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SCIENTIA

A PUBLICATION FOR COLLEGE OF SCIENCE AND HEALTH ALUMNI AND FRIENDS

FALL 2020

Population ecologist
Jalene LaMontagne
speaks for the trees.
See page 9.



DEPAUL UNIVERSITY
COLLEGE OF SCIENCE AND HEALTH

Opportunities to Break Down Barriers

In these unique and historic times, I hope this newsletter finds everyone healthy and safe.

The health, safety and well-being of our DePaul students, faculty and staff have been, and will always be, paramount. During this global pandemic that has had such a tremendous impact on our daily lives, it is even more important for all of us to rely on good science to make vital decisions for ourselves and our families, communities, nation and world. As the new Dean of the College of Science and Health (CSH), I am immensely honored to be part of a committed family of faculty and staff, talented and able students, and exceedingly loyal alumni who rally together during times of adversity. We see challenges not as barriers, but as opportunities to learn, grow and devise innovations that build a strong foundation for future advancement.

In line with the strategic mission of the university and CSH, we are working now more than ever to leverage the expertise and resources of faculty, staff, students and community partners to develop programming, courses and research opportunities. At the same time, we seek practical knowledge of social justice issues to inform our diversity, equity and inclusion policies and practices and to promote systemic change. I invite our alumni to submit ideas and participate in planning, programmatic evaluation and/or resource development related to these initiatives, including during our CSH 10th anniversary celebration slated for spring 2021. I am excited to announce that the planning for this event is well underway.

The anniversary will be a time for reflection, connection and projection of the purpose and vision of the college as it has grown and evolved since its



founding in 2011. It is a celebration of “a decade of fostering new scientists and researchers to engage in a lifetime of social justice” that speaks to the full range of graduates in science and health and builds new bridges to attract future students who embody the CSH vision. It will feature a full program of lectures, symposia, exhibits and community engagement activities that foster lively intellectual exchanges to fuel the scholarly innovations that are part of the CSH culture. The anniversary will also serve as an opportunity for CSH to showcase strategic goals and connect them to fundraising priorities that align with DePaul’s ambitious \$60 million [Now We Must: The Campaign for DePaul’s Students](#).

The following pages highlight the many ways in which our faculty, staff, students and alumni are helping to meet the needs of the local community and beyond. I look forward to continuing to foster and build connections with alumni as we plot a path to advance the mission of CSH.

Thank you for your ongoing support.

Stephanie T. Dance-Barnes

Stephanie Dance-Barnes, PhD
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Paleo Showcase

Prior to the COVID-19 pandemic's arrival in the United States, biological sciences students Jonathan Allen, Myles Walsh, Riley Hacker and Alexandra Krak presented paleobiological projects at the Great Lakes Student Paleoconference at the University of Michigan at Ann Arbor. In collaboration with Paleobiology Professor Kenshu Shimada, the students conducted research on marine fossils in the Niobrara Chalk Formation, body morphology of quadrupedal nonavian dinosaurs, an ichthyodectiform fish from a Cretaceous deposit in Texas and the comparative anatomy of megamouth shark teeth.

Expert Opinions

DePaul's [Public Voices Thought Leadership Fellowship](#), in partnership with [The OpEd Project](#), seeks to increase the visibility and influence of researchers, especially women, who are underrepresented in the media. Associate Professor of Environmental Science Christie Klimas, Associate Dean for Research Susan McMahon, Associate Professor of Psychology Megan Greeson and Associate Professor and Chair of Health Sciences Douglas Bruce received training as fellows and published op-eds in such publications as Better, The Hill, Ms. and The Health Care Blog, including the following:

[From COVID-19 to Fashion: The Global Ripple Effect of Our Actions](#)

[Teachers Suffer Too: School Violence Is a Daily Reality](#)

[Weinstein Conviction To Be Celebrated, But Does Not Represent Justice for All](#)

[Doctors Lack Knowledge about Medical Cannabis Use. Their Patients Can Help.](#)

[See the full list of DePaul faculty-written op-eds here.](#)



CSH Honors Award Recipients

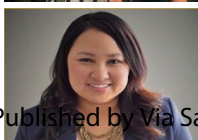
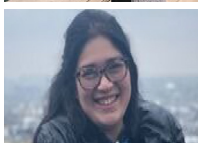
Outstanding undergraduate students and faculty mentors recognized at last spring's Honors Celebration, held online, included:

Claire Black, Outstanding Community Service Award

Jazlyn Marcos, Excellence in Undergraduate Research Award

Devin Becker, Walter A. Pranger Award in Mathematics

Cricel Molina De Mesa, Faculty Mentor of the Year

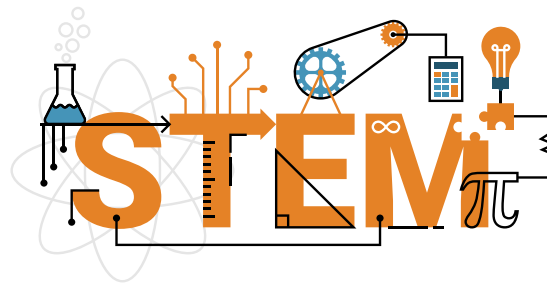


School of Nursing Director Appointed

Suling Li was appointed chief nursing officer and director of the School of Nursing in July. Previously, Li was the associate dean and director of the graduate studies in nursing programs at Lewis University. Li takes over from Kim Amer, who served as interim director and is returning to the faculty.

EPISTEM Project

CSH was awarded a National Science Foundation \$1 million grant to support DePaul's EPISTEM Project (Engage and Persist in STEM). The project will help to fill the national need for well-educated scientists, mathematicians, engineers and other STEM professionals by supporting the retention and graduation of high-achieving, low-income students. Over its four-year duration, the project will fund scholarships for 16 full-time students who pursue STEM bachelor's degrees. EPISTEM aims to increase student persistence in STEM by linking scholarships with effective supporting activities, including peer mentoring, internships, study groups and tutoring, academic advising, exploration of and preparation for STEM careers, research with STEM faculty, and graduate school preparation.



Diversity Fellowship

Jesus Solano-Martinez, a doctoral student in clinical child psychology, was awarded the Diversifying Faculty in Illinois (DFI) Fellowship for 2020-21. This prestigious fellowship is available for up to four years. The goal of DFI is to increase the number of tenure-track faculty and staff from underrepresented and minority groups at Illinois' two- and four-year public and private colleges and universities.



Master's Degrees with a Mission

Three new health graduate programs are designed to meet society's changing needs

Cultural and societal shifts constantly cause the world's health-related needs to evolve. CSH is launching three new graduate programs in community psychology, speech language pathology and occupational therapy that will increase the university's health care education footprint to meet these expanding needs.

Community Psychology MS Programs

CSH began a new Master of Science program and a related combined BA/MS program in community psychology this fall.

Leonard Jason, professor of clinical and community psychology and director of CSH's Center for Community Research, codirects the program with Olya Belyaev-Glantsman (CSH MA '05, PhD '13). Jason says community psychology focuses on preventive health care. Instead of treating patients after their disorders are entrenched, community psychologists concentrate on the larger ecosystem in which individuals operate and the multiple levels of intervention needed. The field also has a social justice facet that advocates for providing equal access to treatment and resources.

Both degree programs require 48 quarter hours of coursework in such topics as advanced statistics,

quantitative research design, consultation, and principles of human diversity and end with fieldwork or, in the combined program, a culminating experience.

"Graduates will be trained on the most current skills and knowledge to assume leadership roles across a range of community-based organizations and government agencies," Jason says. The program also can "enhance the skills of individuals with other experience in areas such as the criminal justice system, trauma and public safety," he adds.

For more information, visit go.depaul.edu/psychology.

Speech-Language Pathology MS

Enthusiastic about what she calls "the dynamic and growing field of speech-language pathology," Jayne Jaskolski is program director and associate professor of a new Master of Science program currently undergoing accreditation review by the American Speech-Language-Hearing Association. CSH expects to launch the program in fall 2021.

The goal is to train students to be speech-language pathologists (SLPs) who diagnose, evaluate and treat patients with communication, language, cognition, fluency, hearing, voice, articulation and swallowing

disorders. SLPs work with children and adults one-on-one or in groups. They may see clients in a variety of settings, such as schools, hospitals, assisted living facilities, clinics and private practices.

"We work with clients from birth through end of life," Jaskolski says.

Students will complete 102 credit hours, or 106 if adding a thesis, in courses such as core science, research, child/adolescent disorders, adult disorders and clinical education courses, and complete at least 400 hours of supervised clinical experience in community externships and at the new DePaul Speech and Language Clinic, breaking ground in early 2021 on the Lincoln Park Campus. Students will use iPads for articulation and language therapy and as augmentative communication devices.

The program also will provide a Bilingual English-Spanish Specialization Certificate (BESSC) so SLPs can equitably serve the needs of primarily Spanish-speaking individuals with communicative disabilities. The certificate will include specialized coursework, clinical experiences and service learning projects developed, instructed and supervised by Elia Olivares, the SLP program's director of culturally and linguistically diverse programs.

