



SYNCHROTRON SURVEYOR

As the social scientist in residence at the Canadian Light Source, Carin Holroyd is undertaking an international survey of synchrotron scientists to better understand attitudes regarding the commercialization of synchrotron-enabled science. The project will focus on scientists' views regarding investments in science and perspectives on how governments can better support the commercialization of scientific work. See Page 7 for full story.



LESLEY PORTER

Government makes mid-year budget reduction

University leaders plan for 2015-16 funding adjustments

✍ KRIS FOSTER

The U of S recently received notice from the Government of Saskatchewan of a one-time budget adjustment of \$9.8 million to its 2015-16 annual grant.

"The province advised us that in order to meet government expenditures for the current year, they had to make mid-year adjustments that affect the university," said Greg Fowler, vice-president finance and resources. "So there are three things that we were advised of."

The first, Fowler explained, is a one-time deferral of \$1.35 million towards the Canada Excellence Research Chair in Water Security, a seven-year funding commitment by the Government of Saskatchewan that has two years remaining. "This payment has been deferred to another year," explained Fowler.

The second component, the vice-president continued, is a one-time reduction of \$560,000 to the Saskatchewan Innovation



Fowler

and Opportunity Scholarship.

"We are filling in that funding, obviously, because it is important to support scholarships at the university," said Fowler. "But we have heard, and we believe, it is the government's intentions to restore this funding annually."

The third, final and largest component of mid-year budget adjustments from the govern-

“ We have emphasized that continual financial pressure coming from three directions at once—a reduced operating grant, a reduction of our reserves, and restrictions on our capacity to raise other revenue—is not sustainable.

Greg Fowler

ment is a reduction of \$7.9 million to the university's capital grant.

"The larger piece, and the more concerning part, was the reduction of \$7.9 million of our capital grant," explained Fowler. "Our capital grant is made up of things like preventative maintenance and renewal, and support for the health sciences project."

The next step, Fowler said, is for the university's leadership team to meet with the Board of Governors at its December 14-15 meetings and "recommend how to offset this funding reduction

with as little as possible impact to the university. Once the board has approved this, we will advise our community how we are proceeding with this one-time adjustment."

Fowler explained that while the university is well positioned to weather these short-term, one-time reductions to funding because of reserves and prudent financial management, this pattern of cuts is not sustainable in the long term. He noted that these most recent reductions come on the heels of the government's one-time hold back of \$20

million of the U of S operating grant when the provincial budget was announced in March 2015.

While the university understands the province's current financial situation and wants to do what it can to support the province, he continued, "we have emphasized that continual financial pressure coming from three directions at once—a reduced operating grant, a reduction of our reserves, and restrictions on our capacity to raise other revenue—is not sustainable."

Fowler stressed, however, that these one-time reductions are not cause for immediate concern and that he does not foresee any job loss.

"These changes to our budget will not affect our current operations. Following our meeting with Board of Governors in December, we will have more information to share with the campus community." ■

Farmer-backed university research unleashes power of pulse crops

MICHAEL ROBIN

2016 has been designated as International Year of Pulses by the United Nations to heighten awareness about the crops' benefits in terms of nutrition, sustainable food production and food security. Saskatchewan is a lead player.

The centre of it all

Farmer-driven research and development has been the hallmark of pulse crop production in the province since the first varieties were developed at the University of Saskatchewan's Crop Development Centre (CDC) 40 years ago.

"In terms of research excellence, the pulse crop research and breeding group is now one of the most successful programs in the world," said CDC Managing Director Kofi Agblor. "The U of S is a major partner in both chickpea and pea genome sequencing initiatives and is the lead for the lentil genome sequencing initiative."

Since the 1970s, the CDC has developed dozens of varieties of pea, lentil, chickpea, dry bean and faba bean. Advanced genomics-based tools such as marker-assisted breeding will hasten development even more.

A producer levy, administered through the Saskatchewan Pulse Growers (SPG), provides strong support for crop research and a critical link to farmer priorities.



Crop Development Centre researchers Bert Vandenberg and Kirstin Bett examine a lentil plant in the U of S phytotron growth chambers.

"Disease resistance and weed control certainly are very important for the growers," said U of S plant sciences Professor Bert Vandenberg. "We also focus on seed quality—size, color, shape—because pulses are primarily an export crop and our international customers have very specific preferences. Processing quality is also a priority."

Current research is also looking at improved nitro-

gen-fixing capabilities to enhance soil fertility, nutritional value of the end crop and enhanced yield. Here, genetic diversity is crucial.

Vandenberg and fellow CDC researcher Kirstin Bett are developing genomic tools to identify and incorporate genetic diversity for lentils. Their work is backed by Genome Canada, Western Grains Research Foundation (WGRF), SPG, Saskatchewan's Agriculture Development Fund



An Ethiopian farmer and U of S nutrition researcher Carol Henry examine samples from his haricot bean crop.

(ADF) and organizations such as the Global Crop Diversity Trust.

Near and far

Genetics may also help farmers grow chickpeas more easily for an expanding and lucrative North American market. CDC researcher Bunyamin Tar'an is part of an effort to incorporate genetics from wild relatives of the chickpea. The project, funded through the U.S. Agency for International Development, is led through the University of California-Davis.

Tar'an is chasing traits such as stress tolerance, yields and nitrogen-fixing capacity with the aim of producing varieties that can grow further north, into Saskatchewan's dark brown soil

zone. The work is supported by SPG, ADF and WGRF.

SPG numbers show the province's farmers produce more than three-quarters of Canada's field peas, 96 per cent of its lentils, and 99 per cent of its chickpeas.

While the province's pulse crops find their way onto dinner plates around the world via export, Saskatchewan expertise is also helping families halfway around the world feed themselves, earn income and preserve soils.

Researchers from the Colleges of Agriculture and Bioresources, Pharmacy and Nutrition and the Department

See *Outreach*, Page 9

As we head into the holiday season, I want to take a moment to thank our campus community for all you do to make this such a wonderful place to be. I know 2016 is going to be a great year for our university, and I look forward to seeing all we can accomplish.

Wishing you a *happy holiday* season and all the best in 2016.

Peter



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Law and Indigenous resource development: Africa and Canada

MICHAEL ROBIN

When it comes to natural resource development, governments and companies have traditionally held most of the power, but according to Ibironke Odumosu-Ayanu, communities around the world are demanding—and sometimes getting—a seat at the table.

“It’s becoming more prevalent wherever extractive companies go,” said Odumosu-Ayanu, an associate professor in the College of Law. “Often they have the legal license to operate from the government but some also seek a social license to operate. Some companies understand that having a legal piece of paper alone might not necessarily get them what they want.”

Odumosu-Ayanu, who grew up in Lagos, Nigeria, one of the world’s largest cities, specializes in the legal frameworks surrounding resource extraction. She became interested in oil and gas law while completing her first law degree.

“Of course in Nigeria there is an enormous amount of oil and gas and it’s always in the news—that’s how the government makes most of its money. A lot of us (law students) were

attracted to it,” she said. “That was the attraction to Calgary as well.”

Odumosu-Ayanu completed her master’s degree at the University of Calgary and PhD at the University of British Columbia before joining the U of S in 2008.

