# Discovery Digest

BE WHAT THE WORLD NEEDS

**September 2025 - Issue 92**

***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!**

---

## Don't miss out! Be part of an inspiring conversation that matters at PAW 2025!


The **People Around the World (PAW) 2025 International Congress** hosted at the University of Saskatchewan (USask) is bringing together influential leaders and changemakers from around the world to support accessible solutions to planetary health. The 2025 theme of 'Healthy people, healthy planet: Driving innovation with data' will explore the fields of health, environmental sciences, sustainability, food, energy and water, digital technologies and the social sciences to drive creative ideas and promote lasting change.

Researchers, scholars, industry partners, government representatives, and community partners are encouraged to attend this dynamic three-day event Oct. 22-24, 2025. Student rates available. **Learn more and register here**.

---

## This Month's Stories

### Four USask researchers recognized by Royal Society of Canada

Four USask researchers have been recognized with one of Canada's highest academic honours for invaluable contributions in their fields. **Dr. Dwight Newman (DPhil)** and **Dr. Leon Kochian (PhD)** have been named Royal Society of Canada (RSC) Fellows, and **Dr. Allyson Stevenson (PhD)** and **Dr. Steven Rayan (PhD)** have both been named College Members of the RSC.

The RSC is considered the most prestigious collection of Canadian scholars, artists and researchers across a vast interdisciplinary field. The RSC fosters intellectual leadership for Canada and for the world.

Being named an RSC Fellow is the highest honour that can be awarded in recognition of outstanding scholarly achievement. Membership in the RSC College of New Scholars, Artists and Scientists is presented to exceptional mid-career researchers whose significant contributions and accomplishments are recognized by their peers and other leading researchers. USask College of Law alumnus **Fatima Ahmed** has also been awarded the RSC Justice Rosalie Silberman Abella Prize presented annually to graduating law students across Canada most likely to positively influence equity and social justice in Canada or globally upon graduation.

---

## Saskatchewan continues groundbreaking research in vaccine technologies

USask's Vaccine and Infectious Disease Organization (VIDO) signed a partnership extension with the International Vaccine Institute (IVI), based in South Korea. The partnership focuses on post-pandemic global health.

“Infectious diseases know no borders,” VIDO Director and CEO **Dr. Volker Gerdts** said. “By continuing this partnership, we strengthen our ability to respond quickly and collaboratively to emerging threats that impact us all.”

IVI is an international nonprofit that develops and delivers vaccines globally. They have offices around the world, with headquarters in Seoul, South Korea. VIDO has collaborated with IVI for more than 20 years.

---

## USask-led international research project unites water with maternal health

An international research collaboration led by a USask water researcher is exploring the intersection of water, environment, social and cultural systems with health for women and mothers in communities around the world.

**Dr. Corinne Schuster-Wallace (PhD)**, a professor in USask’s Department of Geography and Planning and the executive director of the Global Institute for Water Security (GIWS), is the principal investigator (PI) on a project exploring the connections between physical and social environments and maternal well-being in communities in Africa and at home in Saskatchewan.

The five-year project recently received more than $1.3 million from the Canadian Institutes of Health Research (CIHR) and aims to create a tool which can be used to evaluate the maternal well-being of Indigenous women in rural communities.

---

## VIDO researcher named Emerging Leader in Health Sciences

USask and VIDO researcher **Dr. Arinjay Banerjee (PhD)** is one of five Canadian researchers elected by the Canadian Academy of Health Sciences (CAHS) for its inaugural Emerging Leaders cohort.

“It’s a great opportunity to be mentored by some of our country’s best,” said Banerjee. “I’m very excited to learn from CAHS fellows who have spent their lives doing important science that benefits the lives of Canadians.”

CAHS is an elite organization that brings the country’s top scientists and scholars together to tackle top-of-mind health concerns impacting Canadians. Using their diverse expertise, CAHS fellows work together to evaluate and recommend solutions to health challenges.

Banerjee's laboratory at VIDO studies bats' unique immune systems and aims to develop therapeutics to protect humans from emerging viruses.

