Discovery Digest

BE WHAT THE WORLD NEEDS

March 2025 - Issue 86

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!**

NEW – TEDxUniversityofSaskatchewan talks are live on YouTube!

TEDxUniversityofSaskatchewan 2025 honoured the theme of Inspiring Impact, bringing together USask students, staff, faculty, alumni and community members in a celebration of ideas worth spreading. Watch the latest talks below:

- Kayley D. Lawrenz – **Can we break free of ableism?**
- Joseph Neapetung – **Indigenous neuroscience: The healing power of willow bark**

NEW - USask Signature Series Podcast

World-leading research and innovation - right in the heart of Canada.

The **USask Signature Series Podcast** explores the cutting-edge research taking place at USask across the university's Signature Areas of Research.

Listen today! Streaming online or wherever you get your podcasts.

- Episode 1: **Are your pets good for your health?**
- Episode 2: **How will Saskatchewan lead the energy transition?**
- Episode 3: **How will quantum technology change our lives?**
- Episode 4: **What makes Saskatchewan farmers so efficient?**
- Episode 5: **What should we know about our changing waterscapes?**
- Episode 6: **How does the synchrotron advance innovation?**
- Episode 7: **How do we create a sustainable built environment?**

This Month's Stories

USask makes top 100 in two subjects in world university rankings

USask has established itself among the best universities in the world and has been ranked in the top 100 worldwide in two subject areas.

The QS World University Rankings by Subject for 2025 put USask in the top 100 for universities worldwide in the subject areas of Agriculture and Forestry (tied for 87th) and Veterinary Science (in the 51-100 tier).

“USask is tremendously proud of all the research and scholarship conducted on our campus. These high rankings are a highlight of the world-class work taking place right here that supports Saskatchewan’s economic prosperity and sustainability,” said USask Vice-President Research **Baljit Singh.**

Canadian Light Source acquiring new state-of-the-art equipment thanks to PrairiesCan funding

The Canadian Light Source (CLS) at USask will add a new state-of-the-art solid-state amplifier (SSA) to its facility, thanks to $3 million in funding from Prairies Economic Development Canada (PrairiesCan).

By using solid-state components like transistors instead of traditional vacuum tube technology, the new equipment will offer increased reliability, better efficiency and easier maintenance.

“For 20 years, the ultrabright light at the CLS has been used by thousands of researchers from Canada and internationally to help address some of the world’s most pressing challenges, and none of this critical work would have been possible without support like that from PrairiesCan,” said USask President **Peter Stoicheff**. “USask is proud to be the home of Canada’s only synchrotron, and this investment will help ensure we continue to lead global innovation and research.”

New USask research chair shifts perspectives on constitutional law

Dr. Dwight Newman (DPhil) is exploring the constitutional rights of Canadian people and communities through a new Canada Research Chair (CRC). Newman was recently appointed a Tier 1 CRC in Rights, Communities, and Constitutional Law, with a focus on centering questions of constitutional law on communities alongside the individual.

Newman previously held a Tier 2 CRC in Indigenous Rights in Constitutional and International Law. He said much of his new research builds from work he explored in his previous appointment. According to Newman, Canada already has instances of centering groups instead of individuals in questions of constitutional law, and some of those examples involve Indigenous groups.

Newman called the CRC appointment an honour to be recognized and also an opportunity to further important research on constitutional rights.

USask project supports health initiatives for African women and girls

A five-year global initiative in community health and One Health—in collaboration with USask faculty and students—will help empower poor, marginalized farmers in rural Africa, especially female-headed households, women and girls.

The One Health Community Partnerships (OHCP) project, supported by nearly $4 million from Global Affairs Canada and additional USask funding, addresses health challenges in rural African communities with a high prevalence of zoonotic diseases and human-animal-environment related illnesses.

The project is part of the USask One Health Signature Area of Research and aligns with Canada's Feminist International Assistance Policy.

"Our One Health transdisciplinary approach will address health literacy and societal disparities that are a reality for women and girls in low-resource environments," said **Dr. Claire Card (DVM, PhD)**, a Western College of Veterinary Medicine (WCVM) professor who is the project's leader and animal health lead.