Of particular interest to her is how resource development can evolve from a government-company dialogue to a three-way discussion that includes people whose communities would be affected by development. Her work is funded through the Social Sciences and Humanities Research Council of Canada.

Communities have used civil disobedience to shut down operations, preventing the company or their government partners from making money. But a powerful tool, said Odumosu-Ayanu, is communications and the power of the internet.



Ibironke Odumosu-Ayanu, associate professor in the College of Law.

MICHAEL ROBIN

“It’s the power to name and to shame,” she said. “We can say, ‘this is what this company is doing here and it’s not right.’ It becomes news everywhere and the company doesn’t want that.”

This power, along with other factors, has helped bring companies and governments to the table to work with communities and sign agreements with them. Odumosu-Ayanu is interested in “community development agreements” in various West African countries such as Ghana, where groups of communities get together with a

company to negotiate what they will receive in return for their co-operation and endorsement.

“Of course in Nigeria there is an enormous amount of oil and gas and it’s always in the news—that’s how the government makes most of its money.”

Ibironke Odumosu-Ayanu

This can include infrastructure such as clinics and schools, as well as a commitment to employ local people—but it is

difficult to tell, seeing as many of the agreements are highly confidential. She is also interested in other types of contracts that may involve communities affected by natural resource extraction.

With respect to agreements, Canada’s Indigenous peoples have an advantage over their African counterparts, she explained. In the past few decades, the rights of Indigenous peoples have increasingly been recognized under international law.

Odumosu-Ayanu explained that some of the people of the oil-rich Niger Delta argue they are Indigenous people whose rights should be recognized accordingly. The Nigerian government has consistently refused, arguing in part that all Nigerians are Indigenous.

In contrast, Canada’s Indigenous people were clearly the first inhabitants of North America and recognized as such by such legal documents as treaties with various First Nations across the country.

“I think Indigenous peoples in Canada are a lot more active in terms of their relationship with the law,”

See *Community*, Page 10

The next energy boomtown of the Prairies

U of S grad student studying energy sector receives \$150,000 scholarship

FEDERICA GIANNELLI

University of Saskatchewan graduate student Sandra Moore has been awarded a \$150,000 Vanier Canada Graduate Scholarship to examine how southwestern Saskatchewan communities are being affected by energy development and how they can avoid boom and bust cycles.

Moore, a PhD student in the U of S School of Environment and Sustainability (SENS), will conduct a multi-year examination of the economic, social and ecological costs and benefits of oil and gas development in Maple Creek and the traditionally agrarian-based region.

She said that continued growth in Saskatchewan’s energy sector presents new prospects and challenges for rural communities such as Maple Creek, which is poised to become the next energy boomtown on the Prairies due to its proximity to the Bakken oil fields.



U of S graduate student Sandra Moore.

STACEY STEELE

“My research could help other communities in the United States and Canada make informed decisions about natural resource management and manage economic changes before they happen,” Moore said.

Moore will join a multi-disciplinary team of U of S researchers in a long-term study of community adaptation in the region, and her research will be a critical dimension of that assessment,

said David Natcher, Moore’s supervisor and a professor in the College of Agriculture and Bioresources’ Department of Bioresource Policy, Business and Economics.

“The findings of this new research will provide a broader assessment of the impacts of resource development on agrarian communities in Western Canada and in the Great Plains region of North America generally,” Natcher said.

Moore’s love for researching how communities adapt to socio-ecological change is a common thread in her background.

After earning her bachelor’s degree in anthropology, Moore worked with non-governmental organizations (NGOs) in Canada and Ethiopia in community development, and pursued a master’s degree in international community

development in Canada.

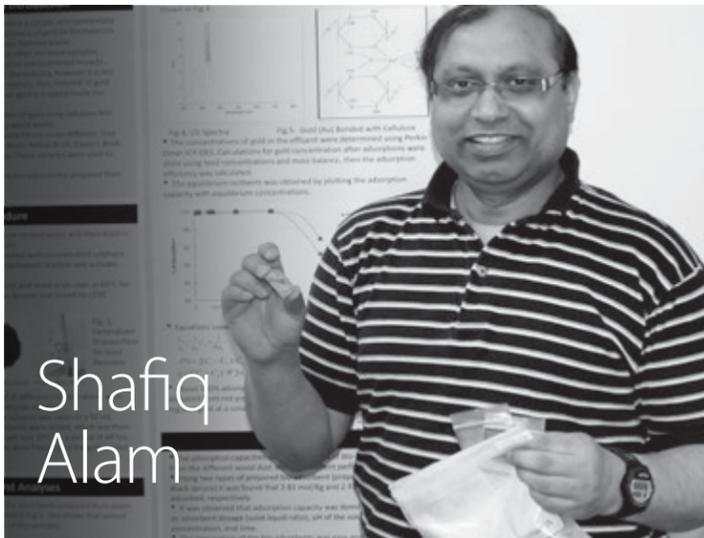
Her final project took her to the remote Pacific island of Vanuatu, where she worked with a local NGO that provided youth with business and employment readiness training.

The scholarship, administered by the federal Social Sciences and Humanities Research Council (SSHRC), recognizes outstanding students who have demonstrated academic excellence, research potential, and leadership skills.

“This prestigious scholarship helps us attract and retain world-class doctoral students who as Vanier Scholars gain the expertise and experience to become tomorrow’s leaders,” said Karen Chad, U of S vice-president research. ■

Federica Giannelli is a graduate student intern in the U of S research profile and impact unit.

NEW TO US



Shafiq
Alam

Shafiq Alam got an earlier start than most to life on campus.

Alam, an associate professor in the Department of Chemical and Biological Engineering, grew up at Bangladesh Agricultural University where his father was director of planning. There, he was exposed to engineering at a young age, growing up with what was then a new university.

"I saw how engineers constructed buildings, roads, bridges and powered the facilities by constructing electrical networks," he recalled. "Those things inspired me. Although I did not understand how any of the engineering works, I learned from my father that engineering is an interesting, challenging and well-paid profession."

A top-ranked student with an aptitude for math, Alam pursued chemical engineering at Bangladesh University of Engineering and Technology. After graduating, he worked in the oil and gas industry for seven years, but the lure of academia drew him to graduate studies in the United Kingdom and Saga University in Japan, where he completed his MSc and PhD.

Alam's career in Canada has taken him from the Universities of British Columbia and Toronto—with a few years in industry in Mississauga, Ont., and a stint back in Japan on an NSERC fellowship—to Fluor Canada in Vancouver before landing at Memorial University in Newfoundland. There, he established his hydrometallurgy research base before coming to the U of S in 2014.

Alam is interested in developing alternative and environmentally friendly technologies to recover metals through hydrometallurgy—the use of water-based solutions on ores, concentrates and recycled or residual materials. Mine site pollution control is also a focus, particularly the use of bioadsorbents or organisms to remove or neutralize pollutants from contaminated sites. Acid mine drainage and waste treatment in the mining and mineral processing industries are also of interest, as are chemical process modelling, simulation and optimization, bioleaching and biosorption of metals and chemical process flowsheet development.

Saskatchewan's wealth of natural resources and industry activities align well with Alam's research interests, factors that helped draw him to the province. His extensive industry and academic experience has made his expertise a key component in developing a mining option for students in the College of Engineering.

