

SCIENTIA

A publication for College of Science and Health alumni



Kenshu Shimada displays a fossilized tooth from *Megalolamna paradoxodon*. More on page 6.

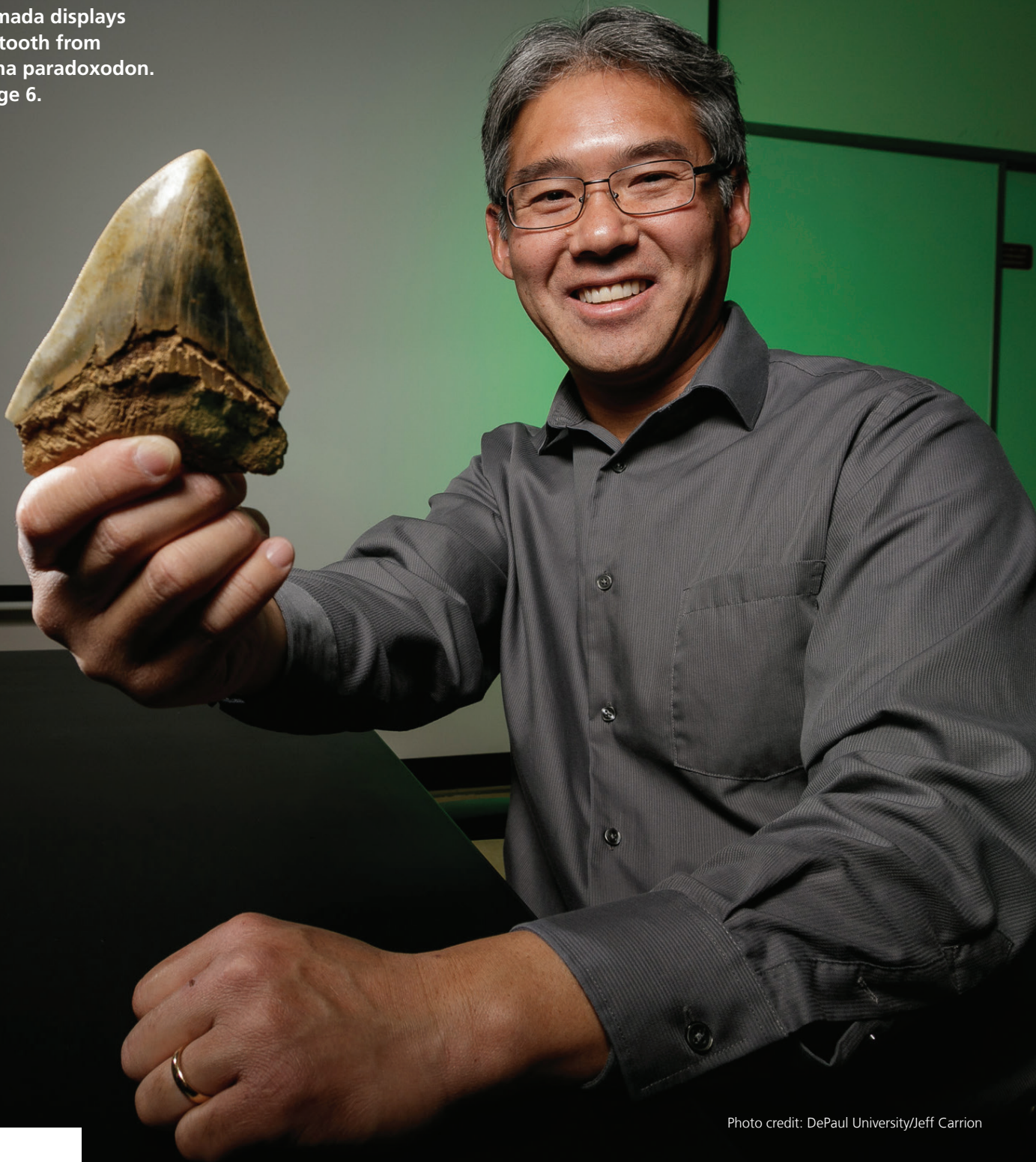


Photo credit: DePaul University/Jeff Carrion

Spring 2018

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NO IVORY TOWER



Universities may at times seem aloof or remote from the real problems of everyday life in their communities. Not so at DePaul! A core value of our Vincentian mission involves community engagement in ways that offer respectful service to those who need it most. Although our primary focus remains uplifting students through education, we actively benefit the community through the expertise and efforts of our faculty, staff and students.

