

DePaul Biological Sciences **The Niche**

From the Desk of the Chair, Joanna Brooke



It was a busy and productive year in the biology department.

Summer 2025 advising involved faculty welcoming new DePaul Biology students into our programs and community. We were happy to welcome new faculty who, with their specialty training, will enthusiastically contribute to the expansion of our BA, BS, and MS Biology programs.

Fall 2025 saw faculty participating in the College of Science and Health (CSH) annual FEST event, and in the Biology Meet and Greet where students could learn about research and courses we offer; these events often result in students meeting with faculty to express interest in joining their research program. During this year, our research undergraduate and graduate students presented their work at various local, national, and international scientific conferences, and some students co-authored with faculty on journal publications. The generous financial support of DePaul alumni has been greatly appreciated as it provides students with opportunities to carry out

cutting-edge research and make new discoveries in biology. I strongly encourage students to become involved in research as their experiences can equip them with skills to serve them well in future careers.

Our programs continue to evolve. In Fall 2026 we will offer BS Biology students their choice of some new concentrations of study. We will be updating our greenhouse to support the delivery of plant biology courses. More information about both these topics is presented within this newsletter. The department houses faculty who strive for excellence in the teaching and education of their students. I am pleased to announce that one of this year's CSH Excellence in Teaching Awards will be presented to Dr. Margaret Bell, a joint faculty member in Biology and Health Sciences.

The generous financial support of DePaul alumni has been greatly appreciated as it provides students with opportunities to carry out cutting-edge research and make new discoveries in biology.

In Spring 2026, we recognized Dr. Richard Hudson's decision to retire after his 21 years of teaching and service to DePaul. He taught various biology courses and served as a lab coordinator for one of our large introductory biology courses. We thank Dr. Hudson for his many service contributions including his help in developing a course-based undergraduate research experience (CURE) lab. We wish him a very happy retirement with his family and exciting travels.

As students progress through our programs, there are many helpful resources for them to access. The department enthusiastically supports the recreated Biology student club, graduate student events, and a very active seminar series. Our staff advisors are available to help students with course selection and future career planning. Students graduating from our biology programs enter various career pathways including graduate programs, professional health programs, secondary education, industry, and academic research labs. My congratulations and best wishes to the 2026 Biology graduates.

Reviewing the many accomplishments of our department across 2025–2026, I look forward to more achievements by students and faculty in 2026–2027. ■

The Faces of the Biology Department



CLOCKWISE FROM TOP LEFT CORNER: James Roth (Assistant), Sarah Connolly, Sarah Finck (Advisor), Terry Fitzpatrick, Daki Díaz-Morales, Tim Sparkes, Ken Shimada, Jessica Pamment, Rima Barkauskas, Sarah Richardson, Joanna Brooke (Chair), Rick Hudson, Jianfei Zhao, Andrew Conith, Windsor Aguirre, Bill Gilliland, Crystal Guzmán, Anthony Ippolito, John Dean (Professor Emeritus), Stan Cohn (Professor Emeritus), Margaret Silliker (Professor Emerita), Gwen Knapp, Jingjing Kipp, Kate Soderstrom, Margaret Bell, Jason Bystriansky, Phil Funk, and Claire Behrens.

2025 First-Year Biology Master's Students



IN ORDER FROM LEFT TO RIGHT:
(back row) Dillon Gielow, Peter Zwarycz,
Kevin Prehm (middle row) Eduardo
Garcia, Ardeshir Irani, Gillian Chestnut
(front row) Demy Rose Yap, Erin Perez,
Leah Lies, Emily Rodriguez.

Five Weeks, One Dataset, Countless Discoveries: Inside DePaul's 2025 Stem Summer Research

By Dr. Crystal Guzmán

Last summer, twelve rising sophomores traded their usual break for something a little more intense: five weeks of full-day research immersion as part of the College of Science and Health's STEM Summer Research Institute (SRI). Running from June 23 to July 25, 2025, the program split students into small teams, each paired with a faculty mentor and a graduate research assistant and asked them to do something most undergraduates don't get to try until much later—design, run, and present an original research project from scratch.