---

## USask researcher discovers surprising findings from atmospheric measurements

**Dr. Susann Tegtmeier (PhD)**, a professor in USask's Department of Physics and Engineering Physics in the College of Arts and Science, is part of an international community of scientists that monitors the levels of chemicals, like chlorine, in our atmosphere. Recently, Tegtmeier and her colleagues, including USask post-doctoral researcher **Dr. Kimberlee Dube (PhD)** and **Dr. Ryan Hossaini (PhD)** from Lancaster University in the United Kingdom, have discovered unexpected data that shows the chlorine in the stratosphere is not decreasing as quickly as we would expect based on ground-based measurements.

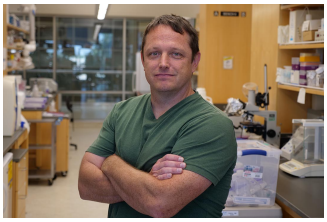
Tegtmeier says that co-ordination of the scientific community is key for continuing to generate the data needed to track the health of our atmosphere.

"Without the Canadian satellite data, we wouldn't have been able to really understand what's happening with the stratosphere and I hope our paper illustrates the value of these satellite-based measurements and the crucial ground-based monitoring networks, as well as the need for international collaboration,"

---

**Looking for more research stories? Visit Discovery Digest online.**

---



## USask researchers identify new method to protect against sepsis

Sepsis is the No.1 cause of death in the intensive care unit of hospitals worldwide and a major concern for health scientists and medical professionals alike.

**Dr. Scott Widenmaier (PhD)**, an associate professor in the Department of Anatomy, Physiology and Pharmacology in USask's College of Medicine, has zeroed in on a specific protein that might be key to helping the body fight back against the potentially life-threatening condition.

By manipulating this protein, researchers believe there is a new avenue to protect patients against sepsis. Widenmaier and his team have had their research recently published in ***Cellular and Molecular Gastroenterology and Hepatology***.

---

## Arctic food innovation project takes USask researcher around the world

A USask researcher has been travelling to the Canadian and European Arctic as part of an international project to innovate food production and the food economy in Arctic communities worldwide.

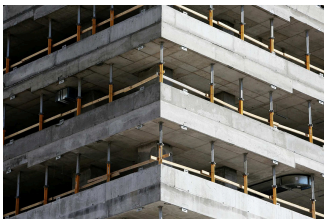
"What Arctic communities want is a better utilization of resources," said **Dr. David Natcher (PhD)**, a professor at USask's College of Arts and Science's

Department of Anthropology. “Let’s not just harvest more fish, let’s harvest fish and add value to those products, whether that’s for medicinal uses, new product development, and maximizing the full utilization of those resources. It’s not about more, it’s about better.”

Natcher is one of the Canadian leaders of the Arctic Foods Innovation Cluster (AFIC), a research group centered out of the High North Centre for Business and Governance in Norway and partnered with Nord University Business School, the Arctic Business Index (BIN) and USask. The goal of the cluster is to address food production and economic development in Arctic communities.

---

## Greening the production of cement



A team from the USask College of Engineering is exploring whether it’s possible to make cement production more environmentally friendly by substituting biochar for some of the cement that goes into making concrete.

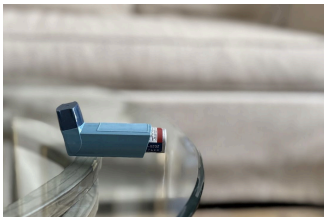
Biochar is the fine, carbon-rich powder produced by burning plant waste (biomass) in a low-oxygen environment.

“We’re using the non-edible component, like flax or wheat straw,” says **Ravi Patel**, a PhD student at USask. “Normally, this kind of plant waste is left on the field.”

Patel and his colleagues were curious what impact swapping in biochar would have on the durability of concrete. Switching from cement to biochar reduces the amount of cement required, plus it traps the carbon contained in the plant matter.

The project could lead to several improvements in the construction industry: concrete production could be more environmentally friendly, using plant waste that otherwise would go to the landfill, and help concrete last longer.

---



## Asthma inhalers: lifesaving for us, but life threatening to our pets

Blue rescue inhalers containing an airway-opening drug called salbutamol are lifesavers for people with asthma, but these medical devices pose a life-threatening risk to pets.

While asthma patients need ready access to the medication, the devices can release potentially lethal dosages of the asthma drug to a curious pet that likes to chew.

When a “dog punctures the asthma inhaler, they get … presumably all of the drug [remaining in the canister] because it's pressurized,” says **Dr. Vanessa Cowan (PhD, DVM)**, a veterinarian and toxicologist at the WCVM.

