ON CAMPUS NEWS
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CELEBRATING CLASS OF 2020

With in-person Fall Convocation ceremonies postponed due to the ongoing global pandemic, the University of Saskatchewan is honouring the extraordinary efforts of students completing their degrees, diplomas and certificates with a virtual celebration. In this online edition of *On Campus News*, we feature some of the outstanding graduating students who have completed this stage in their academic journeys. We also highlight three remarkable Canadians who are being awarded honorary degrees, and spotlight USask's major award recipients, including the Master Teacher, Distinguished Researcher and the President's Medal winner.

SEE PAGES 6-13.

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UNIVERSITY OF SASKATCHEWAN

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On Campus News aims aims to provide a forum for the sharing of timely news, information and feature stories about people and events of interest to the USask community.

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We acknowledge we are on Treaty 6 Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

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Napper relishes research role and thirst for teaching

AMANDA WORONIUK

Even in the midst of a pandemic, University of Saskatchewan (USask) researchers continue to make a positive impact through leadership and teaching.

One of those leaders is Dr. Scott Napper (PhD), a professor in the Department of Biochemistry, Microbiology and Immunology, and the interim director of research at the Vaccine and Infectious Disease Organization – International Vaccine Centre (VIDO-InterVac).

Napper stepped into the position earlier this spring, when Dr. Volker Gerdts (DVM) took over the role of VIDO-InterVac director and CEO. In his position, Napper oversees research in finding a vaccine at the only facility with this capability in Saskatchewan.

Leadership is nothing new for Napper. He led the reorganization of the undergraduate biomedical sciences programs—a partnership between the Colleges of Medicine and the College of Arts and Science that unifies the existing biomedical sciences departments.

"The new biomedical science program builds upon the strong foundation of our previous program with increased emphasis on interdisciplinary training and experiential learning," said Napper. "Students will have the opportunity to receive training that ideally prepares them for a range of careers in science as well as for entry in the health-based professional colleges."

At USask, Napper has been honoured for his commitment to teaching. He is a four-time recipient of the University of Saskatchewan Students' Union (USSU) Teaching Excellence Award, most recently in 2020.

"Many students struggle with the question of what they are going to do for their careers. The advice I offer to them is to look for moments of certainty. For me, my first time teaching was a moment of absolute certainty of how I wanted to spend my career," said Napper.

"Teaching is now my greatest source of professional joy. To receive this award for teaching, in particular that it comes from the students, means the world to me."

Outside of the university, Napper continues to share his passion for science with the next generation of learners, through talks at provincial high schools.


DEBRA MARSHALL

Dr. Scott Napper (PhD) is interim director of research at VIDO-InterVac.

Napper's presentations are meant to expose students to the idea that science is more than just facts and formulas.

"(Science) is about passion, imagination, and looking to solve the problems facing humanity," said Napper. "Hopefully (I can) inspire students towards the opportunities that are available through a career in science."

Amanda Woroniuk is a communications co-ordinator in the College of Medicine.

IN CASE YOU MISSED IT

A lot happens at the USask during the weeks when *On Campus News* isn't published. Here are a few of the top stories from news.usask.ca:

Gates grant

The Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac) at USask has been awarded a grant of almost $830,000 from the COVID-19 Therapeutics Accelerator to determine the effectiveness of several antiviral compounds against COVID-19. The COVID-19 Therapeutics Accelerator was launched in March by the Bill & Melinda Gates Foundation, Wellcome, and Mastercard, with additional funding from a range of donors. Testing will occur in VIDO-InterVac's world-class containment Level 3-agriculture (CL3-Ag) facility using a hamster model of SARS-CoV-2 infection.

Coulman selected

Renowned USask forage breeder Dr. Bruce Coulman (PhD) has been selected to lead the university's Livestock and Forage Centre of Excellence (LFCE) as interim director. An international search for a permanent director is underway. Coulman, a professor emeritus in the plant sciences department of the College of Agriculture and Bioresources, succeeds LFCE director Dr. Kris Ringwall (PhD), who retired at the end of October, enabling a two-week transition period. Coulman, a USask alumnus, has developed 22 forage crop cultivars over his 40-year career. The LFCE was established in 2018.

Downe honoured

USask's Dr. Pamela Downe (PhD) was named winner in the Research and Technology category during the 2020 YWCA Saskatoon Women of Distinction Awards. Downe was honoured during an online event on Oct. 16, for her career as a professor in the Department of Archaeology and Anthropology and her work in medical research. Several other members of the USask community were also honoured, including alumnae Jess Hamm (Arts, Culture and Heritage Award), Nicole Shoal (Health and Athletics Award), Lisa Mooney (Business and Professions Award) and Meagan Barabash (29-and-under Award).

Dental clinic open

The College of Dentistry has officially opened a seven-chair dental clinic on the USask Prince Albert Campus and is now accepting patients. The clinic is part of the college's Inclusive Community Outreach program, which aims to improve access to care for priority populations in Saskatchewan. To ensure the safety of patients, students, faculty and staff during the pandemic, the clinic adapted its space in response to changing infection prevention and control standards established by the College of Dental Surgeons of Saskatchewan. The new dental clinic will be open year-round, Monday to Friday.

FOR MORE UP-TO-THE-MINUTE NEWS, VISIT: news.usask.ca @usask

Service and sacrifice:

Remembering USask law student who gave his life in Second World War

JAMES SHEWAGA

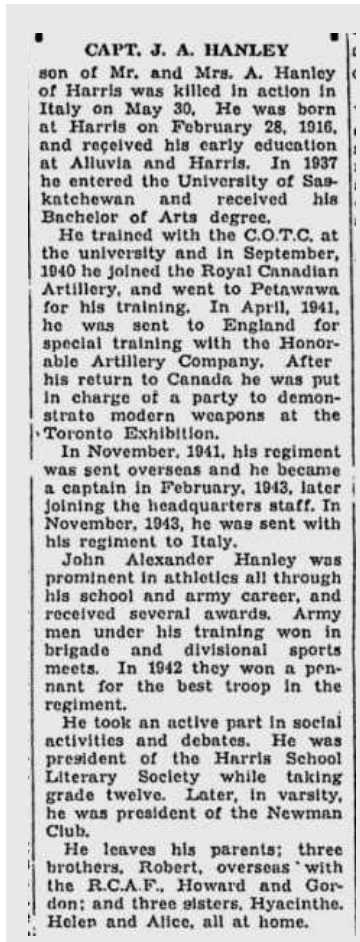
He grew up on the family farm near Harris, 80 kilometres southwest of Saskatoon where he went to earn a bachelor's degree at the University of Saskatchewan (USask) before heading off to war.

Today, John Alexander (Sandy) Hanley lies at rest 8,000 kilometres away in the Cassino War Cemetery in Italy, one of the 2,500 USask students, staff and faculty who served in the Second World War and one of the 202 who never came home.

For the Hanley family, there is a solemn sense of pride in his service and his sacrifice, and the choice he made to leave law school in order to volunteer to serve his country.

"We are really proud of him for doing that," said Janaya Hanley, who has dedicated her free time during the pandemic to researching her great uncle's life and death. "He was very young. He was barely 28 when he died and just thinking about that, I am 27 now, and it is difficult to imagine having that much responsibility. He was a captain overseas, so he was a troop commander. To be so young and to be responsible for all of these other men in your troop is quite something."

Sandy Hanley entered USask in 1937 and earned a Bachelor of Arts degree in 1940 before enrolling in law school. A strong student and athlete, he played rugby and water polo for university teams, and was an active student leader, serving as president of the Newman Club, the university's Catholic student society. Sandy could have continued his studies and started a successful career as a lawyer and perhaps a judge one day, but instead joined Canadians from coast to coast who answered the call to duty, and one of the more than 45,000 who paid the ultimate price.



CAPT. J. A. HANLEY

son of Mr. and Mrs. A. Hanley of Harris was killed in action in Italy on May 30. He was born at Harris on February 28, 1916, and received his early education at Alluvia and Harris. In 1937 he entered the University of Saskatchewan and received his Bachelor of Arts degree.

He trained with the C.O.T.C. at the university and in September, 1940 he joined the Royal Canadian Artillery, and went to Petawawa for his training. In April, 1941, he was sent to England for special training with the Honorable Artillery Company. After his return to Canada he was put in charge of a party to demonstrate modern weapons at the Toronto Exhibition.

In November, 1941, his regiment was sent overseas and he became a captain in February, 1943, later joining the headquarters staff. In November, 1943, he was sent with his regiment to Italy.

John Alexander Hanley was prominent in athletics all through his school and army career, and received several awards. Army men under his training won in brigade and divisional sports meets. In 1942 they won a pennant for the best troop in the regiment.