The four project teams covered an impressively wide range of science. One group used laser light scattering and a 3D-printed acoustic levitator to study how particles and proteins move in liquid. Another applied calculus and optimization to figure out the best placement for communication beacons. A third went hyperlocal, using chemical analysis to trace the “stories” embedded in everyday materials around Chicago. And a fourth—led by Dr. Crystal Guzmán—dove into healthcare AI, working with students Hasaan Alam, Tayanna Estrada, Yicela Rodriguez, and Zayna Saadeh on a project titled *Predicting Disease Risk and Patient Outcomes Using Machine Learning*.

From Python basics to real patient data:

The Guzmán team's five weeks followed a steep but rewarding climb. The first week covered the fundamentals—what data science is, how to wrangle and clean data, and the ethics of working with medical information—using introductory exercises in Python (pandas, NumPy, seaborn and matplotlib). By week two, students were applying statistical tests and engineering new features from raw data. Week three introduced



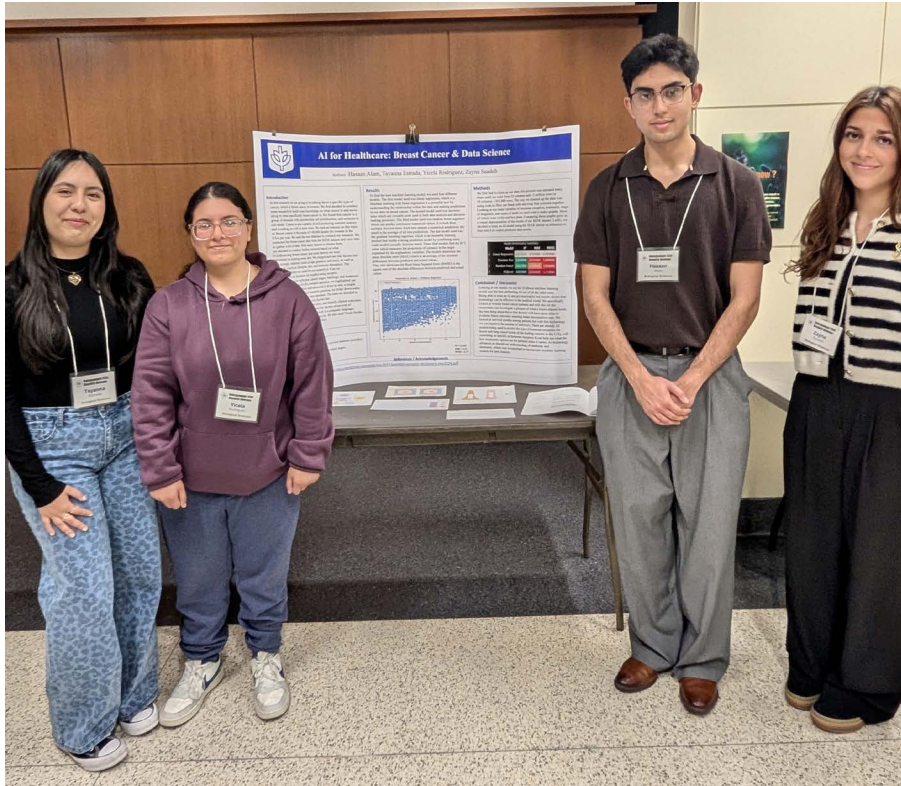
Students, faculty and graduate assistants that participated in the 2025 Summer Research Institute program (SRI).

classification models like logistic regression, decision trees, and random forests, and by week four the team was exploring more advanced techniques, including gradient boosting and model interpretability methods. Threaded throughout the program were sessions on science communication, research ethics, mentoring, growth mindset, and career development—a reminder that the SRI was building scientists, not just analyses.

Crucially, almost every one of those skills was immediately applied to a real dataset: breast cancer patient records from the National Institutes of Health's SEER (Surveillance, Epidemiology, and End Results) program, focused on cases diagnosed between 2018 and 2022. By the final week, students were using their machine learning toolkit to ask a genuinely important question—which clinical, demographic, and treatment factors most strongly predict survival outcomes for breast cancer patients?