Cowan’s research team at the WCVM is examining past cases of salbutamol toxicoses that have occurred at the college’s teaching hospital to better understand how these cases present and progress, and the subsequent outcomes of patients.

---

## Giving Day 2025: Supporting research that could revolutionize the future of medicine


On September 10, the USask community came together in support of Giving Day, an annual 24-hour fundraising initiative. Among the researchers that could benefit from donor support is **Dr. Stephen Lee (MD)**, an associate professor, infectious disease and internal medicine physician, and member of the College of Medicine’s

artificial intelligence (AI) education committee, who is exploring how AI could fundamentally change health care.

One of the areas Lee is focusing on machine learning, or deep learning, where AI systems learn from simulated environments to develop knowledge beyond the information that has been provided by humans or existing information. While it's not yet safe to deploy AI machines into a patient or medical setting, Lee is exploring simulations that would allow health researchers to safely enhance or "teach" AI models.

---

**USask celebrates Postdoc Appreciation Week**

**USask MD student's cancer research is personal for former Huskie**

**Two new Schulich leaders "couldn't stop smiling" when awarded prestigious scholarship**

---

## Stay connected with USask research news

Make sure to follow the USask Research **Twitter/X 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/X for more of the latest research and university news.

**USask Research also has a new Instagram page!** Follow **@usaskresearch** for research-related news, features, events and more happening at USask.

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

---

## In *The Conversation*

**What, exactly, is space-time?**

By: **Dr. Daryl Janzen (PhD)**, USask Department of Physics and Engineering Physics, College of Arts and Science

Few ideas in modern science have reshaped our understanding of reality more profoundly than space-time — the interwoven fabric of space and time at the heart of Albert Einstein's theory of relativity.

Space-time is frequently described as the "fabric of reality." In some accounts, this fabric is referred to as a fixed, four-dimensional "block universe" — a complete map of all events, past, present and future.

In others, it's a dynamic field that bends and curves in response to gravity. But what does it really mean to say that space-time exists? What kind of thing is it — is space-time structure, substance or metaphor?

---

**Evacuations of Indigenous communities during wildfires must prioritize keeping families together**

By: **Dr. Lily Yumagulova (PhD)**, USask Department of Indigenous Studies; **Dr. Simon Lambert (PhD)**, USask Department of Indigenous Studies; **Dr. Warrick Baijius (PhD)**, USask Department of Indigenous Studies and part of First Nations and Métis Organ Donation and Transplantation Network

Across Canada, massive fires and hazardous smoke have forced tens of thousands of people to evacuate from Northern and remote communities to shelters and hotels in large cities. For many, their homes, businesses, trap lines and the ecosystems that nourish them are at risk of burning down, or already have.

Indigenous Peoples are disproportionately affected by the negative impacts of climate change and disasters like wildfires and floods. First Nations in Saskatchewan, Alberta and Manitoba are those most often evacuated, with many facing long-term displacement from their home communities.

---

**Being involved in *The Conversation* is a unique and renowned avenue for sharing research and study with both colleagues and the public. We strongly encourage researchers to explore *The Conversation* as a way to share and distribute their expertise! Feel free to reach out to research.communications@usask.ca if you have questions.**

---

## Upcoming events

USASK SIGNATURE AREAS
AGRICULTURE

**Agriculture Research Day**

Agriculture Research Day is open to all students, faculty and staff conducting research in the Agriculture Signature Area at USask.

It's an excellent opportunity to connect with the Agriculture Signature Area of Research and promote the diversity of agriculture research across campus.

Register for the event here.

- Agriculture Research Day – September 24, 2025 – Agriculture Building

---

**Introduction to R: bioinformatics workshop**


R is one of the most important scripting languages for both experimental and computational biologists. It is well-designed, efficient, widely adopted and has a very large base of contributors who add new functionality for all modern aspects of data analysis and visualization. However, R's great power and expressiveness can at first be difficult to approach without guidance, especially for those who are new to programming. This workshop introduces the essential ideas and tools of R. Although this workshop will cover running statistical tests in R, it does not cover statistical concepts.

By the end of the course you will be able to:

- Apply basic conventions of data handling, including organization and analysis
- Break dow and compose solutions to computing tasks in R
- Identify and implement key R syntax, functions and packages.

