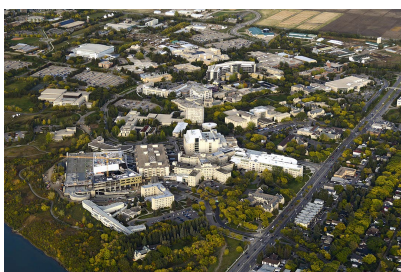




July 2023 - Issue 66

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 reaches new heights in world university rankings](#)

USask made a significant leap forward in the QS World University Rankings (QS WUR), jumping up more than 100 places to reach the institution's best-ever placement.

USask earned a ranking of 345th in the 2024 QS WUR out of 2,963 participating institutions – an increase of 128 spots from USask's rank of 473rd overall for the 2023 rankings. The performance is USask's best showing in these rankings, improving on the previous best ranking by nearly 50 spots (393rd in 2013).

The QS ranking agency implemented a revised methodology this year based on a variety of indicators, including sustainability, research impact, reputational measures, number of international students and faculty, employment outcomes and more.

[Overcoming the odds to receive one of Canada's highest honours](#)

When he arrived in Canada, **Dr. Haissam Haddad (MD)** was told he had less than a one per cent chance of ever working in the country's medical system.

Thirty-seven years later, the acclaimed cardiologist has been



appointed as an Officer of the Order of Canada for his contributions to the medical field, notably within the Ottawa Heart Institute and USask.

In 2016, Haddad was recruited to lead the Department of Medicine at USask. Since then, he's enlisted more than 100 specialists to the department, doubling its size. He's continued his research work through mentorship of the USask Cardiovascular Research Group, and bolstered faculty engagement and participation in research throughout the department. As provincial head of the department, he serves on the senior leadership of the College of Medicine and Saskatchewan Health Authority.



[Specialized navigators key to helping trans patients access health care: USask research](#)

Research from USask shows trans and gender diverse people across the province have difficulty accessing health care, and that specially trained health system navigators could be a solution to overcoming the problem.

Dr. Megan Clark (MD) and **Dr. Stéphanie Madill (PhD)** with the College of Medicine and **Dr. Alana Cattapan (PhD)**, adjunct professor with the Johnson Shoyama Graduate School of Public Policy, worked on the study which demonstrated the need for specialized health system navigators for trans and gender diverse patients.

Patients participating in online focus groups said they face several barriers to accessing care. Among the identified challenges are long wait times, lack of appropriate services in rural areas, insufficient knowledge among health-care workers, and even problems having their preferred names and genders recognized.

[USask researchers developing AI to predict cardiovascular disease](#)

Dr. Scott Adams (MD), a cardiothoracic radiologist at Royal University Hospital (RUH) and an assistant professor in the University of Saskatchewan (USask) College of Medicine, is creating artificial intelligence (AI) algorithms to more accurately identify people at risk of developing cardiovascular diseases. Adams and his co-investigator **Dr. Seok-Bum Ko (PhD)** with the USask College of Engineering hope they can create an AI model using information from CT scans that can accurately gauge biological age.



The project, titled "Artificial intelligence CT-based biological age as a novel predictor of cardiovascular and all-cause mortality," received \$150,000 as part of the Saskatchewan Health Research Foundation (SHRF) Establishment Grant program. The SHRF Establishment Grant is intended to support early-career researchers in creating health research programs with a focus on Saskatchewan health issues.



[Research team receives \\$250,000 for groundbreaking investigation into Sask. wetlands](#)

An interdisciplinary team of USask researchers received a quarter of a million dollars from the New Frontiers in Research Fund (NFRF) Exploration stream to do a comprehensive investigation of aquatic insect exports from the wetlands in the Prairie Pothole region.

Dr. Tim Jardine (PhD) with the School of Environment and Sustainability (SENS), **Dr. Christy Morrissey (PhD)** with the College of Arts and Science Department of Biology and **Dr. Patrick Lloyd-Smith (PhD)** with the Department of Agricultural and Resource Economics are leading the project.

The research team will use wetland insect traps and experimental enclosures called limnocorrals with chemical tests to measure the number and quality of insects exported from the wetland areas and what kind of effect they have on surrounding ecosystems.

