In this issue: USask researchers map pea genome, USask partners on new mentorship program for Indigenous women, new MOU between USask VIDO-InterVac and South Korean vaccine institute, CLS celebrates 20th anniversary, and much more...

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.

USask researchers help to map the pea genome

USask plant scientists Dr. Bunyamin Tar’an (PhD), Dr. Tom Warkentin (PhD) and Dr. Kishore Gali (PhD) are part of an international consortium that has cracked the code of the pea genome, providing for the first time a resource for breeders to develop better crops with improved traits such as better yields, disease resistance, better nutritional value and adaptability to climate change. Published in Nature Genetics, the research was featured in The Western Producer. Warkentin (far left in the photo) also used the USask Canadian Light Source synchrotron to study the nutritional value of pea varieties that he developed, using faster and more environmentally friendly techniques. The results appeared in Crop Science and the Journal of Food Chemistry. Read more.
Nutrien Chair to lead improved cancer diagnosis and image-guided surgeries

USask medical researcher Dr. Ron Geyer (PhD) has been named the Nutrien Chair in Clinical Research to lead a cutting-edge, five-year research program with potential to transform cancer care. With a $600,000 partnered investment, Geyer’s research program aims to develop new cancer diagnostic tests for Saskatchewan patients and involves a collaboration of USask College of Medicine, the Saskatchewan Cancer Agency, the Saskatchewan Health Authority, Royal University Hospital and Royal University Hospital Foundation. Read more.

USask partners on new mentorship program for Indigenous women interested in STEM and mining careers

With a $133,000 investment from Saskatchewan mining companies, USask is partnering with the Saskatoon Tribal Council (STC) on a new mentorship program to support Indigenous high school and university students interested in science, technology, engineering and math (STEM) programs and mining careers.

Launched Oct. 16 at USask’s Gordon Oakes Red Bear Student Centre, MentorSTEP supports Indigenous women to pursue STEM and related business, health, and environmental disciplines related to mining, and aims to build bridges for Indigenous women in STEM disciplines to step into technical, production and professional roles in the mining industry. In the photo: Albert Scott, language and culture coordinator at STC. Read more.
USask’s VIDO-InterVac and South Korean vaccine institute undertake scientific exchanges

USask’s VIDO-InterVac and South Korea’s International Vaccine Institute (IVI) have signed a memorandum of understanding (MOU) to share expertise and best practices in vaccine development to benefit human and animal health globally.

The MOU, signed this week in Seoul by USask President Peter Stoicheff, VIDO-InterVac associate director Paul Hodgson, and IVI director general Jerome Kim, establishes a formal scientific exchange program in infectious disease research and vaccine development, and enables students, post-doctoral fellows and scientists to complete training and learning exchanges. In the photo from the left: VIDO-InterVac associate director Paul Hodgson, Saskatchewan Premier Scott Moe, USask President Peter Stoicheff, and IVI director-general Jerome Kim at the signing ceremony. Read more.

USask and Ducks Unlimited Canada partner to advance wetland and waterfowl conservation in Canada

Ducks Unlimited Canada (DUC) and USask have announced a partnership to create Canada’s first Ducks Unlimited Canada Endowed Chair in Wetland and Waterfowl Conservation, launching a $5-million fundraising initiative to support the chair and its work.

The new research chair will teach and supervise students, co-ordinating education, research, and outreach to tackle the complex environmental challenges facing land, water and wildlife. The endowment will provide student support through graduate fellowships and undergraduate scholarships. Read more.
Canadian Light Source celebrates 20th anniversary of its launch

Twenty years ago, the national scientific landscape changed with the launch of the biggest single investment in Canadian science—the USask Canadian Light Source. Since that unprecedented federal, provincial and university partnership announcement, thousands of scientists from across Canada and around the world have used the CLS to make discoveries in health, agriculture, environment, and advanced materials. These advancements have helped Saskatchewan and Canada become global innovation leaders. At the CLS, USask researchers Dr. Julian Tam (MD), left in the photo, and Dr. Juan Ianowski (PhD) made a discovery that may help improve treatments for cystic fibrosis. This research was among the top 20 CLS discoveries, which can be found here.

Major Accolades

Renowned USask Global Institute for Food Security scientist awarded prestigious international food innovation prize

Dr. Leon Kochian (PhD), USask Canada Excellence Research Chair (CERC), has won the 2019 Arrell Global Food Innovation Award for “global excellence in food innovation.” Adjudicated by internationally recognized scientists, the $100,000 University of Guelph award recognizes global research leaders who have made exceptionally significant contributions to scientific understanding that will improve food security for the planet. The award ceremony will be held December 3 at the Arrell Food Summit in Toronto. Read more.
USask researcher receives Honorary Doctorate of Agricultural Science in Sweden

Dr. Irena Creed (PhD), USask associate vice-president of research, has been awarded an honorary doctorate at the Swedish University of Agriculture Sciences (SLU). Creed is one of the world’s preeminent leaders in the field of water resources. Read more.

