Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how USask research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. *Feedback welcome!*

---

**Research Recovery COVID-19 Update**

USask is nearly ready to partially resume some research activity while respecting all provincial public health directives and student, staff and faculty wellness, says AVP Research Darcy Marciniuk, chair of the Pandemic Recovery and Response Team.

While there will be significant ongoing limitations, restrictions on some campus research activity will be loosened to enable more time-sensitive and deadline-driven research, particularly where continued delay jeopardizes viability of the research.

Priority will be given to graduate students and post-doctoral fellows close to completing their degrees or terms of appointment, and to projects with end dates that are within three months, Marciniuk said.

In view of remaining uncertainties, researchers who resume activity must be prepared for the need to modify, scale back or shut down if needed, he added.

For the most up-to-date information on research-related matters, visit the [COVID-19 Research Updates Website](#). To date, we have uploaded information related to conducting research remotely, proceeding with ongoing and new research, and funding agency deadlines. Please regularly review this website.

---

**COVID-19 Research**

VIDO-InterVac making progress on vaccine
There are some promising early signs as researchers at USask's Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac) develop a vaccine for COVID-19. Ferrets have received two vaccinations, a first step in building immunity to SARS-CoV-2, the virus that causes COVID-19. There are early indications the vaccine induces an immune response in the ferrets. The animals have now been exposed to the virus to determine if the vaccine provides protection, and results should be known in the next week. Read the full story.

On April 23rd, VIDO-InterVac was awarded $23 million to fast-track efforts to develop a COVID-19 vaccine. The funding, announced by Prime Minister Justin Trudeau, supports pre-clinical testing and two phases of clinical trials, essential steps to ensuring that vaccines are effective and safe for human use. Read the full story.

VIDO-InterVac works with partners to advance COVID-19 vaccine development

- On May 13th, VIDO-InterVac and the National Research Council of Canada (NRC) announced a collaboration to accelerate development and production of a candidate COVID-19 antigen in mammalian cells—a key component of a vaccine against COVID-19. Read the full story.
- On May 7th, VIDO-InterVac and Saskatoon-based ZYUS Life Sciences Inc. announced a collaboration to test plant-produced antigens in a vaccine against COVID-19. Read the release.

Bat 'super immunity' may explain how bats carry coronaviruses—USask study

A USask research team led by veterinary researcher Dr. Vikram Misra (PhD) and VIDO-InterVac scientist Dr. Darryl Falzarano (PhD) has uncovered how bats can carry the Middle East Respiratory Syndrome (MERS) coronavirus without getting sick—research that could shed light on how coronaviruses make the jump to humans and other animals. The research published in Nature Scientific Reports shows that stresses on bats—such as wet markets, other diseases, and possibly habitat loss—may have a role in disrupting the balance between the bat immune system and virus, allowing the virus to multiply. Read the story. Read the story.

USask Indigenous health leader appointed to national COVID-19 Immunity Task Force

USask Indigenous health research leader Dr. Carrie Bourassa scientific director of the CIHR Institute of Indigen
US Peoples’ Health assistant of community health and epidemiology, has been appointed as the engaged Engagement Lead on the federal COVID-19 Immunity Task Force. The leadership group will oversee national efforts to measure the scope and scale of SARS-CoV-2 immunity across Canada, with the aim of providing decision makers with the best science to manage the epidemic and help safely get Canadians back to work. Read the full story.

**USask engineering team designing 3D-printed N95 masks to help combat COVID-19**

Using 3D printers, a USask engineering team coordinated by Dr. JD Johnston (PhD) is designing a comfortable, reusable and sanitizable N95 class respirator mask aimed at protecting emergency room doctors and nurses from COVID-19 in the midst of a global shortage of medical-grade masks. Read the full story.

**Feeling COVID-19 stress? Video games could be the cure, says USask computer scientist**

Playing video games may be the salve we need for our mental health during the pandemic, according to University of Saskatchewan (USask) computer scientist Dr. Regan Mandryk (PhD), who studies how video games can promote mental wellness. By connecting people over a distance, providing communities where people feel a sense of belonging, and helping people recover from stress and anxiety, video games can help. Read the full story.

**USask therapy dogs go virtual amidst COVID-19 pandemic**

Dr. Colleen Dell (PhD), professor of sociology and Centennial Enhancement Research Chair in One Health and Wellness, is taking the USask PAWS Your Stress Therapy Dog program online. Students and other members of the community can now connect and receive comfort and support from St. John Ambulance therapy dogs while learning pandemic-specific mental health self-care tips. Read the full story. Connect with therapy dogs online.
USask researchers offer online support for people with MS, Parkinson’s and spinal cord injury

During the COVID-19 pandemic, USask researchers in physiotherapy, rehabilitation science, and neurology are combining their expertise to provide a free online support program for people with neurological conditions. USask physiotherapist Dr. Sarah Donkers (PhD) and physical medicine and rehabilitation expert Dr. Katherine Knox (MD) co-lead NeuroSask: Active and Connected which involves a twice-weekly videoconference with a physiotherapist-guided movement class and an interactive session with guest medical or wellness experts and local artists, or a social activity. Read the details.

