Discovery Digest

BE WHAT THE WORLD NEEDS

December 2025 - Issue 95

Discovery Digest **is a glimpse into how University of Saskatchewan research, scholarly and artistic works are 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!**

TEDxUniversityofSaskatchewan – Meet the Speakers!

What do school lunches, digital agriculture and competitive sports have in common? They are all part of the big ideas featured at TEDxUniversityofSaskatchewan. On February 1, 2026, 13 of USask's leading faculty, researchers and students will hit the stage to explore the edges of research, scholarly and artistic work. Learn more about this year's speakers and their groundbreaking ideas **at the link here**!

This Month's Stories

President Stoicheff: A decade of development at USask

Ten years ago, **Dr. Peter Stoicheff (PhD)** embraced the immense responsibility and the opportunity ahead as he was introduced as the 11th president in the history of the University of Saskatchewan (USask).

A decade of development later, Stoicheff is wrapping up his second five-year term as president, having led the university through everything from a global health crisis to a record-setting fundraising campaign, and firmly establishing USask as a leader in research, scholarly and artistic work, as well as innovation and Indigenization.

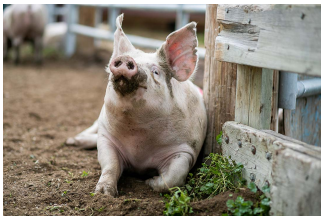
USask ranked among Canada's top research universities

USask is the No.1 university in Canada in research income growth, per a new national ranking.

USask ranked first in multiple areas of the Research Infosource list of Canada's Top 50 Research Universities 2025 in the Medical tier, including research income growth, research intensity per graduate student, corporate research income growth, and international government research income growth.

Those top ranks contributed to USask achieving a placement of 10th overall in the top 50 list, cementing USask's prominence and impact across Canada in research, scholarly and artistic work.

"The research ecosystem at the University of Saskatchewan is a defining strength that positions us prominently on the national and international stages," said USask President **Peter Stoicheff**. "This ranking reflects the tremendous impact our research has in the global community."



Groundbreaking USask research identifies cause of pig ear necrosis

New research from USask has identified the cause of pig ear necrosis, a painful and troublesome affliction that causes the ear tissue of pigs to rot away.

Through clinical research at USask, **Dr. Matheus Costa (DVM, PhD)** with USask's Western College of Veterinary Medicine (WCVM) and his team identified an unlikely culprit – a rather common bacteria called *Fusobacterium necrophorum* found in the gastrointestinal tract of many mammals, including humans.

Pig ear necrosis only occurs when the bacteria are transferred via saliva through biting or chewing ears, an identified habit of pigs. Costa and his team were able to confirm their findings in a lab setting, and their research was recently published in the scientific journal PLOS One.

USask leads Canada in water research, earns high marks in international rankings

The 2025 ShanghaiRanking Global Ranking of Academic Subjects (GRAS) places USask at 34th in the world in the subject of Water Resources, which also positions the university as the top institution in Canada in that subject area.

"USask is a leader throughout Canada in many areas of research, and seeing this recognition for our world-class research is an affirmation of the kind of expertise and scholarship we have at our campus," said USask Vice-President Research **Dr. Baljit Singh**.

USask moved up in seven subjects in the newest GRAS: Dentistry & Oral Sciences (101-150 tier), Computer Science & Engineering (201-300 tier), Statistics (201-300 tier), Medical Technology (201-300 tier), Biological Sciences (301-400 tier), Human Biological Sciences (401-500 tier) and Physics (401-500).

USask insect identification app takes top prize at Opus Innovation Expo

USask graduate students are putting crop protection technology in the hands of producers with an AI-powered, sustainable pest management platform for smart phones.

Teresa Aguiar-Cordero, a PhD student in the College of Agriculture and Bioresources at USask, is the lead of IPPM Now, the advanced pest management app that won this year's People's Choice Award at the Opus Innovation Expo, an event that celebrates the incredible achievements of Opus i2Build founders and showcases their hard work over the program's eight-month run.

To develop the IPPM Now platform, Aguiar-Cordero collaborated with USask alumni **Emilo Tellarini**, a pollinator scientist at Saskatchewan Beekeepers Development Commission, and USask graduate student **Gabriel Guerra Mestanza**, an electrical and computer engineering student who created and trained the AI model that powers the app.

Looking for more research stories? Visit Discovery Digest online.