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Five Weeks, One Dataset, Countless Discoveries: Inside DePaul's 2025 Stem Summer Research continued



LEFT-TO-RIGHT: Tayanna Estrada, Yicela Rodriguez, Hasaan Alam and Zayna Saadeh at DePaul's the 23rd Annual Undergraduate STEM Research Showcase

The findings: The team built and compared four models—linear regression, decision tree, random forest, and XGBoost—to predict patient survival in months. After multiple rounds of tuning, XGBoost came out on top, explaining a strong proportion of the variation in survival outcomes ($R^2 = 0.833$) with low average error (MAE = 4.01, RMSE = 5.71). The analysis also showed that receptor status (ER, PR, and HER2) interacts with clinical and treatment variables in ways that meaningfully shift survival predictions. The team's takeaway: models like theirs could eventually help clinicians group patients by risk level and support shared decision-making when multiple treatment paths are on the table.

The team's hard work didn't end with the summer. On November 7, 2025, Hasaan, Tayanna, Yicela and Zayna presented their breast cancer research

as a poster at the 23rd Annual Undergraduate STEM Research Showcase, hosted by DePaul's College of Science and Health—an event where undergraduates across biology and other STEM majors shared their work through posters and oral talks.

And the story keeps going: Hasaan Alam has since been awarded an Undergraduate Research Assistant Program (URAP) position and is continuing to work with Dr. Guzmán, building on the SRI project and pushing the analysis even further. It's exactly the kind of pipeline the SRI was designed to create—a five-week spark that turns into a sustained research relationship, and a student who came in learning Python basics now helping shape the next phase of a real biomedical data science project. ■

Restore the McGowan North Greenhouse

For nearly 30 years, the McGowan North Greenhouse has been a cornerstone of hands-on learning and discovery for DePaul's Department of Biological Sciences. It has supported generations of students in General Biology, Plant Biology for Non-majors, and Plant Physiology by providing a living classroom—one where core concepts like growth, development, environmental responses, and experimental design can be learned through direct observation and authentic experimentation.

Today, that learning environment is at risk. Critical greenhouse equipment has aged past its service life, and key systems have begun to fail. As a result, the greenhouse can no longer consistently maintain the controlled conditions that make it usable for teaching labs or student-faculty research. This has reduced access to one of the department's most distinctive experiential learning spaces and has limited opportunities for students to complete plant-based research projects that depend on stable light, temperature, humidity, and irrigation.

We are seeking support to restore the McGowan North Greenhouse to full function so students can once again learn and conduct research in a reliable, safe, and modern growing environment. Funding will support day-to-day operation of the greenhouse—primarily supporting student workers and essential expendable supplies (e.g. plant labels and waterproof markers, soils, fertilizers, pest control materials, disinfectants, greenhouse trays and covers, data-collection materials, and safety supplies), ensuring reliable support for course labs, independent projects, and faculty-mentored undergraduate research.

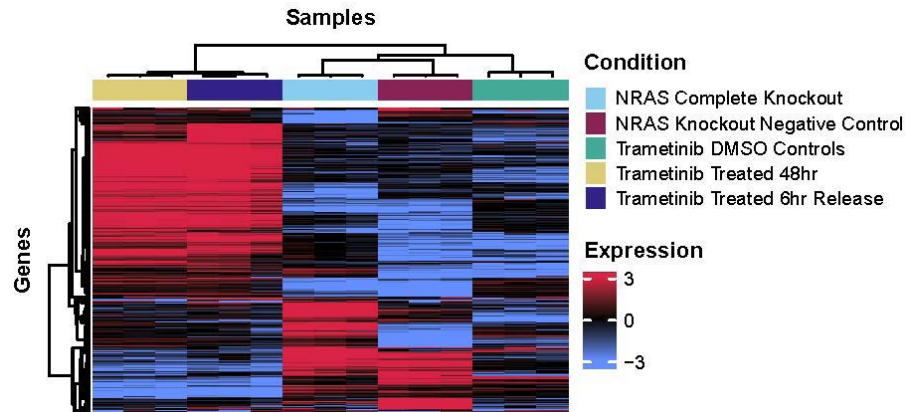


Dr. Zhao and students engaged in plant biology education.