"Recognizing the need for sustainable development for mining and mineral processing industries in this province, I am interested in developing novel process technologies for economic advantage, environmental stewardship and societal care," he said. ■



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New agriculture chair in feed research named

A new U of S research chair in feed processing technology will create new opportunities for the agri-food sector.

Rex Newkirk, appointed the Saskatchewan Ministry of Agriculture Endowed Research Chair in Feed Processing Technology on Nov. 1, will work to develop improved feed and pet food products, new markets for Saskatchewan-grown crops, and profitability for the agriculture sector.

Housed in the College of Agriculture and Bioresources, Newkirk said he is looking forward to working with industry and government to add value to ingredients and feeds.

"The Department of Animal and Poultry Science has a great reputation for practical value-added research, and I hope to continue and build upon that tradition through our work at the new Canadian Feed Research Centre in North Battleford," said Newkirk, who completed his bachelor's and master's degrees and doctorate at the U of S.

Prior to becoming the feed processing technology chair at the U of S, Newkirk was the vice-president, research and innovation, at the Canadian International Grains Institute in Winnipeg and an adjunct professor in the Department of

“As the research lead for the U of S Canadian Feed Research Centre, he will drive integrating crop characteristics with processing features and nutritional availability in desirable end products.”

Mary Buhr



Newkirk

Animal and Poultry Science at the U of S.

In this new position, Newkirk will collaborate with researchers from across campus, including in the Department of Animal and Poultry Science, the Crop Development Centre, Prairie Swine Centre and the Western College of Veterinary Medicine.

"Professor Newkirk is globally renowned in the processing of a wide variety of crop products to provide a myriad of end products," said Mary Buhr, dean of the College of Agriculture and Bioresources. "As the research lead for the U of S Canadian Feed Research Centre, he will drive integrating crop characteristics with processing features and nutritional availability in desirable end products."

"Our government recognizes that in order to grow the agriculture industry, we need to make strategic investments into research and innovation," Saskatchewan Minister of Agriculture Lyle Stewart said. "We are pleased to support the feed research chair and look forward to following Professor Newkirk's achievements as the new research chair in feed processing technology." ■

ON CAMPUS NEWS

On Campus News is published 18 times per year by University of Saskatchewan Marketing and Communications. It is distributed to all U of S faculty, staff, graduate students and members of governing bodies, as well as to others in the university community, related organizations, some Saskatchewan government officials and news media.

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On Campus News aims to provide a forum for the sharing of timely news, information and opinions about events and issues of interest to the U of S community.

The views and opinions expressed by writers of letters to the editor and viewpoints do not necessarily reflect those of the U of S or *On Campus News*.

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Picturing mental health

Photo contest captures what mental health looks like to campus community

As part of the Picture Your Mental Health Photo Contest, 75 students, staff and faculty submitted 90 images that picturesquely show what they do to look after their mental health. Almost 800 staff, faculty, students and alumni voted 1,728 times for their favourite pictures. The winners are...

FIRST PLACE: TRANQUILITY

Submitted by: *Hridaynath Bhattacharjee* (graduate student, Department of Chemistry)

Tranquility is state of mind where you only think about inner peace. It heals and nourishes the mental health.

The Latin inspired rhythms and fun atmosphere is just the thing I need to meet new people, feel good about myself and even combat the winter blues! It's an incredibly fun way to be active and keep mentally and physically fit. Dance on everyone!

2 BOOK WORM

Submitted by: *Rayna Anderson* (undergraduate student, College of Agriculture and Bioresources)

Soaking up some rays and taking a break from my favorite hobby is a great way to pass free time after work during the summer. Escaping into another world and becoming invested in the lives of compelling characters is a wonderful way to forget about everything that is causing stress in my life.

3 MY THERAPISTS

GILBERT AND EMERSON

Submitted by: *Leanne Mathieson* (undergraduate student, College of Arts and Science)

Who wouldn't find their minds calmed by these adorable fluff balls? Just looking at or stroking them immediately takes me to a better, much happier place!

4 A MOO-VING REMINDER

Submitted by: *Shannon Palmer* (undergraduate student, Western College of Veterinary Medicine)

In the middle of exams a calf at McCreary Land and Livestock Ltd. gives me a lick and a reminder as to why I pursued veterinary medicine and what makes it all worth it!

5 CALLIGRAPHY

Submitted by: *Sylvana Tu* (graduate student, School of Public Health)

Practicing calligraphy helps keep my mind healthy! I've recently taken up calligraphy to take a break from studying. It lets me focus on something that isn't

SECOND PLACE: FELINE FINE

Submitted by: *Jesse Ponath* (undergraduate student, College of Arts and Science)

Did you hear about the cat who swallowed a ball of wool? She had mittens!

THIRD PLACE:

THE ART OF RELAXATION

Submitted by: *Lillian Tu* (staff, College of Graduate Studies and Research)

Colouring can be childish, recreational and professional amongst other things but ultimately, it is a stress reliever. It takes a few hours to colour one of the designs in completely and there's something very satisfying about watching the colour slowly spread across the page. When you're colouring, you're not really thinking about anything else. It is a simple task that provides me a bit of escape from the busy activities that take up the day. Most importantly, it allows me to be mindful of my mental health and unwind before the next challenge comes my way.

HONORABLE MENTION:

1 WHEN I DANCE, I'M A BETTER VERSION OF ME

Submitted by: *Jessica Hill* (undergraduate student, Edwards School of Business)

I love to do Zumba to keep my mind healthy. After a long day of studying, a long day of work, or a long day of Netflix (we all know how binge watching can make us feel!) it's important to get up and dance off the everyday stress!



homework and allows me to still be productive.

6 THE CALM OF THE WILD NORTHERN SPIRIT

Submitted by: *Jordyn Burnouf* (undergraduate student, College of Arts and Science) Sitting by Canoe River in northern Saskatchewan after

a day of helping my dad and brothers harvest wild rice. The sun was setting and the river was calm. It was a beautiful end to the summer.

7 A FRESH START

Submitted by: *Celine Grimard* (undergraduate student, College of Arts and Science)

I am pausing to take the time to clear my mind and enjoy the nature that surrounds us. This photo reflects breathing in fresh air and realising it is a new day. That anything is possible if you take the time to stop and enjoy the nature that we are so lucky to have. ■



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The writing is on the wall

Wall designs highlight aspects of education profession

KRIS FOSTER

If walls could talk in the College of Education, they would tell stories about all the elements that make up the teaching profession.

The **Revisited** campaign will see eight walls throughout the main floor of the Education Building get a custom makeover, explained Michelle Prytula, dean of the College of Education.

“The impetus wasn’t to redecorate the walls,” said Prytula. “This is all about alumni engagement, and you can’t have that without student engagement. This is about affinity, connection and pride.”

So a college group of faculty and staff began working with the university’s marketing and communications team to redesign a number of walls based on words critical to the teaching profession and ending in a bold “ed”—such as **Committed**, **Diversified** and **Represented**.

The first wall, **Committed**—featuring the college’s education oath and photos from the inaugural pinning ceremony—refers to the commitment the profession of teaching requires.

Diversified, the second wall, points to the diversity of students, faculty, staff and alumni in all forms—ethnicity, gender, age, religion, disability and socioeconomic status. The wall also features members of the college community, numerous inspirational quotes on what diversity means and artwork.