**Registration** is $525 plus tax before Sept. 17, and $725 plus tax until Sept. 22.

- Introduction to R – Oct. 6 and 7, 2025 – VIDO

---

## Information and Community for Researchers

**New NSERC leader at USask**

**Dr. Julia Boughner (PhD)** is the new Natural Sciences and Engineering Research Council (NSERC) leader at USask.

As the NSERC leader, Julia will help review and support NSERC funding initiatives from USask researchers, developing new strategies and putting USask faculty in the best position possible to continue receiving NSERC funding for future projects.

We wish the best to **Dr. Ron Borowsky (PhD)** as he has concluded his term as NSERC leader at USask and led USask researchers to many great successes.

---

**VIDO celebrates 50th anniversary**

Later this month, **VIDO officially celebrates its 50th anniversary** as a critical research hub for Saskatchewan, Canada and the world.

Researchers at VIDO have a storied history of recognizing global health challenges that require innovative and collaborative solutions. The ongoing success of the organization has been thanks to the efforts of researchers and industry partners around the world.

Celebrations will take place this fall. Keep your eye on USaskResearch and VIDO social media channels for more news on the celebrations.

---

**If you have any important information for USask researchers, please contact research.communications@usask.ca!**

---

**Submitting to Discovery Digest**

If you would like to submit a research-focused event or news item for consideration for Discovery Digest, please submit a link and a description of no more than 150 words to **research.communications@usask.ca** with the subject line "Submission – Discovery Digest," along with the month and year you are submitting for.

Please indicate whether your submission is a recommendation for a news item, event or information for researchers. If you would also like to submit a photo, please make sure it is a 3:2 aspect ratio image.

The Discovery Digest goes out on or as close to the 15th of each month as possible. **Please ensure any submissions are sent in by at least the 8th of each month to be considered for inclusion.**

---

### *In the news*

- Sept. 16 – CTV Morning Live – **OPUS: Innovation at the University of Saskatchewan**
- Sept. 15 – CBC News – **Sask. university researchers aim to develop new vaccines with quantum computing**
- Sept. 14 – The Weather Network – **Array of wildlife species found in Sask cities. Climate change could bring more**
- Sept. 13 – Inside Climate News – **Researchers use AI to predict beavers' impact on local habitats—and show how humans can help**
- Sept. 10 – Popular Science – **First koala chlamydia vaccine approved**
- Sept. 10 – CBC News – **Sask. wild rice harvesters desperate for solution to stop 'devastating' insect**
- Sept. 8 – The Regina Leader-Post, The Saskatoon StarPhoenix – **'Stress is very high' on Canadian canola farms as they await government relief from Chinese tariffs**
- Aug. 28 – CTV News – **'It's catastrophic': Experts say U.S. public health rollbacks will impact Canadians**
- Aug. 24 – The National Post – **Dwight Newman: Aboriginal title's conflict with private property must be resolved**
- Aug. 20 – CTV News – **Canada's 'exceptional' drought hints at future climate, need for action: experts**
- Aug. 15 – The Regina Leader-Post, The Saskatoon StarPhoenix – **How a new Canadian AI chatbot is aiming to fill the shoes of harder-to-find human farming experts**

---

Banner image photo credit: **Wînipekw on the rising -** by **Lindsay Carlson,** PhD Student, College of Arts and Science

Images of Research 2025 - *Winner, Community Impact*

Nearly half a century after work began on the James Bay hydroelectric project, the Eeyou (Crees of Northern Quebec) are working to understand how hydroelectric development and the region's rapid isostatic rebound are affecting the plants and animals of their traditional territory. Spring goose break is perhaps the most important Eeyou cultural activity, and hunters have noticed a decline in waterfowl passing through each season. We partnered with land users, tallymen, and regional agencies to understand how goose habitat quality and habitat use has shifted following drastic changes to the bay. Cree land user, Dwayne Wistchee, keeps his boat in deeper water while I sample intertidal vegetation used by staging waterfowl on a rising tide.

UNIVERSITY OF SASKATCHEWAN

BE WHAT THE WORLD NEEDS

---

**We want your feedback!** **What do you think of Discovery Digest?**

**You are receiving this email because you either subscribed manually to Discovery Digest or were a former subscriber to USask Monthly Research Update. Questions? Comments? Send an email to Research Profile and Impact.**

---