologic oncology, are part of a cohort of researchers attempting to establish a one-of-a-kind cryobiology research program at USask to support women and girls diagnosed with cancer.

Ovarian tissue cryopreservation involves removing and preserving unaffected tissue before the ovaries are damaged by cancer treatments including chemotherapy, radiation and surgery.

Later in life, after cancer has been cured, the preserved ovarian tissue can be re-implanted to allow for a biological child to be born. Benson said the process has been proven to help children, adolescents and women of reproductive age have healthy babies.

[Celebrated USask medical researchers named Canadian Academy of Health Sciences fellows](#)

USask researchers **Dr. Alan Rosenberg (MD)** and **Dr. Nazeem Muhajarine (PhD)** were named members of the Canadian Academy of Health Sciences (CAHS) in recognition of their work in the greater health sciences community.



Both Rosenberg and Muhajarine were recipients of CAHS fellowships and are now part of the organization which seeks to “provide independent, objective, evidence-based analyses of health challenges that inform both public and private sectors in decision-making about policy, practice and investment,” per the CAHS website.



[World-leading quantum computer will give USask ‘Quantum Boost’](#)

The inauguration of the ‘Quantum System One’ quantum computer by the Platform for Digital and Quantum Innovation of Quebec (PINQ²) and IBM Canada is making waves for research, scholarly and artistic works (RSAW) at USask.

Dr. Steven Rayan (PhD), professor in USask’s College of Arts and Science’s Department of Mathematics and Statistics, director of USask’s Centre for Quantum Topology and its Applications (quanTA), and lead of USask’s Quantum Innovation Signature Area of Research, joined government representatives, industry leaders and researchers from across U15 universities in Bromont, Que.,

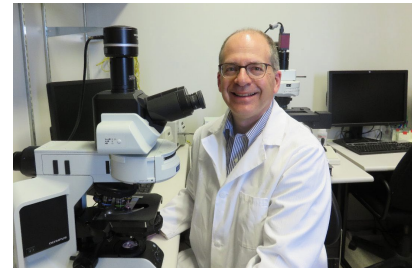
for the inauguration event on Sept. 22, 2023.

Having worked closely with IBM Canada and PINQ² to envision and expand the 'use applications' for Quantum System One in institutional and industrial settings across Canada, Rayan is now championing a 'quantum boost' to existing and future RSAW at USask.

Looking for more research stories? [Visit Discovery Digest online.](#)

[Vital multiple sclerosis research at USask to continue with \\$750,000 donation from Saskatoon City Hospital Foundation](#)

A new gift of \$750,000 from the Saskatoon City Hospital Foundation (SCHF) will provide funding to the USask College of Medicine to support the Saskatchewan Multiple Sclerosis (MS) Clinical Research Chair for the next three years.



Chairholder, **Dr. Michael C. Levin (MD)**, along with his team of researchers have been working to develop medications that can inhibit the nerve cell damage that occurs due to diseases such as MS.

The SCHF's latest commitment of \$750,000 over three years will support the chair's greatest needs, including infrastructure, research support and necessary equipment as part of the vision to advance treatment for and ultimately end MS.



[USask rural health centre announces two distinct milestones: a new name, and a 'transformative' \\$1.5 million gift to develop a mobile unit for rural health and wellness](#)

The newly renamed Canadian Centre for Rural and Agricultural Health (CCRAH) is celebrating its new name along with a \$1.5 million gift that will help ensure the safety and health of rural people and their families.

Dr. Shelley Kirychuk (PhD), the director of the CCRAH, said the gift was an incredible boost for the centre as it takes its next steps into the future.

The \$1.5 million gift was given to the CCRAH by an anonymous donor for the purpose of developing a mobile unit for the CCRAH. The new unit will give the centre speed and flexibility to travel to rural areas in Saskatchewan to support residents as well as enable more nimble and reactive field research teams.

[Video game installation at USask provides unique view of climate change challenges](#)

In June, the USask community could pay a visit to an art

installation featuring an interactive video game that engages players in a simulated world where gameplay decisions directly and irreversibly affect the environment – even if the player didn't know it.



USask College of Arts and Science graduate student **Qihang Liang** built the multi-channel video installation (MVI) called Inter-Play, designed to explore the interconnections between people, water, food and energy systems. The project was also testing a technique to see if an MVI could lead to higher attention and engagement with an audience than a traditional video game or static art installation.