Represented, the wall completed at the end of November, highlights all of the student associations—Education Students’ Society, Indian Teacher Education Program and the Saskatchewan Urban Native Teachers Education Program—



Prytula



Eight walls throughout the main floor of the Education Building will get custom makeovers over the coming months.

and includes a number of shadow boxes that will feature easily changed items to represent student voices in the college.

“The walls take a piece of the profession and bring it to life,” said Prytula, adding that walls, each budgeted to cost between \$2,000 and \$5,000, will be the first décor update in the college in about 20 years.

Upcoming walls, Prytula continued, include: **Treasured**, slated for December and focusing on the child and family; **Connected**, going up in January, references connections alumni, students and donors have to the college; **Indigenized**, in February, will reflect First Nations, Métis, and Inuit culture within the college;

Discovered, in March, will focus on research and programming; and **Cultured**, in April, the last of the initial planned walls, will see fine arts and music education taking centre stage.

The **Revisited** campaign, which has received great feedback so far, Prytula continued, is just one aspect of the college’s plans to increase engagement among its stakeholders.

The need for an engagement strategy, Prytula said, has been long overdue as low alumni engagement within the college was brought into sharp focus by a survey conducted this past spring.

“We were challenged in the survey—alumni told us that they felt disconnected,” said

Prytula, who also happens to be a graduate of the college. “The feedback made sense because with the sequential program, students were in the college for only a year before leaving to intern, and then half a year after. It wasn’t long enough. We realize that if we don’t give them a sense of belonging, they will find something else to belong to.”

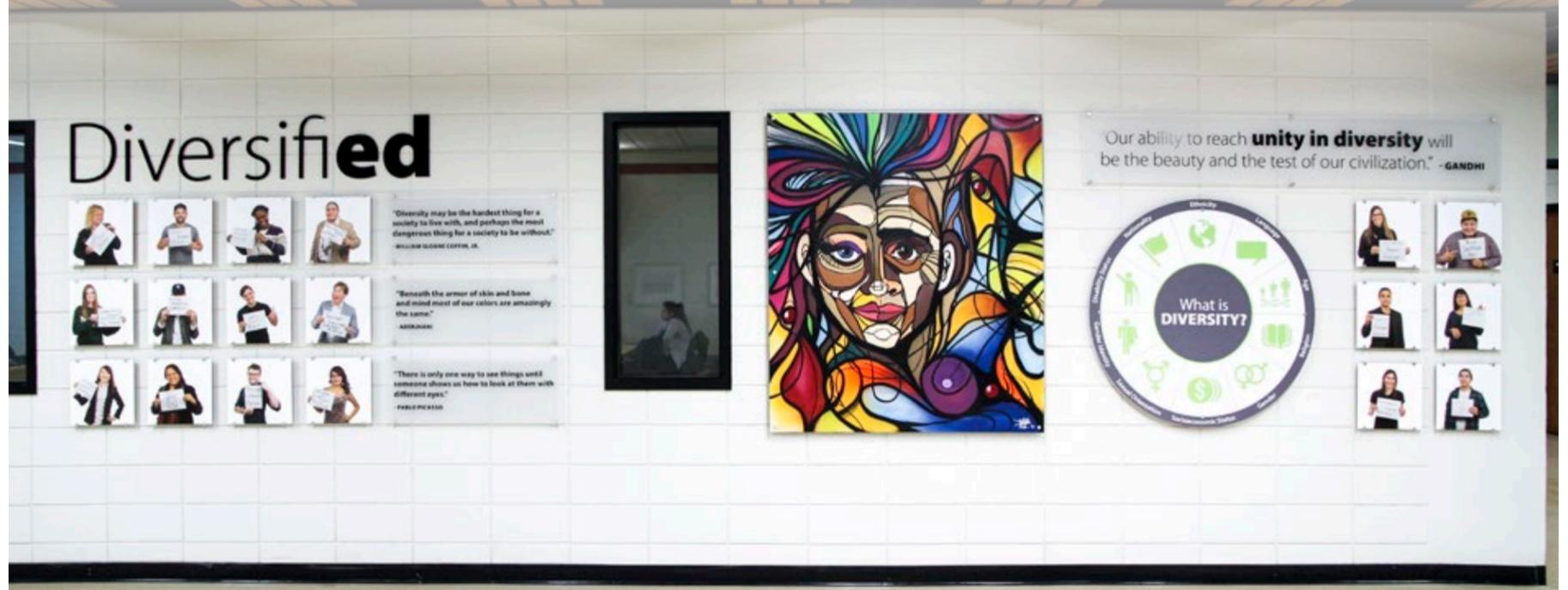
The college recently moved from sequential to direct admissions, meaning students will now spend four years, rather than two, learning to be teachers, a change Prytula believes will not only strengthen teaching and learning, but will create strong connections between students, and eventual alumni, and the college. This change will be

available for fall 2016 term.

Another part of the engagement strategy, launched for the first time this fall, is the pinning ceremony, which saw incoming students receive a special pin and had them sign an oath to demonstrate their commitment to the teaching profession.

“It was an amazing event to be at. Students felt great and there was an incredible sense of belonging achieved within the hour-long ceremony,” said the dean.

“This is where people come to be teachers. The work that happens here is so valuable and we need to show everyone else that, whether it is on our walls or through our students, faculty, staff or alumni.” ■



Uniting science and industry

Commercializing science at the synchrotron

LESLEY PORTER

How does the Canadian Light Source (CLS) synchrotron compare with other synchrotrons around the world?

That is something Carin Holroyd, the latest social scientist in residence at the CLS, is trying to find out.

It is not a question with an easy answer, but she is asking it—part of her research involves surveying scientists around the world at other synchrotron facilities about government and industry involvement in science.

An associate professor in the Department of Political Studies, Holroyd's interests lie in political economy and the role of government in economic development—that is, "what should governments do, and what shouldn't they do, to help build a 21st century economy."

"From the academic and public policy side, there haven't been a lot of scientists' voices. So I was interested in hearing what do scientists think about the kinds of things that people say should be done to try to bring science and technology and commercialization together."

The comparative study looks at synchrotron facilities in other countries, including Japan, Australia and the United Kingdom, and asks, among other things, how government can improve opportunities for

scientists to better collaborate with their industrial partners.

"A number of synchrotrons are moving in a more industrial direction," she said, referencing a Japanese facility she visited that has 62 beamlines, including one owned by and used exclusively for research and development by Toyota. The CLS has an industrial program, she explained, with a team of scientists who liaise with industry, but connections can also be hard to come by. This further affects funding, Holroyd explained, as they require industry funding money to apply for grants, but industry is not always willing to participate.

"There is a gap between the two, and how do you bridge that so that they can speak each other's language?" she asked. "Do you take a scientist who tries to talk to business, or reach out to a businessperson who has a science background?"

Another option is to not overthink it at all. Holroyd spent time at a second synchrotron in Japan where scientists would regularly invite industry representatives to their research



Carin Holroyd, associate professor in the Department of Political Studies and the latest social scientist in residence at the CLS.

SUBMITTED

“ A number of synchrotrons are moving in a more industrial direction.

Carin Holroyd

added, they can build a firm foundation for partnerships and further business developments. "There are amazingly

presentations. They would explain what a beamline is, how it works and what it could do for their business. "Sometimes it's just as simple as that, just getting people in the same room."