He took an active part in social activities and debates. He was president of the Harris School Literary Society while taking grade twelve. Later, in varsity, he was president of the Newman Club.

He leaves his parents; three brothers, Robert, overseas with the R.C.A.F., Howard and Gordon; and three sisters, Hyacinthe, Helen and Alice, all at home.

The obituary for Sandy Hanley, published in the *Saskatoon StarPhoenix* in 1944.

COURTESY OF THE STARPHOENIX

As noted by Patrick Hayes of University Archives and Special Collections, it was a different era, a time when the war effort galvanized the entire country to do its part. USask was no exception, with patriotic students like Sandy joining the university's Canadian Officers Training Corps program to prepare for a world at war.

"The world would be a very different place had the Allies not won the Second World War," said Hayes. "They fought against an enemy that was anti-democratic and preached racial superiority. All our freedoms—speech, assembly, religion and the ability to have a say in how we are governed—were under attack. The reality of the threat was evident to all. Even with the end of The Great War in 1918, a second war was seen as inevitable. USask was at the forefront of Canadian preparedness for the next conflict."

Sandy was among those ready to do their part. In September 1940, he left university to join the Royal Canadian Artillery, trained and headed overseas to join the front lines in the gruelling two-year Allied campaign in Italy. On May 30, 1944, in the push towards Rome, he was crossing the Melfa River under withering fire when his tank was hit by a German shell and he was killed instantly. Five days later the Allies reached Rome on June 4, two days before the D-Day landings turned the tide of the war.

UNIVERSITY ARCHIVES, A-1052

The record-setting 1940 University of Saskatchewan law rugby-football team members, including Sandy Hanley (bottom row, third from right).

"The battle of Monte Cassino spanned quite a few months and it was really the last push to get to Rome," said Janaya, who grew up in Kindersley and now lives in Regina. "Not only did they need Rome from a tactical perspective, but it was also very symbolic to liberate Rome. So many Canadians gave their lives, but there is pride in knowing that Sandy played a role in that crucial part of the war."

Sandy's brother Robert also served overseas with the Royal Canadian Air Force, and recently passed away just shy of his 100th birthday. Both brothers were highly decorated, earning multiple medals for their service during the Second World War.

Sandy Hanley's Greystone Yearbook photo from his 1940 graduation year.

Sandy is one of the 855 Canadian soldiers buried in the historic Cassino War Cemetery, situated in a picturesque now peaceful valley at the foot of a towering hill topped by the majestic medieval Abbey of Monte Cassino, founded back in the year 529. Over the centuries it has been destroyed and rebuilt multiple times after multiple battles, including during the Second World War, just weeks before Sandy was killed in action.

Tracing his steps and his story has become a passion and point of pride for his great niece and nephews.

"To be honest, I didn't know a lot about Sandy growing up, but I'm proud that we are able to do this research now," said Janaya, noting that Hanley Lake in northern Saskatchewan is named after her great uncle, one of a number of provincial lakes named after soldiers who gave their lives in the Second World War. "Sandy didn't have any kids, so it is nice that we can try to remember him in this way."

The social significance of the global pandemic

CHRIS PUTNAM

When COVID-19 came to Canada, researchers knew its implications would go far beyond the direct effects of the virus.

"There are so many other unintended impacts and consequences of COVID-19 that need to be explored, understood and disseminated. What are the shifts and trends in human behaviour that largely impact how the disease spreads and grows or abates?" said Jason Disano, director of the Canadian Hub for Applied and Social Research (CHASR) at the University of Saskatchewan (USask).

CHASR—formerly known as the Social Sciences Research Laboratories—is a research support and consulting service based in USask's College of Arts and Science. Since the start of the pandemic, CHASR has assisted with 14 research projects exploring the social, psychological, economic, political and health implications of COVID-19.

"This type of research plays a significant role in augmenting our understanding of how we move forward as a society and live with and control COVID-19," said Disano, whose clients include academic researchers, government agencies and non-profit organizations across Canada.

COVID AND SCHOOL LUNCHES

Prior to the pandemic, Dr. Rachel Engler-Stringer (PhD), an associate professor of community health and epidemiology in the USask College of Medicine, had already been working with CHASR on a series of projects concerning lunch programs in schools.

When schools began closing due to COVID-19, Engler-Stringer's team quickly pivoted to assessing how lunch programs were being affected by the pandemic. With help from CHASR, they surveyed lunch program providers across Canada between May and September. The researchers found that many programs continued to operate in a modified form, often by providing boxed meals to families with school-children.

"So they shifted from feeding the individual children to supporting some of the food needs of the families," said Engler-Stringer.

In some regions, the programs formed new partnerships with local farmers and out-of-work chefs to provide high-quality food.

The research is timely because of the Government of Canada's pledge in 2019 to develop a Canada-wide school food program.

"There is a lot of interest in what these school food programs could look like should they become something that's national. Some of this very rapid innovation has the potential to inform what could become a national school food program for Canada," said Engler-Stringer.

SUPPORT FOR CAREGIVERS

Dr. Paulette Hunter (PhD), an associate professor of psychology at St. Thomas More College, is co-principal investigator on a study examining the pandemic's effect on health-care workers in Saskatchewan.

"The pandemic has taken an enormous toll on patients, families and health-care providers in long-term care homes and hospitals across the world. We are forced to learn as we go, and it is important to listen carefully to the voices of these three groups as we continue to refine the health system response," Hunter said.

Hunter's team worked with CHASR to deploy an online survey asking health-care providers about their feelings and perceptions as they work through the pandemic and potentially cope with the loss of patients. Their findings will be reported quarterly to partners in the health system to help develop better practices and supports for health-care providers.

ASSESSING RISK THROUGH DATA

The spread of a virus is driven by human behaviour, and controlling the spread requires an understanding of that behaviour. Early in the pandemic, Dr. Nazeem Muhajarine (PhD) and his team in the Saskatchewan Population Health and Evaluation Research Unit (SPHERU) identified a problem.

"We had no data to guide us. Certainly no data directly from people who would tell us what they think, how they act, where they go," said Muhajarine, a professor of community health and epidemiology in the College of Medicine.

SPHERU's Social Contours and COVID-19 project has helped fill that gap. From May through September, the study collected more than 5,000 online survey responses from Saskatchewan residents.

Muhajarine saw some troubling trends. Over time, behaviours that raised the risk of exposure to the virus became more common, while most mitigating behaviours decreased.

These results were reported regularly to public health officials. Muhajarine said that as community spread increases, he would like to see officials taking more targeted measures driven by data, such as warning the public of "hot zones" with elevated COVID-19 risk.

The recently announced mask-wearing mandate for some of Saskatchewan's major cities is a "step in the right direction," Muhajarine said. "We need now to adhere to this. Public health leaders and political leaders need to lead with the appropriate messaging."

NATIONAL HUB

CHASR helped SPHERU with running its survey and recruiting respondents.

"We went to CHASR because it is in our backyard and (because), frankly, they're very competent," said Muhajarine. "They are a trusted, established organization for a survey like this."

CHASR has seen a growing number of inquiries about its services since it relaunched as a national research support hub in September. Disano said the facility is eager to assist researchers across Canada, whether it's with work related to COVID-19 or with the countless other topics that benefit from social and applied research methods.

"We're very well-positioned to provide that kind of research support," said Disano.

Chris Putnam is a communications officer in the College of Arts and Science.

Director Jason Disano

Dr. Rachel Engler-Stringer (PhD)

Dr. Paulette Hunter (PhD)

Dr. Nazeem Muhajarine (PhD)

ALUMNI
SPOTLIGHT

Every month in *On Campus News*, we highlight an exceptional graduate of the University of Saskatchewan (USask) in our Alumni Spotlight series. In this issue, we profile Dr. Lisa Broda (BA'96, MA'03, PhD'17), who marks her first year as Saskatchewan Advocate for Children and Youth.

Dr. Lisa Broda (BA'96, MA'03, PhD'17), who earned three degrees at the University of Saskatchewan (USask), is in her first year of serving as the Saskatchewan Advocate for Children and Youth.

SUBMITTED

Lisa Broda: Putting the interests of children first

JOHN GRAINGER

When Dr. Lisa Broda (BA'96, MA'03, PhD'17) was a teenager, she could often be found volunteering at Saskatoon's St. Paul's Hospital maternity and pediatrics ward holding newborns or playing with toddlers.

So, it's not surprising that she is now working on behalf of children as the Saskatchewan Advocate for Children and Youth. It's just on a much larger scale these days.

Broda still cares for children as she did at St. Paul's. But now, she cares for each and every single child in Saskatchewan as part of her role as advocate, a position she has held since November, 2019.

"For me, I've always worked with children in some way over the course of my career," said Broda. "I probably didn't realize at that time why I felt compelled to volunteer, and certainly wouldn't have known at the time that this is the chair I'd be sitting in."