The project was overseen under the expert supervision of Department of Art and Art History associate professor **Lisa Birke** and Department of Computer Science assistant professor **Dr. Madison Klarkowski (PhD)**.



[Joint research team studies sustainable cities in Copenhagen](#)

Representatives from USask, the City of Saskatoon, and the Saskatchewan Health Authority (SHA) went to Copenhagen to study what goes into building healthy and sustainable cities.

A “knowledge translation” grant from the Canadian Institutes of Health Research (CIHR) is providing funding for the Saskatchewan team to take part in a Healthy Urban Policy Implementation Workshop in Copenhagen.

The group from Saskatchewan includes City of Saskatoon Mayor Charlie Clark, head of planning and development Lesley Anderson and head of transportation Jay Magus, along with SHA senior population health promotion practitioner Cora Janzen and USask professor **Dr. Nazeem Muhajarine (PhD)**.

[USask's VIDO selected for CEPI's international research network](#)

The USask Vaccine and Infectious Disease Organization (VIDO) has signed an agreement to join the Coalition for Epidemic Preparedness Innovations' (CEPI) preclinical research network. VIDO is the only organization in Canada and the ninth in the world selected for this research network to date.



The agreement establishes a formal partnership between the two organizations for preclinical research model development and testing innovations for human health. Saskatchewan Minister Responsible for Innovation Saskatchewan, Jeremy Harrison, was on hand in London, U.K., to participate in the signing ceremony with CEPI's Executive Director of Vaccine Research and Development, Melanie Saville, and VIDO's Director, **Dr. Volker Gerdtz (DVM)**. VIDO receives operating support from Innovation Saskatchewan.



[USask researcher developing stronger understanding of soil nutrients](#)

A USask researcher is exploring how phosphorus, an important nutrient for humans and plants, reacts with mineral compounds and how these reactions can impact how well phosphorus is used in soil.

Although phosphorus is required for the growth of plants, USask master's student **Catherine Chavez** said it is important to use it efficiently in soil because there is only a finite amount to go around.

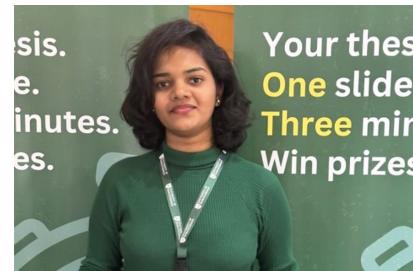
Under the supervision of College of Agriculture and Bioresources Department of Soil Science professor **Dr. Derek Peak (PhD)**, Chavez is using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy to collect her experimental data. This type of spectroscopy uses infrared radiation to measure the amount and type of chemicals present in a sample.

[USask researcher says learning from Saskatchewan's safest intersections can improve road safety](#)

College of Engineering master's student **Shaheli Senanayake's** project takes a unique approach to road safety research. It offers an original perspective that focuses on what Saskatchewan's best-performing intersections are doing right to help improve safety.

"A roadway network's intersections are among the riskiest locations because they serve as a convergence point for pedestrians and vehicles, and are a common location for serious side-impact crashes and a source of traffic congestion," she said. "In Canada, about 30 per cent of all traffic crashes happen at or near intersections, and they cause serious injuries and even death."

The expertise of her research supervisor, **Dr. Emanuele Sacchi (PhD)**, an associate professor in the Department of Civil, Geological and Environmental Engineering at USask, along with intersection data collected from satellite images and local traffic accident data, will help Senanayake analyze which geometric elements of intersections appear to make them a low-collision site.



[New centre at USask honours Indigenous connection to the land](#)

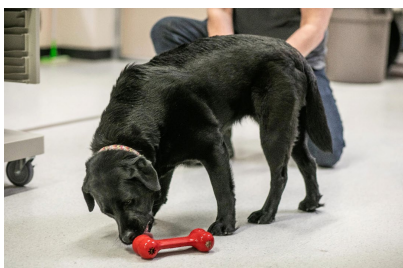
Guided by Indigenous peoples, the new kihci-okâwîmâw askiy (Great Mother Earth in Plains Cree) Knowledge Centre at USask serves as a resource for Indigenous communities and organizations seeking land-related information, training, and research partnerships.

The kihci-okâwîmâw askiy Knowledge Centre is founded on the principle that the land is our first teacher and of central importance to Indigenous peoples.