Once science and industry are on the same page, she

interesting real-world applications and commercial potential opportunities from a lot of business science," she said.

Holroyd is still distributing surveys and collecting data, so her results are not yet finalized. However, she is interested in hearing from her international

counterparts on what works and what does not work when it comes to commercializing synchrotron-enabled science.

"Generally, I'm just looking to see if there are interesting lessons or examples for how things are done in other places," she said. ■

HAPPY HOLIDAYS

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Gift giving tips

FOR CAMPUS SHOPPERS

Let's face it, December is a busy time of the year. There are exams to write and papers to mark. There are holiday lunches, receptions and parties. There are appointments to get winter tires installed and there are lunch-hour haircuts so we look good at all the social affairs. And don't forget about the time spent complaining about the weather. Between all of that, you might forget to pick up a gift for a co-worker or loved one. So now, for the second year in a row, *On Campus News* sent members of the marketing and communications staff to shop across campus to come up with some helpful gift ideas.

Happy holidays and see you in 2016!

JEN BOYLE, director, strategic and college communications



Adults returning to their childhood roots is all the rage this year, so what better present than the gift of crayons? This gift is perfect for that person who always says they want a new hobby, but doesn't want to go through the effort of buying the equipment and getting training in how to do it.

Everyone knows how to colour! This book and these crayons (available at the U of S Bookstore for \$16.95 and \$4.95 respectively), are perfect for curing the winter blues as well.

JEFF DRAKE, manager, creative services



You can buy a Huskies Second Semester All-Access Pass that will get you into every game they play for the rest of the season. It's a great gift for sports fans—available at the Bookstore and only \$55. Oh, and while you're in the Bookstore buying this, buy some of their other stuff too.

KRIS FOSTER, news editor



We play on words and deal in puns, that's why *Have a Little Pun* is the perfect book to give to my colleagues in strategic communications. For only \$19.95 at the

Bookstore, I imagine this well-illustrated gem making our meetings even punnier than usual.

CHRISTY MILLER, director, alumni and development communications



If you don't want to wander further than your own desk, consider making a donation online for someone on your gift list. Sure, telling grandma that you're supporting a student award in the college she graduated from may not be as thrilling as seeing her face when she opens up that box of doilies from your sister, but she'll appreciate the sentiment and you can imagine the excitement on the U of S student's face when they receive that scholarship or bursary.

TERI PARKHURST, marketing specialist



My nieces are at tricky ages to buy for—nine and 11. They're too cool for little kid toys, but not quite ready to transition to cash-only presents. This Bluetooth speaker is perfect (and it has a clever name: Porta Party). Now they can dance around to Justin Bieber and Katy

Perry as much as they'd like—preferably somewhere the rest of the family can't hear it. Look for it at the Campus Computer Store for \$24.99.

LESLEY PORTER, communications co-ordinator



Don't forget about your pets this Christmas. After all, they love us unconditionally every single day (or, if you have a cat like I do, just some of

the time). These cat and dog stockings, for sale at the Veterinary Medical Centre at the Western College of Veterinary Medicine, are chock full of toys, food and treats. Not only are they a deal at \$20, but proceeds go to the Saskatoon SPCA, so you're supporting more than just your pet.

ANDY SARGENT, social media specialist



Everyone on my list is getting this chocolate-covered doughnut. Donut? Whatever. Because:

1. They are delicious.
2. Look at that face!
3. They are only \$1.75.
4. They probably won't last until Christmas so I will just eat them all.

Merry Christmas to me!

JAMES SHEWAGA, media relations specialist



This adorable University of Saskatchewan Huskies plush toy caught my eye at the Bookstore and looks perfect for my young niece south of the border. A nice, unique keepsake that you won't find in most toy stores in Saskatoon and beyond, and available at the reasonable price of \$24.95. Sold!



HOLIDAY CHECKLIST

Help reduce energy use while you are away!



BEFORE YOU LEAVE FOR THE HOLIDAYS:

- SHUT DOWN YOUR COMPUTER
- OR USE THE LOWEST POWER-SETTING
- TURN OFF YOUR MONITOR(S)
- UNPLUG PERSONAL PRINTERS OR SHREDDERS
- UNPLUG CELL PHONE OR IPAD CHARGERS
- UNPLUG KETTLES AND COFFEE MAKERS
- CHECK THE BREAK ROOM AND KITCHEN TOO
- LOWER BLINDS TO RETAIN BUILDING HEAT
- ENSURE THAT ALL LIGHTS ARE TURNED OFF



*Sustainability ...
your university, your world*

Helping farmhands

Sustainability students examine local farm practices

MEAGAN HINTHER

Redberry Lake sits in central Saskatchewan near the town of Hafford. This saltwater lake nestled within rolling prairies is the nesting grounds for more than 180 species of birds—many endangered or threatened—and is a popular summer tourist destination. For the past 15 years, Redberry Lake has been designated a biosphere reserve where maintaining the health of the natural environment is practiced alongside a focus on meeting the needs of the local, mainly agriculture-based, community.

In September, School of Environment and Sustainability (SENS) students worked with local farmers to help them assess the sustainability of their farm operations as part of a field course for students in the school's Master of Sustainable Environmental Management program.

"Exploring Redberry Lake Biosphere Reserve was a wonderful opportunity, and I learnt so much during the field course," said Alexandra Gresiuk, SENS student. "I'm from Saskatchewan, so I know how important agriculture is. I also care about the environment, but until this course I didn't realize that sustainability and farming could coexist."

Groups of three to four students were paired with a local cattle or crop farm and spent five days taking soil, water and vegeta-

tion samples, as well as evaluating the operations for how sustainable they were. Students considered environmental, economic and social dimensions of sustainability. In late October, the teams met with the farmers to present their reports and talk about their findings.

Gresiuk and classmates Ashley Shaw and Muzeyi Bagonluri were paired with Nick Partyka, a farmer with a 3,000-acre cropland operation about 20 kilometers west of Hafford. Partyka's family has been farming in the area since 1914.

"Nick is doing a really good job. He includes wetland buffers and uses a targeted instead of blanket approach when it comes to fertilizers," said Gresiuk. "Our report focused on some of the potential consequences we could see coming up in the future like eutrophic wetlands, degraded soils and flooding."

To help prevent this from becoming a reality, the students suggested the farm increase existing buffer areas around wetlands, to help the natural plant life filter the pesticides, fertilizers and herbicides used on crops. They also stressed the need for cover crops to limit soil erosion and add additional nutrients.

"We were looking at not only the impact the Partyka farm would have to its own lands, but also the impact to the larger



(Left to right) Muzeyi Bagonluri, Alexandra Gresiuk and Ashley Shaw.

SUBMITTED

biosphere reserve and ecosystem," said Gresiuk.

Partyka was appreciative of the hard work done by the students and is looking forward to going through the recommendations in the report.

"There are a lot of good points in the report. We are doing quite a bit of it already and planning to do more, especially to control encroaching and noxious weeds, basically those invasive species," said Partyka. "Otherwise these weeds take over the land and need more particular herbicides."

"I liked working with the students—they are a very diverse

group and I found learning about their local farm practices informative, like Alex's experience in B.C. and Muzeyi's in Ghana," added Partyka.