The Advocate for Children and Youth is an independent officer of the Saskatchewan Legislative Assembly.

Broda's office not only holds the government and entities that serve children to account, but also collaborates to support better outcomes for children through her office's advocacy, investigation, research, and public education arms.

Broda always carried an innate sense of responsibility for children, something that is the essence of her role as the advocate. This comes from her values and philosophy, both personally and professionally, to ensuring that young people have voice in matters that affect them and that their rights are upheld.

Even during her time as an undergrad at the University of Saskatchewan (USask), Broda was an active volunteer with youth organizations such as the YMCA and the John Howard Society. Her current role is not just a vocation for Broda, per se, but a pursuit of something she always strived to do in both her academic and government career.

"Working with children and youth has always been a passion for me. These young people are our current and future leaders, and are amazing in their own right. To be appointed the Saskatchewan Advocate for Children and Youth is such an honour. It's a privilege to work on behalf of, and in support of, Saskatchewan children. It is also critical that our office can be a voice for all young people and to advocate for their rights, interests, and well-being."

> **"To be appointed the Saskatchewan Advocate for Children and Youth is such an honour. It's a privilege to work on behalf of, and in support of, Saskatchewan children.**
>
> **— Lisa Broda**

Broda, who has five children of her own, first started her academic career with a focus on social and criminal justice, where she spent the bulk of her career prior to being appointed as the advocate. Her career path came into focus once she started her graduate level work, all of which happened alongside of Broda building her career in government and community.

Amongst the many mentors who were integral in supporting her over the years, there were two particular faculty members who Broda said "influenced her and provided support in both her research and her doctorate work in later years."

Dr. Carolyn Brooks (BA'88, MA'93, PhD'09), current department head in sociology at USask, was one of the first to make an impression on Broda.

"Dr. Brooks is someone I saw as an inspiration to me due to her creative teaching methods, her passion for the students, and her work overall."

Another mentor who profoundly changed the way Broda embraced her career and her academic path was Professor Patricia Monture-Angus (1958-2010). Monture-Angus who was an Indigenous scholar at USask, influenced Broda into working toward a doctorate in the discipline.

"I had some ideas about the research I wanted to engage in and I had been talking with Dr. Monture-Angus about how to better understand restorative justice and reconciliation, which at the time was not well understood or fully embraced," she said.

"Dr. Monture-Angus was very inspirational because she was so passionate about working hard for Indigenous people's rights, and to change the narrative of how society viewed her people. I received some very important guidance on doing culturally appropriate and sensitive research when engaging with Indigenous peoples.

"Dr. Monture-Angus said to me, 'You need to do this, and here's why. You're a practising academic which means you can create important change in the community, and there aren't many of those out there.' "

Broda, who remains a sessional lecturer at USask, believes Monture-Angus probably recognized a strength in her and perhaps knew where Broda may end up one day.

When the day arrives for Broda to retire, it's quite likely you'll still see her volunteering and coming full circle back to her days of volunteering in the pediatrics department.

"I will still want to go to the (hospital) and hold and comfort those babies. That's one thing I will continue to do when I get to that point."

Until then, Broda still has some work to do. For our children.

John Grainger is a communications officer with University Relations.

Wilson, Dadachova honoured as Distinguished Researchers

SARATH PEIRIS FOR RESEARCH PROFILE AND IMPACT

The University of Saskatchewan (USask) is honouring radiopharmacist Dr. Ekaterina Dadachova (PhD) and Indigenous educator Dr. Alex Wilson (EdD)—both internationally recognized for their groundbreaking research and scholarship—as Distinguished Researchers for 2020.

"The innovative work in nuclear medicine and Indigenous engagement by these highly accomplished researchers, and their dedication to training young scientists and educators to tackle urgent health and social challenges, are contributing greatly to making our university globally relevant," said USask Vice-President Research Karen Chad.

WISDOM OF INDIGENOUS COMMUNITIES

Wilson, professor in the College of Education and director of the Aboriginal Education Research Centre, has been described as a "thought leader in positive academic research that honours the wisdom of Indigenous communities."

Her groundbreaking research on land-based education, two-spirit people, and anti-oppressive education, along with contributions to addressing social issues such as homelessness and health disparities affecting Indigenous communities, has garnered national and international recognition.

"This award signifies a shift toward validating Indigenous knowledge and the importance of community-centred engagement and research," said Wilson. "Research has the capacity to implement transformative change, and that is why I do it."

A member of the Opaskwayak Cree Nation, Wilson joined USask in 2007 after graduation from Harvard University—one of the first Indigenous persons from Canada to earn a doctorate at the prestigious institution.

She co-developed a master's program in land-based education at USask that provides aspiring teachers a knowledge base in Indigenous pedagogy, restoring connections to the land that have been severed through colonization.

"Knowing that many cohorts of teachers have gone through our land-based education program over the past 10 years brings me a lot of pride," Wilson said.

As a visiting lecturer at universities in New Zealand, Australia, Hawaii, and Norway, she has advocated for land-based education, anti-oppressive education, and transforming the binary gender bias in education.

She is working with community members to map the traditional territory of Opaskwayak, using Cree language to identify directions, landmarks and locations. The map will be used in Cree immersion programs and schools to bring together children, youth and Elders to learn through stories about medicines, plants and significant areas within the territory—serving to revive the language even as it provides traditional land-based education.

Wilson is a leader of the One House Many Nations campaign to raise awareness about the housing crisis in First Nations communities. She led a team to create a *wachusko weesti* (muskrat hut) prototype—solar/wind-powered houses with clean water and incinerator toilet, built with local material, and providing safe, affordable housing. Through homelessness prevention research, she is working with youth to design and build sustainable homes in First Nations.

COLLABORATIVE RESEARCH IMPORTANT

Dadachova's pioneering work in the combined use of radiation and immunotherapy to fight cancer and other diseases has helped enhance USask's reputation as a leader in nuclear sciences and imaging.

A professor in the College of Pharmacy and Nutrition, Dadachova joined USask in 2016 from the Albert Einstein College of Medicine in New York.

"I want my research translated into use in hospitals and veterinary clinics, and that's a big reason I joined USask," she said. "Here I can collaborate with medical and veterinary researchers and nuclear scientists, and have access to a cyclotron and synchrotron."

Dadachova holds the Fedoruk Centre for Nuclear Innovation Chair in Radiopharmacy, and brought to USask an extensive, international-calibre research program. She has been awarded more than $11 million in grants as a principal investigator, $5.4 million since arriving at USask.

"This award is a very gratifying recognition that I'm doing something interesting and useful," said Dadachova. "It also reflects well on students and post-doctoral fellows in my lab as they build their young careers."

Among her research successes, Dadachova's lab pioneered radioimmunotherapy (RIT) as an effective treatment for viral infections such as HIV, as well as bacterial and fungal infections, which are often drug resistant.

She expanded RIT, which has much lower acute or long-term toxicity than current treatments such as chemotherapy, to treat melanoma, cervical cancer, and osteosarcoma (bone cancer that mainly affects children, youth and large dogs). Collaborating with USask veterinary colleagues, she is preparing to test RIT on osteosarcoma in companion dogs.

Based on the discovery at the Chernobyl site of black fungi that thrive by converting harmful ionizing radiation into chemical energy, Dadachova is studying melanin, the pigment that darkens the fungi and colours human skin. Her goal is to develop melanin-based radioprotectors for cancer patients, astronauts, and soldiers, all at risk for radiation exposure.

Dadachova, who received her PhD in physical chemistry from Moscow State University and did post-doctoral studies in Australia, has seven U.S. patents and has published more than 160 peer-reviewed articles. She has trained more than 30 students, medical residents, and post-doctoral fellows. She is an academic editor for major journals and a member of the Canadian Institutes for Health Research's Pharmacology and Toxicology Review Panel.

COURTESY OF THE STARPHOENIX

Dr. Alex Wilson (EdD) is professor in the College of Education and the director of the Aboriginal Education Research Centre at USask.

DAVID STOBBE

Dr. Ekaterina Dadachova (PhD) is a College of Pharmacy and Nutrition professor and holds the Fedoruk Centre for Nuclear Innovation Chair in Radiopharmacy.