Describing the outreach efforts of our College of Science and Health (CSH) family could fill many pages, but here are some examples. The Cities Project mentoring program, in operation since 1996, reaches into the Chicago Public Schools to help minimize academic and health problems. Our STEM Center, working with local teachers, has helped to improve math and science teaching in local schools, contributing to increased scores on national achievement tests. Our Success Over Stress (SOS) program has succeeded in reducing stress, anxiety and aggression among school students. Our School of Nursing uses community health centers as training and service venues.

Faculty members' research included helping Asian immigrant families understand the value of immunization, reducing the prevalence of smoking and depression among Latino children, improving Chicago's bioenvironment, and finding new ways for teachers to inspire urban youth to pursue higher education in math, science and health.

You can play a role in helping us to continue our community engagement, while also supporting our students, through the undergraduate summer research fellowship. This donor-funded program places undergraduate students in research positions at nonprofit institutions around the Chicago area, including Argonne National Laboratory, Rush University's autism center, The Field Museum and Lincoln Park Zoo. The students benefit from a summer job that offers applied research experience, and scientists at the research sites enjoy mentoring the next generation of scientists and health practitioners.

We have far more student interest in the program than we can support with current funding. Please consider a gift to help us continue our long tradition of community service by supporting our students' work in these community settings.



ACCESS ADVENTURE

FULBRIGHT SCHOLAR CAROLYN KAMMER (CSH '17) FINDS INSPIRATION TEACHING IN GUATEMALA

Carolyn Kammer (CSH '17) applied for a Fulbright scholarship in 2016, she says, "kind of on a whim," and was chosen out of a field of more than 10,000 applicants to participate in the 2017–18 program.

"I had been wanting to take a year to travel, work on my Spanish, work in new communities and experience the world in new ways," Kammer remembers. "I had been working for Associate Professor Phillip Stalley, DePaul's Fulbright scholarship program advisor, and one day I just realized that maybe I had what it would take to be able to have this amazing experience."

Last fall, the newly minted Fulbright scholar arrived in Esquipulas, a small city in Guatemala, to begin a year of work with the English Access Microscholarship Program—Access, for short. This after-school program works to teach adolescents English and build community through service learning and interactive/kinesthetic activities.

The other Access sites around Guatemala call Esquipulas "Access Paradise" because classes are taught in Parque Chatun, a park situated next to a beautiful river and forest, with hammocks available for impromptu

siestas. "I still cannot believe how lucky I am," she enthuses.

Kammer, who studied psychology and Spanish at DePaul, puts her education to work at Access. "My role largely is to give workshops to teach about the culture of the U.S., and then connect it to the students' own culture and experiences. That's my favorite part because I get to hear about their own lives," Kammer says. "I also help the Access teachers by being the pronunciation coach or simply observing group dynamics, engagement, attention and comprehension in order to manage the class better. In addition, I am starting up a conversation/creative writing club, as well as a bilingual singing group for young people in the community."

Kammer was oriented to the Access program her first week in the country. "There are six Access sites around Guatemala, and teachers and assistants from all the sites gathered for professional development and community building," she recalls. "I loved it because we were immediately welcomed into this tight-knit group, almost all of whom had been Access students themselves, which was incredibly inspiring just with their attitude, outlook and energy."

Kammer finds her DePaul education has prepared her well for her work with Access. "I think the fact that I have been and am still learning Spanish helps me to understand what my students are going through while learning English."

As far as psychology goes, Kammer says, "I could probably write a whole book on how I am using that degree here." She and Access coordinators have been working on a project that could contribute to the objectives of the organization. The project, still in its formative stages, includes the creation of a general training manual for Access teachers on psychology in the classroom. She also envisions conducting studies on student self-awareness and its influence on learning, as well as the impact of music and movement in the classroom.

When Kammer's stint in Esquipulas is over, she will head to another Access site in Cobán, in Guatemala's northern highlands, for the remainder of her scholarship year. Kammer is optimistic about the benefits of her experience to her future. "It is good practice to apply concepts I learned about in a textbook to an actual, living, changing group of adolescents."

THE FAQS ON HPV

School of Nursing faculty focus on education and outreach for the most common form of sexually transmitted infection

If you told parents there was a way to decrease the chances of their children developing cancer, it's a pretty sure bet that they would jump at the chance. But that's not what's happening when it comes to human papillomavirus (HPV).

The Centers for Disease Control and Prevention estimates that about 79 million Americans, most in their late teens and early 20s, have been infected with HPV. Both males and females are at risk of developing one of several cancers later in life if they contract an infection from one of the more virulent forms of the virus.