USask researcher imagines a greener future with sustainable fertilizers

Nitrogen fertilizer is an important soil additive that gives crops key nutrients, but the century-old process used for fertilizer production has significant energy demands. USask's **Dr. Kate Congreves (PhD)** is part of a group of researchers who are looking at emerging technologies for greener fertilizer.

"Nitrogen fertilizer was originally created by the Haber-Bosch process, which is very energy intensive, but there are new technologies that can produce ammonia which could end or modify that process by using renewable energy," said Congreves, associate professor in the College of Agriculture and Bioresources at USask and the Jarislowsky and BMO Research Chair in Regenerative Agriculture.

Along with reducing the carbon footprint of fertilizer production, emerging technologies can also decentralize the process of making fertilizer—meaning that farmers could produce their own green ammonia with small modular units.

Congreves and her colleagues recently published a commentary article on emerging technologies for green ammonia in ***Nature Reviews Clean Technology***.

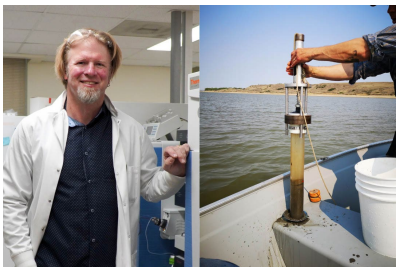
Looking for more research stories? Visit Discovery Digest online.

USask research explores role of microproteins in virus replication

Researchers are still discovering more about the fundamental building blocks of human cells and a USask-led research project is exploring microproteins and their role in defending against viruses.

Dr. Anil Kumar (PhD) with the Department of Biochemistry, Microbiology and Immunology in the College of Medicine received $1.2 million through the Canadian Institutes of Health Research (CIHR) Fall 2024 Project Grant competition to investigate the mechanisms behind how microproteins – a recently discovered group of small

proteins in the cell – help spread enteroviruses and how the body uses this group of proteins to defend against virus infections.



USask program training students to lead the future of water security

Graduate students at USask will experience a unique training experience like no other, thanks to a $1.65-million grant from the Natural Sciences and Engineering Council (NSERC) Collaborative Research and Training Experience (CREATE) program.

Working closely with partners in Germany, the program will further graduate student's understanding of how water challenges impact humans and train them to tackle the current global water crisis by developing solutions and future policies in water health.

Dr. Markus Hecker (PhD), Canada Research Chair in Predictive Toxicology and Chemical Safety, professor in the School of Environment and Sustainability (SENS), and member of the Toxicology Centre and the Global Institute for Water Security (GIWS), will be leading the NSERC-CREATE

"This NSERC-CREATE is very important as it addresses a critical gap in current labour markets in Canada and globally," said Hecker. "We need to train people with a holistic lens that integrates different sciences such as chemistry, biology, geography and engineering with the social dimensions of water science, which will give students a broader perspective."

Community discussion on advocating for housing rights hosted by USask

In the wake of a housing crisis and record homelessness in Saskatoon, USask's Community-University Institute for Social Research (CUISR) hosted a community conversation to discuss how community members can collectively work towards ensuring housing rights for all.

Designed by CUISR's Lived Expert Advisory Council and supported by two Canada Mortgage and Housing Corporation-Social Sciences and Humanities Research Council (CMHC-SSHRC) Partnership grants, the community conversation brought together voices from across Saskatoon and developed report and next steps, including workshops and actions, to maintain momentum and make a difference in housing rights in Canada.

"It has never been more important to listen to and learn from one another, from the diversity of knowledges and experiences, so that we can collectively respond to community crises," said **Dr. Isobel Findlay (PhD)**, professor emerita at USask's Edwards School of Business and USask co-director of CUISR.

USask industry chair to advance forage research

In a move to strengthen research into crucial livestock production systems, **Dr. Flavia van Cleef (PhD)** has been appointed as the new Beef Industry Integrated Forage Management and Utilization (IFMU) Chair at USask.

As the industry chair, van Cleef will bridge disciplinary boundaries, lead systems-based forage and pasture management and utilization research to address the needs of all levels of the agricultural sector.