Convocation celebration:

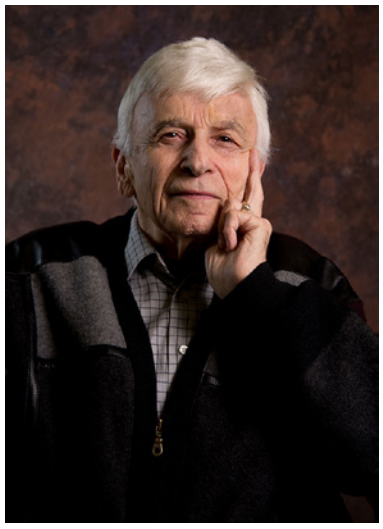
In this year's virtual USask Fall Convocation, 926 students will receive a total of 935 degrees, diplomas or certificates, which brings the total USask Class of 2020 (spring and fall graduates) to 4,423 students receiving 4,531 degrees, diplomas or certificates. As part of this year's convocation celebration, the university will also honour three remarkable individuals by awarding honorary degrees to Fred Sasakamoose, Joy Kogawa and Max Eisen. Here is a closer look at each of this year's recipients:

MAX EISEN
Honorary Doctor of Laws

Seventy-five years ago, Max Eisen was liberated from a Nazi concentration camp, the only member of his family to survive Auschwitz.

Now 91, for the past three decades he has travelled the country as a public speaker and Holocaust historian, telling his painful personal story of survival and educating students, teachers, law enforcement and other community members about the horrors of the Holocaust and the danger of rising racism and anti-Semitism. A tireless champion of human rights, Eisen has touched the lives of thousands who hear him speak every year, a first-hand witness to one of the darkest times in human history, sharing his story "so others may learn from the past."

Born in the former Czechoslovakia and raised in an Orthodox Jewish family, Eisen was 15 when he and his family were arrested and sent to Auschwitz, where his parents, grandparents and his three siblings were all killed in the concentration camp. With the help of a Polish doctor, Eisen managed to



survive Auschwitz and a 13-day winter death march, until finally liberated from another concentration camp in 1945.

Helped by strangers and assisted by a Canadian Rabbi, Eisen later came to Canada as a refugee in 1949 to start a new life, marrying his wife Ivy Cosman and being blessed with two children, two grandchildren and three great-grandchildren. Eisen also established a successful business in Toronto, before retiring in 1988 and dedicating his time to travelling coast-to-coast to share his powerful first-hand account of Auschwitz.

Eisen documented his unforgettable story of tragedy and triumph in his book, *By Chance Alone: A Remarkable True Story of Courage and Survival at Auschwitz*, winner of the 2019 Canada Reads competition. Eisen also committed himself to helping find justice for the millions of victims of the Holocaust, testifying at the recent war crimes trials of two former Nazi SS guards at Auschwitz. Eisen has made the journey back to the former concentration camp dozens of times as a participant in the March of the Living, an educational program that brings students from around the world to Auschwitz each year to learn about the Holocaust.

Eisen has also worked with the Friends of the Simon Wiesenthal Centre, the Canadian Centre for Diversity and Inclusion, and the Sarah and Chaim Neuberger Holocaust Education Centre in Toronto, and regularly does media interviews about his personal tale of surviving Auschwitz.

FRED SASAKAMOOSE
Honorary Doctor of Laws

A residential school survivor and the first Indigenous player in Saskatchewan to make it to the National Hockey League, Fred Sasakamoose has been a trailblazer, an inspirational role model, and a passionate supporter of providing opportunities for youth to play sports.

Born on Christmas Day in 1933, Sasakamoose grew up in a log house in Ahtahkakoop Cree Nation north of Prince Albert, skating on an outdoor pond using a willow stick and frozen horse manure for a puck. He would later go on to play 11 games in the NHL, helping break barriers and opening the door for Indigenous hockey players.

Sasakamoose was inducted into the Saskatchewan Sports Hall of Fame in 2007 and became a member of the Order of Canada in 2018, and has received commendations from the Hockey Hall of Fame, the Assembly of First Nations, and the Federation of Saskatchewan Indian Nations. He served as chief and spent 30 years as a band councillor for the Ahtahkakoop Cree Nation, and is now an Elder who teaches youth to hunt, fish and trap, and counsels them about drug and alcohol addiction.

At the age of six, Sasakamoose was one of the 359 children from the reserve taken from their parents and sent to residential schools. He recently testified for the Truth and Reconciliation Commission of Canada about the abuse that he suffered there. One escape for Sasakamoose was hockey, with skills that would take him all the way to the NHL.

Named the most valuable player in Western Canada while playing in Moose Jaw in 1954, Sasakamoose signed his first NHL contract with the Chicago Blackhawks—for the modest sum of

$6,000—and was called up for his NHL debut on Feb. 27, 1954 on Hockey Night in Canada at Maple Leaf Gardens, after a two-day train ride to Toronto. Sasakamoose would go on to play six seasons of professional hockey, but longed to return home to his family and retired in 1960 and became a community leader for Ahtahkakoop.

A passionate advocate for creating opportunities for Indigenous youth to play sports, Sasakamoose has spent 60 years establishing hockey programs, leagues and camps. He joined the USask community as an honoured guest at the ground-breaking ceremony for Merlis Belsher Place, where he provided a blessing for the arena and an inspirational message that generations to come will benefit from the facility. In 2018, Sasakamoose was featured by the College of Kinesiology as one of nine Indigenous athletes inducted into the Saskatchewan Sports Hall of Fame who were honoured in an interactive display in the Physical Activity Complex.

JOY KOGAWA
Honorary Doctor of Letters

From once studying at the University of Saskatchewan (USask) to becoming one of Canada's most celebrated authors, Joy Kogawa has been honoured for her literary excellence as well as her lifelong contributions to Canadian society.

While living in Saskatchewan, she published her first book of poetry in 1967, titled *The Splintered Moon*, the start of an award-winning career as a poet, novelist, creative writer and activist that continues to this day.

Born in Vancouver, Kogawa experienced first-hand the internment of 22,000 Japanese-Canadians removed from their homes on the West Coast by the government during the Second World War. That experience was the inspiration to write her most famous work, a celebrated semi-autobiographical novel titled *Obasan*. The 1981 novel earned the Book of the Year Award from the Canadian Authors Association and named one of the top 100 most important books in the country, by the Literary Review of Canada. By the end of the decade, her book was studied in classes in schools and universities across the country, including USask.

Kogawa also worked tirelessly to educate about the plight of Japanese-Canadians in the Second World War and to earn compensation and reparations for those interned. Her work as an advocate and activist, educator and writer in a career now spanning five decades, has earned her some of the country's highest honours, including made a member of the Order of Canada in 1986 and a member of the Order of British Columbia in 2005. The Japanese government also honoured Kogawa in 2010 when she was made a member of the Order of the Rising Sun "for her contribution to the understanding and preservation of Japanese-Canadian history."

After the war, Kogawa's family resettled in Coaldale, Alta., where she finished high school before attending the University of Alberta, the Anglican Women's Training College, and the Royal Conservatory of Music, later returning to school to take classes at USask.

Her award-winning career as an author continues to this day, with her recent work on the augmented reality game, *East of the Rockies*—released by the National Film Board in 2019—earning the 2020 Canadian Screen Award for best video game narrative.

Kogawa is a former member of the Canadian Civil Liberties Association board of directors and a member of the Writers' Union of Canada, and remains a passionate advocate for social change and bringing down barriers to connect all Canadians.

CLASS OF 2020

Bioinformatics graduate applies PhD research to crop production

Dr. Kim MacKay PhD) has earned her third USask degree, completing a PhD in bioinformatics in the Department of Computer Science in the College of Arts and Science.

DAVID STOBBE

SHANNON BOKLASCHUK

A high-achieving University of Saskatchewan (USask) computer science student—who earned more than $420,000 in awards during her doctoral studies—is among the top graduates receiving a PhD during USask's virtual 2020 Fall Convocation celebration this month.

Dr. Kimberly MacKay (PhD) will be bestowed with her third degree from USask's College of Arts and Science, after previously earning a Bachelor of Science in biochemistry in 2012 and a Master of Science in computer science in 2016.

Due to the COVID-19 pandemic, MacKay and her fellow graduates won't be able to take part in an in-person ceremony at this time. Instead, virtual convocation celebrations were planned to mark the students' achievements this year, which suits MacKay just fine.

"I am very excited to celebrate the achievements and accomplishments of my fellow graduates," she said. "Since my degree is in computer science, I find this virtual setting quite fitting."

As she worked toward her PhD in bioinformatics—a field that combines biochemistry and computer science—MacKay earned 15 academic awards, including the Vanier Canada Graduate Scholarship in 2016. The Vanier scholarship is considered to be the country's most prestigious and competitive federal scholarship for top-tier graduate students. As a recipient, MacKay was awarded $150,000 over three years from the Natural Sciences and Engineering Research Council of Canada.

MacKay, who was born in Weyburn, Sask., and educated in Saskatoon, said it was "very surreal" to find out she was a Vanier winner.

"Four years later, it is still difficult to accurately put this experience into words," she said. "Needless to say, it was one of my proudest moments during graduate school."