The SLP program requires applications to be sent online through the Communication Science Disorders Centralized Application Service organization at csdcas.liaisoncas.com. For more information about DePaul's new program, email Jayne Jaskolski at j.jaskolski@depaul.edu.

Occupational Therapy MS

CSH plans to launch a new occupational therapy MS in the fall of 2022, pending accreditation.

Program Director Kate Barrett says graduates will be qualified to work in a variety of settings, such as "school systems, hospitals, outpatient clinics, community organizations and residential care facilities," serving individuals with "diagnoses and conditions such as traumatic head injury, cerebrovascular accident, spinal cord injury, Down syndrome, autism, dementia, schizophrenia, multiple sclerosis, Parkinson's, sensory processing disorder and hand injuries."

The program will require 24 months to complete, with the first six quarters on campus and the final two quarters spent doing fieldwork in hospitals, clinics, communities and schools. Students "will have coursework that addresses how motor, process and social interaction skills support participation in occupations throughout the lifespan," Barrett explains.

"The OT space is being designed to facilitate active learning," she says. "It will include a space set up like a small apartment with a kitchen, laundry, living room, bedroom and bathroom where students can practice



therapy interventions with adults and families through activities of daily living," from brushing one's teeth to caring for a household. There will also be a lab space to support the occupations of play and learning for children.

"It's important for occupational therapists to treat the whole person," Barrett says. "This requires a strong understanding and appreciation for how culture, beliefs, values and spirituality influence what we do and how we do it. It's also important for OTs to understand how the environment impacts people, including natural and built environments.

"Occupational therapists work with people who are vulnerable and who often have experienced marginalization because of disabling physical, cognitive or emotional conditions," Barrett adds. "Students will learn to advocate for improved systems and conditions for people living with disabilities. This is a great career for students who want meaningful work, flexibility and direct work with people."

To learn more about the program, email Kate Barrett at kate.barrett@depaul.edu.

Protective Measures



The School of Nursing's Elizabeth Aquino and Karlis Butler gather medical supply donations.

CSH goes above and beyond to support communities in crisis

When the COVID-19 pandemic hit the United States and engulfed frontline health care providers, CSH faculty, staff and students stepped in to help by donating and fabricating personal protective equipment (PPE).

In late March, School of Nursing faculty and staff collected unused simulation lab supplies, including 1,800 sterile gloves, 1,150 examination gloves, 350 biohazard bags, 200 gowns, 150 face masks and 40 face shields. Biology and Health Sciences faculty donated 12,000 pairs of gloves and 50 disposable lab coats. CSH also rounded up face masks from the scene and prop shop at The Theatre School. The PPE went to Sinai Health System and Norwegian American Hospital, providers that support underserved communities on Chicago's West and Southwest sides. Riverside Medical Center in Kankakee, Ill., also received supplies.

Elizabeth Aquino (CSH MS '06), associate professor of nursing and president of the Illinois American Nurses Association, was part of a team that personally delivered supplies to the hospitals.

"The hospitals we selected are really underresourced. We wanted to make sure they were prioritized to get additional PPE," says Aquino. "Our students also go there for clinical placement and use their PPE when they do, so we wanted to reciprocate."

Aquino also helped connect colleague Eric Landahl, associate professor of physics, and Jay Margalus, director of DePaul's

"The hospitals we selected are really underresourced. We wanted to make sure they were prioritized to get additional PPE."

—Elizabeth Aquino (CSH MS '06)

Idea Realization Lab (IRL) maker spaces, with clinical partners after they and an IRL-led alliance of like-minded makers started designing, testing and fabricating face shields and plastic covers for N95 face masks at home using 3D printers and laser cutters.

The [Illinois PPE Network](#) that grew from their grassroots efforts includes DePaul faculty and students, clinicians, hobbyists and companies that have donated materials and production. An [Inspire DePaul campaign](#) aided the initiative, which has produced thousands of PPE items for health care providers as well as food pantries, restaurants, nursing homes and schools in the Chicago area. Landahl says the network served a critical need early in the crisis before large manufacturers got up to speed around late April to address widespread PPE shortages. Later, cloth face mask production and public education guides became focuses.

"We're able to move very rapidly," says Landahl. "It took us about 72 hours to deliver our first face shields after getting those 3D printers."

Landahl's wife, Sarah Rice, a former Northwestern University biochemistry professor who recently finished her doctorate in physical therapy, was among many clinicians lending an expert hand and appraisal on design iterations. A couple of emergency department physicians related to DePaul faculty and staff also contacted Landahl and put him in touch with other emergency physicians across Chicago. Several graduating CSH seniors worked on the project, too.