With your help, we can bring this facility back to life and ensure that future DePaul students continue to benefit from the kind of hands-on science education that prepares them for careers and graduate study in biology, biotechnology, environmental science, and plant science. To complete the renovation, we need to raise \$30,000 and every gift will make an impact and allow us to make incremental improvements until we have fully restored the greenhouse. You can learn more, make a gift today, and share this effort with your network [here](#). If you are interested in learning more or making a leadership gift to accelerate the renovation process, please reach out to Blair Janis (bjanis1@depaul.edu, 312-362-7135) in the Office of Advancement.

The greenhouse is more than just a physical space on DePaul's campus—it's a dynamic hub for collaboration and innovation that inspire our students to learn and grow. Investing in the greenhouse will allow us to provide the resources and spaces needed to drive positive change for our community and the world. Thank you for your partnership in helping us make these essential improvements to the greenhouse, elevating the student experience, and providing a physical space that inspires future leaders and innovators across the College of Science and Health. ■

Research in Action: DePaul Biology Graduate Student Jackson Thomas



K14TRT Cell Gene Expression in Response to MAPK Inhibition

644 most variable genes ($SD \geq 2.00$) across 15 samples, spanning trametinib treatment and release, and the Nras knockout conditions. Expressions shown as median-centered log₂ values, clustered using Pearson correlation.

Ultimately, we hope that this research will enable future researchers and clinicians to better understand the regulatory elements of EMT in breast cancer.

My research focuses on the cellular behavior known as Epithelial-Mesenchymal Transition (EMT), a process that promotes metastasis in breast cancer. The acquisition of mesenchymal-like characteristics in cancer cells has been observed in a variety of tumors. However, the exact mechanisms of this process, which mediates the conversion of epithelial cells, which form the body's barriers, into mesenchymal-like cells with stem cell-like characteristics, remain unknown.

In particular, I am looking at how the overactivation of the mitogen-activated protein kinase (MAPK) cellular signaling cascade influences EMT. To alter MAPK cascade activation in my research, we used two tools: the FDA-approved drug Trametinib, which inhibits the activation of a protein known as Mek, and CRISPR-Cas9 to remove the expression of a protein known as Nras. Both of these proteins are critical to the MAPK

pathway, and by removing their function from the cells, we aimed to characterize the changes in the expression of genes directly involved in EMT.

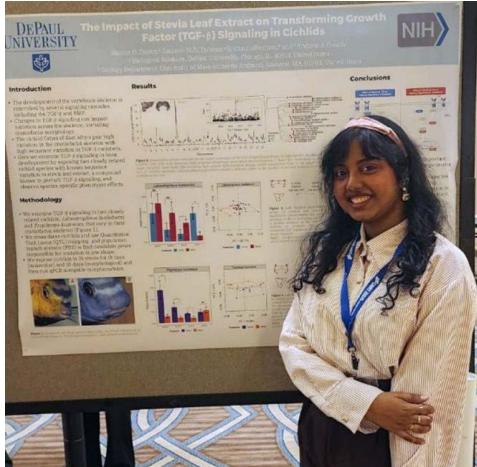
To assess changes in gene expression, we used RNA sequencing, which allowed us to capture the expression of all genes in our samples.

Using this data, we conducted a range of statistical analyses to best understand the effects of MAPK inhibition on EMT in our breast tumor samples. From our analyses, we have identified that the role of MAPK in EMT in breast cancer is multifaceted and regulated by both temporal and target-specific factors. Ultimately, we hope that this research will enable future researchers and clinicians to better understand the regulatory elements of EMT in breast cancer, so that the interventions developed can target those factors more effectively. ■

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Research in Action: continued