During her PhD studies, MacKay developed new computational tools to help scientists "see" three-dimensional genome structure in cells based on data from biological experiments. Being able to see 3D structure is important because it helps researchers understand how genomes function under normal and abnormal conditions, said MacKay. The impacts and applications of her research could span multiple areas, including medicine and agriculture, and she is particularly interested in how the tools she developed can be applied to crop improvement.

MacKay was drawn to the research taking place within the Department of Computer Science throughout her graduate studies. She noted the department provided her with a unique opportunity to study questions at the interface of agriculture, biochemistry and computer science, while learning from experts in all of those fields.

"In my opinion, there is really no better place to do this type of research," she said.

MacKay's doctoral supervisor was computer science professor Dr. Tony Kusalik (PhD), who serves as the department's director of bioinformatics. MacKay said Kusalik was "instrumental" in her success, and she is grateful for his support, guidance and meticulous editing over the years.

"Kim has been an excellent role model for students in the bioinformatics program," said Kusalik. "It is a challenging program. Kim has demonstrated just how rewarding it can be to take on that challenge."

Kusalik described MacKay as "a very determined and focused student" who had "definite goals and clear plans on how to attain them."

"She was studious and showed outstanding academic ability across multiple disciplines. She was very hard working, and put in many long hours," said Kusalik. "She was also involved in many activities—academic, administrative, outreach—and devoted substantial time and effort to all of them."

This term, MacKay is now serving as a sessional lecturer in bioinformatics and computer science at USask, teaching the course BINF 210: Introduction to Bioinformatics Applications. She also obtained full-time employment in her field shortly after completing her PhD defence and is currently working as a bioinformatics researcher at USask's Global Institute for Food Security (GIFS).

At GIFS, MacKay is applying and expanding on her PhD research, investigating how spatial information depicting three-dimensional genome structures can be used to produce better crops. She is collaborating on a variety of research projects at GIFS, Agriculture and Agri-Food Canada (AAFC), and USask.

"Overall, GIFS has been a great place to work and I look forward to continuing my research career there," said MacKay.

Shannon Boklaschuk is a communications officer in the College of Arts and Science.

CLASS OF 2020

USask graduate's vaccination research proves timely in 2020

AVERY CAMERON

After celebrating the completion of his master's degree during (virtual) Fall Convocation, Derek Cameron is now pursuing his PhD at USask.

SHANNON BOKLASCHUK

When University of Saskatchewan (USask) graduate student Derek Cameron began his studies in the fall of 2018, he couldn't have predicated how timely his master's degree research would become.

Cameron, who enrolled in the Master of Arts program in history offered through USask's College of Arts and Science, decided to research anti-vaccine perspectives—a topic that is now on the minds of many, as the world continues to grapple with the COVID-19 pandemic and scientists rush to develop vaccines to stem the spread of the disease.

Cameron was particularly interested in how homeopaths have marketed products called nosodes, which are often sold to members of the public with the claim that they can prevent certain diseases or help build immunity to them. When homeopathic nosodes came to Canada in 1987, they provided the "vaccine-hesitant" with another option to vaccination, he said.

"Over the years, alternative health and anti-vaccine activists used nosodes to criticize vaccines and present a 'risk-free' alternative. At the same time, the idea of nosodes as purveyors of natural immunity appealed to those who had already rejected vaccines, by promising to protect their children," said Cameron.

"My research used natural health magazines and the writings of prominent anti-vaccine activists to uncover this vaccine critique that has gone unnoticed by government but remains prominent in natural health communities. Government education programs did not respond and continue to ignore a prominent argument that radically alters the context of choosing whether to vaccinate."

Cameron, who has now completed his master's research, will officially receive his graduate degree during USask's virtual 2020 Fall Convocation. Due to the ongoing pandemic, Cameron and his fellow graduates will be unable to attend in-person convocation ceremonies; rather, the graduates, and their accomplishments, will be celebrated online this year.

While the pandemic has changed many things, it has also presented some new opportunities. Cameron, for example, had the opportunity this year to work on USask's COVID-19 Community Archive, which was recently created to document life in Saskatchewan during the health crisis. He worked on the digital archive along with his master's degree supervisor Dr. Erika Dyck (PhD), a USask history professor and Canada Research Chair in the History of Medicine.

During his master's studies, Cameron also undertook a research project examining the 1918 Spanish flu health crisis—considered to be one of the deadliest pandemics in history. By looking at newspapers and public health records from the time, he found that the flu came to Saskatchewan in two waves. The research, which was funded by the federal Social Sciences and Humanities Research Council (SSHRC), resulted in findings that are relevant to today's pandemic.

"Restrictions need to be sustained and sometimes reapplied. In many ways, Saskatchewan cities (in 1918) did not wholeheartedly apply mask restrictions and public gathering bans and this reduced their efficacy," he said. "At the same time, the flu interrupted public health efforts to routinize vaccination. This meant that several communities experienced a resurgence in preventable diseases, like typhoid, in the wake of the 1918 pandemic."

Cameron, who is particularly interested in public health policy, said studying the history of medicine offers him a way to explore policy ideas around vaccination and vaccine rejection. As a result, he is now pursuing a PhD in history at USask, where his doctoral thesis will be connected to his master's degree work. He is pleased to be supervised again by Dyck, whom he refers to as "a giant in the Canadian world of the history of medicine."

"Dr. Dyck was my (master's) supervisor and she was influential in directing me towards other histories of resistance and shaping my writing so that my policy concerns did not overshadow rigorous historical analysis," he said. "This is especially important as I broaden my project to explore other overlooked arguments of Canadian anti-vaccinationism."

As he pursues his PhD, Cameron will study Edda West, who is known for founding Vaccine Choice Canada in 1982. He will also explore the connections between anti-vaccine perspectives and public policy.

Shannon Boklaschuk is a communications officer in the College of Arts and Science.

CLASS OF 2020

New USask graduate Dr. Shayeb Shahariar (PhD) collects a wetland water sample in Indian Head, Sask.

SUBMITTED

Soil science PhD graduate breaks new ground in Canada

BRETT MAKULOWICH

Completing a PhD is a long and strenuous journey. Moving to a new continent to pursue your PhD, finishing your dissertation and defending your thesis during a pandemic only adds to the challenge. But University of Saskatchewan (USask) graduate Dr. Shayeb Shahariar (PhD) thrived during the experience.

Shahariar is graduating this month with a Doctor of Philosophy in Soil Science. Born in Bangladesh, Shahariar now calls Saskatoon home after moving here in 2013 to pursue his PhD.

He discovered USask while researching North American universities online. He chose USask due to its excellent soil science department and the many research opportunities that Saskatchewan offered as an agricultural production-based province. The opportunity to live in Canada was also a draw.

"Canada is culturally diverse and welcoming for international students, with free support to students and their families, such as health care, child benefits and schools," said Shahariar.

In August 2020, Shahariar successfully defended his PhD thesis, *Effects of Land-use Practice on Wetland Soil Hydrology, Salinity and Biogeochemistry in the Prairie Pothole Region*. He was supervised by Dr. Angela Bedard-Haughn (PhD), dean of the College of Agriculture and Bioresources, and Dr. Raju Soolanayakanahally (PhD), senior researcher at Agriculture and Agri-Food Canada.

Shahariar's passion for soil science is evident when he discusses it. His favourite USask class was Field Studies of Saskatchewan Soils, taught by Professor Emeritus Dr. Dan Pennock (PhD).

"This class encompasses studying different types of soil orders present in Saskatchewan and their formation, classification and environmental settings controlling soil processes within the landscape," said Shahariar. "It involved travelling and exploring soils in the boreal forest, aspen parkland and the prairie grassland."

Nature is important to Shahariar and it is reflected in his favourite memories of Canada so far. They include visiting Niagara Falls, the Rocky Mountains, the boreal forest, and seeing the northern lights for the first time.

"Canada has breathtaking nature and vast landscape to roam around," said Shahariar.

When the COVID-19 pandemic began in Canada, Shahariar had completed the field work for his PhD but was still writing his dissertation. He had to balance finishing his PhD and his family time with his sons' homeschooling due to the school closure.

He also had the unique experience of presenting his PhD defence online instead of in-person. He describes being less nervous since it was online but also found it more difficult to express himself and explain things.

Now that he is a successful PhD graduate, Shahariar has advice for PhD students and the challenges they face.

"You need dedication and a strong mindset, and support from your family to complete the journey," said Shahariar. "If you have a strong desire and fascination to be a researcher or a professor, then you can even enjoy this challenging journey, I believe. My advice to PhD students is 'just hang in there.'"