“We aspire to build a centre that works with and for Indigenous communities,” said **Candice Pete-Cardoso**, director of the kihci-okâwîmâw askiy Knowledge Centre. “We aim to develop constructive and collaborative partnerships with Indigenous peoples, communities, and organizations.”



[Increased funding a vote of confidence for the Crop Development Centre](#)



[USask veterinary researchers build tumour bank to advance cancer research](#)



[Scientists test more roles for smart farm tools in livestock production](#)

Stay connected with USask research news



Make sure to follow the USask Research [Twitter page](#) to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to also follow [USask Research on LinkedIn](#), and [@VPR_USask](#) and [@USask](#) on Twitter for more of the latest research and university news.

Use the hashtag **#USaskResearch** when sharing USask-related research findings, publications or achievements on social media.



ICYMI: [This year's TEDxUniversityofSaskatchewan videos are now available!](#)

USask is home to pioneers in discovery who are improving lives, expanding opportunities, strengthening social cohesion and protecting the environment. In the spirit of ideas worth spreading, they took to the TEDx stage in January with compelling

stories of ambition and achievements, sharing their voice and vision to be what the world needs.

Whether you missed the event or just want to re-watch the amazing talks, [find all the videos online](#).

Learn more [about the event](#).

In *The Conversation*...

[Lyme disease: The pathogen's cunning strategies for persistent infection offer clues for vaccine development](#)

By: **Dr. Jenny Wachter (PhD)**, USask College of Medicine, Vaccine and Infectious Disease Organization (VIDO)

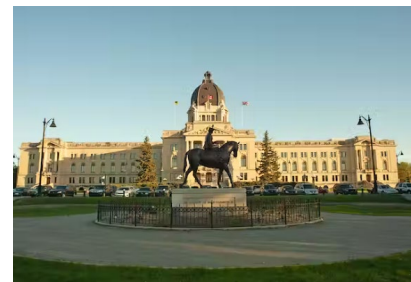
The bacterium that causes Lyme disease is a master of disguise, changing its appearance to evade the immune system as it moves from the ticks that carry it to humans or animals.



[Saskatchewan's revised policy for consulting Indigenous nations is not nearly good enough](#)

By: **Dr. Kathy Walker (PhD)**, College of Arts and Science and Benjamin Ralson (JD), College of Law

Elected officials must consider relevant research and legal context when shaping education policies. Otherwise, they risk destabilizing classrooms and harming students.



Upcoming events



Advancements in Agricultural Research Seminar Series: Adding value to Saskatchewan crops through feed processing research

Research **Dr. Rex Newkirk (PhD)** conducts using the Canadian Feed Research Centre in North Battleford is focused on improving processing methods and creating new product applications for important crops and their by-products. This seminar will focus on the opportunities for value added processing, the unique ability of the Canadian Feed Research Centre to conduct this research and will discuss opportunities for this research in the future.

The event will take place via Zoom at 3 p.m. on Tuesday, Oct. 17.

- [Adding value to Saskatchewan Crops through feed processing research – Tuesday, Oct. 17](#)

SCIC & USask Workshop: Gender equality in program design

and delivery

The Saskatchewan Council for International Cooperation (SCIC) is pleased to invite you to a 2-day workshop on the Feminist Lens in Development with leading Canadian expert on gender equality, **Karen Craggs-Milne** in Saskatoon.



This 2-day workshop will cover everything from the foundational concepts of gender equality, to the new Feminist International Assistance Policy in Canada and impacts for Canadian NGOs, to gender-based analysis for programming.

The event will take place from 9 a.m. to 4 p.m. on Monday, Nov. 6 and Tuesday, Nov. 7 in the Montcalm Stewart Room (2nd Floor), Marquis Hall, University of Saskatchewan.

- [SCIC & USask Workshop: Gender Equality in Program Design and Delivery – Nov. 6 and 7](#)



Research Impact Canada: A.I. and the Future of Work (Force Development)

This event is designed for professionals who play pivotal roles in appreciating the impact of innovations, in this case in the skills and workforce development sector. It's an excellent platform to gain insights, share experiences, and explore the growing impact of artificial intelligence and automation on the future of workforce development for professionals and students across post-secondary academia.

The event will take place online at 1 p.m. on Oct. 18.