For the students' part, working with the farmers was a rewarding experience as well.

"Having a client was really nice. You typically don't have

that experience of doing real work for a client while in school. I really liked getting the feedback from Nick. It makes me a better scientist," said Gresiuk. ■

Meagan Hinker is a communications specialist with the Global Institute for Water Security and the School of Environment and Sustainability.

Outreach critical to research

From Page 2

of Sociology are working with colleagues at Hawassa University in Southern Ethiopia to harness pulses to improve nutrition in poor rural regions.

Ethiopia has one of the highest rates of malnutrition in the world, explained Carol Henry, associate professor in the College of Pharmacy and Nutrition. This is in part due to heavy reliance on crops such as wheat, teff (a local grain) and root crops such as cassava.

"These crops are high in carbohydrates and have little or no protein," Henry said. "They also deplete nitrogen from the soil, making it less fertile for subsequent crops."

Backed by funding from Canada's International Development Research Centre (IDRC), the Canadian-Ethiopian team,

has worked over 17 years to produce superior varieties of peas, lentils and beans. They also identified local rhizobia—nitrogen-fixing bacteria that live on pulse crop roots.

"These bacteria, when spread onto the seeds of improved pulse varieties, increase crop yields up to 60 per cent and leave valuable nutrients in the soil for the next season's crop," said Bruce Coulman, a U of S plant breeder involved with the project. "The nitrogen fixation also provides an accessible, effective, and affordable alternative to inorganic nitrogen fertilizers, which few smallholder farmers can afford."

Outreach is critical to the success of the project. This demands expertise from nutrition and gender researchers, to soil and plant scientists, food processors, and post-harvest marketers.

For example, the research team had to demonstrate to farmers that pulses were a worthwhile option. Outreach extended to the kitchen, where women were introduced to techniques such as sprouting pulses to make nutrients more available and mixing pulses with grains to provide more complete nutrition.

"It's allowed for increased consumption at the household level and extra income through the sale of pulses at market," said U of S nutrition scientist Gordon Zello. "It has also led to improved nutrition status in the highest risk populations, that is, adolescents, women and children."

The project is on target to reach about 70,000 farmers over the next two years.

There is no doubt that U of S scientists have their fingers on the pulse of this area of research. ■

Around the Bowl



Sarty

Gordon Sarty has been appointed as acting head of the Department of Psychology for a one-year term effective July 1, 2015.

Lawrence Martz, was appointed vice-dean, faculty relations, College of Arts and Science for a three-year term effective July 1, 2015.



Martz

Marvin Painter was appointed as the acting head of the Department of Human Resources and Organizational Behavior, effective September 18, 2015 for up to six months.



Painter

Dirk de Boer was appointed as the acting head of the Department of Indigenous Studies for an eight-month term effective October 1, 2015.

Daphne Taras' term as dean of the Edwards School of Business has been extended to June 30, 2016.



Taras

Liz Harrison's term as associate dean, School of Physical Therapy and Rehabilitation Sciences, has been extended to December 31, 2016.



Harrison

Nicole Rozon-Couture has been appointed senior financial officer in Corporate Administration. Her corporate experience includes research and development, manufacturing and processing, biotechnology, software development, and professional services with international operations.

Len Findlay, professor of English, will lead a Candian Association of University Teachers Ad Hoc Investigation into events related to Enbridge sponsorship of the Centre for Corporate Sustainability at the University of Calgary. He will be assisted by colleagues from Western University and Osgoode Hall Law School in examining and reporting on questions of academic freedom, conflict of interest, and donor influence on academic decision-making.

Coming events

■ Courses/Workshops

Edwards School of Business Executive Education

For information call 306-966-8686, email execed@edwards.usask.ca or visit edwards.usask.ca/execed.

- Dec. 7–11, Certified Coaching Training – Saskatoon
- Dec. 9–10, Business Writing & Grammar Workout – Saskatoon

Winter 2015 Fall Fortnight: Teaching & Learning Recharge

Dec. 7–13, the Fortnight series is planned by the Gwenna Moss Centre for Teaching Effectiveness, in partnership with faculty members from across campus. The event is comprised of two weeks of workshops, talks and discussions all centered around enhancing teaching practice. The theme of the Winter Fortnight is “Teaching & Learning Recharge” as December is the time for you to reflect on your past practice, brainstorm improvements and renew it for the coming term! For more information or to register, visit usask.ca/gmcte/winter-fortnight.

A Voice for Children and Youth

Dec. 10, 11 am–noon, East Lecture Theatre, Room G763, Royal University Hospital. Bob Pringle, Advocate for Children and Youth presents: *Child Advocacy: Who Really Cares?* Pringle was appointed as Saskatchewan’s third Children’s Advocate on Nov. 17, 2010, and took up his role on Jan. 1, 2011. On Sept. 1, 2012, new legislation, *The Advocate for Children and Youth Act*, came into effect in our province. Correspondingly, the title of the Children’s Advocate is now known as the Saskatchewan Advocate for Children and Youth.

Languages

For more information, visit learnlanguages.usask.ca or call 306-966-4355 or 5539

Multilingual Conversational Language Classes:

Jan. 18–Mar. 28 2016;

- French levels 1 to 8: \$215 (GST exempt)
- Spanish levels 1 to 8: \$225.75 (GST included)
- Japanese levels 1 to 3: \$225.75 (GST included)
- Japanese for the Traveller \$252 (manual and GST included)
- German levels 1 to 4: \$225.75 (GST included)
- Italian levels 1 to 3: \$225.75 (GST included)
- Portuguese level 1 \$225.75 (GST included)
- Cree level 1: \$236.25 (materials and GST included)
- Textbooks and workbooks are extra unless otherwise indicated.

Spanish Weekender for Beginners:

February 5–7, 2016; ideal for the traveller who has little or no Spanish-speaking skills, 20 hours over 2.5 days, cost: \$315.00 (manual, Saturday and Sunday lunch, and GST included).

French Voyageur for Beginners:

Feb. 19–21, 2016; ideal for the traveller who has little or no French-speaking skills, 20 hours over 2.5 days, cost: \$315.00 (manual, Saturday and Sunday lunch included). GST exempt.

One-Week French Immersion:

Feb. 22–27, 2016; all levels offered. Ideal for individuals who wish to fast-track their French language skills, 36 hours over six days, cost: \$575 (manual, Saturday final

luncheon, transcript and progress report card included). GST exempt.

Community Arts

Explore your creativity and develop skills in drawing, painting, sculpture, photography, glass, jewelry making, fiber art, graphic design, art history and more. These courses help you gain confidence as you develop your portfolio. Classes are taught by professional artists. Take classes for general interest or work toward a certificate. For more information, visit ccde.usask.ca/art. Register online or call 306-966-5539.

■ Seminars/Lectures

JSGS Public Lectures

Visit schoolofpublicpolicy.ca for more information.