College of Law and CLASSIC honoured with international award for knowledge mobilization

The USask College of Law and CLASSIC (Community Legal Assistance Services for Saskatoon Inner City Inc.), have recently been named co-recipients of the 2019 Sir David Watson Award for Community University Partnerships from the University of Brighton in the UK. CLASSIC, founded in 2007 by three law students, serves more than 1,100 individuals per year—with a commitment to Indigenous peoples. Read more.

Other awards include:

• On Nov. 21, USask anatomy and cell biology professor Dr. Valerie Verge (PhD), director of the Cameco Multiple Sclerosis (MS) Neuroscience Research Center, will be the special honoree of the Women Against MS gala luncheon in Saskatoon organized by the Multiple Sclerosis Society of Canada. Read more.

• USask respiratory immunology researcher Dr. John Gordon (PhD) has been named a Fellow of the Canadian Academy of Health Science. Gordon is a leading Canadian expert internationally recognized for his cutting-edge work to eliminate asthma and food allergy-induced anaphylaxis.

• Geography and planning professor Dr. Xulin Guo (PhD) has been honored with the John H. Warkentin Award from the Prairie Division of the Canadian Association of
Geographers. The award is given to individuals who have made outstanding scholarly contributions to the geography of the western interior. Read more.

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**Indigenous Focus**

**Graduate college awards recognize Indigenous student leadership**

USask Indigenous students **Indiana Best** and **Cindy Deschenes** have been awarded $20,000 each by the **College of Graduate and Postdoctoral Studies** to honour their leadership in the areas of public health and mental health through the **Indigenous Graduate Leadership Award**:

- **A Métis student from Alberta, Indiana Best** came to USask for her public health master’s degree to study how to help organizations, such as the Métis Addictions Council Saskatchewan Inc., improve their programs for treating addictions and mental health.

- **Cindy Deschenes**, an Anicinabe (Algonquin) health sciences PhD student, is learning from both Western and traditional Indigenous knowledge to empower leadership potential among Indigenous youth. She will collaborate with the Ermineskin Cree Nation school-community in Alberta to evaluate culture-based health and wellness interventions.

Read more.
$100,000 awarded to USask researcher for post-breast cancer rehabilitation study

Donors of the Royal University Hospital Foundation’s “Women Leading Philanthropy” have voted to award a $100,000 grant to USask rehabilitation science professor Dr. Soo Kim (PhD) and her team for the project: “Aftermath of Mastectomy and Breast Reconstruction: Sorting out Shoulder Dysfunction through Biomechanical Analysis.” Over 80 per cent of breast cancer survivors experience persistent shoulder problems following breast removal or reconstruction. The team will use cutting-edge technology to identify specific shoulder movement patterns and tailor rehabilitation to maximize physical outcomes. Kim will recruit 75 women in her study. Read more about becoming a donor. Watch a video about Kim’s research. In the photo, Kim (left) and patient advocate Michelle McKinnell.

USask research advances rural and remote dementia care

With a project funded by Canadian Institutes of Health Research (CIHR) and SHRF, Dr. Debra Morgan (PhD) and her team, co-led with Dr. Megan O’Connell (PhD), are part of Rural Dementia Action Research (RaDAR). The researchers have adopted a team-based approach to dementia assessment and management in rural primary health care clinics. These rural memory clinics are a one-stop shop to see a team of health care professionals. In the photo, left to right: Dr. Julie Kostieniuk (PhD), O’Connell, Morgan, and Dr. Andrew Kirk (MD). Read more.
Research Centres

USask Murray Library new home for digital research

A new home for the Digital Research Centre (DRC) in the USask Murray Library will help make research, artistic works, and items of cultural significance more accessible to faculty and graduate students, and members of the community. The DRC works with researchers to create digital platforms, assist with digital asset management, and support development of grant proposals for research involving digital technologies. The official opening of the DRC is on Oct. 24 at 2 p.m. in Murray 228. Read more.

Telling your Research Story

USask researchers’ TEDx Talks now available online

On Sept. 7, the USask campus held its first TEDx event. Thirteen of the 18 talks are now available online on the TEDx website and official YouTube channel.