Cannabis edibles pose major crash risk: USask study

More than 75 per cent of recreational cannabis users aged 19 to 30 crashed in a driving simulation after consuming edibles, a new USask study shows.

The study, which concluded in 2025 with data currently unpublished, measured driving performance using a simulator that tracked reaction time, lane keeping, speed and crash rates.

Dr. Alexandre Crizzle (PhD), director of the Driving Research and Simulation Laboratory and professor in the USask School of Public Health, noted that during the course of post-consumption, participants struggled with making quick decisions, such as reacting to pedestrians or vehicles cutting them off.

USask-City of Saskatoon project explores supports for firefighter mental health

Joel McNair understands what it's like to deal with trauma as a frontline worker.

A firefighter in Saskatoon for more than 22 years, McNair has had to take time away from the job in the past to deal with post-traumatic stress disorder (PTSD) – which is one of many reasons he was so interested in a joint City of Saskatoon and USask research project looking into how some of the city's bravest deal with trauma.

McNair and **Dr. Camelia Adams (MD)**, a professor in the Department of Psychiatry at USask's College of Medicine, are the leads for the joint research project that will examine the state of mental health among members of the Saskatoon Fire Department (SFD) and evaluate the supports and strategies currently in place to help them.

TRANSECTS program wins international prize for sustainability education

The Transdisciplinary Education Collaboration for Transformations in Sustainability (TRANSECTS) program, offered through USask's School of Environmental and Sustainability

(SENS), received gold in the Sustainable Education Literacy Award at the QS Reimagine Education forum in London, U.K.

One of 18 categories, the award celebrates programs that embed sustainability into learning and empower students to lead as informed global citizens.

Marlis Merry, program manager for TRANSECTS, said she was “thrilled” to learn their first-time application had earned the top honour earlier this month.

“Being recognized among such outstanding initiatives reinforces our commitment to advancing sustainability education, transforming practice and empowering learners to lead as sustainability changemakers,” said Merry, who is also an alumnus of SENS.

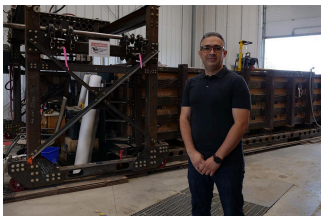
USask researcher uses advanced modelling to forecast future freshwater on the Prairies

What if you could tell how beneficial every drop of rain or flake of snow would be for the upcoming year—before it even hits the ground?

What if, once it starts to flow downstream, you could follow those droplets as they wind their way toward a reservoir or lake, predicting how they’ll shape the environment in the months ahead?

That’s the kind of insight **Dr. Saman Razavi (PhD)**, an associate professor with USask’s SENS and a member of the Global Institute for Water Security (GIWS) is working toward. Razavi studies how water moves through and interacts with both natural and human systems. His research helps communities, governments and industries understand how extreme weather patterns will play out and how they may need to adapt.

USask-City of Saskatoon project aims to build winter-resistant roadways



When winter brings frigid temperatures, Canada’s infrastructure can take a hit. Now, a joint research project is looking for new ways and new materials to build winter-resistant roadways to withstand the chilly Canadian winter.

Dr. Haithem Soliman (PhD), an associate professor in Civil, Geological and Environmental Engineering in USask's College of Engineering, is partnering with the City of Saskatoon to look for ways to build roads that will be less affected by cold temperatures.

Soliman shared facts about road construction, and how this joint research project could change the way we approach road construction in Saskatchewan.

Celebrating World Soil Day: Q & A with USask’s Dr. Chantel Chizen

[Y2K at USask: Preventing a digital disaster]

[New report highlight's USask's sustainable work]

USask Signature Series Podcast - Season 2

The USask Signature Series Podcast is an exploration and celebration of the interesting and the innovative, the fun and the fantastic, the cutting-edge and creative of USask research.

You'll hear from USask experts across a variety of disciplines and research areas as they tackle the questions and opportunities the world needs today.

Check out the podcast on Spotify, Apple Podcasts or wherever you get your podcasts!

Here are the newest episodes of the USask Signature Series:

- **S2E06** – [What makes holiday marketing so effective?]
- **S2E05** - [Are there benefits to exercising in cold temperatures?]
- **S2E04** - [How do your plants survive the winter?]

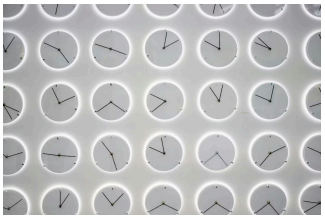
If you have an idea for an episode of the podcast, please email research.communications@usask.ca.