“My goal is to bring together the latest research and practical solutions that work in the real world, ensuring they are locally relevant and aligned with global sustainability demands,” said van Cleef.

New diagnostic tool targets reproductive failure in cattle

Researchers at USask's WCVM and Prairie Diagnostic Services (PDS) Inc. have developed an innovative genomic sequencing tool that’s designed to identify pathogens causing bovine reproductive failure. **Dr. Yanyun Huang (PhD)**, chief executive officer of PDS and a WCVM adjunct professor, led the project with WCVM microbiologist **Dr. Janet Hill (PhD)** and USask master’s student **Dhinesh Periyasamy**.

BovReproSeq can detect 17 types of pathogens associated with infertility, abortions and stillbirths in cattle. In the study, the genomic sequencing tool proved to be more effective than traditional diagnostic methods, which often require multiple rounds of testing and higher costs.

Funded by Saskatchewan’s Agriculture Development Fund (ADF), the tool is in its second phase of validation and shows potential for becoming the gold standard for diagnosing reproductive issues in cattle.

World Water Day: Three things to know about protecting drinking water

[USask graduate student's startup wins big at Opus Innovation Expo]

[Young Innovators: USask researchers 'dig deep' to address heavy metal contamination in Canada's boreal forest]

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*

Plant-based plastics could help reduce the millions of tonnes of medical waste hospitals generate each year

By: **Dr. Elham Moshk Bid (PhD)**, USask Division of Biomedical Engineering, **Dr. Chris Zhang (PhD)**, USask Division of Biomedical Engineering, **Dr. Lori Bradford (PhD)**, USask School of Environment and Sustainability, **Dr. Duncan Cree (PhD)**, McMaster University

Bioplastics can be made out of natural fibres such as bamboo, hemp, plants or algae.

The overlooked bond: Why mental health professionals should ask questions about pets

By: **Dr. Renata Roma (PhD)**, Centre for Forensic Behavioural Science and Justice Studies (CFBSJS) and **Dr. Laleh Dadgardoust (PhD)**, CFBSJS

For mental health professionals, exploring the role of pets in clients' lives can offer valuable insights into their family dynamics and well-being.

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

Save the date for the People Around the World (PAW) 2025 International Congress at USask!

Join local and international experts October 22–24, 2025 at USask to explore creative and accessible solutions to support planetary health!

The 2025 congress theme of 'Healthy people, healthy planet: Driving innovation with data' will examine the benefits of shared perspectives, highlighting solutions to support local and global communities guided by data-driven insights and innovative technologies. **Learn more here**.

- PAW 2025 International Congress – October 22-24, 2025 – USask Saskatoon campus

---

Opus Connects - Funding Programs Unleashed

Learn about the funding programs available to the USask community to help support your research and/or business venture.

Calling all USask community members looking to learn more about the funding programs available to you. Join Opus for lunch on March 25 as we learn directly from the sources themselves, including Elevate IP, futurpreneur, and Mitacs, plus receive info about a few more!

Register for the event **here**.

- Opus Connects – Funding Programs Unleashed – Tuesday, March 25, 12:30-1:30 p.m., Louis' private room

---

Is EDI Dead? Navigating the Future of EDI - Challenges and Opportunities

This presentation delves into the rise of opposition towards Equity, Diversity, and Inclusion (EDI) in the United States since the early 2000s and examines how this resistance is now influencing Canada. The EDI movement has been instrumental in highlighting the challenges faced by equity-seeking individuals within traditional power structures and has garnered significant support for marginalized communities. However, it has also inadvertently alienated those who have benefited from these traditional structures, creating friction as substantial changes begin to take shape.

Presented by **Dr. Stryker Calvez (PhD)** with the City of Saskatoon and **Dr. Danette Starblanket (PhD)**, assistant professor with USask's Johnson Shoyama Graduate School of Public Policy. Register for the online event **here**.