A safe and effective vaccine to prevent HPV infection has been available since 2006, but the number of children getting vaccinated at the recommended age of 11 remains disturbingly low. Two faculty members in the School of Nursing, Clinical Assistant Professor Christina Lattner and Associate Professor Young-Me Lee, are working to change that statistic with research and public health interventions.

Lattner has been involved with HPV education for the last three or four years. Her interest evolved from her work in an emergency department as a sexual assault nurse examiner. Lee became interested in HPV research through a community

engagement program designed to educate underserved populations about HPV and other sexually transmitted infections (STIs).

"I saw some research about HPV with the Asia population," Lee says. "I looked at the rate of cervical cancer and HPV infection in the Korean population, and I found that Korean women have 1.5 times the rate of cervical cancer compared to Caucasian women." A concerned Lee, who hails from Korea, refocused her research and education to take a look at HPV and the Korean population.

Barriers to Vaccination

Both Lattner and Lee have found barriers to widespread use of the vaccine. "There are more occurrences of HPV because I don't think that the vaccine has been marketed very well," says Lattner. "In addition, parents aren't informed that this is a vaccine as important as a measles-mumps-rubella (MMR) or tetanus shot, and the vaccination itself is not a requirement of school systems."

Lattner also sees a reluctance on the part of health care professionals when it comes to talking about HPV and STIs. "Pediatricians whose patient population has always been from infancy until about

adolescence are less comfortable with discussing HPV, sexually active children."

Lee sees a similar reluctance among parents. "I just look at previous research articles, and they suggest Korean parents have a negative perception regarding HPV vaccination because they're thinking that giving the HPV vaccination is just so related to sexual behavior. In our Korean traditional culture, talking about sex is a terrible subject."

Lattner says American parents are no different in that regard. "When they think about a 9- or 10-year-old boy or girl, they immediately don't want the vaccine, because they assume that that's going to promote sexual promiscuity."

Lattner also sees gaps in education about HPV and its preventive vaccine among health care practitioners. "I have noticed that health care providers, if they bring up the vaccination at all, they typically target it toward young women or adolescent girls and parents, because the risk of HPV is related to cervical cancer," Lattner says. "Males are being missed because there is no equivalence to cervical cancer. However, there are other cancers that can happen in young males—prostate cancer, testicular cancer—and health care providers are not addressing that with parents."

Lee has experienced the same problem with Korean parents. In January, she conducted a focus group about HPV vaccination with Korean parents. "They said they did not realize that boys needed vaccination." Currently, about 31 percent of Korean girls and 9 percent of Korean boys have been given the HPV vaccine.

Finally, the vaccine must be given in a series of three shots. Lattner says, "If we're able to get parents to commit to that first dose, the problem that we're having is getting health care providers to make sure that we push and advocate for the second and third doses. And that's not being done."

Breaking Through

Both Lattner and Lee are working on more research, education and direct intervention to improve the rate of HPV vaccination in adolescents and young adults.

Lattner believes that nurses are key. "To be able to get pediatricians on board with the importance of the HPV vaccine would be a huge win for the vaccine, but that's an issue. I think the biggest impact is going to be with the nurse practitioners because nursing as a profession have a different holistic view of health care in general and nursed are better equipped to sit and talk with parents and children about HPV."

"I teach Nursing 303," Lattner offers. "It is the last course that the students take before they go into specialty care. So I have them at that point where we're talking about immunizations and vaccines. I also know that when they do OB and women's Health, [Clinical Assistant Professor] Linda Graf brings home the same issue."

"It also gives the students a chance to kind of uncover their own feelings regarding vaccinations," she continues. "One of the things we teach in the School of Nursing is self-recognition. You have to understand where you stand with certain issues so that you can be nonbiased as you present them to the public. And the students actually do really well with that."

"I think parents need to know that the vaccine is available and not be afraid to bring up that conversation with their providers in front of their children. And what I've discovered in my research was a lot of parents were fine with having a health care provider totally take the reins on that conversation. For some parents, it was very uncomfortable for them to talk about sexually transmitted infections and sexual activity. So, therefore, it's okay for the parents to put that in the hands of the provider. We don't mind doing it. Just give us permission to do so."

Lee says Korean parents are most greatly influenced by the recommendations of their physicians. "They said that this is okay to give the vaccine if the doctor makes the recommendation." HPV is an exception: "They do not want to give permission to their children to be sexually active. It is a misunderstanding about why their children needed to get the vaccination. The health care provider, the doctor, needs to spend a little more time with the parents to clearly explain about what are the benefits and what are the risks of the HPV vaccination. Then the parents are able to make the right decision and informed decision."

