



BRAIN POWER

With his research, Dr. Ivar Mendez is changing the future of health care. Mendez, the unified head of the Department of Surgery, is looking at how technology can deliver health care in remote communities, treat incurable neurological disorders and guide complex neurosurgical procedures. Read the full story on Page 6.

DAVID STOBBE

A vision for the future

Defining the vision, mission and values for the U of S

✍ KRIS FOSTER

The University of Saskatchewan (U of S) has not approved and adopted a new vision, mission and values document since 1993—the new president is going to change that.

There are many reasons why this is an institutional priority, said U of S President Peter Stoicheff, not least of which are the numerous changes that have happened at the university over the past 22 years.

“The university has changed and evolved a lot since then,” explained Stoicheff, pointing to new graduate schools and academic programming, new scientific facilities such as the Canadian Light Source and VIDO-InterVac, and a graduate student population that has grown by almost 70 per cent.

“It’s been a long time without one. Seventy-five per cent of our faculty have been

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Peter Stoicheff

hired since 1993. Three-quarters of our current faculty had no input into the last one.”

Stoicheff said such a document is important “in response to the evolution in our size, scope and identity. It is time to collectively express what our mission and values now are, and a vision for our future. We require consensus on who we are and what we want to achieve.”

Knowing that former president Ilene Busch-Vishniac undertook a process to develop such a document—*Vision 2025*, which was adopted,

then rescinded by University Council—about two years ago, Stoicheff said he “senses that there is a recognition on campus that a process, though very different from this one, was undertaken not that long ago. So this process has to be efficient and not overly lengthy.”

To ensure efficiency and timeliness, Stoicheff has appointed campus members to a committee charged with the development of a first draft of this document. The committee, co-chaired by Brent Cotter (professor in law) and Liz



Stoicheff

of “the document from 1993, successive integrated plans, *Renewing the Dream* from 2002 and *Vision 2025*. They are not starting from scratch and that will make the process more efficient.”

The committee will also be responsible for ensuring the process is highly consultative—with input to be gathered from faculty, staff, students, alumni, donors, University Council, University Senate and the Board of Governors.

While Stoicheff is not on the committee and “will not be driving the thinking behind the process, ultimately it has to be a document I feel is of the quality that befits the future of this university. My influence will amount to requesting a draft document be submitted

Harrison (professor in physical therapy), will work towards having a first draft ready for University Council in late spring.

The timelines are short, Stoicheff explained, because the committee is not working with a blank slate and can look to work previously done in the form

See *Building*, Page 9

Talking turkey

LESLEY PORTER



Karen Schwan-Lardner at the U of S Poultry Centre.

LESLEY PORTER

Karen Schwan-Lardner never thought she would become a poultry researcher. Raised on a pig farm, she was not very fond of chickens.

"I was terrified of chickens!" she said with a laugh. "I just didn't like them and they didn't like me."

She eventually conquered her fowl fear while completing her undergraduate, master's and doctoral degrees in agriculture at the U of S. Now a researcher and assistant professor in the Department of Animal and Poultry Science, Schwan-Lardner is talking turkey.

Her research focuses on the welfare and productivity of commercial poultry, specifically hens, turkeys and broiler chickens. This includes finding the optimal stocking density for them—that is, the number of birds that can be contained within a particular area, so that they are not just happy and

healthy, but also maintaining ideal production numbers.

"You have to give them a certain amount of space and light as well as dark," she said. "One objective is to look at what happens to the birds when they're raised in different stocking densities."

Her current project is a 16-week trial looking to find the ideal stocking density for commercial turkeys.

"We're trying to figure out if the density makes any difference to the well-being of the bird," she said. "We're also concerned about what people have to pay for food, so we're looking at production practices as well."

Finding that perfect balance—happy birds, happy consumers—is the goal of her research conducted at the Poultry Centre on campus. The facility contains eight rooms, all with varying numbers of young

turkeys in them, ranging from low density to high density. Here, Schwan-Lardner and her graduate student, Kailyn Beaulac, will try to get an overall picture of what density level is best for the birds. This

includes studying their social and physiological behaviour (such as stress responses) while being mindful of industry production parameters.

"We're seeing what's optimal, both from a production

standpoint and from a welfare standpoint," said Beaulac.

For a very logical reason, Schwan-Lardner uses only male turkeys in her research.

See *Male*, Page 3

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UNIVERSITY OF SASKATCHEWAN

UNIVERSITY Club

Advocating for academic advising

Advice on education key to student success

✍ KRIS FOSTER

Following the campus-wide review of academic advising services that took place a few years ago, a wave of change hit the U of S, including the development of a new Advising Charter.

The charter, explained Patti McDougall, vice-provost of teaching and learning, developed by the Teaching, Learning and Academic Resources Committee and reviewed by University Council, sets out the roles of everyone involved, from students and advisors, to faculty and peer mentors.

“We needed to outline for students what we expect of them and what they can expect of us,” explained McDougall. “We want more students to spend time with our academic advisors because we know it makes a big difference in their success.”

Complementing the renewal

of academic advising at the U of S is DegreeWorks, an online program that tracks a student’s degree progress and matches

about academic and career goals and what they see themselves doing in five to 10 years. They can help students figure out the most effective and efficient route to get where they want to be.”

Another significant change, she continued, is the number of academic advisors on campus. “Pretty much every college has academic advisors in place, as do central units like the Language Centre and Disability

Services for Students.”

Because of the extra advisors, this means students can often “drop in and get immediate advice and then schedule further appointments.”

While McDougall encourages students to speak with academic advisors because of the expertise and training they have, she also stressed the important role that faculty play as mentors.

“We needed to outline for students what we expect of them and what they can expect of us. We want more students to spend time with our academic advisors because we know it makes a big difference in their success.”

Patti McDougall

that with degree requirements.

This software, McDougall explained, shifts the role of academic advisors from one of “telling students what course they still need to take to talking



Patti McDougall, vice-provost of teaching and learning.