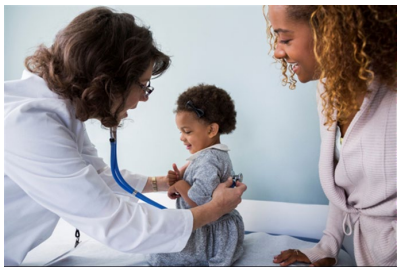
Is EDI Dead? Navigating the Future of EDI – Wednesday, March 19, 12:00-1:30 p.m. via Zoom

---

Public Forum: Improving the Lives of Mothers in Prison

You're invited to join the Centre for Forensic Behavioral Science and Justice Studies (CFBSJS) at USask for 'Public Forum: Improving the Lives of Mothers in Prison' on March 20, 2025. This free, half-day event includes two keynote sessions and a panel discussion to share best-practices for serving the needs of women in prison. Topics will include access to reproductive services and products, and children's and mother's rights while in prison. USask students, staff and faculty, federal and provincial government representatives, community-based organizations and community members are invited to join. Learn more and **register here.**

- Public Forum: Improving the Lives of Mothers in Prison – March 20, 2025 – Health Sciences Rm. 1150



Department of Pediatrics Child Health Research Trainee Day 2025

Please join us on Thursday, April 3 from 12-4 pm for this research symposium featuring presentations from residents, graduate students, post-doctoral fellows, and undergraduate students engaged in child health research at USask. Abstracts are due March 16. The form to submit abstracts can be **found here,** and you can RSVP for lunch **here**.

Please contact **tova.dybvig@usask.ca** for any questions or submissions.

- Child Health Research Trainee Day 2025 – Thursday, April 3 – Marquis Hall and Zoom

---

Information for researchers

Encourage students to register for the 2025 Life & Health Sciences Research Expo

Registration closes March 28 for **USask's annual Life & Health Sciences Research Expo**, taking place in-person on May 1. Please encourage students to submit an abstract for the research competition, submit a paper for the Best Paper Award, and/or nominate an outstanding supervisor for the Best Supervisor Awards. USask faculty, trainees, and research facilitators with a PhD or equivalent degree are also encouraged to register as an expo adjudicator. Over $8,000 in prizes will be available. For more information please visit **healthsciences.usask.ca/expo**.

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

- March 11 – NPR – **COVID is still evolving and will find new ways to evade immune systems, scientists say**
- March 11 – The Toronto Star – **DEI is under attack in American arts institutions. Is Canada next?**
- March 8 – Prince Albert Daily Herald, Wakaw Recorder, CBC News – **Can pea milk help with osteoporosis?**
- March 7 – CBC News – **Prof says trapper's boar kill shows 'tsunami of wild pigs' is encroaching on northern Sask.**
- March 6 – CBC News – **Experts warn snowpack lower than last year in parts of Alberta**
- March 1 – CBC Radio – **As arts and humanities enrolment declines, could making programs more practical help?**
- Feb. 28 – Saskatoon StarPhoenix – **Understanding housing rights key to effective**

response: community discussion

- Feb. 26 – LA Times, Yahoo News – **Killing 166 million birds hasn't helped poultry farmers stop H5N1. Is there a better way?**
- Feb. 18 – CBC News, MSN News – **Trump's musings on 'very large faucet' in Canada part of looming water crisis, say researchers**
- Feb. 13 – CBC News – **Canadian residents are racing to save the data in Trump's crosshairs**

Banner image photo credit: **Winter Embrace: Cattle Swathgrazing in Snow -** by **Somtochukwu Obiora,** M.Sc Student, Department of Animal and Poultry Science, College of Agriculture and Bioresources

Images of Research 2024 - *Runner-up, Research in Action*

I see cattle having fun doing what they know best: grazing. While most animals and we humans would love to stay away from the winter cold, these cattle are grateful to be in the field provided there is forage. Traditionally, they would have been fed in barns, but years of continued research have made it possible to continue grazing into the winter months. Having groups of these cattle graze on swathes of monoculture oat and other groups on polycrop mixture (oat, forage pea, and brassicas) tells a lot about the direction of this research aimed at comparing forage systems (monoculture or polyculture) for a successfully extended grazing.

UNIVERSITY OF SASKATCHEWAN

BE WHAT THE WORLD NEEDS

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