CLRC and university health science programs join forces with the SHA to combat COVID-19

USask’s Clinical Learning Resource Centre (CLRC)—an interprofessional educational training complex supported by USask’s eight health science colleges and schools—helps provide personal protective equipment (PPE) and simulation training for 350 Saskatchewan physicians, surgeons, anesthesiologists, and other health care professionals. The centre is currently closed to all except those involved in pandemic-related training exercises. Read the full story.

USask introduces community-driven COVID-19 digital archive

Led by historians Dr. Erika Dyck (PhD), Canada Research Chair in the History of Medicine, and Dr. Jim Clifford (PhD), USask has launched a COVID-19 Community Archive to document life in Saskatchewan during the global health crisis. The project is a partnership between faculty in the history department and units in the University Library, including University Archives and Special Collections and the Digital Research Centre. Read the full story. Watch a video (1:30 min.) about the project.

USask Global Institute for Food Security supporting SHA COVID-19 testing

USask’s Global Institute for Food Security is providing its KingFisher™ Flex instrument to the Saskatchewan Health Authority (SHA) to run additional diagnostic tests for COVID-19. Read the full story.
USask researcher helping design improved mask for pre-symptomatic COVID-19 patients

USask researcher Dr. Malcolm King (PhD), scientific director of the Saskatchewan Centre for Patient-Oriented Research, is drawing on his previous research in transmission of airborne diseases to help create a collaborative design for personal protective masks for pre-symptomatic COVID-19 patients aimed at reducing early transmission of the disease. King has recommended that masks should incorporate a “buffering” area to capture a cough as it leaves the lungs but before the droplets can enter the air. He is consulting with colleagues such as an engineer in England who is working on a prototype. Read the full story

USask Jazz tribute to COVID-19 frontline workers

The USask Jazz Combo, a group of seven alumni of the USask Jazz Ensemble directed by USask music department professor Dean McNeill, has created a video tribute to COVID-19 front line workers. Watch Sunny Side of the Street, the uplifting jazz standard written in 1930 as an anthem of hopefulness and joy to help overcome diversity after the 1929 stock market crash during the Great Depression.

Also directed by McNeill is a short video “Thanks USask Jazz Mosaic 2019-2020” which chronicles the accomplishments of the jazz ensemble over the past year, and thanks the many contributors to the orchestra’s success.

USask researchers in a wide range of fields are undertaking critical research to help combat COVID-19. Read other stories.
Developing microbeam radiation therapy for inoperable cancer

Microbeam radiation therapy (MRT) uses very high dose, synchrotron-generated X-ray beams—narrower than a human hair—to blast tumours with radiation while sparing healthy tissue. The innovative radiation treatment being studied by USask scientists at the Canadian Light Source could one day be a valuable addition to conventional radiation therapy for inoperable brain and spinal tumors, delivering an additional dose of radiation to a tumor after maximum conventional radiation therapy has been tried, thereby extending patients’ lives.

The research team includes USask PhD bio-medical engineering student Farley Chicilo, his co-supervisors Dr. Dean Chapman (PhD) and Dr. Safa Kasap (PhD, DSc), USask adjunct professor Dr. Al Hanson (PhD), Dr. George Belev (PhD) of the university’s Saskatchewan Structural Sciences Centre, former USask engineering graduate student Kieran Ramaswami, and neurosurgeon Dr. Fred Geisler, an international expert in spinal cord injury and spinal surgery who is also a USask adjunct professor.

Water Security

New Canada Water Agency to provide solutions for emerging water crisis—expert panel

The new Canada Water Agency—a mandated commitment of the federal government—will provide much-needed solutions to the emerging water crisis, according to Tom Axworthy, chair of a national water policy panel organized by USask’s Global Water Futures (GWF).

The public is encouraged to help shape the new institution’s mandate, role, form, and legislation and policy reform needs through an online consultation website. Read the full story.

Let’s Talk About Water Film Festival launches online

The Let’s Talk About Water Film Festival is being hosted virtually this year. From May 21 until June 25, the festival will show water-related feature-length films and short competition submissions, all free of charge.