School of Public Health – Vaccinology and Immunotherapeutics Seminar Series

- Dec. 10, 12:30 pm, VIDO Lecture Theatre, Amal Alsaed presents: *Novel in-vitro measurement of antimicrobial susceptibility against strains of Methicillin-resistant Staphylococcus aureus (MRSA)*.
- Dec. 17, 12:30 pm, VIDO Lecture Theatre, Kuan Zhang presents: *The Phosphorylation of VP8, the Major Tegument Protein of Bovine Herpesvirus 1, Benefits Virus Replication*.
- Jan. 7, 2016, 12:30 pm, VIDO Lecture Theatre, S. Khosa presents: *Targeted transduction of bovine dendritic cells by wild type and recombinant BAdV-3*.
- Jan. 21, 2016 12:30pm, VIDO Lecture Theatre, Alyssa Chaffey presents: *Stimulating a Th17 immune response in*

mice through the use of intramuscularly injected combination adjuvants.

It Starts With US: Student Leadership Conference

Jan. 30, 2016, 8:30 am–3:45 pm, join us in the Arts Tower where over 150 students will attend the second student-planned Student Leadership Conference to be held at the University of Saskatchewan! Through speakers, workshops, and fostering connections, this student-organized conference will provide University of Saskatchewan students with amazing opportunities to prosper as leaders.

■ Miscellany

Physics Machine Shop Open House

Dec. 9, 1:30–4 pm, Physics Room 40, please join us for an open house at the Physics Machine Shop. Come and see how we can add value to your project through our comprehensive approach that includes project management, design, material suitability, expert fabrication and more. Everyone is welcome! Refreshments will be served. For more information, please contact: Blair Chomysen, Jill Cornish or Ted Toporowski, at 306-966-6418 or ted.toporowski@usask.ca.

Cameco Spectrum 2016

Jan. 14–17, 2016, 9 am–5 pm. Cameco Spectrum 2016 brings the marvels of engineering and science to Saskatoon and area. Known as North America’s largest student-run exhibition of science and technology, it is run by engineering students who plan, organize and partake in the event. It typically features over 40 displays and welcomes over 9,000 participants. Started in 1930 as the Engineering

Show it was renamed Spectrum in 1973 and takes place every three years. For more information visit spectrum.usask.ca or email emma.greendale@spectrum.usask.ca

■ The Arts

U of S concert band in concert

Dec. 4, 7:30 pm, Quance Theatre, Education Building, University of Saskatchewan Concert Band presents Music of Many Cultures: A Tribute to David Kaplan. Directed by Glen Gillis. Admission by Silver Collection, all are welcome. For more information contact: Glen Gillis at glen.gillis@usask.ca.

The Miller’s Tale by Chaucer

Dec. 6, 4 pm, the Woods Alehouse, Classical, Medieval and Renaissance Studies presents a live festive performance of Chaucer’s most ribald tale! Come watch Chaucer himself spin the tale of Alisoun and her clever love Nicolas. As well as the rude John and jolly Absolon. Chaucer is portrayed by Colin Gibbings. All are welcome. For more information, contact peter.robinson@usask.ca.

➤ SUBMIT
Coming events

Next OCN: **Friday, Jan. 15**
Deadline: **Thursday, Jan. 7**

Email ocn@usask.ca

An interprofessional approach to health education

The University of Saskatchewan is embarking on the development of an interprofessional education (IPE) curriculum for its health science colleges.

IPE, as defined by the World Health Organization, is when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health conditions.

While this is certainly true, Dr. Ivy Oandasan prefers to look at the outcomes of IPE and how it benefits society—that is, the people at the receiving end of health care.

“At the end of the day, IPE is a means to improve patient outcomes,” she said. “It enables health care professionals to provide better care.”

A leader in IPE research and teaching at the University of Toronto, Oandasan facilitated a session with health science leaders at the U of S on Dec. 4 to help get the ball rolling on a curriculum for students in dentistry, kinesiology, medicine, nursing, pharmacy and nutrition, physical therapy, public health and veterinary medicine. Oandasan led a similar initiative at the U of T in 2006, implementing a

mandatory, competency-based education curriculum for students in the health science disciplines. This resulted in greater relationships with practice partners and teaching affiliates, including area health regions and hospitals.

“A structured IPE curricula enables learners to really have a good understanding of the roles

of other health care providers,” she said.

Historically, training and education programs in the health sciences were developed in ways that had minimal interaction with other disciplines, she explained, but “the reality is when they go into practice, they’re working in teams with other health care providers.”

Oandasan is eager to move the conversation along at the U of S, adding that promoting teamwork in health care is critical to the outcomes and

health of people in the province.

“You can’t teach inter-professional collaboration in isolation,” said Oandasan.

Lois Berry, interim assistant vice-provost of health sciences at the U of S, added that the relationship between health providers and practice partners is a two-way street.

“It is vital that education and practice work together to produce graduates who understand and can work effectively in health and community organizations,” she said. ■



Oandasan

Community involved in resource development

From Page 3

Odumosu-Ayanu said.

This has led to some success in the courts as indigenous peoples claim their legal rights such as the duty to consult affirmed by the Supreme Court of Canada.

“What ‘consultation’ means and involves of course, people could debate for 25 years,” Odumosu-Ayanu said.

The power of such a broadly applied legal tool is perhaps

best reflected in how hard a similar effort in Nigeria is being resisted. She explained that many cases in that country involve debates about compensation—a landowner objects to a company’s activity and takes them to court. But one such case, which has been argued for a number of years, applies to constitutionality. This means the final ruling will apply to all Nigeria.

“They’re asking for declarative statements regarding the constitutionality of particular

laws,” Odumosu-Ayanu said. “Those are the kind of things we need, as it would affect all projects across the board.”

One of the sticking points, as she sees it, is the issue of free, prior and informed consent.

“For some, it means a veto, or, if a community doesn’t consent, the project cannot proceed, or informed decision-making” she said. “Others would say, ‘no, it’s a dialogue, a conversation.’ I think governments would be much happier with that.”

In the end, governments and companies are recognizing that community stakeholders must have a seat at the table for resource development to be successful.

“Some companies are beginning to take these things more seriously,” Odumosu-Ayanu said. “Some governments are starting to take them more seriously. Is it perfect? No. But at least all the major players are beginning to turn their attention to these matters and that’s a positive development.” ■

Free textbooks save U of S students money

MEGHAN SIRED

This academic year, instructors of six courses at the University of Saskatchewan (U of S) opted to use free digital open textbooks instead of traditional paper ones, saving 900 students a total of \$90,000 in textbook costs.

“Increasing our use of open textbooks is an important initiative that speaks to our broader goal of reducing costs for students and using innovative teaching tools,” said Patti McDougall, U of S vice-provost of teaching and learning. “These texts reduce costs for students, give instructors more control over their instructional resources and improve learning outcomes for students. It’s a win-win for everyone.”

Open textbooks are licensed under an open copyright license, and made available online to be freely used by everyone. These texts are available for viewing on a computer, smart phone or tablet via the internet or as a document that can be downloaded for off-line viewing or printing.

Traditionally published textbooks are produced under closed copyright, meaning they cannot be shared, re-used or re-purposed. They are usually costly, with new editions published frequently, making older texts quickly out of date.

Eric Micheels was the first professor at the U of S to use an open textbook. He said he chose to use one, *Principles of Economics* by Timothy Taylor, mainly to reduce the cost for students.

“It wasn’t any different than adopting another non-open

textbook,” said Micheels. “The decision process is the same for me. It was a good text that did a good job with all the concepts I was interested in covering.”

Open textbooks were also used this fall in courses in the Edwards School of Business and the Department of Chemistry in the College of Arts and Science.