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

[From prediction to preparedness: How hydrological modelling is helping the Yukon Government forecast flood events](#)

Dr. Mohamed Elshamy (PhD) is a research scientist in the USask-led Global Water Futures (GWF) where he works as part of GWF's pan-Canadian Core Modelling and Forecasting Team. The team has improved Canada's flood forecasting from coast to coast and continues to advance the models and techniques that can help predict floods.

Elshamy said the modelling system he uses relies on meteorological forecasts from Environment and Climate Change Canada (ECCC) to run a physically-based hydrological model of the Yukon River system including lakes and glaciers. The system runs daily on the Amazon cloud for reliability and sends automated reports to the Yukon Government.



[USask professor spearheads research into SMR safety, reliability, and data-sharing](#)

A proposal for SMR research spearheaded by **Dr. Rama Gokaraju (PhD)** in USask's College of Engineering has received \$360,000 from the Natural Sciences and Engineering Research Council of Canada (NSERC) and the

Canadian Nuclear Safety Commission (CNSC).

The NSERC-CNSC Small Modular Reactors Research Grant Initiative is intended to support research, training, and initiatives to increase the scientific information around the capacity and regulation of small modular reactors (SMRs) in Canada.

Gokaraju's work, in conjunction with University of Regina researchers **Dr. Irfan Al-Anbagi (PhD)** and **Dr. Esam Hussein (PhD)**, will explore not only questions of energy and structure, but also of sharing data about SMRs with the public to better connect people with an understanding of the technology for the future.

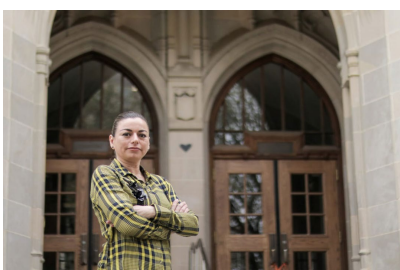
[USask researcher trying to unlock mysteries of 'strange and fascinating' quantum materials](#)

USask graduate student **Christopher Mahadeo** recently completed his PhD work through the College of Arts and Science. His research was focused on furthering our mathematical understanding of quantum materials and how they can be used to serve as building blocks for new technologies.



Quantum Innovation is a signature area of research at USask, and is being used to unlock the secrets of these unique materials that could lead to new approaches to real-world, global issues such as how to offer portable medical imaging technologies in rural communities to improve health care accessibility, or how to improve the speed and efficacy of vaccine production processes.

Mahadeo's research aims to find a better understanding of the mathematics behind how these materials work, so that they may be designed with these big goals in mind.



[USask grad student working to protect Saskatchewan's water sources](#)

Under the supervision of professor **Dr. Lee Wilson (PhD)** from the College of Arts and Science Department of Chemistry, USask graduate student **Deysi Venegas** is helping to develop an effective water treatment process for removing oil, using a conventional treatment process currently used by the City of Saskatoon water treatment plant.

The experiment involved using a substance that mimics the chemical makeup of crude oil to investigate a process that would successfully remove these harmful molecules from water sources like the South Saskatchewan River, should an oil spill ever occur.

A signature area of research at USask, water security refers to protecting the world's water supply, safeguarding drinking water, and preserving water quality. Through community partnerships and innovative technologies, USask researchers like Venegas are pursuing

solutions to the pressing water security issues that are currently challenging our world.

[USask climate change education project launches data platform during United Nations conference](#)

Led by USask, the Monitoring and Evaluating Climate Communication and Education (MECCE) Project is a network of 100 leading scholars and agencies with a goal to increase climate change education, training, and public awareness on a global scale.



During the Bonn Climate Change Conference held by the United Nations Framework Convention on Climate Change (UNFCCC) in early June, the MECCE Project published an update to its Interactive Data Platform which allows for a cross-country comparison and mutual learning on what is needed to advance Action for Climate Empowerment (ACE).

Dr. Marcia McKenzie (PhD) with the College of Education added that this research will enhance not just the quantity but also the quality of climate change communication and education globally. Knowledge mobilization for climate change communication and education is important to create momentum and encourage all stakeholders worldwide to take more climate action.