Shahariar's focus paid off and he received 10 scholarships as a USask student, including the Teacher Scholar Doctoral Fellowship and the Saskatchewan Innovation and Opportunity Scholarship. In addition to holding various positions as a sessional lecturer, teaching assistant and research coach throughout his PhD, he made time for extracurricular activities. These included student associations, helping organize the Soil and Crops Conference, and being a judge and member of the organizing committee of the Saskatoon Regional Science Fair.

Shahariar is currently working as a post-doctoral fellow in the soil science department at USask. In the future he would like to hold a faculty position. Completing the difficult work of a PhD was all made worthwhile while at USask.

"My USask experience has been excellent," said Shahariar. "During my studies, I had the chance to learn from many nationally and internationally recognized professors. The College of Agriculture and Bioresources is one of the best and most historic in North America."

Brett Makulowich is a communications co-ordinator in the College of Agriculture and Bioresources.

CLASS OF 2020

AgBio graduate blossoms in study abroad experience

Simone Roelens SUBMITTED

BRETT MAKULOWICH

Making the most of the University of Saskatchewan's (USask) study abroad program opened up a world of possibilities for Simone Roelens.

Roelens is graduating this fall with a Bachelor of Science in Agriculture, with a major in horticulture. Born in Cape Town, South Africa and raised in Saskatoon, Roelens was always aware of the opportunities available to her at USask. Her brother studied at USask before her and Roelens attended the university's Open House event for prospective students when she was in Grade 12.

"In my senior year of high school, I decided that I really wanted to have a job that would give me the opportunity to be outside as much as possible," said Roelens. "The College of Agriculture and Bioresources seemed like the best fit."

When it came time to select a subject to major in, Roelens chose horticulture.

"Horticulture seemed like a good option as it allows me the chance to work in many parts of the ag sector."

Roelens seized the opportunity to study abroad in the Netherlands in 2019, when she attended the HAS University of Applied Sciences in 's-Hertogenbosch (Den Bosch). She studied horticulture and business management and noticed differences between agricultural practices in Saskatchewan and the Netherlands.

"The biggest difference is the more extensive use of greenhouses," said Roelens. "Of course, we still have greenhouses here but that's the majority of food production in the Netherlands."

Roelens received multiple scholarships to study abroad, including the Global Engagement Scholarship, the W. Murray Riddell and Betty C. Scholarship and the Education Enhancement Grant.

Highlights of her study abroad experience included a class trip to Greece to tour olive and grape producers, side trips with new friends to countries such as the Czech Republic and Scotland, and visiting the famous Keukenhof Gardens while the tulips were in full bloom—which occurs only two months of the year.

While in Scotland, Roelens visited the Glenfinnan Viaduct, a railway viaduct on the West Highland Line that has been featured in many movies and televisions shows such as *Harry Potter* and *The Crown*.

"I learned that there are so many opportunities out there," she said. "My study abroad really opened my eyes to the many opinions and experiences that other people hold. I learned more to stay open to new ideas and to be willing to say 'yes!'."

Back on campus at USask, Roelens' favorite class was Tropical Crops of the World, taught by Dr. Helen Booker (PhD).

"It was a great intro into the many, many different crops grown in the tropics, and it was quite interactive," said Roelens, whose interest in tropical plants extends to her favourite spot on campus—the agriculture greenhouses. "The tropical section is definitely a must-see when it's full."

Reflecting on her experience in the College of Agriculture and Bioresources, Roelens said it was everything that she hoped it would be.

"I loved it! I definitely think it's one of the most fun colleges, and there are so many events and networking opportunities," she said. "I feel like the college is very good at helping students find employment and summer experience, as well."

Roelens has already secured employment. She is currently working for an agricultural company, landscaping and developing online learning resources on topics such as aquaponics and sustainability. In the future she would like to open a flower shop.

Roelens' future is bright and her time in AgBio at USask served her well.

"I learned to be confident in my decisions and to take advantage of the opportunities offered to me."

New USask graduate Simone Roelens at the Glenfinnan Viaduct in Scotland, during her study abroad experience while completing her Bachelor of Science in Agriculture. SUBMITTED

Brett Makulowich is a communications co-ordinator in the College of Agriculture and Bioresources.

CLASS OF 2020

Marie Grace Nirere HADIDJA UWAMAHORO

From Rwanda to a world of opportunity for USask student

MEGAN EVANS

For Marie Grace Nirere, the decision to move to Canada for a graduate degree in the University of Saskatchewan's (USask) School of Environment and Sustainability (SENS) was a difficult one.

Pursuing a master's, which she said is the key to a brighter future for her and her family, paradoxically meant leaving her loved ones back home in Rwanda. Nirere was nine years old at the time of the Rwandan genocide against the Tutsi, and while the country is now stable, an international education is not an option most Rwandans can pursue because of the expense.

When the married mother of two arrived in Saskatoon alone, she quickly realized that completing the program and setting up a life in Canada on her own would be more difficult than she had imagined.

"The city is so quiet and nice. But also, everything seemed new, scary, and weird," said Nirere. "For instance, the administrative process of getting a social security number, health care, a bus pass—there was a lot of pressure. Additionally, my first class in SENS was really challenging because I could not understand most of our lecturers' pronunciation."

Despite the challenges, she persevered. She made friends in her cohort, solved the logistical problems that come with an international move, began working part-time, and settled into a routine. Then, the pandemic happened.

"My family is everything to me," said Nirere. "It's been very hard to be separated from them, especially with COVID. When something like this happens, you want to be with your children. I can't protect them from here. But my friends remind me that I am here studying and working to make their life better, and I keep going. My husband is incredibly supportive of me and we talk almost every day."

Nirere was surprised by the outpouring of support she received from the SENS community in the early months of the pandemic.

"I couldn't believe that my supervisor [Dr. Helen Baulch (PhD), associate professor in SENS and the Centennial Enhancement Chair in Aquatic Ecosystem Biogeochemistry] was offering to help me with grocery shopping and checking in on me. My professors were checking to make sure I had internet access and that kind of thing. That really says something about the kind of people here."

With support from faculty and friends, Nirere's drive and determination paid off.

"I had only one question in my head: how am I going to finish this program? It was very challenging for me in the beginning," she said. "But as I talk to you now, I will officially graduate with my master's degree in sustainable environmental management (MSEM)."

Nirere officially marks her graduation during USask's virtual Fall Convocation celebration.

After one year in Canada, French-speaking Nirere is now employed as a project co-ordinator at the Saskatchewan African Community of Francophones (La Communauté des Africains Francophones de la Saskatchewan Inc.), where she helps newcomers settle, integrate, and adapt to their new Canadian lives.

She has plans to put her MSEM degree to work within the organization, spearheading a community gardening project for French-speaking Africans in the province, with the hope that the garden would provide them with the opportunity to build community while growing their own produce.

"Grace is among the most determined, dedicated, and professional people I have worked with," said Baulch. "The pandemic changed everything, and she just dug into what needed to be done. Her progress this year has been incredible to watch. Grace is a shining example of what can happen when personal resolve and community support turn challenges into opportunities."

As for her future now that she's graduated, Nirere's outlook is bright.

"My degree from the University of Saskatchewan means I can get a good job," she said. "I would love to work and live here in Saskatchewan, and we will have to see what happens. There are important problems to solve everywhere in the world, but we will need participation and involvement from everyone to make this world a better place. My problem might be different from yours, but we must consider each other. We are all connected, we share the same blood."

Megan Evans is a communications specialist in the School of Environment and Sustainability.

Marie Grace Nirere came from Rwanda to Canada to complete her master's degree in USask's School of Environment and Sustainability. HADIDJA UWAMAHORO

International student savours success in master's program

MEGAN EVANS

Shashank Kumar's smile is contagious, his optimism, relentless. He credits this outlook to his parents, who instilled in him the philosophy that a positive attitude (no matter how tedious or unpleasant the task at hand) is the key to enjoying what you do.

"How do you want to approach work you don't like? You cry while you do it, or nag yourself? That doesn't make any sense," said Kumar, an international student at the University of Saskatchewan (USask) who officially marked the completion of his master's degree during the virtual Fall Convocation celebrations. "Any time I start a project, I try to see the fun in the problem, or the humour in the details. This keeps me motivated."

SUBMITTED

Shashank Kumar came from India to Canada to complete a master's degree in USask's School of Environment and Sustainability.

With an undergraduate background in electrical engineering and a master's degree in nuclear science obtained in India, Kumar decided to move to Saskatoon in order to pursue USask's Master of Sustainable Environmental Management (MSEM), a one-year professional degree program in the School of Environment and Sustainability (SENS).

"I had already been to Saskatchewan for my master's project in nuclear science. There are fantastic facilities here. The MSEM program offered me the opportunity to add in the human dimension when solving important world problems. Without a sustainability lens on any issue, most times the solution misses the point. You end up having to solve the problem again, a second or third time."