DePaul Biology Undergraduate Student Sharon Grace Dayan



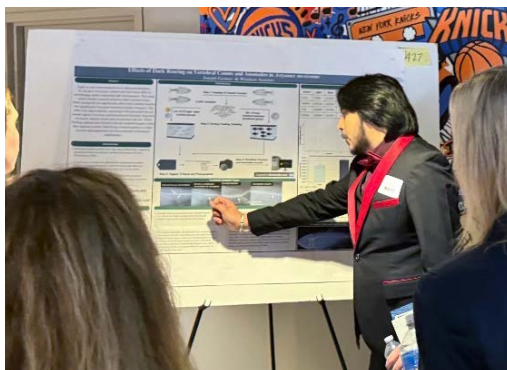
Sharon Grace Dayan, majoring in Biology with a minor in Chemistry and a concentration in Neuroscience, poses in front of her poster she presented at CAURS 2026.

I am a fourth-year undergraduate student in Dr. Conith's Lab studying the Impact of Stevia Leaf Extract on Transforming Growth Factor (TGF- β) Signaling in Cichlid fishes. My research project focuses on examining TGF- β signaling in two closely related cichlid fishes from Lake Malawi in Africa, *Labeotropheus fuelleborni* and *Tropheops kumwara*. TGF- β signaling plays a central role in bone development and variation in the expression of TGF- β genes can impact skeletal morphology. My cichlid species, *Labeotropheus* and *Tropheops*, vary in the shape of their craniofacial skeleton as a result of differences in TGF- β signaling. The goal of my research is to examine how TGF- β signaling impacts bone development by exposing two closely related cichlid species to stevia leaf extract, a compound known to perturb the TGF- β pathway and then characterize any differences in their cranial morphology. My preliminary results demonstrate that perturbation using stevia elicits species-specific effects in TGF- β signaling where *Labeotropheus* experiences broad over-activation of the pathway in stevia treated fish relative to control which leads to craniofacial widening, while *Tropheops* sees broad reduction in expression relative to control but no impact in craniofacial structures. We hypothesize that this may be due to how Stevia interacts with a specific member of the TGF- β signaling cascade,

an inhibitor of the pathway, *smad7*. There are differences in the *smad7* promoter regions of *Labeotropheus* and *Tropheops* and stevia appears to differentially affect how this gene is regulated.

Embarking on novel research into the role of TGF- β signaling in cichlid craniofacial morphology through this mentioned research experience has inspired me to pursue a career in developmental biology. I am also very grateful for the opportunity to present my research at two different conferences over the 2025–2026 academic year and for the URAP (Undergraduate Research Assistant Program) grant I received from the College of Science and Health during Autumn Quarter 2025. ■

DePaul Biology Undergraduate Student Joseph Gomez



Joseph Gomez, majoring in Psychology with a minor in Biology, presenting at the Big East Research Symposium (3/14/2026).

I'm a third-year transfer student researching the vertebral development of *Astyanax mexicanus*, also known as the Mexican tetra, in Dr. Windsor Aguirre's lab. This species is an especially interesting model organism for studying evolution because it exists in both surface and cave forms that differ dramatically in traits such as pigmentation, eye development, and morphology depending on its light environment. Inspired by Torres-Dowdall's finding that Midas cichlids raised in permanent darkness developed a high frequency of scoliosis, my project investigated whether constant darkness alters vertebral count or anomaly frequency in *Astyanax* development. During the summer of 2024, I helped raise 334 juvenile tetras from 10 genetic crosses under either a standard light-dark cycle or complete darkness. Early in development, the fish were kept in petri dishes where I fed them brine shrimp using pipettes, monitored them under microscopes, and cleaned their dishes daily. As the fish matured, they were transferred into tanks and raised

until euthanization in December. The following summer, the specimens were X-rayed at the Field Museum, photographed, and scored for vertebral counts and spinal anomalies. My findings show that fish reared in constant darkness developed significantly higher anomaly frequencies in the precaudal region, while vertebral counts did not have a significant effect. Research has been a defining part of my college career, where I was able to garner invaluable professional experience, build strong relationships with faculty, and have the honor of representing DePaul at Madison Square Garden for the Big East Research Symposium. I'm very grateful to my mentors, Owen Howard and Dr. Windsor Aguirre, as well as URAP (Undergraduate Research Assistant Program) for funding my project during Summer 2025. ■

Research Opportunities within the Biology Department

WINDSOR AGUIRRE

Windsor Aguirre's lab is broadly interested in the early stages of evolutionary diversification. Most of the research in his lab involves fishes, and ongoing projects include studying the evolutionary history of Neotropical fishes, how species adapt to human-mediated habitat transformation, and the integration of body form and the axial skeleton during evolution.