The USask researchers whose talks are so far available are: Dr. Christy Morrissey (PhD), Dr. Philip Loring (PhD), Dr. Dean McNeill (PhD), sessional lecturer Anne Marie-Rollo, Dr. Corinne Schuster-Wallace (PhD), Dr. Angela Bedard-Haughn (PhD), Dr. Lorin Elias (PhD, in the photo), Dr. Hyunjung Shin (PhD), Dr. Darrin Oehlerking (PhD), student Tasnim Jaisee, and USask staff Elizabeth Duret, Peter Hedley and Dr. Nancy Turner (PhD). The remaining videos are upcoming.
USask food security research highlighted in Saskatchewan Agriculture video

Dr. Steven Webb (PhD), Executive Director and CEO of Global Institute for Food Security at the University of Saskatchewan, discusses GIFS’ approach to deliver sustainable food security in Canada and around the world in a new video produced by Saskatchewan Agriculture. Watch it here.

Featured in THE CONVERSATION

PhD students should prepare for careers beyond becoming professors

Dr. Loleen Berdhal (PhD) and Dr. Jonathan Malloy (PhD)

PhD students can't wait for universities and governments to reconcile the demands for a more educated workforce and a scarcity of academic jobs—they should plan their own careers.

Growing a garden can also bloom eco-resilient, cross-cultural, food-sovereign communities

Dr. Ranjan Datta (PhD), post-doctoral fellow

Community gardens with land-based activities can impact community food security and are a good way to forge relationships among new immigrants, Indigenous and non-Indigenous community members.

Write about your own research in The Conversation

Articles written by USask researchers have been read 1.09 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.

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 Kathryn Warden.

Young Innovators

New program opens doors for student start-ups

A USask student entrepreneur team has applied to incorporate as a business to commercialize a new medical oral airway device that could help save patient lives. The team was one of five that were each assigned to explore the business potential of a new USask technology, as part of USask Innovation Enterprise’s summer entrepreneurs program.

With Soteria MedTech co-founders Yash Shukla and Udoka Okpalauwaekwe, Cuylar Conly will work to commercialize new technology developed by USask researcher Dr. William McKay (MD) that helps stabilize ventilation 40 per cent faster than current marketed devices. Student Jessa Hughes will commercialize a faba bean plant—both edible and ornamental—that she developed while working with USask plant breeder Dr. Albert Vanderberg (PhD). Read more.

USask Innovation Enterprise is now recruiting students for the Summer Entrepreneurs Program 2020. Log into Career Link to apply by Nov. 15

First USask 3-Minute Post-doc Competition

On Oct. 3, 10 post-doctoral fellows competed to present their research projects in three minutes as part of the first USask 3-Minute Postdoc Competition. The winners are:
• 1st place – Canadian Centre for Health and Safety in Agriculture researcher Dr. Ornwipa Thamsuwan (PhD).

• 2nd Place – geometry researcher Dr. Alessandro Malusà (PhD).

• 3rd Place – biology researcher Dr. Edel Perez Lopez (PhD), in the photo.

The judges were Dr. Nancy Turner (PhD), USask Gwenna Moss Centre for Teaching and Learning, Dr. Johannes Dyring (PhD), USask Innovation Enterprise, and Dr. Zsuzsa Papp (PhD) from Mitacs.

**Novel dachshund gait research has broader implications for rehab medicine**

The trademark wiggle of a dachshund’s stride could point to more than just life with little legs. Over the summer, a USask veterinary team set out to characterize what the breed’s normal gait looks like to better detect abnormalities such as back injuries. Supervised by Dr. Romany Pinto (DVM), Dr. Danielle Zwueste (DVM) and Dr. Kira Penney (DMV), veterinary student Rachel McCann trotted 30 dachshunds through the Veterinary Medical Centre’s canine rehabilitation centre and looked at how they moved. Read more.

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**Global Institute for Food Security at USask develops Bangladesh partnership**

The Global Institute for Food Security (GIFS) at USask has established a research and training development partnership with the Bangladeshi government. The agreement was signed by His Excellency Mizanur Rahman, Bangladesh High Commissioner to
In the News

USask researchers featured in CBC
The Nature of Things documentary
A three-year USask research project aimed at reintroducing prescribed burns to the native Prairie landscape and improving the integrity of the land is featured in a recent CBC-The Nature of Things documentary. Plant sciences professor Dr. Eric Lamb (PhD) along with PhD student Dale Gross and MSc students Hannah Hilger and Jackie Kroeger, have spent the last three years conducting research on a 13,000-acre conservation area in southern Saskatchewan. Funded by the Nature Conservancy of Canada, the group is examining the responses of grazing bison to Prairie rejuvenated with fire. Watch here.