"What's cool is those students passed their machines and knowledge off to incoming juniors and seniors, who are continuing the work," says Landahl.

Strength and Agility Power Up Online Learning

After pivoting to remote learning last spring, CSH has leveraged its online instructional prowess to refine that programming model this fall with virtual labs and upgraded classrooms to remotely deliver content through high-quality video and audio systems.

The new tools build on DePaul's Desire2Learn course management system that lets faculty share syllabi, lectures and videos with classes. Students also benefit from faculty trained in the DePaul Online Teaching Series, a program that helps faculty design and carry out successful online courses with personalized support from tech-savvy instructional designers embedded in the college.

Most departments, such as biology, are now conducting labs using interactive, digital platforms that simulate science labs and incorporate customized curricula. CSH uses Labster, which combines mathematical algorithms with gamification elements, such as immersive 3D environments and open-ended investigations, to teach students techniques, skills, protocols and theories. Virtual instructors are on hand to guide and respond to queries, but faculty can add their own questions to students.

"We've found this arrangement has some advantages to a traditional lab," says Sandra Virtue, director of online learning and professor of psychology and neuroscience. "A virtual lab is always open. Students can repeat it as often as they like, which could be really time-consuming and costly in a face-to-face format. And students have reported they're less intimidated by trial and error in these virtual labs."

At the School of Nursing (SoN), where hands-on clinical training typically takes place in simulation and nursing labs equipped with high-fidelity computerized mannequins, moving to a virtual alternative poses unique challenges.

"Virtual experiences are great to augment training, but they aren't going to give us the same outcomes as in-person would," says Dan Mead, who directs the labs and serves as interim director of the Master's Entry to Nursing Practice (MENP) program. "We are getting students as close as possible to the latter from a didactic and educational standpoint."

Students in the MENP program access virtual lab platforms that use animated scenarios, videos and quizzes to guide students through proxy nurse interactions



The vSim for Nursing simulation platform helps MENP students hone decision-making skills. Photo courtesy of Laerdal Medical

with patients, making assessments and performing tasks like putting in an IV.

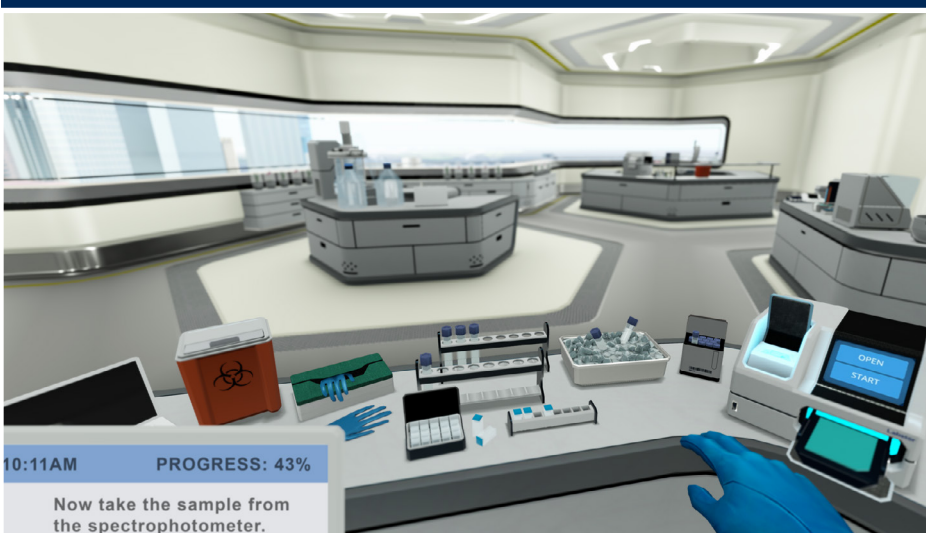
"They learn quite a bit about acute and critical care and do problem-solving using real patient cases," says Mead.

Open labs are also available at SoN this quarter.

"We are doing in-person makeup test-outs for all of the students who've done virtual labs," adds Mead. "These help students solidify the skills not clearly gained in a virtual environment and help us meet our teaching and learning objectives."

Providing students with in-person labs safely, as well as clinical hours at partner hospital sites, is essential.

"If nursing has taught me anything, it's that we continuously adapt," says Mead. "In this trying time, that's the only way we're going to survive this appropriately."



Labster's Enzyme Kinetics virtual lab guides students through chart plotting for specific inhibitors. Photo courtesy of Labster

Empowering Women in Science



In her violence and injury prevention advocacy, Linda Degutis has worked with public health colleagues globally.