MARGARET BELL

The Bell lab studies how early life experiences affect brain development in ways that can impact health and wellbeing later in life. Currently, research is focused on the effects of two groups of 'forever chemicals' (PCBs and PFAS), on neuroimmune and dopamine cells using in vivo and in vitro models.

JOANNA BROOKE

Dr. Brooke's lab investigates infectious diseases. Currently, research in the lab examines the molecular mechanisms of an emerging worldwide opportunistic multidrug-resistant bacterial pathogen, *Stenotrophomonas maltophilia*.

JASON BYSTRIANSKY

Dr. Bystriansky's lab investigates how animals are adapted to survive in harsh or changing environments. His research program is mainly focused on what limits most fish species to live in either fresh or saltwater, while others can tolerate wide ranges of environmental salinity.

ANDREW CONITH

The Conith lab investigates the developmental and evolutionary processes that shape the vertebrate head. We currently use a variety of genetic, computational, and statistical approaches to better understand how different cranial traits coordinate growth at different stages of life (embryos to adults), and among different tissue types (bones, ligaments, muscles etc.).

SARAH CONNOLLY

Dr. Connolly's lab examines how herpesviruses achieve the first step of infection: entering a host cell. They study how proteins on the surface of the virus interact with each other and with cellular receptors to trigger fusion of the viral membrane with the cellular membrane, using virology, cell biology, and molecular biology approaches.

DAKEISHLA DIAZ-MORALES

The Parasite Ecology Lab focuses on understanding how human-driven environmental changes (e.g., global warming, habitat fragmentation and restoration, pollution) affect host-parasite interactions in aquatic environments. Our current research focuses on parasites infecting fish and snails in the Chicago River, particularly trematodes (parasitic flatworms) and myxozoans (parasitic cnidarians).

PHIL FUNK

Dr. Funk's research is interested in how cells decide what they will become in a multicellular organism, specifically the B-lymphocyte that produces antibody molecules. Dr. Funk's laboratory is currently studying the role of a molecule called chick B6 (chB6), present on B-lymphocytes in the chicken, which appears to cause a rapid form of cell death when bound by an antibody.

BILL GILLILAND

Dr. Gilliland's lab studies chromosome segregation during female meiosis in *Drosophila melanogaster* in order to find out how homologous chromosomes co-orient prior to the reductional first meiotic division. His research program uses genetic and cytological techniques to determine how often errors occur during meiosis, and to try to identify what events cause those errors.

JINGJING KIPP

The Kipp laboratory uses a broad spectrum of molecular, cellular, biochemical, genetic, morphological and physiological approaches to investigate hormonal signaling and gene expression in the regulation of ovary development.

KENSU SHIMADA

Dr. Shimada is interested in the evolution of marine ecosystems over geologic time, particularly by examining the paleobiology of sharks and other extinct marine vertebrates. While his lab studies a variety of organisms in the context of paleoecology, his research specialty is in a group of sharks called lamniforms that have been ecologically important in past and present oceans as they include top predators (e.g., great white sharks and 'Megalodon') and large plankton feeders (e.g., basking and megamouth sharks).

TIM SPARKES

Dr. Sparkes' lab works on aquatic behavioral ecology with a local focus on behavior in the parasite-host relationship that occurs between the acanthocephalan parasite (*Acanthocephalus dirus*) and the intermediate host (*Caecidotea intermedius*). His lab also has ongoing projects examining factors that influence the dynamics of mating patterns in both freshwater and marine systems of North America and Europe.