- [A.I. and the Future of Work \(Force Development\) - Wednesday, Oct. 18](#)

Water Welcome: A USask community meet and greet

On behalf of Executive Director, Dr. Corinne Schuster-Wallace, the Global Institute for Water Security would like to invite you to a Water Signature Area Meet-and-Greet event taking place in the Green Room (Admin C280) from 8:00 – 10:00am on Tuesday, Oct. 17.



We hope that you can make time to pop in and say “hello”!

Come for the conversation and stay for the refreshments.

This event is open to all USask staff, students and faculty so please feel free to share this invitation with others.

- [Water Welcome: A USask Community Meet and Greet – Tuesday, Oct. 17](#)

The 2023 Robertson Lecture: [Our Cities Will Define Our Future](#)

Featuring **Jennifer Keesmaat**, Renowned Urbanist, Expert on Building Sustainable Cities

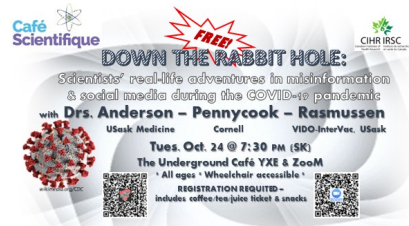


Jennifer issues a call to action which implores cities to best address the most pressing challenges of our day: global poverty, affordable housing, quality of life, the need for innovation, the economy, traffic congestion, and climate change.

The event will take place via Zoom at 12 p.m. on Thursday, Oct. 19.

- [The 2023 Robertson Lecture: Our Cities Will Define Our Future – Thursday, Oct. 19](#)

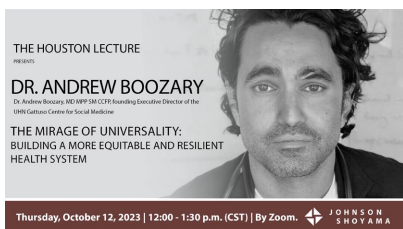
Down the Rabbit Hole: Scientists' real-life adventures in misinformation and social media during the COVID-19 pandemic



On Tuesday, October 24 at 7:30 PM (SK), this FREE CIHR-supported Café Scientifique public event features three health researchers - **Dr. Kyle Anderson (College of Medicine, USask), Dr. Gordon Pennycook (Cornell) and Dr. Angie Rasmussen (VIDO-InterVac, USask)** - active in public education and health policy during the COVID-19 pandemic.

Join us live in-person or on Zoom to hear scientists' personal stories about their (mis)adventures promoting accurate public health information on social media, consulting with news media and health policy makers, and discovering the best strategies for spotting and defeating "fake news".

- Register to [attend digitally](#) or [in-person](#) - Down the Rabbit Hole: Scientists' real-life adventures in misinformation and social media during the COVID-19 pandemic – Tuesday, Oct. 24



2023 Houston Lecture – The Mirage of Universality: Building a more equitable and resilient health system

Join us for a thought-provoking discussion that confronts the illusion of universality in Canada's health care system. This lecture will review the prevailing inequities within the system and expand our understanding of health beyond the conventional boundaries.

In the context of the COVID-19 pandemic, Dr. Boozary will discuss how it exacerbated chronic health disparities, shining a spotlight on structural discrimination as a fundamental contributor to these disparities. The lecture will conclude with a look at how innovative interventions and strategies that have the potential to reshape health equity and enhance the resilience of our health system could be implemented. Join us in reimagining a more just and adaptable healthcare future!

This event will take place via Zoom at 12 p.m. on Thursday, Oct. 19.

- [2023 Houston Lecture – Thursday, Oct. 19](#)

Opus Connections: Startup Pivots Event

Being an entrepreneur isn't an easy path, and sometimes requires a pivot (or two) to overcome challenges along the way. Join Opus for a panel Q&A with three Saskatchewan entrepreneurs who have pivoted in their startup journey. Hear what challenges they faced, how they overcame them (or not), lessons they learned and tips on how to adapt and persevere. Light food and beverages provided.



This event will take place at Louis' on the USask campus at 4 p.m. on Tuesday, Oct. 24.

- [Opus Connections: Startup Pivots Event – Tuesday, Oct. 24](#)



Campus Conversations

Join Vice-President Research Dr. Baljit Singh (PhD) for the next in the Campus Conversations seminar series.

Campus Conversations are a series of constructive discussions between members of the campus community about research, scholarly and artistic works at USask.