“Our model puts an emphasis on academic advisors and using faculty mentors later in the student pathway. Faculty are well-positioned to give advice on potential careers, grad school, whether to do a thesis and what to expect within a discipline.”

Certainly, great strides have been made in academic advising, said McDougall, but it is all for naught unless the services are used.

“Students are responsible for seeking advice; it’s part of the educational experience,” she said, adding that the Advising

Charter was modeled after the university’s Learning Charter that outlines the students’ role to “learn actively, think broadly, act ethically and engage respectfully.”

McDougall is certain that those students who seek out academic advising service will not be disappointed.

“Our academic advisors play a professional role in the educational experience. Students can develop relationships with the advisors over the course of their degree and that makes all the difference in academic and career success.” ■

READ THE ADVISING CHARTER AT USASK.CA/VPTEACHING/ADVISING/ADVISING_CHARTER.PHP

Provost search underway

The University of Saskatchewan is looking for its next provost and vice-president academic.

Perrett Laver, a global executive search firm, is assisting with the search. President Peter Stoicheff is heading the search committee made up of members from across campus, including: Beth Bilson, Michael Bradley, Dana Carriere, Gary Entwistle, Blaine Favel, Greg Fowler, Grant

Isaac, Kathleen James-Cavan, Helen Nichol, Carol Rodgers and Gabe Senecal.

Ernie Barber, who currently holds the position of interim provost and vice-president academic, will stay in the role until the next provost begins. The committee is aiming to complete the search in the late spring, with the successful candidate taking office in 2016. ■

Male turkeys ideal for research

From Page 2

“They grow faster and get bigger than females do,” she explained. “When I did the original research application, we thought, ‘if we study males, that’s the worst-case scenario.’ That’s why we chose to use males.”

While turkeys and their smaller cousins, the chicken, have a similar social structure “in that they live in nature

in small groups,” the two are otherwise quite different. “It’s like comparing two breeds of dogs,” she said. “Turkeys are more curious than broilers. I have no idea why, and don’t know that anyone has any idea why. They just are.”

Regardless, Schwean-Lardner is happy to have gotten over her avian aversion.

“I love working with the birds,” she cooed. “They’re so cool!” ■



Nominate a colleague for the President’s Service Award

SELECTION CRITERIA

The President’s Service Award is designed to recognize exceptional contributions by a non-academic staff member who is currently working at the University of Saskatchewan.

Employee must be a current employee as of April 30 of year nomination is considered.

Criteria for selection of the individual include evidence of the following:

- enhancement of the work environment by providing extraordinary service to the university community;
- inspiration, support and respect of the endeavours of others; and
- distinction achieved through dedication and commitment.

Nomination forms are available from the President’s Office or may be downloaded from the website.

For further information, call 306-966-6613.

NOMINATIONS

All members of the University of Saskatchewan community are invited to nominate an employee for the President’s Service Award. **Each nomination must include:**

1. a completed nomination form;
2. a one-page overview/executive summary by the nominator;
3. specific examples of how the nominee meets the criteria of this award; and
4. exactly three signed letters of support. These letters may be:
 - from internal supporters, for example, students, co-workers, supervisors;
 - from external supporters as they relate to the work of the nominee at the university; or
 - signed by one or more individuals.

The maximum length of the package, including the nomination form, must not exceed 12 pages.

Deadline March 1, 2016.

www.usask.ca/leadershipteam/president/presidents-award-and-fund.php

The post-holiday financial hangover

LESLEY PORTER

Despite a downturn in the economy, Canadians spent a lot of money this holiday season—be it on gifts for loved ones, a vacation or maybe a little something for themselves.

Data from Moneris, the software program that processes debit and credit card transactions in Canada, show that spending on Black Friday and Cyber Monday increased 9.6 and 14.1 per cent from last year, respectively. And on Dec. 23—considered the busiest shopping day of the year for the frenzied, last-minute shoppers among us—Canadians spent more than a billion dollars just using their plastic. With initial numbers like that, it is no wonder many people are feeling the post-holiday debt crunch.

Brian Lane, an assistant professor in the Edwards School of Business and certified financial planner (CFP), offered a few strategies for escaping the red zone.

1. ACKNOWLEDGE THERE IS A PROBLEM. Like any instance of losing control, an important step is accepting responsibility for the situation. “We need to acknowledge that something went wrong, instead of just shrugging our shoulders,” he said.

2. DETERMINE WHERE THE PROBLEM LIES. This should be straightforward for someone who is in charge of their own accounts but it may be tricky in the case of a joint account, said Lane, or any situation where a family shares responsibility for money management. “If a family manages spending together, then the aggressive spender and problem spending areas must be identified.”

3. PUT CONTROLS IN PLACE. “We can’t fix the problem until

we stop the over-spending,” said Lane. Some suggestions include a self-imposed waiting period before larger purchases are made, switching to a cash-only system, hiding or destroying credit cards, or trusting a close friend or family member with helping to establish better spending habits. These measures may seem extreme, he said, but are vital for anyone wanting to see real change in their spending habits. “Controls have to be put in place, whether they’re controls that we manage, or controls that we get help with.”

4. ONCE THE SPENDING IS UNDER CONTROL, FOCUS ON PAYING DOWN DEBT. This will require some long-term planning, explained Lane, but the work is worth it. “Record cash inflows and outflows to determine how much cash should be available at the end of each month, then set a target for additional funds that could be used for debt repayment. If we don’t hit that target then the spending has to be adjusted.”

5. DESIGN A BUDGET. The



Brian Lane, assistant professor in the Edwards School of Business and certified financial planner.

b-word is not an attractive word for many people, said Lane, “but if it’s done in a way that is reasonable, with a level of detail that’s informative but not overwhelming, budgeting can be very useful.”

6. STICK TO YOUR BUDGET. Once it is tailored to suit your needs, you can keep track of where your money comes from and where it goes, and better plan for the future, he said.

7. NO, REALLY, STICK TO YOUR BUDGET. This is a longer-term tactic where the initial hard work will pay off down the road—figuratively and literally. Spend less than what you make, said Lane, otherwise you will end up with debt all over again.