Kumar was hoping to apply his nuclear science background to uranium issues in Saskatchewan, but when the opportunity to work on the Saskatchewan River Delta arose, he was eager to do something to help. Back home in the mountainous region of India, Kumar tended to a wide variety of fruit trees, so a project focused on finding a constructive use for an invasive grass species was a good fit.

"Whatever I am doing, I'm focused on the outcome for community and society. I want to solve problems that matter, and I want to help people," Kumar said. "I love new ideas and testing them. But not just any ideas. Thoughtful, sustainable ideas. I will never be finished learning."

Despite the twists and turns of 2020, Kumar remains positive in the face of disappointment.

"I really wanted to participate in the convocation ceremony, because I have completed my degree from a very good university in Canada, and I wanted to celebrate in that way. COVID means that my family cannot come here and see me graduate, and I cannot go to see them, either. But still, I have the degree, and I can go visit my family, hopefully soon."

Now that he's graduated, Kumar wants to focus on entrepreneurial endeavours for water conservation.

"I want to introduce my startup, which is focused on switching from regular toilets to bidets. One roll of toilet paper requires 37 gallons of water to process. Think of the water we could save if we reduced our consumption that way," he said. "But this will require changing attitudes, whether about climate change or hygiene. It will require some convincing, but I am excited about this work."

"Shashank has a great blend of knowledge and skills to be able to tackle some of the biggest environmental challenges in the world," said Dr. Graham Strickert (PhD), a SENS professor who taught Kumar. "He is one of those people who will change the world for the better."

Megan Evans is a communications specialist in the School of Environment and Sustainability.

LOLEEN BERDAHL
Master Teacher Award

Dr. Loleen Berdahl (PhD) is an inspiring undergraduate and graduate teacher, who now serves as the executive director of the Johnson Shoyama Graduate School of Public Policy at the University of Saskatchewan (USask).

The former head of the Department of Political Studies in the College of Arts and Science, Berdahl's teaching philosophy is grounded in her belief that she is educating future citizens. She fosters a student-driven active learning environment that challenges her students to look beyond the basics by connecting course material with current events. In doing so, her students explore different ideas and opinions in ways that equip them with critical thinking and problem-solving skills.

Prior to entering academia, Berdahl worked in the non-profit sector and often hired new USask graduates. While there, she recognized challenges that many faced when transitioning from student to employee. Since starting at USask, she has sought to address those gaps by incorporating career readiness in her curriculum. Berdahl has inspired her colleagues to do the same, exemplifying a spirit, culture and practice of teaching excellence within the university and outwardly to Canadian political science communities.

Beyond her extensive research, Berdahl is the recipient of four teaching awards, including her discipline's national teaching honour, the Canadian Political Science Association's Teaching Excellence Award. She is also a Faculty Fellow with the Gwenna Moss Centre for Teaching and Learning, and her Graduate Transformative Skills project will inform the redesign of USask's graduate career skill training programs.

KIRSTEN HOOPER
President's Medal

Dr. Kirsten Hooper (DMD) is this year's recipient of the University of Saskatchewan's (USask) prestigious President's Medal.

The College of Arts and Science student had the highest academic average in completing her Bachelor of Science degree in biochemistry, with great distinction.

Hooper moved to Saskatoon from Winnipeg in 2013 to begin her studies at USask. While working toward her undergraduate degree, she was accepted into the College of Dentistry, where she also completed her Doctor of Dental Medicine in 2020.

She believes in the importance of maintaining a healthy work-life balance by taking time to include the things that enrich and fulfil us personally. Having a passion for running, Hooper was a member of the Huskies women's track and field team while studying in the College of Arts and Science.

She also enjoyed several recreational activities, including hockey, skiing, golfing and ultimate frisbee. Participating in these extracurricular activities contributed to her success at USask and inspired her to pursue a career as a dentist. As well, one of her favourite summer jobs was working as a Sci-Fi camp counsellor, inspiring children through science at the university.

"As a dentist, I have an opportunity to combine art with science to help my patients improve their oral health through health management and prevention," she stated. "The knowledge and skills I acquired during my Bachelor of Science in biochemistry became the foundation for my career in dentistry."

SENS researcher studying microplastics in surface water

University of Saskatchewan researcher Dr. Markus Brinkmann (PhD) collects samples in the South Saskatchewan River at the Outlook Regional Park. JULIANE SCHULTZ

MEGAN EVANS

How big of a problem is the issue of microplastics in our surface water?

University of Saskatchewan (USask) researcher Dr. Markus Brinkmann (PhD) is determined to find out.

"Most of our food today contains some small amount of plastic," said Brinkmann, an assistant professor at USask's School of Environment and Sustainability (SENS). "Whether it's from yogurt cups or synthetic tea bags, there is some plastic in human food and potentially even in our water supply."

In one of a number of water quality research projects he is working on, Brinkmann has partnered with the South Saskatchewan River Watershed Stewards (SSRWS)—a non-governmental organization focused on initiatives that help educate people about water quality and the impact of our actions on the environment—and the City of Saskatoon to determine levels of microplastics that are draining into local river systems.

Kerry Lowndes, watershed co-ordinator with SSRWS, understands that making environmentally friendly consumer choices can be difficult. Lowndes said the convenience of using plastics in society has created a new environmental challenge.

"This project has been invaluable, because if there is one thing I want people to take away here, it's for people to put microplastics on their radar," Lowndes said. "Microplastics from recycled and synthetic materials can end up in our water supply through the washing machine and then you find out you could be part of making the problem even bigger. Once we know what the problem is, we can manage it. We can't fix what we can't see."

Brinkmann suspects that any side-effects suffered by humans ingesting plastic are minimal compared to the consequences of these microplastics and fibres ending up in wildlife populations.

"Microbeads, which were widely used in cosmetics and personal care products, are now banned in Canada. But for exposed animals, microbeads might not have been the biggest problem, as they are shaped in such a way that they might more easily pass through an animal's digestive tract," he said. "Synthetic fibres and smaller debris particles might put animals at risk of clogging, tearing, or rupturing their intestinal tracts. This is especially true as you move up the food chain, where larger animals are processing larger volumes of these unnatural particles and fibres."

Microplastics can also wind up in the agricultural supply since the sludge from many wastewater treatment plants is used as fertilizer. There are few studies into the potential transfer into the human food supply, and the associated risks are poorly understood.

"What are the risks or side-effects of this? That is an important area for future study, because we are not sure. This is currently an environmental hygiene issue," Brinkmann said. "We are just beginning to understand how widespread this problem is. We have to make sure that if we're using plastics, we do it properly."

Brinkmann's project partner is Dr. Tara Kahan (PhD), associate professor and Canada Research Chair in Environmental Analytical Chemistry at USask, whose research group is analyzing the chemical composition of the microplastics to help determine whether the toxicity depends on where they come from.

"Interdisciplinary collaborations can be very powerful when faced with complex environmental issues such as this one," Kahan said. "Combining physical characterization of microplastics with toxicological studies and chemical analysis will help us understand the risks microplastics pose to environmental health in Saskatchewan."

Dr. Markus Brinkmann (PhD)

Brinkmann's previous toxicology research has ranged from studying levels of pharmaceuticals washed into surface water to determining whether COVID-19 can be detected in sewage samples. This new project will allow the City of Saskatoon to consider what adjustments need to be made, and for the watershed stewards to continue their public education campaign regarding harmful microplastics. With more funding, Brinkmann hopes to extend this research to gain a better understanding of the risks to wildlife.

At this point, sampling has been limited to water from the South Saskatchewan River and storm ponds within Saskatoon. In the future, Brinkmann plans to also sample mussels and fish to understand the potential impacts of microplastics on those groups.

"The City of Saskatoon is pleased to support this project through our Environmental Grants Program, especially because of the collaboration between local organizations involved," said Katie Burns, manager of community leadership and program development for the City of Saskatoon. "The Government of Canada is currently engaging on an integrated management approach to plastic products, which identifies roles for all levels of government, plastic producers, recyclers, and residents in achieving zero plastic waste and eliminating plastic pollution.

"The City of Saskatoon is participating because knowing the extent of microplastics in our watershed and educating residents about the effects of microplastic pollution will help set the stage in our community for upcoming new initiatives from the federal government, such as banning or restricting certain single-use plastics or new end-of-life programs where companies are responsible for the collection and recycling of plastic products they manufacture, import or sell."

Megan Evans is a communications specialist in the School of Environment and Sustainability.

Huskie heralded as blue-chip CFL prospect

Huskies defensive back Nelson Lokombo, a student in USask's College of Kinesiology, was named the defensive player of the year in the country in 2019.

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JAMES SHEWAGA

Nelson Lokombo may be on the fast track to the Canadian Football League (CFL), but the defensive player of the year in the country is also already preparing for life after football.