USask water expert discusses water issues in the Middle East
Dr. Jay Famiglietti (PhD), Director of the USask Global Institute for Water Security, thinks the regional scale of the world’s water scarcity hot-spots requires regional solutions. Read his feature in The Jerusalem Post. Famiglietti will be honoured with a Distinguished Achievement Award from Tufts University Alumni at a special ceremony on Oct. 19. Read more.
USask ergonomics researchers study back supports for farmers

A team of USask researchers were featured in a Saskatoon StarPhoenix article for their work in using technology to help make farming a less back-breaking profession. Dr. Catherine Trask (PhD), a Canada Research Chair in Ergonomics and Musculoskeletal Health, and research fellow Dr. Ornwipa Thamsuwan (PhD), in the photo, are measuring the effectiveness of mechanical exoskeletons—back and core support devices that function much like “mousetraps”—in farm work. Early results show that farmers maintain higher productivity at less of a toll on their bodies. Read more.

USask historian discusses magic on CBC News

On CBC News, Dr. Frank Klaassen (PhD) discusses his Oct. 16 public mini-conference about medieval and Elizabethan magic. The event, that will be hosted from 7 p.m. to 10 p.m. in St. Thomas More College (room 1002), will include five short talks about magic. There will also be a "hands-on" element, with reproductions of medieval magic equipment on display — some of which attendees will be able to try. Read more in the CBC News piece.

Upcoming Events

Climate Change: Realities

Organized by USask Senate, on Oct. 16 a forum titled "Climate Change: Realities” will feature USask experts:

- Dr. Jay Famiglietti (PhD), Changing freshwater availability as viewed from space, with implications for Canadian and global water and food security.
- Dr. Steven Webb (PhD), Environmental, economic and societal innovations in sustainable food production to address climate change.
• **Denea Cheecham-Uhrich**, The importance of Indigenous knowledge and collective action to create transformative change and sustainable and effective solutions to climate change.

The forum will be held at the Holiday Inn Express & Suites (Saskatoon East - University, High Up Above Room) from 4 p.m. to 6 p.m.

**Distinguished Lecture Series focuses on water issues**

The USask Global Institute for Water Security and Global Water Futures are presenting a weekly seminar series featuring top water experts from around the world. These lectures are free and open to the public and one held in the National Hydrology Research Centre (NHRC) Seminar Room (1261) at 3:30 p.m. This month’s lectures, *also livestreamed*, are:

- **Breakthroughs in Snow and Ice: Oct. 16**—Martyn Tranter, Bristol University
- **Breakthroughs in Nutrient Modeling: Oct. 23**—Nandita Basu, University of Waterloo
- **Breakthroughs in Human Activities on Freshwater Systems**: Oct. 30—Karen Kidd, McMaster University

**Upcoming GIFS Science Day 2019**

On Oct. 22, the **Global Institute for Food Security (GIFS)** at USask will host its inaugural Science Day. GIFS researchers will share their research through talks and poster presentations, showcasing how the projects impact agriculture and food production regionally, nationally and globally. The free-admission event will be held at USask Marquis Hall, from 9 a.m. to 4 p.m. Read more.
Water Film Prize: Let’s Talk About Water

Share your story about water science for a chance to win $10,000 and have it featured at our film festival in June 2020. Submit your two-minute film about water by March 31, 2020 on the theme: Too Much, Too Little, Too Dirty. Read here.

When art meets science: Research and experimentation key to Marie Lannoo’s work

Saskatoon artist and USask alumna Marie Lannoo is known across Canada and internationally for the innovative, visually stimulating artwork she creates by employing conceptual research and scientific methods of experimentation.

Her survey exhibition entitled Marie Lannoo: the architecture of colour explores colour and light through paintings and sculptural installations currently on display at the USask College Art Galleries until Dec. 21. An artist talk/tour is scheduled for Oct. 24 at 12 noon in College Art Gallery 1.

Lecture on Roman Empress linked to USask Museum of Antiquities coin collection

On Oct. 17, Dr. Tracene Harvey (PhD) will give a lecture titled “Livia as ‘Femina Princeps’ and Her Exceptional Numismatic Accolades” at 4:30 pm in Room C280 in the Peter MacKinnon Building. The lecture will focus on understanding the power and influence of Roman Empress Livia (Julia Augusta) in the Julio-Claudian dynasty analyzing some of the ancient coins at USask’s Museum of Antiquities. The talk is based on Harvey’s newly published book Julia Augusta: Images of Rome’s First Empress on Coins of the Roman Empire, deemed the most comprehensive examination of all extant coins of Livia to date. Read more in the story.
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