JIANFEI ZHAO

The Zhao Lab (Plant Developmental Timing Lab) studies how plants control the timing of their development, especially the shift from early (juvenile) growth to mature (adult) stages and the transition to reproductive development. The lab focuses on understanding how tiny regulators (microRNAs) control gene activity and how plants use these genetic systems to respond to their environment and survive, ultimately improving our understanding of plant biology and supporting the development of stress-resistant crops for sustainable precision agriculture.

In addition to research opportunities in biology, students in biology also work in research labs in neuroscience, health sciences, chemistry and environmental science & studies. ■

The Beauty of Science in Art: LSP 112 BIO Art

By Dr. Jessica Pamment



Before I understood the complexities of the natural world, I was captivated by its beauty. As a child I gravitated toward nature-inspired subjects in art class, and I was disappointed to learn that once I got to high school I would have to pick between science or art subjects (which is typical in the English education system). I ultimately chose science, but my appreciation for the beauty of nature remained a powerful influence, inspiring me to want to understand the molecular processes that shape the living world.

While many scientists appreciate the beauty of nature, I have found that his perspective is less common amongst students. STEM subjects are frequently perceived as dry, content-heavy and abstract. This led me to ask: could I use art to increase interest in science topics?

For several years I incorporated bio art into my LSP 112 Cloning and Biotechnology lectures. Although students responded enthusiastically, bio art was limited to a single lecture at the end of the quarter. Over time I began envisioning an entire course built around the subject- not only to examine the ethical questions raised by modern biotechnologies, but also to explore our relationship with nature, a topic that has long interested me.

This vision eventually became LSP 112 Bio Art: Exploring the human-nature relationship through art. In the course, bio art works serve as entry points for discussions on topics as diverse as transhumanism, ethics of bio-technologies and dualism vs. monism. Students also create their own original artworks as part of a final presentation. Two examples of student artwork from the Winter Quarter are included below. ■



Benjamin Greenbaum | Chimpanzee Vogue

Chimpanzee Vogue explores the connectedness of humans and nature. Through an exploration of chimpanzee behavior, my goal is to demystify human behaviors that can be seen as 'unnatural' particularly self-augmentation.



Khushi Chaudhary | Day 274

Day 274 tackles themes of germ-line editing, transhumanism and reproductive rights. I want my audience to critically think about the use of gene editing, who would it harm and who would it benefit.

From the Field to the Stats Lab: BIO 306/406 Takes Flight with Honduran Birds

By Dr. Crystal Guzmán

This winter quarter, a “new-old” favorite returned to the Biology Department roster: BIO 306/406, Research Methods & Applied Biostatistics, taught by Dr. Crystal Guzmán.

Don't let the title fool you—this isn't your typical stats course. Using citizen-science bird observations from across Honduras (courtesy of eBird Status & Trends), students worked in teams to tackle environmental gradient mapping, single-species habitat models, multi-species mixed-effects models, generalized additive models (GAMs), and community-level ordination—all in R.

Manuscript highlight: By quarter's end, the class had produced a full draft research manuscript exploring how elevation, precipitation, forest cover, and human footprint shape bird communities across Honduras. Among the findings: forest cover and elevation emerged as the strongest drivers of community-wide patterns, the forest-dwelling, White-breasted Wood-Wren showed a clear preference for intermediate elevations and denser forest, and the more adaptable Great Kiskadee held its own across a wider range of conditions. The team also found that nonlinear models (GAMs) told a richer story than simple linear ones for nearly every species studied—a reminder that nature rarely moves in straight lines. Written in the style of the journal *Avian Biology Research*, the manuscript is being refined over the summer with an eye toward potential submission. ■



BIO 306/406 students, Winter Quarter 2026

Biology Undergraduate Program (BS and BA) News

The Biological Sciences department offers a broad range of courses. As of Fall 2026, Biology majors pursuing a BS in Biology will have the option to complete one of the following concentrations: Cell Biology, Molecular Biology and Microbiology Concentration, Biological Sciences (BS); Ecology & Evolution Concentration, Biological Sciences (BS); Integrative Biology Concentration, Biological Sciences (BS); or Medicine, Health, and Physiology Concentration, Biological Sciences (BS). These concentrations allow students to focus their studies within these areas of biology.