8. PAY YOURSELF FIRST. It is important to set money aside regularly to cover future spending needs. An example of the pay yourself first principle, said Lane,

is the Canada Revenue Agency (CRA) withholding tax from an employee’s paycheque. “If it works for our tax agency, why can’t it work for us?” he asked. “Spreading out the payments and collecting up front removes uncertainty, and this is an idea that can work very well for people who are interested in saving for future needs.” Consider depositing this in a tax-free savings account or registered retirement savings plan account. ■

Board approves tuition increases

Tuition rates rise by an average of 2.5 per cent in 2016/17

Following approval from the Board of Governors in December 2015, undergraduate and graduate programs will see tuition increases ranging from zero to five per cent.

“We know the cost of a post-secondary education is top of mind for students and their families, and we try to manage tuition rates with that in mind,” said Greg Smith, chair of the

U of S Board of Governors. “In most programs, the total cost of tuition and fees will continue to be lower than the median cost of similar programs at other Canadian medical-doctoral universities.”

Tuition rates in the College of Arts and Science, where nearly half of students are enrolled, will increase by 2.7 per cent on average. The average arts and science student will pay \$6,773 in 2016/17 for tuition and fees, including health and dental insurance.

“Students expect to see value for the investment they make in their education, and meeting those expectations is very important to us,” said John Rigby, interim associate provost, Institutional Planning and Assessment. “It is essential for the university to strike a balance between keeping any necessary increases at a manageable increment, while at the same time ensuring the quality of our programs and services stays high.”

Tuition is reviewed annually by the Board of Governors and is set according to three principles: comparability to similar programs at other Canadian U15 medical-doctoral universities; accessibility and affordability for the majority of potential students; and the quality of



John Rigby, interim associate provost, Institutional Planning and Assessment.

programs and the need to ensure students receive a high-quality education.

Tuition revenue comprises about 25 per cent of the university’s operating budget and is used to ensure ongoing program offerings; fund specific enhancements in programs, student services and the student experience; and to set aside needs-based assistance for students who have modest financial resources. The balance of the university’s operating revenue comes from the Government of Saskatchewan, interprovincial funding, investments and other sources.

In addition to tuition, students pay a variety of student

fees that are used to fund specific student benefits offered as part of a university education. Student fees for the regular session for undergraduate students will be \$819.97, an increase of 1.7 per cent, and \$890.19, an increase of 1.1 per cent, for graduate students.

These costs are made up of institutional fees that support things like student recreation services, and third-party fees that support things like *The Sheaf* and the University of Saskatchewan Students’ Union. In some cases, students are able to opt out of portions of the student fees, such as the health and dental expenses if they have other coverage, and the U-Pass fee. ■



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.

Subscriptions are available for \$22 per year. Story and photo ideas are welcome. Advertising rates are available online or on request.

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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2015 Perception Survey

What do people think about the University of Saskatchewan?

Each year, we get some insight into the answer through a survey of public perceptions in Saskatchewan, Edmonton, Calgary and Vancouver. The Social Science Research Laboratory in the College of Arts and Science completed the study. A total of 1,545 randomly selected people took part in a 15-minute telephone survey that took place in October 2015. For more information, please contact communications@usask.ca.

What follows are highlights from this year's report.

U OF S EDUCATION

We asked people in Saskatchewan if...

...the U of S offers students a high-quality education.



Strongly agree (59%)
Somewhat agree (31%)

...the cost of a U of S education is worthwhile.



Strongly agree (33%)
Somewhat agree (44%)

...a U of S degree helps people secure a successful career.

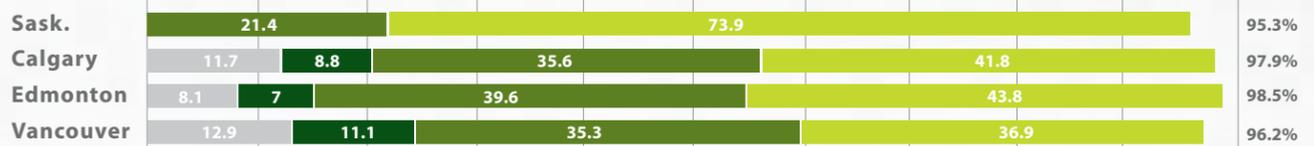


Strongly agree (51%)
Somewhat agree (39%)

REAL WORLD IMPACT

* Percentages below 5% not shown

U of S research is important to the growth and wellbeing of Canada.



The U of S provides a social and economic benefit to my community through its teaching or research.



Legend: Strongly agree (green), Somewhat agree (light green), Neither agree nor disagree (dark green), Somewhat disagree (grey), Strongly disagree (black), Don't know/refused to answer (light grey)

WORD OF MOUTH

I would recommend the U of S as one of the top institutions to pursue post-secondary education to...

53.3%
a close friend

* Total average across all four locations, combining strongly agree and somewhat agree

55.7%
someone in my province

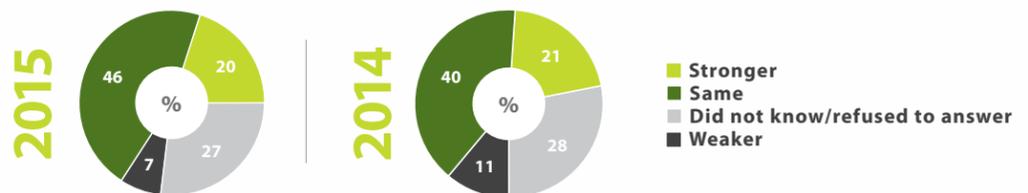
54.3%
someone in Canada

48.4%
someone outside of Canada

OVERALL REPUTATION

How has the university's reputation changed in the last five years?

*Total average across all four locations



2016 Lecture Series at the College of Law



JANUARY 25

Deceived and Seized: A Panel on the Realities of Human Trafficking

PANELISTS: Prof. Carin Holroyd, Political Studies, U of S, Haidah Amirzadeh, Lawyer, and a representative of the police community.