[New USask research mentorship program provides invaluable support for scholars](#)

Dr. Jaswant Singh (PhD) is USask's new research mentor who will lead the new Faculty Mentorship Program to provide support for early and mid-career researchers at the university.

Singh, a professor with USask's Western College of Veterinary Medicine (WCVN), sees mentorship as a passion, one that he calls extremely rewarding in the academic community. From how to set up a research lab, to recruiting graduate students for projects, to connecting and collaborating with colleagues, Singh said the mentorship program will be able to help researchers in a myriad of ways.

Singh was part of a USask faculty committee tasked with evaluating preexisting mentorship programs at USask and at other U15 universities. The goal was to develop a program at USask that could span the entire campus, provide mentorship resources and connect researchers with similar interests.

[New book by USask professor helping Chilean government manage parks and forests](#)

Dr. David Natcher (PhD) with the College of Agriculture and

Bioresources has collaborated with the Government of Chile to produce a book that closely examines the relationship between conservation of national parklands and the Indigenous communities that live along those park borders.



Titled *Living Together: Communities and Protected Areas in Chile*, the book has been many years in the making and was delayed by the COVID-19 pandemic.

The core of the book is exploring how to balance important issues of environmental and natural resource conservation with the needs and rights of Indigenous peoples. As Natcher puts it, there are numerous climate-based and man-made threats to natural resources that must be contended with — so finding a responsible and collaborative approach is the best way forward for all peoples involved.



[USask and City of Saskatoon mark fifth anniversary of MOU with webpage launch](#)

USask and the City of Saskatoon have launched a [new webpage](#) to commemorate the five-year anniversary of the signing of a [memorandum of understanding](#) (MOU). Signed in 2018, the MOU

reaffirmed the important relationship between the city and the university and their mutual commitments to community, innovation, diversity and sustainability.

The [webpage](#) is live now and highlights the ongoing progress of the joint initiatives outlined in the MOU, with focuses on priority areas such as reconciliation, infrastructure and land development, transportation, joint research projects and student learning opportunities.

[USask research chair successor to lead spring wheat and canaryseed breeding program](#)

Dr. Adam Carter (PhD) has been appointed as the new Strategic Research Program (SRP) Chair in Spring Wheat and Canaryseed Breeding and Genetics at USask.



As the research chair, Carter will lead the spring wheat and canaryseed breeding program at the USask Crop Development Centre (CDC) in the College of Agriculture and Bioresources, continuing to develop and release improved spring wheat and canaryseed varieties to serve the needs of western Canadian agriculture.

Carter received an undergraduate degree in genetics from the University of Manitoba, a master's degree in plant breeding and genetics from the University of Guelph, and a PhD in

plant sciences from USask.



[Internationally acclaimed USask Toxicology Centre celebrates 40th anniversary](#)



[USask's LFCE receives funding to build research capacity](#)



[USask researcher's work lays groundwork for human trials](#)

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 follow [USask Research on LinkedIn](#), [@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...

[For some fire-loving insects, wildfires provide the best breeding grounds](#)

By Aaron Bell, USask College of Arts and Science

If the spring fire season in Canada is any indication, fire-loving pyrophilic insects will continue to thrive well into summer.



[6 ways universities can promote health on campus — and measure progress](#)

By Dr. Vicki Squires (PhD), USask College of Education, and Dr. Chad London (PhD), Mount Royal University

Campuses struggle to take action on commitments to promote health. Universities need to work towards meaningful measures of progress and well-resourced approaches.



[Street gangs in South Africa and Canada are worlds apart - but they have a great deal in common](#)

By Dr. Robert Henry (PhD), USask Department of Indigenous Studies, and Dr. Dariusz Dziewanski (PhD), University of Cape Town

More than being the social problem they are often made out to be, gangs are an indication of larger problems present in their societies.



Upcoming events



USask to host International Isotopes Conference

USask is proud to be a partner in the 11th International Conference on Isotopes (11ICI) which will take place July 23-27 in Saskatoon and produced through a partnership with Discover Saskatoon and the Sylvia Fedoruk Canadian Centre for Nuclear Innovation, Inc. (Fedoruk Centre)

Registration is now open. The conference website has details on registration, abstracts, and key dates.