The 21-year-old U Sports All-Canadian defensive back with the University of Saskatchewan Huskies football team is ranked 14th overall in the CFL Scouting Bureau's Top 20 list of the top prospects for the 2021 CFL draft.

"Obviously when you make the list, it's a great accomplishment and I am proud of that," said Lokombo, who became only the second player in Huskies history to be named the top defensive player in Canadian university football in 2019 in just his third season. "It was pretty cool to see and I am hoping that I can move a little higher up the list, but it's good to see where they have you ranked amongst some of Canada's best prospects. The University of Saskatchewan and playing with the Huskies have been amazing, so I am hoping to build on that and see where it takes me."

Lokombo looks poised to join his older brother Bo—a member of the Toronto Argos—in the CFL in the next year or two. But he is also determined to finish what he started at USask, currently taking a mix of second and third-year courses as he works towards completing a four-year Bachelor of Science in Kinesiology.

"I wanted to go into kinesiology because my goal has always been to become a physiotherapist, so that is something I want to do after playing professional football," said Lokombo, who studied in the College of Arts and Science for before transferring into kinesiology last year. "When I committed to the University of Saskatchewan, getting an education was just as important as football. It's something that I have talked about with my mom a lot and no matter what happens (in the CFL), I want to continue to get my degree for sure."

For now, Lokombo is studying remotely, taking online kinesiology classes and training back home in Abbotsford, B.C., with his older brother, now a six-year CFL veteran. It was a difficult decision for Lokombo not to return to Saskatoon to rejoin his Huskie teammates, many of whom have been taking part in limited fall practices—following health and safety guidelines—after the 2020 season was cancelled due to the ongoing pandemic.

"It was very disheartening to learn that we couldn't play this year. COVID really changed everything," said Lokombo, who has been keeping in touch with some of his Huskie coaches and teammates, even watching video of practice from afar. "You miss your teammates and coaches. But for me, this was also a good opportunity to be with my family this year and still go to school online and to have the chance to train with my brother and learn from him to prepare for the CFL."

After setting a Huskie record in 2019 by amassing 197 return yards on four interceptions—including running two back for touchdowns—Lokombo has shown he is a prime prospect to play professionally, according to Huskies head coach Scott Flory. Interestingly, Lokombo was Flory's first official recruit when he was hired in 2017.

"Upon being named head coach of the program, one of my biggest priorities was finding elite talent for our coaches to develop," said Flory, who played 15 seasons in the CFL prior to becoming a coach. "In my opinion, Nelson was one of the best athletes I had come across and after we spoke for the first time, I was immediately impressed by him.

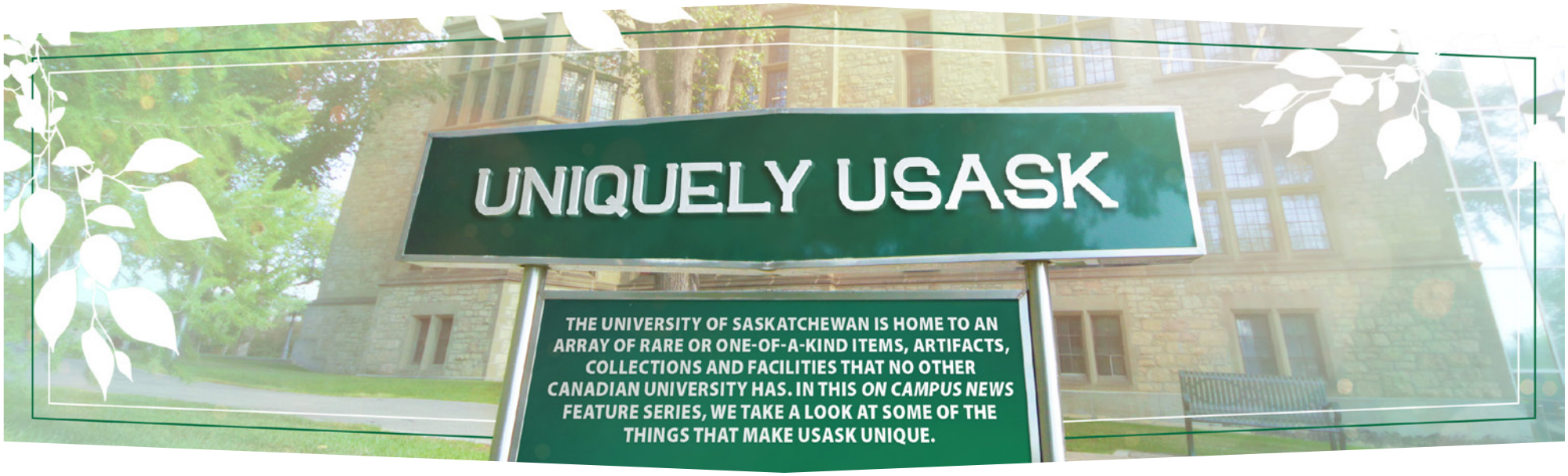
"I could see his ability to play from his film, but it is all the intangibles that make him the premier football player that he is. He's a phenomenal teammate and leader for us. It's not easy to be a professional athlete, but I know Nelson has what it takes to succeed at the next level. What he showed in 2019 by winning the Presidents' Trophy, as the best defensive player in the country, is only the tip of the iceberg. I couldn't be more proud to have him with our program."

While he is anxious to return to the football field in 2021, for now Lokombo is focusing on his off-season workouts and his online classes, having quickly adjusted to remote learning this term.

"I've been in a few online classes before, so this is OK for me," he said. "The one challenge with online classes is you just have to stay on top of your work, or else you can fall back because everything is done on your own time. But right now, it is going pretty good for me.

"As for next year, we will have to see what happens with the CFL and with university sports. Right now I am not worried about it, but playing in the CFL has definitely been a goal of mine, so it would be nice to have that opportunity in the future."

SEASON CANCELLED: On Oct. 15, the Canada West conference cancelled men's and women's basketball, hockey, volleyball and wrestling seasons for 2020-21, with a decision on track and field pending. Back on June 8, the conference cancelled all fall term sports, including football and soccer. While league play and national championships will not be held, Canada West schools were approved to explore local exhibition games, while observing COVID-19 health and safety guidelines.



COBALT-60 TREATMENT AT USASK MADE MEDICAL HISTORY

JAMES SHEWAGA

Next year marks a special 70-year anniversary for the University of Saskatchewan (USask), when researchers made medical history on campus and began a tradition of world-leading innovation that continues to this day.

Turn back time to 1951, when a team of remarkable researchers led Dr. Harold Johns (PhD) became the first in the world to build a cobalt-60 radiation therapy unit and the first to also successfully treat a cancer patient using the revolutionary treatment that would help save millions of lives around the world. That first cancer patient—a 43-year-old mother of four suffering from cervical cancer—would go on to live until the age of 90, with the original cobalt-60 unit used to treat 6,728 more patients over the next 21 years.

Johns' original research team on the cobalt-60 unit—dubbed the "cobalt bomb" by members of the media—included graduate student Sylvia Fedoruk, a pioneering figure in medical science who would later become the university's first female chancellor in 1986 and the province's first female lieutenant-governor in 1988. Fedoruk conducted the calibration of the unit, an 11-week process to define the precise radiation depth-dose measurements to treat cancer tumours.

"It is just a wonderful story and I think it's fulfilling to feel that I was around for the start of it all," said Fedoruk, in an interview for *Cobalt-60 at 60: The Legacy of Saskatchewan's Innovative Cancer Treatment*.

Fedoruk's role in making medical history is also documented in the new biography, *A Radiant Life*, by USask historian Dr. Merle Massie (PhD).

The original cobalt-60 machine is now on a permanent display in Saskatoon's Western Development Museum, a tribute to one of the first of many contributions the university has made to advancing medical research over the years.

"With its flair for trend-setting performance in medicine, Saskatchewan had led the way," Fedoruk and Dr. Stuart Houston (MD) wrote in their 1995 book, *A New Kind of Ray*.

USask's history of medical marvels helped lay the foundation for future innovation and research the world needs that continues today on campus at the Canadian Light Source (CLS) and the Sylvia Fedoruk Canadian Centre for Nuclear Innovation. The Fedoruk Centre oversees use of the university's cyclotron—at the Saskatchewan Centre for Cyclotron Sciences—which produces medical isotopes for the province's first PET-CT scanner that is used in cutting-edge cancer treatment. Meanwhile, the CLS—home to the country's only synchrotron—employs a linear accelerator for research into producing medical isotopes for diagnosis and treatment.

The Cancer Bomb exhibit—Cobalt-60 at 60—officially opened on Dec. 4, 2011 with dignitaries from USask, the Saskatoon Western Development Museum, and the Saskatchewan government.