Based on her research, Lee has a foundation to develop a culturally sensitive HPV educational program. "The Korean parents say this is much better to have everyone, parents and their children, together." Her program is still in its early stages of development, but her long-term goal remains constant: "I will continue to focus on serving the health needs of vulnerable populations, serving the educational and social needs of minority students, and being actively engaged in collaborative, preventive health behavior/intervention research for underserved populations to improve their overall quality of care and reduce health disparities."

Shark Tales

PROFESSOR DISCOVERS A GIANT, TOOTHY PREHISTORIC SHARK

It began with a family excursion to a place noted in an amateur nature enthusiast guidebook. Professor Kenshu Shimada, then a 13-year-old living in Japan, visited a geological site near Tokyo hoping to find fossil shark teeth. After he cracked open rock after rock with an ordinary hammer, a two-inch-tall tooth peeked out, and Shimada's career as a paleontologist began.

"I was interested in fossils before that moment, but finding that 'megalodon' tooth got me completely hooked," says Shimada. "For the next several years, I taught myself paleontology and vertebrate biology and explored places in Japan where fossils were known to turn up. After I graduated high school, I came to the U.S. and began my formal training."

Since earning his BS and MS in geology and PhD in biology, Shimada has named about a dozen new fossil fish species. Most recently, in fall 2016, Shimada and his research team announced the discovery of *Megalolamna paradoxodon*, a car-sized extinct shark. The species, whose fossilized teeth were found in California, North Carolina, Peru and Japan, lived about 20 million years ago.

"This shark belongs to the group Otodontidae, which contains the iconic, extinct, super-predator megalodon, or the megatoothed shark," Shimada explains. "Based on certain dental features, the species we discovered is a close cousin to the megatoothed lineage. However, its teeth look like a giant version of modern-day sharks' from the genus *Lamna*, hence *Megalolamna*."

The shark appears to emerge suddenly in the geologic record. Although smaller than other members of the megatoothed lineage, *Megalolamna paradoxodon* is estimated to have reached lengths of at least 13 feet. The shark had grasping-type front teeth and cutting-type rear teeth, likely used to seize and slice its prey.

"Given that fossil shark teeth from that geologic period are well sampled globally, it's remarkable that such a large shark evaded recognition until now," Shimada says.

Looking back on his long career, Shimada can still remember the emotion he felt when he uncovered his first fossil. It's a feeling that he loves to see replicated in his students. "I get particularly excited when my students also experience the excitement of discovering something new in class or in my research lab," Shimada says. "I consider myself lucky to get paid to do my hobby of 'doing science' and share my interests with students, colleagues and the general public. I look forward to continuing to dig into the paleobiology of this shark and its allies."

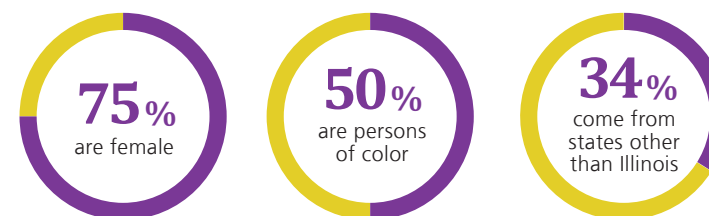
Edited and adapted from an article by Rachel Marciano for DePaul Newslines.



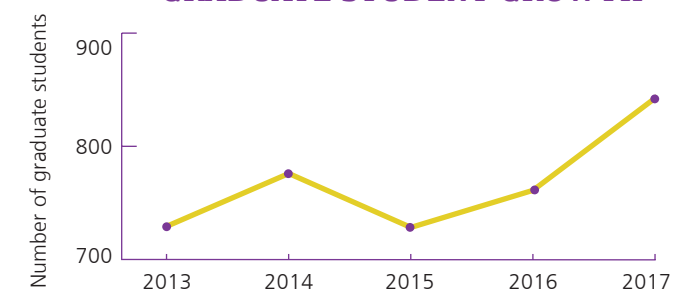
By the NUMBERS

Fast facts. Bragging points. CSH snapshot. However you want to describe them, the numbers below tell an impressive story. Like the information culled from a healthy patient's vital signs, this overview of the college "by the numbers" gives a glimpse into the thriving and robust programs, people and projects that compose this special place.