- [11th International Conference on Isotopes - July 23-27](#)

CIHR Institute of Cancer Research Community Event

Don't miss the chance to connect with cutting-edge cancer researchers and hear from a series of talented speakers.

The event will take place from 6 p.m. to 9 p.m. on Tuesday, July 25th at Marquis Hall.



- [CIHR Institute of Cancer Research Community Event – Tuesday, July 25th](#)



GIFS – Engineering Biology: Advance Research and Drive Innovation in Agriculture

The Global Institute for Food Security (GIFS) at USask is pleased to invite you to an exciting and educational seminar about Engineering Biology (aka synthetic biology) and its huge scope and impact for agriculture and food.

The event will take place from 9 a.m. to 11 a.m. on Wednesday, July 19th at The Candle Span Room in Innovation Place and online.

- [Engineering Biology: Advance Research and Drive Innovation in Agriculture – Wednesday, July 19th](#)

GIFS – Accelerated Breeding: Optimize Breeding Pipelines. Deliver Better Results Faster

The race is on to feed a growing world more sustainably, in the face of limited resources, climate change and geopolitical conflict. The need for innovative tools and technologies that can do more with less, increase quality crop yield and resiliency has never been more pronounced.



The event will take place from 1 p.m. to 3 p.m. on Wednesday, July 19th at The Candle Span Room in Innovation Place and online.

- [Accelerated Breeding: Optimize Breeding Pipelines. Deliver Better Results Faster – Wednesday, July 19th](#)

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

- July 13 – CBC News - [First Nations won't be excluded from critical minerals 'gold rush,' say leaders](#)
- July 13 – MSN News, CBC News, Global News, The Canadian Press - [Did past health accords work? Ottawa is trying to make that question easier to answer](#)
- July 12 – Global News – [University of Saskatchewan researchers using advanced simulation to train future truck drivers](#)
- July 12 – CBC Radio – [Funding could soon end for RESOLVE, which researches and addresses violence against women and girls](#)
- July 10 – CBC New – [Sask. farm real estate value continues skyrocketing - but what does it mean for farmers?](#)
- July 10 – CBC Radio – [A recipe to reduce algae? Researchers use synchrotron to find the best way to remove phosphorus from water](#)
- July 5 – CBC News – [Sask. political parties nominate candidates for 2024 election, await byelection call](#)
- July 5 – Global News – [Sask. bovine tuberculosis case spurs Canadian Food Inspection Agency investigation](#)
- June 29 – CBC News – [The Regina police chief wants to force people with addictions into treatment — not everyone agrees](#)
- June 22 – The Western Producer – [Dryness severity varies across the Prairies](#)
- June 20 – MSN News, The Saskatoon StarPhoenix – [Federal, provincial government commit \\$6.6M for livestock, forage research at U of S](#)
- June 18 – MSN News, The Canadian Press – ['Nervous anticipation': Flashbacks of 2013 flood in southern Alberta come every June](#)
- June 16 – CTV Saskatoon – [Here's how this University of Sask. grad just made 'history'](#)

Banner image photo credit: **Meet Your Local Backyard Buddy** - By **Georgiana Antochi-Crihan**, Plant Sciences masters student

Images of Research 2023 - *Runner-up, More than Meets the Eye*

Did you know that there are an estimated 7 million insect species on our planet? They play many roles in our ecosystem, including pollination, pest control, and nutrient recycling. This little friend is a tortoise beetle (*Psephenus rubiginosus*). They are very effective at reducing Canada thistle (*Cirsium arvense*) populations and are found locally in our backyard! Interestingly, this beetle was unexpectedly found in the middle of a wheat field. Despite the vast quantity of insects worldwide, little is known about their distribution throughout Saskatchewan. My project aims to fill this knowledge gap by documenting the insect diversity of our prairies. By gaining insight into the true distribution of insects across the prairies, we can better implement insect management strategies.

Funders: MITACS, Ducks Unlimited Canada, SaskWheat



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](#).