A joint event with Usask Level, formerly Canadian Lawyers Abroad

12pm, Room 150
College of Law,
University of Saskatchewan

FEBRUARY 1

Wunusweh Lecture in Aboriginal Law: Truth, Reconciliation, and Legal Education: The TRC Syllabus and Indigenous Laws

PANELISTS: Gillian Calder, University of Victoria, Karen Drake, Lakehead University, and Aimée Craft, University of Manitoba

12pm, Room 150
College of Law,
University of Saskatchewan

FEBRUARY 3

"Does Dialogue Theory Justify Judicial Review?"

The Honourable Mr. Justice Russell Brown, Supreme Court of Canada

1pm, Room 150
College of Law,
University of Saskatchewan

FEBRUARY 26

Law Foundation of Saskatchewan Lecture: "Human Rights and Disability Law"

PANELISTS: Sonja Kerr, Cuddy Law Firm and Anne-Marie Cotter, Law Foundation of Saskatchewan H. Robert Arscott Chair

11am, Room 150
College of Law,
University of Saskatchewan

*This event is part of a larger one day conference. Contact katie.riley@usask.ca for details.

FEBRUARY 29

ESTEY LECTURE IN BUSINESS LAW:

The End of Internationalism?

Professor Cally Jordan, Estey Chair in Business Law, U of S

12:00pm, Room 150
College of Law,
University of Saskatchewan

MARCH 2

A Conversation with Justice Abella

The Honourable Justice Rosalie Silberman Abella, Supreme Court of Canada

A joint event with Pro Bono Students Canada

7pm, Room 150
College of Law,
University of Saskatchewan

MARCH 7

Lawfulness of the Marriage Decisions

Kendall Thomas, Nash Professor of Law, Columbia University

12pm, Room 150
College of Law,
University of Saskatchewan

ALL LECTURES ARE FREE AND OPEN TO THE PUBLIC.
For more information visit law.usask.ca and click "Guest Speakers."
Check out youtube.com/CollegeOfLawUsask for videos of past lectures.
*Speakers and dates subject to change

Health science fiction

It may sound like fiction, but U of S research is changing the future of medicine.

 KRIS FOSTER

The sun breaks through the blinds and you roll out of bed. Throat is sore and cough is dry. You pick up your tablet and call your doctor by video. You answer a few questions, they listen to your chest, and then you cough into a special sensor connected to your computer device that enables your doctor to diagnose the bacteria or virus that ruined last night's sleep. Before leaving the house you have a prescription.

This is the future of health care, 15-20 years from now, that Dr. Ivar Mendez is helping create.



Mendez with Patrick the remote-sensing robot in Royal University Hospital.

 SUBMITTED

“The general theme of my work is how can we use technology to make a difference,” said Mendez, unified head of the Department of Surgery at the U of S.

Mendez and his team have focused their attention on three main areas: how technology can narrow the gap of health-care service, how state-of-the-art systems can treat neurological conditions and how 3-D printing can be used to personalize medicine.

ROBOTS IN THE NORTH

A big question Mendez has been solving is how technology can help narrow the gap of inequality in health-care delivery. Saskatchewan, with its expansive territory and widely dispersed population, presented a perfect location for Mendez to turn his research in remote sensing technology into application.

Saskatchewan is big and the majority of its 1.1-million population lives in the southern part of the province. Not so coincidentally, that is also where the bulk of the province's health-care resources—practitioners and facilities—happen to be. This leaves smaller communities, Mendez explained, under served and at risk.

“How do we provide service to the most vulnerable segments of the population: children, pregnant women and the elderly? It's a big challenge.”

Compounding the challenge

in Saskatchewan, he continued, is that about 36 per cent of children in the province between the ages of one month and four years live in communities with populations fewer than 1,000 people. To get treatment they have to arrange transportation, which is not efficient in terms of time and money.

“I've been working for a number of years on the idea of remote presence technology that enables the expert or physician to provide care where the patient is in real time.”

To demonstrate this technology, Mendez takes out his smart phone, opens an app, scrolls through a list and selects a robot named Patrick in the Royal University Hospital that can be controlled by his phone. Patrick is equipped with all sorts of high-tech equipment, sensors, a monitor, and a video camera that captures and displays everything in view on Mendez's phone.

Mendez directs the robot to proceed to the nursing station. Patrick maneuvers autonomously through the hospital corridors, sensing if people are close by or around the corner, and proceeds with caution to the final destination. Once there, Mendez and a nurse have a conversation in real time, just as he might with a patient. This minute-long demonstration only scratched the surface of the robot's capabilities.

“This technology is evolving,” said Mendez. “With

remote sensing we can now do ultrasounds, listen to hearts, do electrocardiograms. With this technology we can do some blood work and have results in real time with rapid diagnostic tests.”

The robots—worth about \$80,000 each—are now in six communities throughout Saskatchewan, a number Mendez hopes to see increase by leaps and bounds based on the results he has already seen.

In Pelican Narrows, a northern community with a population of about 2,700, the robotic system is showing impressive results. In collaboration with Dr. Tanya Holt, head of Pediatric Intensive Care, and Dr. Veronica McKinney, director of Northern Medical Services, Mendez has conducted a pilot study using remote presence robots.

“In a period over 10 months we took care of the acutely ill children using the robotic system. What we were able to accomplish is 100 per cent of these kids got the initiation of the therapy immediately. The second is that about 70 per cent of these children did not need to be transported here. We were able to take care of them in their own community. That is a huge thing and we are demonstrating here the value of point-of-care medicine.”

STEM SOLUTIONS

A renowned neurosurgeon, Mendez made a name for himself by looking at how stem cells and

“ We were the only university invited to make a presentation to this group which includes members from all the world’s space agencies.

Dr. Ivan Mendez



DAVID STOBBE



Mendez looks at how stem cells and technology can combat incurable conditions.

SUBMITTED

technology can be combined to combat incurable conditions such as Parkinson’s disease, strokes and other neurological disorders.