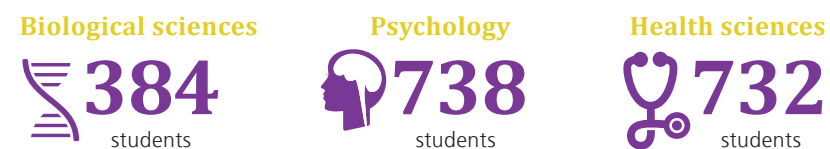
FRESHMAN ENROLLMENT Fall 2017



GRADUATE STUDENT GROWTH

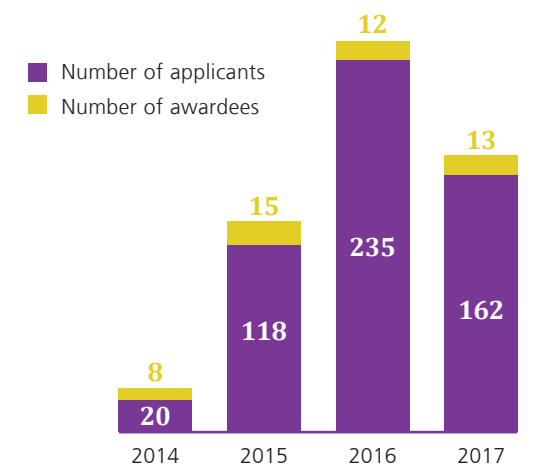


LARGEST UNDERGRADUATE MAJORS

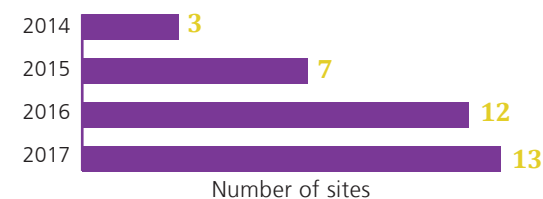
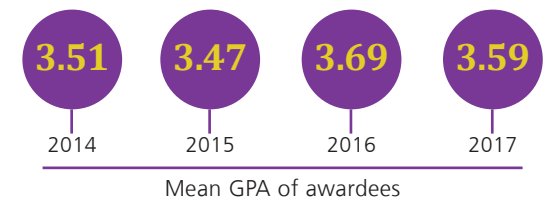
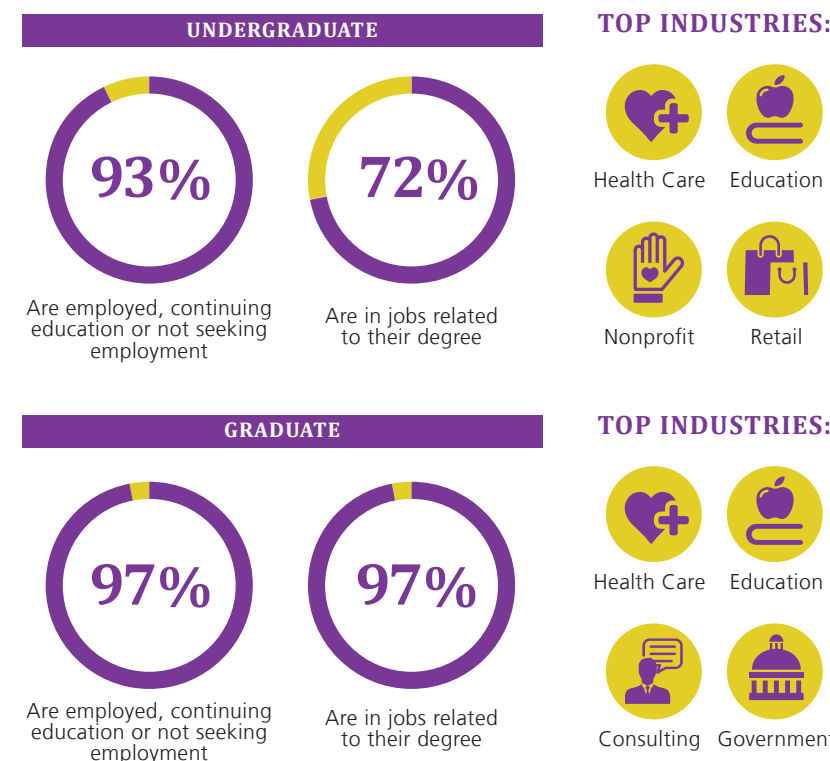


DEAN'S UNDERGRADUATE RESEARCH FELLOWSHIP

This competitive program provides financial support for students conducting summer research at museums, research institutions, laboratories, medical facilities and other sites.



CLASS OF 2016 CAREER OUTCOMES



WHAT COLOR IS SADNESS?

Art therapy helps children express ideas that they can't say in words

A picture is worth a thousand words, especially when the artists are children struggling to understand their own feelings.