This event will take place at 12 p.m. on Thursday, Oct. 26 in room C280 of the Administration Building.

- Campus Conversations – Thursday, Oct. 26

NEW - Information for researchers

JSGS Governing Sustainable Municipalities Project

The Johnson Shoyama Graduate School of Public Policy (JSGS) is proud to announce the successful completion of its Governing Sustainable Municipalities Project. This one year, [\\$1.75M project, funded by the Future Skills Centre](#), brought together USask and University of Regina researchers, graduate students, and Executives in Residence to study how to strengthen the capacity of Saskatchewan municipal governments to advance sustainability. The project assessed sustainability policy in 48 Saskatchewan municipalities and engaged with 92 Saskatchewan municipal representatives and stakeholders. In addition to academic journal articles, the project has created tools for municipal governments, including issue briefs, a report with recommendations to advance Saskatchewan municipal sustainability, and a database of organizations and stakeholder to help Saskatchewan municipalities move forward with their sustainability plans.

These resources will be available in the coming weeks on [our project webpage](#).

Learn more about HARVEST



Did you know that the University Library provides a digital repository for the research, scholarly, and artistic outputs of the USask community? It is called [HARVEST](#). You can preserve your articles, book chapters, presentations (and more!) for the long-term, and make them discoverable and freely accessible to

anyone anywhere in the world. Repositories like HARVEST are the ideal place to share research outputs that may not otherwise be published or preserved such as reports. This is also a way that you can comply with funders' mandates for open access (like the Tri-Agency Policy on Publications) without paying expensive publisher's fees. It is free and legal to self-archive your revised manuscripts in HARVEST. Learn more [here](#).

Ready to get started? Reach out to us at HARVEST@library.usask.ca to get set up!

In the news

- Oct. 12 – The Western Producer – [Microbiome helps understand bovine respiratory disease](#)
 - Oct. 11 – Regina Leader-Post, Saskatoon StarPhoenix – [Learning from Sask.'s safest intersections can improve road safety: U of S researcher](#)
 - Oct. 10 – CBC Radio – [One-of-a-kind research at University of Saskatchewan is hoping to give women and girls with ovarian cancer a chance to have children even after their cancer treatment](#)
 - Oct. 10 – The Canadian Press, Winnipeg Free Press – [Food industry leaders launch alliance to champion net zero in agri-food sector](#)
 - Oct. 5 – Upworthy, MSN News – [Scientists develop technique to repurpose harmful mining waste into nutrient-rich soil](#)
 - Oct. 2 – CBC News, MSN News – [Canada is the only G7 country without a national school food program. Advocates say it's time](#)
 - Sept. 27 – Regina Leader-Post, Saskatoon StarPhoenix – [U of S researcher developing stronger understanding of soil nutrients](#)
 - Sept. 24 – CTV News – [How a cemetery of early Saskatoon settlers could help find unmarked residential school graves](#)
 - Sept. 23 – Newsweek – [The Sun Is About to Send Earth on an Electric Roller Coaster](#)
 - Sept. 22 – The Weather Network – [Record nine metres of melt observed on Alberta's Athabasca Glacier](#)
 - Sept. 22 – The Canadian Press, MSN News, Global News – [Amid vaccine fatigue, doctors say the updated COVID-19 shot is important this fall](#)
 - Sept. 20 – CBC Radio – [A local doctor is getting national recognition for his work on health equity in the field of cancer research](#)
 - Sept. 14 – CBC Radio – [Maple bugs back in large numbers in province](#)
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Banner image photo credit: **What does the fox say?** - by **Dr. Kayla Buhler (PhD)**, recent alumna in Veterinary Microbiology

Images of Research 2023 - *Runner-up, Research in Action*

Many of you have heard of this song that overtook the internet almost a decade ago. Most of my research focuses on wildlife diseases in Nunavut, but I noticed some very interesting sounds while working on arctic fox dens. In general, dogs and other canids with strong family units are thought to have more complex vocalization with lots of quiet sounds for close range communication, while solitary foxes should have a simple vocal repertoire with loud noises for long distance communication. However, video recordings on dens revealed many unique sounds that foxes make while rearing their young, including a range of low frequency noises between parents and pups. So, what does the fox say? The truth is - a lot!

Funders: NSERC, ArcticNet, Weston Family Foundation, Earth Rangers



BE WHAT THE WORLD NEEDS

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