“I look at how we can use state-of-the-art technology and stem cells to repair the brain. We actually developed the technology—new surgical instruments—to implant stem cells in the human brain.”

His research in brain repair for Parkinson’s disease attracted the interest of Harvard University and resulted in a decade-long research partnership.

“Harvard University wanted to partner with us because we

have the technology and know how. Harvard has the knowledge about the cells and we know how to operate on patients and put cells into the human brain.”

The partnership between Harvard and the U of S, announced this past September, will see Mendez continue to work on cell-based therapy for Parkinson’s that is aimed at restoring cells lost through the disease.

The process, Mendez explained, will use stem cells from the patient that will provide the necessary dopamine neurons to enable damaged brain circuitry to be repaired.

Mendez began this work in the 1990s and has had promising results. So far, 10 patients with Parkinson’s have had cells implanted into their brains as part of a study; all 10 have seen significant improvements.

“This is a game changer. This is a platform for the development of a therapy for incurable diseases that has the potential to benefit millions of people around the world.”

THE THIRD DIMENSION

This past year, Mendez was planning for a complicated surgery that required him to “put electrodes into the brain of a patient with a complex neurological condition.” He normally uses advanced computer software to map out the surgery; this case required more.

“To do this advanced neurosurgical procedure we needed advanced systems of planning, we needed 3-D structures that are identical to the patient’s brain,” he explained.

Mendez worked with Bob Wilson from the Engineering Shop in the College of Engineering, which has equipment that can print in three dimensions using a variety of materials. Mendez brought a team together—Dr. Marla Mickleborough and Chelsea Ekstrand (psychology student), Devin Bradburn (engineering student) and MRI specialist Alain Lalonde—to figure out how to use personal MRIs to print an

accurate, see-through representation of the patient’s brain.

After some trial and error, the group was able to print a semi-lucent model of the brain—including internal nuclear structures—using a rubber material that was a close representation of the brain’s texture.

The use of 3-D printing, Mendez continued, is going to change health care in substantial ways, including printing organs and other parts of the body.

“3-D printing is going to become very important. For example, if someone needs a new knee, instead of buying a new one and trying to fit it to a particular patient, you will actually be able to print the knee of that particular patient just before operating. It is personalized medicine that will allow us to be much more efficient, much more accurate.”

OUT OF THIS WORLD

All of this combines to place the U of S in a pioneering position.

“You can see how technology can allow us to provide care to people who don’t have access to care, to repair organs, like the brain, of incurable diseases, and develop personalized medicine using 3-D printing technology. Believe it or not, here we are pioneering all these things. We don’t have to go anywhere; the world comes to us,” said Mendez.

In fact, there are applications for this work that may go far beyond the pale blue dot of Earth.

Mendez was recently invited to present at the World Health Organization and the United Nation’s Office for Outer Space Affairs’ General Assembly on “Applications of Space Science and Technology for Public Health.”

“We were the only university invited to make a presentation to this group which includes members from all the world’s space agencies.”

Closer to home, Mendez said these pieces come together to provide a glimpse of what the future hospital may look like.

“Hospitals of the future will shrink instead of getting bigger. With the use of remote presence technology we may shift the paradigm of centralization of health care.”

Hospitals around the world face similar issues, he continued. Emergency rooms are full, beds are always occupied and wait times are long. With remote presence technology, “we can change that and do point-of-care treatment and diagnosis. We can decentralize services of hospitals to where the people are in their own communities and potentially in their own houses.”

This shift means hospitals will mainly deal with the “most acutely ill patients and surgery. Most of the care will be done in the periphery like what has happened in most other industries like banking or the airline industry where they have been able to decentralize.” ■

Mathematician's experience grows exponentially



Stavros Stavrou, math outreach co-ordinator.

KRIS FOSTER

Since he won the USSU Young Alumni Excellence Award two years ago, Stavros Stavrou's (BSc'10, MSc'12, MEd'15) contributions to his field, the University of Saskatchewan and the community have multiplied exponentially.

"When I received the award, I was working on my master's degree in the College of Education, which I completed last fall," said Stavrou. "My goal is to earn a faculty position at the U of S, and I started teaching in the math department last summer. I'm now looking into starting my PhD."

Stavrou was nominated for the award by his friend Paulo Arago (BA'14) for his scholarly achievements as well as his passion for teaching math in a way that makes it accessible for First Nations, Métis and Inuit students.

As the math outreach co-ordinator at the U of S, Stavrou develops hands-on math activities that incorporate Aboriginal culture and anti-racist teaching practices for students

and teachers in the K-12 system in Saskatoon and local reserve schools. He collaborates with teachers, elders and researchers to develop innovative ways to teach mathematics.

One of Stavrou's classroom activities teaches students geometry by using a treaty map of Canada to plot points and measure distances. In another lesson, he uses collaborative learning where students teach him to count in Cree. Another class uses things found in nature—like the branches of a tree or a lightning bolt—to explain fractal patterns.

"I teach this way because a lot of students don't connect

with the Western style of teaching where a teacher pulls out a textbook and asks the class to follow along. These ideas enter

"I teach this way because a lot of students don't connect with the Western style of teaching where a teacher pulls out a textbook and asks the class to follow along."

Stavros Stavrou

their brain and are inert—they don't react with their daily lives," he explained.

Helping learners of all ages succeed at learning math is one of Stavrou's hallmarks—even students at the university level rave about his practical and

easy-to-understand approach to math.

"When I won the award, my picture was hanging up in lower Place Riel for a year," said Stavrou. "I've been a teaching assistant and tutor for the past five or six years, so I regularly received text messages from people I taught saying that they saw my picture and congratulating me."

A recent highlight for Stavrou was presenting at TEDxSaskatoon in November 2015 about his work as a cultural mathematician. "What I do in the community, I connect with the U of S," he said. "I'm proud to represent the university." ■

Do you know a recent graduate who is deserving of recognition? Nominate them for the USSU Young Alumni Excellence Award by February 5, 2016. Visit alumni.usask.ca/awards to learn more.