Stay connected with USask research news

Make sure to follow USask Research on Instagram at **@usaskresearch**, and on **LinkedIn** and **Twitter/X** to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to also follow **@VPR_USask** and **@USask** on Twitter/X 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.

In *The Conversation*



Physicists and philosophers have long struggled to undrestand the nature of time: Here's why

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

The nature of time has plagued thinkers for as long as we've tried to understand the world we live in. Intuitively, we know what time is, but try to explain it, and we end up tying our minds in knots.

How can time feel so obvious, so woven into the fabric of our experience, and yet remain the bane of every thinker who has tried to explain it.

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

Social and Solidarity Economy Research: Where we are and where we're going

Please join the Canadian Centre for the Study of Co-operatives for the 11th Annual MacPherson Talk featuring Dr. Marie J. Bouchard.

Bouchard's timely talk comes on the eve of publishing **A Modern Guide to the Social and Solidarity Economy** (Edward Elgar, January 2026) with co-editor Damien Rousselière (Institut Agro, France), which demonstrates the SSE is more than just another sector of the economy, but a challenge to the dominant economic paradigm by fostering equitable patterns of resource and surplus distribution while promoting democratic, empowering, and emancipatory power relations.

Register to attend online or in-person [at the link here](#).

- Social and Solidarity Economy Research – Dec. 17, 4:00-5:30 p.m. – Diefenbaker Place or online via Zoom

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Information and Community for Researchers

The Tri-Agency Undergraduate Student Research Awards Competition is now open

Looking for a summer research opportunity? Apply for a [Tri-Agency Undergraduate Student Research Award (USRA)](#) for paid research experience under faculty supervision.

The deadline to apply is Jan. 23 at 5 p.m. — you can learn more and apply for the various award streams [at the link here](#).

There will be a drop-in support session on January 14, 2026 at 1:30 p.m. at the Murray Library, Room G3. [Register for the session here](#).

USask holiday hours

A reminder that university buildings on campus will be closed from Dec. 25 to Jan.1, re-opening Jan. 2, 2025.

Many on-campus services will have reduced hours of operation during the holiday season. Please visit [USask Library](#) for a list of hours for each location and contact the [Veterinary Medical Centre](#) at the Western College of Veterinary Medicine for the clinic's holiday hours.

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

- Dec. 15 – CBC News – [University of Saskatchewan study aims to help firefighters cope with trauma](#)
- Dec. 15 – Global News – [Saskatoon researcher looking for ways to improve winter road construction](#)
- Dec. 11 – CTV News – [Moe calls for crackdown on drug users, against expert advice](#)

- Dec. 9 – The Canadian Press, The Regina Leader-Post, Yahoo! News – **Fact File: 'Fake snow' that doesn't melt when burned has scientific explanation**
- Dec. 8 – The Western Producer – **Scientists discover cause of pig ear necrosis**
- Dec. 4 – CBC News – **Sask. retiree warns others after losing $3K to crypto fraud using AI video of prime minister**
- Dec. 3 – CBC Radio – **U of S president Peter Stoicheff 10-year tenure leading the university ends in December**
- Dec. 2 – CBC Radio – **What does an Alberta-Ottawa Pipeline plan mean for Saskatchewan?**
- Nov. 30 – CBC News – **American ALS patient died alone after paying $84K US in pursuit of healing at controversial Sask. facility**
- Nov. 29 – CTV News – **Here's why Saskatchewan researchers are monitoring storms in space**
- Nov. 26 – CNW Group, Yahoo! Finance – **Campaign targets driving after consuming edibles**

Banner image photo credit: **A breath of protection! -** by **Mihiprabha Rathnayake,** PhD Student, Western College of Veterinary Medicine

Images of Research 2025 - *Winner, Viewers' Choice*

A delicate cloud of mist swirls inside the transparent chamber as a group of fluffy chicks curiously huddled together, receiving their first shield of protection. The soft golden down of the chicks glows under the light as the nebulizer gently disperse a synthetic DNA molecule called CpG-ODN, ensuring each tiny breath caries a promise of immunity. These young lives embark on their journey with a breath of protection, laying foundation for a healthier life in a world with challenging pathogenic bacteria like *E. coli* and *C. perfringens*.

UNIVERSITY OF SASKATCHEWAN

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