"We're helping kids who have suffered trauma, who have a disease or illness, or who have a very hard time verbalizing their difficulties. They have trouble naming their emotions or they feel disconnected to their bodies and their emotions. Art therapy really helps them reconnect," says Lu-Luen Jeng, who founded the art therapy program at DePaul Family and Community Services (DFCS) in 2014.

Jeng works with students up to age 18, the majority referred from Chicago Public Schools (CPS). Her tools include colored pencils, clay, beads and yarn; she offers different materials based on how much structure her clients need. For example, she'll choose clay or fabric for people with anxiety or attention-deficit disorders to help them feel a sense of control. Conversely, "for people dealing with cancer or a loss

in the family, watercolors help them learn how to cope with things that they don't have control over," she says.

The quality of the art isn't important. Jeng is much more interested in why people make the choices they do: "What does this mark mean? What does this color mean to you? Who is this person, and why did you make them so small or so big compared to others?"

Under Jeng's guidance, the art therapy program has grown at DFCS, DePaul's full-service behavioral health clinic. In addition to complementing the suite of free services the center offers, the art therapy program hosts both graduate and undergraduate interns from DePaul's psychology program in the College of Science and Health, the social work program in the College of Liberal Arts and Social Sciences, and the counseling program from the College of Education. DFCS also partners with the School of the

Art Institute (SAIC) to provide internship experiences for their graduate students.

Cassidy Kassab, a SAIC graduate who now works as an art therapist in Detroit, says DePaul's program provided her with a superior internship experience. "DePaul's training program is clinically based and very rigorous," she says. Learning alongside clinicians prepared her to work in more challenging settings. "It gave me more of a science-based background so ... I'm a lot more versatile."

Jeng and the interns also provide weekly therapy groups for students at three CPS schools, including Alexander Hamilton Elementary School in the Lakeview neighborhood. Lynda Gardner, the counselor and case manager at Hamilton, says the art therapy program is invaluable for helping students who might not otherwise get services. "They're working on the skills they need to, they're showing growth [and] they're doing it in a fun way."



The art therapy group was asked the question "What makes a family?" Group members expressed their ideas on ice cream sticks. They then assembled the ice cream sticks into a collage. This activity is used to increase a sense of family among group members.

Photo credit: Lu-Luen Jeng, LCPC, ATR



PHYSICS SHOP MANAGER FORGES BIOTECHNOLOGY CAREER

Concocting contraptions for professors was great preparation for inventing the precursor of the medical monitoring devices used in operating rooms today, says retired biotechnologist Steve Johnson (CSH '77).

"I was a student manager of the electronics and machine shops in the physics department," he explains. "Professors would say, 'We need a demonstrator for Boolean logic,' and I would come up with a design, build it in the electronics shop, then build a case for it in the machine shop."

The position included a tuition waiver and a small stipend, which enabled him to graduate without debt as well as tinker in the shops during his free time. He recalls spending one spring break building a robot: "DePaul was one of the few universities in North America that had a working R2D2 when 'Star Wars' came out."

After earning a master's degree in computer and information science from the Ohio State

University (OSU), Johnson became intrigued with the problems his roommate was trying to solve for OSU's medical school. At the time, the machines that monitored vital signs varied widely among operating rooms, which meant that patients could be at risk while anesthesiologists figured out the control panel for each machine.

Johnson joined the OSU team and helped create a standardized user interface that could be attached to any model of monitoring device. "It's very satisfying to see the consequences of this research ... because most medical monitoring gear in operating theaters today incorporated ideas that we developed in the early '80s," he says.

Hooked on biotechnology, Johnson leveraged his shop experiences and the three summers he spent interning at Argonne National Laboratory in Lemont, Ill., into a career using data and technology to improve patient care. He was the senior manager or consultant on

projects such as creating algorithms for drug dosing and using big data to enhance treatment of dialysis patients. He retired in 2014 from Amgen, Inc., a biotechnology firm in Thousand Oaks, Calif.

"The background and opportunities that I was afforded by DePaul, the physics department and the dean were instrumental in my ability to land on my feet throughout my career," Johnson says. He's now giving back by funding at least one undergraduate internship annually and serving on the advisory council for the College of Science and Health. When he attends meetings, he invariably finds ways to make connections.

"When I hear about a DePaul student who is doing something that's particularly interesting to me, I try to put them in contact with people in industry or elsewhere in academia so they can become potential collaborators or graduate students," he says. "I benefited from [DePaul connections] for years. I need to pay it forward, right?"