JEFF DRAKE

Students in the Johnson-Shoyama Graduate School of Public Policy got a bit of face time with Minister of Finance Bill Morneau to kick off the New Year. On Jan. 6, Morneau launched pre-budget consultation with a Google Hangout question period with students from eight Canadian universities, including the U of S.

FINANCE TALK

HOW TO SPOT A GOOD CANDIDATE FOR THE USSU ENGAGED YOUNG ALUMNI AWARD:

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People describe them as a "go-getter," a "whipper-snapper" or an "up-and-comer."

They have never known a world without the Internet.*

IF YOU HAVE SOMEONE IN MIND, NOMINATE THEM BEFORE FEBRUARY 5, 2016!

It's easy:

- 1) Tell us who you're nominating.
- 2) Brag about their early achievements and success in their career.
- 3) Outline how they are serving their local community or changing the world.
- 4) Share how the nominee stays connected to the U of S. And then...
- 5) Find a few others to support the nomination.

Visit alumni.usask.ca/awards for more details.

The winner will be honoured at the USSU Experience in Excellence Awards April 3, 2016.

*The word was first used in 1981, which means they are 35 years old or younger.

Student sheds light on pain-bone link

✍️ FEDERICA GIANNELLI

Dena Burnett has made a discovery about knee pain that one day could lead to new treatments.

Burnett, a University of Saskatchewan PhD student in biomedical engineering, has found that in people living with osteoarthritis, those with intense knee pain have approximately 30 per cent lower bone density at the knee than those with less pain.

Burnett studies the connection between bone density and pain in this disease, an aspect largely overlooked by previous research.

Called “the wear and tear of joints,” osteoarthritis causes people, especially the elderly, to feel increasing pain due to damage to the knee bone and cartilage, the rubbery tissue that cushions the joints.

Causes of the disease are unknown. Treatments are limited to painkillers and knee surgical replacements in the most severe cases.

The connection Burnett has discovered between pain and bone density suggests that osteoarthritis-related pain could be caused by lower bone density in the joints.

“Bone-modifying drugs could be used one day to increase patients’ bone and help alleviate the pain,” said mechan-



Student Dena Burnett (centre) in lab with supervisors Saija Kontulainen (left) and James Johnston (right).

DAVID STOBBE

ical engineering professor James Johnston, who co-supervises Burnett with kinesiology professor Saija Kontulainen.

But Johnston cautions that a larger study is needed into whether low bone density is actually an underlying cause of osteoarthritic pain.

Previous research into the cause of pain has looked at the damage to the cartilage using techniques such as X-rays and magnetic resonance imaging (MRI) or using samples from

cadavers.

Burnett looked not at just the cartilage, but at the bone found deeper under it—the subchondral bone.

She used a non-invasive method—a three-dimensional computer tool developed by Johnston—to measure the quantity of bone in patients.

She compared computed tomography (CT) bone images of people with healthy bones and with those of people at late stages of osteoarthritis.

“These bones are like the foundations of a house, and cartilage is like the walls,” she said. “When you buy a new house, you don’t only check the

walls. You check that the foundations are not shaky too.”

Burnett’s findings suggest that in people with low bone density, bone is likely less stiff, squishes more and breaks more easily.

This discovery has an important consequence for treatments. Usually doctors wait until the pain is excruciating before replacing joints with metal implants.

“Our results suggest that waiting too long for knee surgery could decrease the success of the surgery because patients have lower bone density,” said Johnston.

In collaboration with

Stanford University, Burnett’s next research step is to use the CT images of more than 5,000 patients across the United States to study bone at various stages of the disease.

Her research is funded by the U of S, the federal agency NSERC and the Canadian Arthritis Network. ■

Federica Giannelli is a graduate student intern in the U of S research profile and impact unit. This article first ran as part of the 2015 Young Innovators series, an initiative of the U of S Research Profile office in partnership with The Saskatoon StarPhoenix.

Building consensus

From Page 1

to me for approval before going forward in draft form to various collegial bodies.”

All great institutions, Stoicheff explained, are able to quickly and unanimously point out the aspects that make them so. To him, confirming the vision, mission and values of the U of S is an important step towards building that consensus.

“I need to have the confidence when I speak publicly about the institution that I am answering this question in a way the university would want me to answer it. The university needs to have confidence that I am describing it and its ambitions in

the way it wants to be described.”

Stoicheff said now is the perfect point in the university’s history to have this collective discussion.

“The future for this university looks bright and positive. We are in a province where the population is growing, where the mood is one of thinking big and thinking to the future, we are seen as a leader in research among the universities in the country, and a leader in many other aspects of what a university does. We are working from a position of imagining growth and opportunity and that is a great context in which to be able to imagine and define ourselves.” ■

Committee on vision, mission and values.

The president’s committee on vision, mission and values begins its work in January. An elder is currently being identified to serve on the committee. Its other members are:

- Co-chairs: **Brent Cotter** (law) and **Liz Harrison** (physical therapy)
- Senior member of administration: **Tom Crosson** (risk management)
- Aboriginal member of campus community: **Liz Duret** (human resources)
- Student: **Scott Adams** (third-year medicine)
- Member of Board of Governors: **Lee Ahenakew**
- Member of Council: **Wendy Roy** (English)
- Member of Senate: **Karen Prisciak**



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Coming events

■ Conferences

JSGS Public Lectures

Visit schoolofpublicpolicy.ca for more information.

Challenges and Opportunities for Renewable Energy in Saskatchewan

Jan. 15, 1:30–3 pm, Diefenbaker Canada Centre, Prairie Room. JSGS and the School of Environment and Sustainability are hosting Challenges and Opportunities for Renewable Energy in Saskatchewan, a panel discussion on the challenges and opportunities facing the province as it moves toward a low-carbon future. The panel discussion will be moderated by Jeremy Rayner and will feature topics such as attainable renewable energy goals, First Nations transitions to renewable resources, the potential for a carbon-free electrical system in Saskatchewan and necessary steps for meeting the 1.5 degree warming target outlined in the recent Paris Climate Accord.