Festival programming begins this week with:

- a feature episode of PBS’ H2O: The Molecule that Made Us (Episode 3: “Crisis) featuring USask hydrologist Dr. Jay Famiglietti (PhD), Canada 150 Research Chair in Hydrology and Remote Sensing and executive director of the Global Institute for Water
Security, and
- two entries for the International Film Prize: *Man Iman: Water is Life* (Algeria) and *Life Without Water* (Uzbekistan).

Sign up online to watch – new films will be added each week. Deadlines for both the youth ($1,000 CAD) and international Water Film prizes ($10,000 USD) have been extended until May 29, 2020. Winners will be announced June 19, 2020.

### Indigenous Health Research

**Canada could learn from First Nations responses to pandemics: USask health geographer**

USask health geographer Dr. Paul Hackett (PhD) is currently working with First Nations communities to understand the history of tuberculosis in Indigenous populations and the modern epidemic of diabetes. Pandemics like smallpox, measles, and influenza are alive in the memories of many communities and historical responses to those challenges could offer lessons for our present pandemic. Read more.

**USask College of Medicine hosts Indigenous language training**

Led by the Office of Indigenous Affairs in USask College of Medicine, a new 10-week Cree language course gives participants the opportunity to learn basic language knowledge in one of the most widely spoken Indigenous languages in the province.

Co-created by Val Arnault-Pelletier, co-ordinator of the college’s Indigenous Admissions Program, and Randy Morin, a Cree language expert and professor in the Indigenous studies department of the College of Arts & Science, the course offered to faculty, staff and students presents medical students with a practical way to gain language skills and communicate with patients. Read the full story.

### Food Security

**Call for Participants: USask-led “Global Wheat Head Detection Challenge”—deadline August 4**

Accurate determination of the number of wheat heads (the grain-bearing tip part) in a field is vital for estimating wheat yield, but manual counting from digital images is a long and tedious job.

That’s why USask computer scientist Ian Stavness and
international partners have organized an international computer science competition to count wheat heads (also called ears) more effectively, using image analysis. The Global Institute for Food Security and USask’s Plant Phenotyping and Imaging Research Centre are offering $15,000 USD in total prize money for anyone who can design a software model for accurately counting more than 190,000 wheat heads from diverse digital images from around the world, an advance that would benefit phenotyping research and agricultural producers.

Partnerships

Student research with the community

As part of a year-long process of data gathering and workshops to inform creation of a graduate skills program at USask, five USask graduate students undertook work-study placements during the spring of 2020 at non-profit organizations in Saskatoon: the YMCA, Elizabeth Fry Society, Saskatoon Food Bank & Learning Centre, Saskatchewan Elocution and Debate Association, and the Safe Drinking Water Foundation. The initiative is part of a Research Impact Canada project funded by The Conference Board of Canada and its partner the Future Skills Centre. Read the case studies of the student experiences, created in partnership with Research Profile and Impact.

Accolades

USask graduate student recognized with national glaciology award

USask hydrology PhD candidate Caroline Aubry-Wake, who studies the impact of climate change on glaciers in the Canadian Rockies, has been awarded the Stan Paterson Scholarship for Student Excellence in Canadian Glaciology by the Canadian Geophysical Union. The award in honour of leading Canadian glaciologist Stan Paterson is granted to a promising young hydrologist who demonstrates academic excellence, research potential, and communication, interpersonal and leadership abilities.

USask education student earns national recognition

Maryam Yasinian, a graduate student in educational administration, has been awarded two national-level awards for her thesis exploring the relationship between leadership development of female academics and self-efficacy: the 2019 Margaret Haughey Master’s Award from the Canadian Association for Studies in Educational
Recent USask doctoral graduates win highest academic honours

Arts and Science graduates Dr. Mohammad Masudur Rahman (PhD) and Dr. Christopher West (PhD), who each received PhDs at 2019 Fall Convocation, are the recipients of the 2019-20 Governor General's Gold Medal at USask. Presented on behalf of the Governor General of Canada, the medals recognize outstanding academic performance in a graduate program based on a student’s thesis, coursework, publications and other criteria, and are among the highest honours for scholastic achievement that Canadian students can receive. Read the full story.

Health

USask researcher publishes book on dementia in rural areas

Dr. Debra Morgan (PhD), USask professor, chair of Rural Health Delivery, and RaDAR lead, has co-edited Remote and Rural Dementia Care: Policy, Research and Practice, an international perspective on dementia care for those living and working in rural and remote communities. Read more.

Veterinary medicine

USask researchers and Sask Health launch online program to track ticks

A new online program, eTick, has expanded into Saskatchewan to track ticks, enabling residents to take photos of ticks with their phones and upload them to an online database where researchers will be able to identify the tick. USask researchers such as Drs. Emily Jenkins (DVM, PhD) and Maarten Voordouw (PhD) plan to monitor ticks and inform
Saskatchewan residents of potential health risks. Read the story. Visit the eTick website.