Linda Degutis (CSH '75), PhD, is generously funding the William J. Degutis Women in Science and Health Lecture Endowment, named for her late father, who helped inspire her prolific career in health sciences.

What is the goal of the lecture series?

Highlighting the success women are having in science careers. The speakers will be nationally known in their fields, from astrophysics to marine biology. We want to encourage students to pursue science careers and make them aware of opportunities they may not have considered.

Was science an early interest for you?

When I was a kid, I was always doing science experiments at home like growing algae in the basement—much to my mother's dismay.

Were your parents happier about your studies in college?

I was the first in my family to go to college. I earned a BS with a major in nursing at DePaul in 1975. My dad worked for Ford Motor Company in the aircraft engine division after serving in the Army Air Corps in World War II, then as a field engineer for the Federal Water Pollution Control Administration in the Great Lakes region. He encouraged my interest in science.

What was your first job?

I worked in the high-risk obstetrics and gynecology floor and emergency room at Rush-Presbyterian-St. Luke's in Chicago.

How did you end up at Yale University?

I moved out to Connecticut in '78 to work in the ER at Yale New

Haven Hospital. I got my master's at Yale in 1982 as a clinical specialist, then worked with a surgeon in trauma and intensive care for the medical school. We taught residents and students and set up the trauma care structure at the hospital. After I got my doctorate in epidemiology in 1994, I had faculty appointments in emergency medicine and trauma, public health and nursing until 2010.

And at the Centers for Disease Control and Prevention?

I was the director of the National Center for Injury Prevention and Control at the CDC until 2014. I was there at the time of the Sandy Hook Elementary School killings and other events raising issues about violence and guns.

You've done work for the Avielle Foundation, named for a child killed at Sandy Hook, that funds neuroscience research.

I was their chief science officer for four years. We looked at the relationship between brain and mental health and violence, and ways to decrease violence in community settings. It was a fascinating, but obviously not easy, place to be.

What have you been doing more recently?

I started a think-tank program, Defense Health Horizons, at the federal government's Uniformed Services University of the Health Sciences in Bethesda, Md., to help improve the military health system. We worked on women's reproductive health, a big transition for the military with more women being deployed. I'm also on a committee formed by the National Academy of Medicine and American Public Health Association that produces [free webinars](#) with scientific experts on various aspects of the COVID-19 pandemic.



Jalene LaMontagne and students Abby Leeper and Hanna Kemp studied white spruce population ecology in Michigan's Upper Peninsula.

DePaul's Tree Whisperer

A faculty population ecologist detects predictable patterns in tree behavior

Those who have spent time with Jalene LaMontagne might agree that her fascination with trees is contagious. The population ecologist, who is an associate professor in the Department of Biological Sciences, says that it's not uncommon for friends living in different states or even different countries to send her photos of cones on conifer trees. "Friends, scientists, colleagues who have gone for a walk with me as I point out stuff on trees are changed forever. They're always going to look up at the trees now," she says.

Her research, the latest of which was recently published with co-authors Ian Pearse, David Greene and Walter Koenig in the May 2020 issue of "Nature Plants," focuses on mast seeding of white spruce and the seed cones they produce across the 3,000-mile span of North America. With the project, they sought to understand the pattern of tree behavior and why that behavior differed depending on regional temperature.

The scientists knew that, for example, weather in eastern North America could be quite different from weather in the West, called a climatic dipole. What they found was that those differing climates influence trees, with trees on one half of the continent producing a large amount of cones and trees on the other half producing few cones. These differences are called an ecological dipole.

What most surprised LaMontagne is just how predictable tree behavior was when weather was taken into

account. "I was putting together these maps of temperature differences in one year, and then lining them up with where there were high levels of reproduction. After I did a couple of them I was like, wait, I can basically look at the map of temperature and tell you where there's going to be high level of reproduction the next year at a continental scale. And that was really cool," she says. That high level of reproduction, in turn, could influence the population patterns and movements of different insects, mammals and birds that are searching for food. That's what she's researching now on a continental scale, with the help of a \$351,850 National Science Foundation grant.

Of course, for a project this large, she's not alone in her research. She's planning field work (it was paused this summer because



LaMontagne focused on white spruce seed cones in her recent research.

of COVID-19) at National Ecological Observatory Network sites across the country that track ecosystem data, and she works with collaborators to understand the role of climate and impacts on bird populations. At her lab at DePaul, undergraduate and master's students work with her to understand mast seeding. As she plants her fascination with trees and nature among her students, she is helping to develop the next generation of population ecologists.

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