Veterinary Microbiology/Veterinary Pathology Seminar Series

Jan. 20, 12:30 pm, Room 2302 WCVM. Kalhari Goonewardene and Thushari Gunawardana, Department of Veterinary Pathology, and Dinesh Wellawa, Department of Veterinary Microbiology, present: *Novel approaches to combat poultry infectious diseases.*

Intuition, Analytic Reasoning, and the Feeling of Rightness: A Metacognitive Reasoning Theory

Jan. 21, 4–5 pm, Arts 153. Professor Valerie Thompson, Department of Psychology will give a talk entitled, *Intuition, Analytic Reasoning, and the Feeling of Rightness: A Metacognitive Reasoning Theory.* Members of the university community and the general public are welcome to attend this presentation which is part of the Department of Psychology's monthly colloquium series. In this talk, a theory of metareasoning will be presented whose goal is to

predict the circumstances under which people reason with their "gut" instinct verses engaging a more thoughtful approach. Metareasoning refers to the processes that monitor and control reasoning, problem solving and decision-making. For more information, please contact Peter Grant at 306-966-6675 or peter.grant@usask.ca.

School of Public Health – Vaccinology and Immunotherapeutics Seminar Series

- Jan. 21, 12:30 pm, VIDO Lecture Theatre. Alyssa Chaffey presents: *Stimulating a Th17 immune response in mice through the use of intramuscularly injected combination adjuvants.*
- Feb. 11, 12:30 pm, VIDO Lecture Theatre. Mingjie Hao presents: *BAdV- 3 capsid proteins and innate immune responses.*
- Feb. 25, 12:30 pm, VIDO Lecture Theatre. Magda Hlasny presents: *Exploring a new small RNA molecule derived from influenza A virus as a possible vaccine adjuvant.*

It Starts With US: Student Leadership Conference

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

47th Annual Sorokin Lecture

Feb. 2, 7–8 pm, 146 Arts. William Carroll, University of Victoria, presents: *Expose, Oppose, Propose: Cognitive Praxis in the Struggle for Global Justice.* Since the 1970s, economic globalization has fuelled concerns that democracy is being hollowed out. Transnational social movements have developed as advocates of democratic globalization. Alongside and in support of these movements, transnational alternative policy groups (TAPGs)

have emerged: think tanks that provide evidence-based critiques of neoliberal capitalism while promoting democratic alternatives to the corporate agenda of top-down globalization. In this lecture Carroll explore the networks, discourses and practices through which transnational alternative policy groups exert political and cultural influence, and assess the challenges they face as transnational change agents in an era of economic and ecological crisis.

Winter Refresher 2016

Feb. 29–March 2. Shannon Craigo-Snell, a systematic theologian and activist, will lead the discussion during St. Andrew's College Winter Refresher 2016. Craigo-Snell is a professor of Theology at Louisville Seminary and an ordained teaching elder in the Presbyterian Church (USA). Her work focuses on the three pillars of impolite conversation: sex, religion, and politics. Framing Christian doctrines as "arguments that have been going on for so long that we have names for them," Craigo-Snell finds life, humour and insight in the most traditional philosophical and theological texts. She delights in the intersections of abstract ideas and daily life. For more information, including a Winter Refresher 2016 brochure and tentative schedule for download, visit www.standrews.ca, or call 306-966-8970.

■ Courses/Workshops

Languages

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

Multilingual Conversational Language Classes from Jan. 18–March 28:

- 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 to 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

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

One-Week French Immersion

February 22 to 27; all levels offered. Ideal for individuals who wish to fast-track their French language skills, 36 hours over 6 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 cde.usask.ca/art. Register online or call 306-966-5539

■ The Arts

Amati cello, Streicher fortepiano in concert

Feb. 8, 7:30–9:30 pm, Convocation Hall. Enjoy a unique opportunity to hear Beethoven, Mendelssohn and Rachmaninov played on fortepiano, piano and the Amati cello! Two historic instruments (fortepiano by Nannete Streicher, 1814 and cello by Hieronymus Amati II, 1690) reveal a unique perspective in the interpretation of Beethoven and Mendelssohn. The wildly romantic Rachmaninov features the Amati cello with the concert Bechstein piano. All this interpreted by guest artist Philip Hansen, principal cellist of the Calgary Philharmonic Orchestra and pianist Kathleen Solose on the stage of Convocation Hall. Tickets \$20, seniors/students \$10 available, at www.picatic.com/event/14496051369511287

■ Miscellany

Cameco Spectrum 2016

Jan. 14–17, 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

Eat Smart Tour

Jan. 20, 11–11:15 am, Marquis Hall. Do you need help sticking to your New Year's resolutions when dining at Marquis Hall? Join us for the Eat Smart tour to learn more about making healthy choices when dining at a buffet. This short 15-minute tour will guide you through the Marquis Buffet and show you what to look for when making decisions, with a focus on choosing delicious high-fibre foods. No purchase necessary to partake in this event. For more information check out the Facebook event page at www.facebook.com/events/1538080363150232/

Writing North 6: Roadkill

Jan. 22–23, 5–9 pm, Louis' Loft. Writing North is a two-day writer's festival that targets Saskatoon and a wider Saskatchewan community of aspiring writers and anyone interested in writers and books. Now in its sixth year, Writing North features five established writers. Writing North begins with a Sage Hill fundraiser on Thursday evening at The Woods Alehouse, 148 2nd Ave. N, Saskatoon. The festival continues on Friday evening with a panel discussion involving all five writers, focusing on the various aspects of the writing journey. The evening will feature a reading by Dave Bidini and a reception afterwards. On Saturday, writers will conduct workshops related to their particular forms: poetry (dee Hobsbawn-Smith), prose (Lee Henderson), poetry (Donna Kane), and drama (Brad Fraser). These workshop-style sessions will be practical, and intended for developing writers of all levels. As this festival is intended to be a community outreach event, there will be no charge for this event. Please visit www.skwriter.com/home/716 for more information.