LAB NOTES



1 Psychology Celebration

Nearly 100 graduate students, faculty and alumni gathered in Cortelyou Commons on Sept. 15 for the 2017 DePaul Psychology Showcase and Reception. Associate Professors Jocelyn Carter, Douglas Cellar, Jessica Choplin and Kimberly Quinn shared updates from their research, and the event concluded with a social hour reception featuring drinks and appetizers.

2 Nursing Honors

Sixty-six nursing students were inducted into the nursing honor society Sigma Theta Tau International in November. The inductees received honor cords in recognition of their academic achievements in the nursing field. The society, which counts more than 135,000 nurses among its members, focuses on leadership, research, nursing excellence and service. Photo credit: Ian Pfeiffer.

3 St. Vincent's Legacy

In August, Associate Professor Jocelyn Smith Carter (left) and Professor Bernadette Sánchez (right) were named two of three new inductees into the Society of Saint Vincent de Paul Professors. This honor is reserved for faculty members who have distinguished themselves as teachers and scholars. Members of the society commit themselves to service projects that support DePaul's Vincentian mission. Photo credit: DePaul University/Jeff Carrion.

4 Moving On Up

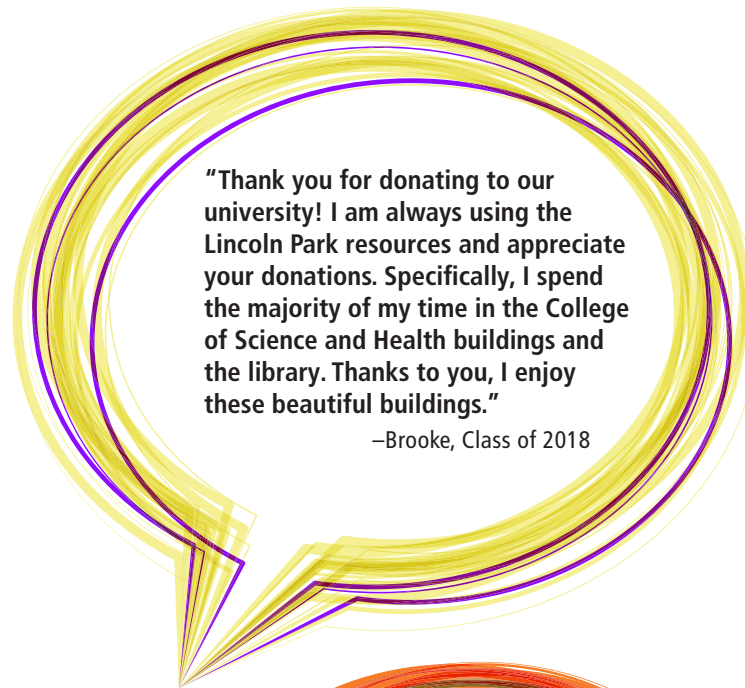
Congratulations to recently promoted and tenured faculty! (L to R) Suzanne Bell, Joanna Brooke, Bridget Tenner and Sandra Virtue were promoted to full professor, while Douglas Bruce (not pictured), Jason Bystriansky (not pictured), Verena Graupmann and Caitlin Karver were promoted to associate professor with tenure. Photo credit: DePaul University/Jeff Carrion.

5 Going Green

Starting this academic year, students can now minor in climate change science and policy. The minor is a collaboration between the Department of Environmental Science and Studies and the Department of Public Policy Studies in the College of Liberal Arts and Social Sciences. Required courses include global climate change, climate change policy, and oceanography or weather and climate; elective courses include ecological and social economics, sustainable development, environmental politics and rhetoric, green cities and more.

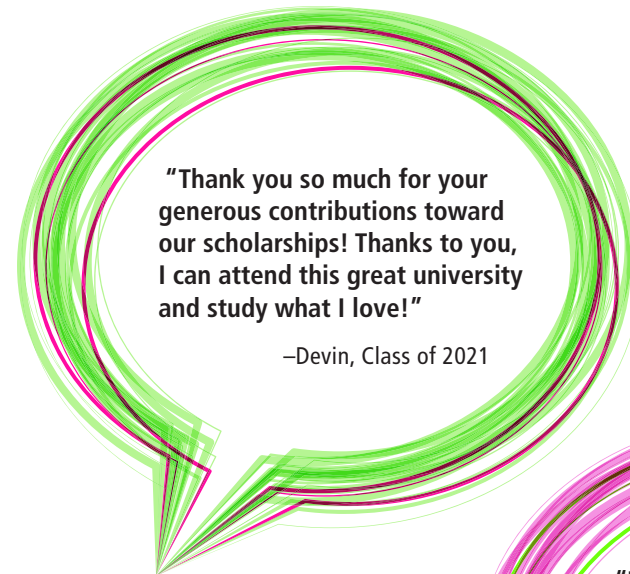
In Gratitude

From lab equipment to scholarships to textbooks, CSH students appreciate the many ways DePaul alumni and friends make their education possible.