**Communication breakdown results in early pregnancy loss in horses**

Dr. Claire Card (DVM, PhD) is collaborating with WCVM graduate student Dr. Mariana Diel de Amorim (DVM) and resident Dr. Maria Lopez (DVM) to understand the role of a family of hormone-like compounds in maternal recognition of pregnancy—how a mare’s body understands she is pregnant. The researchers believe this signal is key to pregnancy success or failure. Pregnancy failures result in loss of valuable genetics and financial losses to the equine industry. Read the full story. Read the full story.

---

**Telling your Research Story**

**Young Innovators**

**USask research on Spanish flu teaches lessons about pandemics**

Research on Spanish flu by master’s student Derek Cameron, supervised by Usask history professor Dr. Erika Dyck (PhD), shows that Saskatchewan is wisely learning from its past by insisting on social distancing as it slowly reopens its business activities amid the COVID-19 pandemic.

**USask advances new technology that turns waste into “green” fuel**

Dr. Sonil Nanda (PhD), a USask chemical and biological engineering research associate, is advancing the design and use of technology that will turn organic waste into environmentally friendly fuels and fertilizer — novel work that is also at the centre of a collaboration with NASA. Nanda is working with Dr. Ajay Dalai (PhD), a USask Canada Research Chair of Bio-energy and Environmentally Friendly Chemical Processing.

---

**In the news**

- On May 13th, VIDO-InterVac researcher Darryl Falzarano’s COVID-19 vaccine research was featured on a CBC Town Hall (The National, CBC Radio, and online), reaching nearly 10 million viewers.
- VIDO-InterVac’s Dr. Volker Gerdts (PhD) and Dr. Paul Hodgson (PhD) have been
In THE CONVERSATION

Why do chipmunks live on the ground but squirrels live in trees?

USask PhD student in animal behaviour, ecology, and evolution Andrea Wishart

Squirrels and chipmunks are distant cousins who have grown a little more apart from each other over millions of years.

Coronavirus cases in Africa could top 1 billion: Response must battle unique challenges

USask epidemiologist Dr. Nazeem Muhajarine (PhD), University of Alberta public health physician Dr. Ejemai Eboseime (MD, PhD), USask PhD student Jacob Albin Korem Alhassan, and University of Antwerp researcher Okikiolu Badejo

African countries face unique challenges in their efforts to limit the spread of COVID-19, but lessons learned in other regions where the coronavirus has already peaked may be helpful.

Write about your own research in The Conversation

Articles written by USask researchers have been read more than 1.7 million times since the university entered into a partnership with the SSHRC-funded Conversation Canada in June 2017. USask is a founding member of The Conversation Canada, an online academic journalism hub/newswire where researchers write plain-language editorials and explainers articles about their research.

Writing is easier than you think!

Watch a video from Conversation Canada Editor-in-Chief Scott White.
Want to reach a broad audience with your research? Consider submitting an item to the Conversation. Wondering where to start? Read a short explainer on how to write for The Conversation Canada. Read previous USask articles here and get in touch with Research Profile and Impact.

**Commercialization**

**Innovation Enterprise Summer Entrepreneurs (SE) program goes online**

Due to the COVID-19 pandemic and social distancing requirements, the USask Innovation Enterprise (IE) 2020 Summer Entrepreneur (SE) program is now running online. Eighteen students from four colleges are currently assessing new USask technologies for potential to bring them to market. Read the full story.

**Undergraduate research**

**Launch of SURE: Student Undergraduate Research Experience**

Student Undergraduate Research Experience (SURE), a USask pilot program spearheaded by the OVPR’s Undergraduate Research Initiative, held a program launch event online on May 5 which was attended by more than 100 USask undergraduate students.

SURE is designed to connect undergraduate student researchers from across the campus, and to offer student-focused training and events. The kick-off event, which featured a student panel answering the question, “What do you wish you had known as an undergraduate researcher?” and all future SURE sessions, will be recorded and posted to the website. Read the full story.

**Postponed events**

Monitor Updates.USask.ca for all COVID-19 research-related updates.

- **Global Water Futures Open Annual Science Meeting, “GWF2020”** – now virtual/online, postponed until September
- **AIMday Plant Proteins** – postponed to late fall 2020
- **Life and Health Sciences Research Expo** – postponed, date TBA
Picasso Symposium – postponed until 2021

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

Looking for past issues of Discovery Digest or Research Update? Visit Research.usask.ca for more.

You are receiving this email because you are a student, faculty or staff at the USask. Questions? Comments? Send an email to Research Profile and Impact.