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OCN Publishing Schedule

No.	Issue Date	Deadline Date
10	Jan. 29, 2016	Jan. 21, 2016
11	Feb. 12, 2016	Feb. 4, 2016
12	March 4, 2016	Feb 25, 2016
13	March 18, 2016	March 10, 2016
14	April 1, 2016	March 24, 2016
15	April 15, 2016	April 7, 2016
16	April 29, 2016	April 21, 2016
17	May 13, 2016	May 5, 2016
18	May 27, 2016	May 19, 2016

➤ SUBMIT

Coming events

Next OCN: **Friday, Jan. 29**
 Deadline: **Thursday, Jan. 21**

Email ocn@usask.ca

Gordon Oakes Red Bear Centre opens

The Gordon Oakes Red Bear Student Centre—with a development cost projected to be \$17 million—opened its doors to the campus community on Jan. 4, 2016. A number of formal and informal celebrations are planned leading up to Aboriginal Achievement Week (Feb 8-12.) On Feb. 4 from 2:30-4pm, faculty and staff are invited to tour the building at an informal come-and-go event.



THE CEILING is decorated as a medicine wheel, using colours chosen by the Oakes family. The feature skylight of the building at the centre of the medicine wheel is symbolic of a star blanket.



THE CENTRAL GATHERING AREA can be used for ceremonial smudging and pipe ceremonies. A large exhaust fan and vent are hidden within the high ceiling.

Being close to the earth is important during cultural ceremonies, so dirt taken from the construction site fills a large cement cylinder located in the basement of the building, directly below the gathering area.



Graeme Joseph



Lori Delorme

THE ABORIGINAL STUDENTS' CENTRE (ASC) is located on the main floor. Graeme Joseph, team leader, First Nations, Métis and Inuit student success, leads the ASC staff and manages the new building. Lori Delorme, student services co-ordinator at the ASC, is Métis and was born and raised in Cochin, Saskatchewan. She has been working at the centre for more than 17 years and assists all Aboriginal students, placing an emphasis on new students.



THE SECOND FLOOR of the building has study space, a kitchenette, a computer lab and office space for the Indigenous Students' Council, the Indigenous Graduate Student Council and tutors.

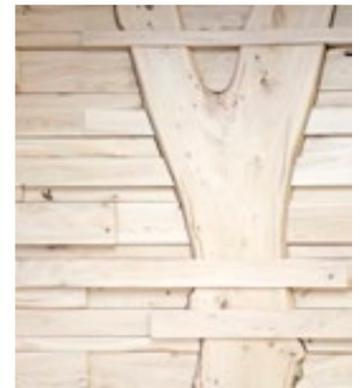
THE DESIGN AND DÉCOR of the centre are rich with cultural significance. The exterior of the building is composed of Tyndall stone that adorns many other buildings on campus. The stone wraps around the building creating a symbolic blanket to protect the building's centre.

Two rows of inlaid tile encircle the building, representing the wampum belt and one of the first treaties between Aboriginal peoples and newcomers on the land that would later become Canada. At each of the four cardinal directions, the colour of the tiles changes to represent each of the four seasons: south (summer, red),

east (spring, yellow), west (autumn, charcoal), and north (winter, white).

Douglas Cardinal, a renowned architect of Métis and Blackfoot heritage, designed this 1,884 square-meter building. Cardinal is a forerunner in philosophies of sustainability, green buildings and ecological design in community planning. His architecture is inspired by his observations of nature.

He has designed a number of notable buildings including the Canadian Museum of Civilization, the First Nations University of Canada and the Smithsonian's National Museum of the American Indian.



THE ENTRANCE to the building features a wall composed of elm wood recovered from trees removed from the building's construction site.

GETTING SOCIAL WITH MEDIA

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

usask

University of Saskatchewan
23 December 2015 at 06:30 - 41

The frost makes #usask look magical! Just in time for the holidays. 🌨️

80,542 people reached

Like Comment Share

University of Saskatchewan, Meghan Genniss, Megan Monsele, Shelby Sargent and 2,080 others like this.

101 shares

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usask_culinary
PulseFeast today @usask Marquis #lovepulses

5 likes

@usask

353 likes

usask Another beautiful shot of the frosty trees! #usask

@usask

Univ. of Sask. (Sask.) Jan 4

Welcome to the 170+ new students attending #usaskorientation today! Event info: bit.ly/1JP4enU

5 likes

@SuperDARNCanada

SuperDARN Canada
#SuperDARNCanada

Here's the view our Saskatoon SuperDARN Canada radar is enjoying tonight. Courtesy @Gashonreimer.

20 likes

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



Walk with the animals, talk with the animals

Sue Johnson might have the most diverse—and interesting—job description on campus.

"If it moves or breathes or was alive at some point in time, I probably deal with it," said Johnson, technician at the Museum of Natural Sciences in the Geology and Biology Buildings.

A veterinary technician by trade, Johnson started with animal research in the health science disciplines in 1998 before making her way over to the interactive museum in 2003. "It's a museum of evolution—I'd like to think I've also evolved," she said with a laugh.

Besides occasionally leading tours and interacting with visitors—her conservative guess at a visitor count is about 30,000 people per year—her to do list also includes watering plants, feeding fishes and frogs, and cleaning the intricate crystal, mineral and rock specimens.

And if you are wondering who cleans and maintains the sky-high dinosaur fossil specimens—look no further. "That's me," she said.

And what is the best method for cleaning the dinosaur replicas? "Carefully," answered Johnson. Armed with Swiffer dusters, she gets a literal boost from Facilities Management Division, which supplies a mechanical lift that allows her to reach the top of the T-rex for a thrice-yearly dusting. The bones are subject to a more thorough cleaning every five years, "followed by a coat of Murphy's oil to make them shiny."

Johnson appreciates being part of something where she continuously learns about biology while imparting her wisdom on others. "The magnitude of what I get to learn in this job is huge—I find it fun," she said. "Someone once said that I am full of useless facts, but interesting ones. That's perfect, because when people are visiting the museum and I do get to interact with them, that's the one part of my job when there is not enough time in the day." ■