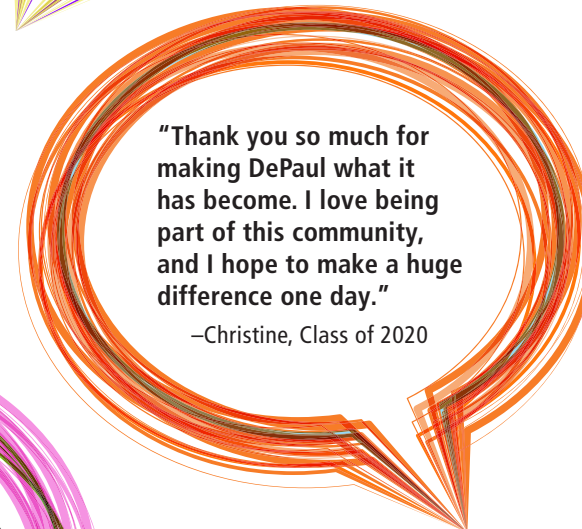
"Thank you for donating to our university! I am always using the Lincoln Park resources and appreciate your donations. Specifically, I spend the majority of my time in the College of Science and Health buildings and the library. Thanks to you, I enjoy these beautiful buildings."

—Brooke, Class of 2018



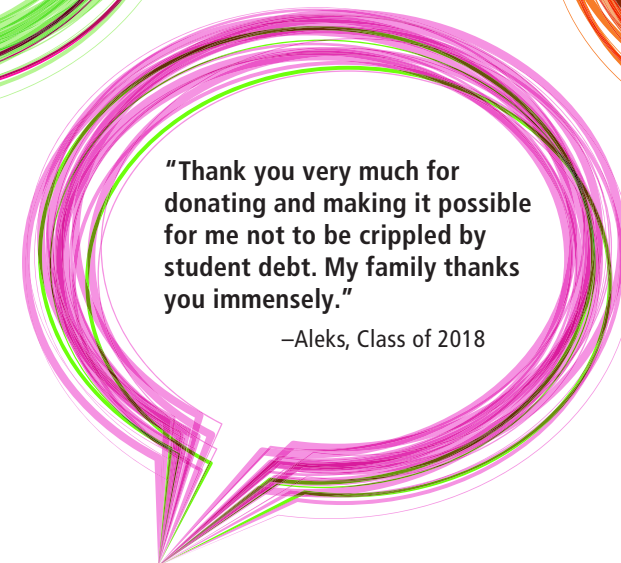
"Thank you so much for your generous contributions toward our scholarships! Thanks to you, I can attend this great university and study what I love!"

—Devin, Class of 2021



"Thank you so much for making DePaul what it has become. I love being part of this community, and I hope to make a huge difference one day."

—Christine, Class of 2020



"Thank you very much for donating and making it possible for me not to be crippled by student debt. My family thanks you immensely."

—Aleks, Class of 2018



"Thank you for leading us to our future."

—Brad, Class of 2020

SUPPORT CSH STUDENTS WITH YOUR GIFT TODAY.

Dean's Undergraduate Research Fellowship
Ensure that students receive financial support to pursue summer research internship opportunities at leading museums, laboratories and institutions.

College of Science and Health
Support leading scholars, campus facilities and resources, and scholarships for students in the College of Science and Health.

Fund for DePaul
Make an immediate impact through an unrestricted gift applied to DePaul's areas of greatest need, ranging from scholarships to programs.

General Scholarship Fund
Continue DePaul's commitment to being accessible to all students by helping fund need-based scholarships.

VISIT ALUMNI.DEPAUL.EDU/NEWSLETTER TO MAKE YOUR GIFT TODAY.

SCIENTIA

We welcome your story ideas, questions and comments. Please contact Kris Gallagher at (312) 362-365 or kris.gallagher@depaul.edu.

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Save the Date

Alumni
Weekend—
2018
october 12-14

Catch up with former classmates, meet fellow alumni and make new memories at Alumni Weekend 2018. Events include a Saturday night reception, tours of campus, family-friendly activities and Sunday Mass.

For more information, please visit alumni.depaul.edu/alumniweekend.