Jack Saddleback, president of the University of Saskatchewan Students’ Union, said he is very optimistic about the future of open textbooks at the U of S and the savings it will generate for the student body.

“Every year students dish out roughly \$500 to \$1,200 for textbooks,” said Saddleback. “With professors here at the U of S making the switch to open textbooks, we are going to see that number decrease for the betterment of all students. Students can then take a sigh of relief knowing that their education is that much more affordable.”

Heather Ross, an instructional design specialist at the Gwenna Moss Centre for Teaching Effectiveness at the U of S, has worked with others across campus to support instructors who wish to use open textbooks. Ross said open textbooks are the way of the future and is confident that the quality of open textbooks is often equal to that of tradi-



Jacqueline Gelineau, a student who used an open textbook for the first time last year, and Eric Micheels, the first professor at the U of S to use an open textbook.

KATHY MUNROE

tionally published textbooks, if not higher, given the option for instructors to customize the resource for their students’ needs.

“There is essentially no difference in the instructors’ vetting process carried out for open textbooks, compared to commercially published textbooks,” said Ross. “Open textbooks will provide the same quality and variety of content as commercially available ones, with the additional advantage that open textbooks may be customized by instructors.”

Scott Moe, Minister of Advanced Education, said the Government of Saskatchewan is committed to making education more affordable for students.

“Open resources are used at institutions around the world and we’re proud to make use of this innovation in Saskatchewan

as well,” said Moe.

Ross said it is in part due to this commitment that Western Canada—Saskatchewan, Alberta and British Columbia—is leading the free open textbook movement in Canada.

Effective March 12, 2014, a memorandum of understanding, titled Open Educational Resources, states that the governments of British Columbia, Alberta and Saskatchewan wish to collaborate on the development of common open education resources within their respective advanced education sectors.

“The potential to work with other post-secondary institutions and open textbook publishing organizations provides huge benefits to students and instructors at the U of S,” said Ross. “We’re just getting started, but

people from across campus are already getting excited about open textbooks. If this enthusiasm continues, we’ll definitely see an increase in the use and creation of open educational resources.”

The tri-provincial memorandum encourages the use of best practices, fosters greater collaboration and understanding of key issues and trends, and helps governments share and develop open education resources.

Instructor-written and peer-reviewed open textbooks are available through organizations such as BCcampus in British Columbia and OpenStax in Texas. ■

Meghan Sired is a communications co-ordinator in the Office of the Vice-Provost Teaching and Learning.

	Number of courses using an open textbook	Number of students in course	Amount students saved on textbooks*
Winter 2015	1	272	\$27,200
Fall 2015	4	523	52,300
Winter 2016	3	400	40,000

*assuming an average textbook costs \$100

GETTING SOCIAL WITH MEDIA

Some of the top tweets, posts and pics from the U of S

@ussuexec

35 likes

ussuexec Your USSU is wishing you the best of luck on your papers on this snowy day. There are a ton of resources to help you write the best paper ever, check out Student Learning Services for more info! May the curve be ever in your favour!! #US4U #brrrr

@j_wilson

Jay Wilson

Ready to give out scholarships to our wonderful students. @UofSEd

4:22 PM - 27 Nov 2015

@WCVMToday

WCVM Today

We've taught more than 400 students about hay quality during the @SKAgriculture #thinkag program at #cwa15!

10:25 AM - 20 Nov 2015

usask

University of Saskatchewan

10 November at 00:21 · Edited · 16

☁️ First snowfall at Uo Sask! ☁️

64,805 people reached

Lesley Porter, Shelley Gergent, Ayine Adigun and 1,814 others like this. Top Comments · 175.

124 shares

@USaskPS

USaskPS @USaskPS · Nov 18

Snow has arrived! While driving: Remember to slow down, take care approaching intersections, and keep a safe distance from other vehicles.

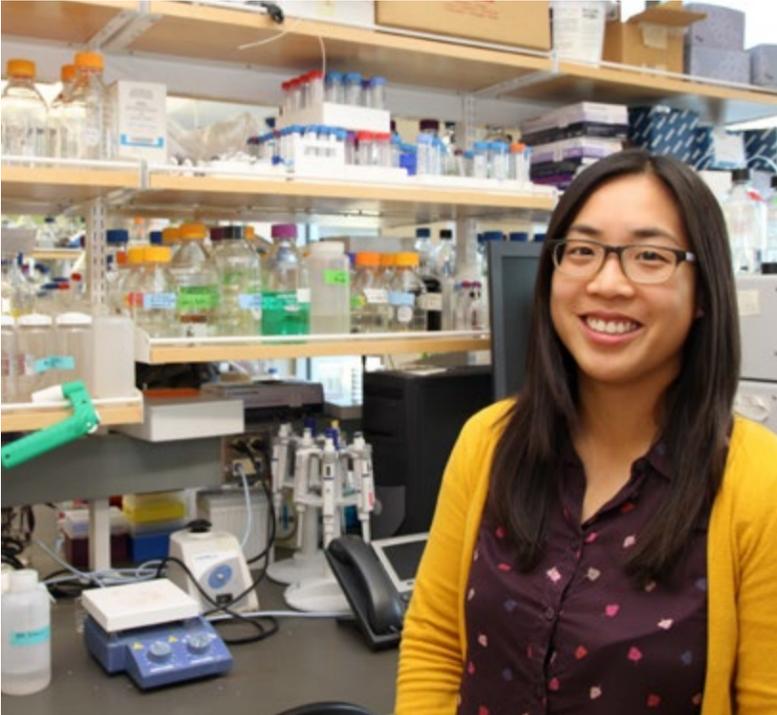
6 retweets · 6 likes

7:57 AM - 18 Nov 2015 · Details

Knowledge is beautiful.

The University of Saskatchewan deals in knowledge; it's in every lab, classroom, facility and office on campus. This year's back page feature is searching for that specialized knowledge that creates beautiful results and helps make the U of S a wonderful place to work and study.

Share your knowledge at ocn@usask.ca



Ion the prize

The way research is done in the health sciences is evolving. No longer are primary investigators (PIs) and their research staff assigned to one lab, siloed from others outside his or her subject area. Instead, research clusters are becoming the norm, which encourage collaboration across disciplines. This is evident in the D-wing of the Health Sciences Building, where large, floor-to-ceiling open lab space supports modern research activities.

"Over the last few years, we've moved several PIs into the cluster labs instead of PIs having their own labs," said Angela Seto, manager of the molecular design laboratory. With research ranging from cancer to mass spectrometry to cardiovascular health, "each cluster is organized based on their research interests. Even if people aren't in the same department or college, they're in the same physical area because their research overlaps."

Of course, having that many people in one space has its own set of challenges. "Some labs have six PIs, some have 20. It requires a central person to manage day-to-day things like equipment, training, and making sure everyone follows standard operating procedures and safety policies," added Seto, who has a master's degree in biology and plenty of prior lab experience under her belt. "That's my role, to make sure everything runs smoothly in the labs."

One part of her job she's particularly fond of is using the X-ray diffractometer. The machine, which is about the size of a small room, uses radiation to analyze various material sources, particularly delicate crystals.

"It's basically a pre-cursor to the synchrotron," she said. "It's neat to see it up and running."