Biology majors pursuing a BA in Biology may be interested in the Accelerated 3+ programs offered by our department: Pre-Pathologists' Assistant Concentration, Biological Sciences (BA); Pre-Physical Therapy Concentration, Biological

Sciences (BA); Pre-Physician Assistant Concentration, Biological Sciences (BA); and Pre-Podiatric Medicine Concentration, Biological Sciences (BA). Students interested in these programs register as DePaul Pathways Honors students.

Each of these concentrations provides students with opportunities to explore more deeply the field they may be interested in pursuing as a career in biology. The course requirements for these concentrations can be found in the DePaul University 2026–2027 Academic Catalog.

Course-based undergraduate research experiences and/or through working with Biological Sciences faculty on advanced research projects can provide students with biology field-specific skills and transferrable skills and help them prepare for their future careers. ■

Biology Club

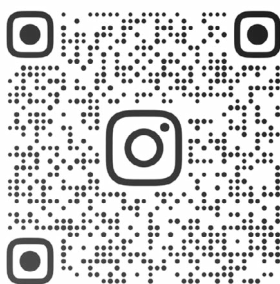
This year marked the return of the much-beloved student organization, the DePaul Biology Club! Designed to serve current undergraduate and graduate students within the department, the club hosts seminars, departmental outings, workshops, and lab tours. In addition to a weekly “Dippin and Sippin” event the club provides for students to relax and socialize with peers, it also hosted a plethora of social events throughout the year, including a hot cocoa social during winter quarter, a seed potting event in the spring, and a Darwin Day afterparty to encourage student success and community.

The club has also taken over running the department’s social media accounts, sharing info and resources with the DePaul community. You can check out their work with the QR code below! ■

EVERYTHING’S BETTER WITH COCOA AND SLIME:
Students socialize and de-stress with a hot cocoa bar and slime making station during the Winter Quarter Finals Week.



QR Code for the Biology Department's
Instagram Account



DEPAULBIODEPT

New Faculty Hire: Dr. Dakeishla Diaz-Morales



Dr. Díaz Morales' lab and some members of the Biology Club went to the Shedd Aquarium for a behind-the-scenes tour on Friday, April 3. They were lucky enough to personally talk to researchers and animal care technicians, learning a great deal about the many diverse animals the Shedd houses.

The Scientist Who Was Told 'That's Not a Thing'— and Did It Anyway

For many, the word parasite evokes a sense of unease. But for one of DePaul University's newest faculty members, these organisms are nothing short of "super cool". Specializing in parasite ecology and ecotoxicology, Dakeishla Díaz Morales, AKA Daki, is on a mission to reframe how we view some of nature's most misunderstood inhabitants.

While only 4% of parasites are harmful to human health, they represent a staggering 50% of global biodiversity. Beyond just existing, they serve as vital indicators of environmental health. For example, parasites can accumulate heavy metals at a higher rate than their hosts, effectively acting as sentinels for pollutants. They can maintain ecological balance by putting a natural cap on populations that might otherwise explode. And parasites can act as climate responders, as they are sensitive to anthropogenic factors like

global warming and pollution, making them essential for studying the impacts of human activity on nature.

The road to DePaul began with a childhood influenced by a naturalist father. "I'd look at a mountain, and my dad would tell me so many stories," she recalls, noting that his ability to always provide an answer fueled her lifelong curiosity. That curiosity eventually led her to Germany to study ecotoxicology, a journey fueled by the belief that one must "continue asking questions". Her journey into parasites was about harnessing that curiosity. As she learned more, she had more questions. Throughout her journey, she was told that combining parasitology and ecotoxicology wasn't a thing, but the more literature reading she did, the more she realized people were doing what she wanted to study. This curiosity landed her in Germany at the University of Duisburg-Essen for her master's and graduate work. For her students, her advice is simple: Let curiosity be your compass. "Be open-minded and explore," she says. "The uncertainty can cause fear. I didn't feed the fear."

Daki was drawn to DePaul by its collaborative environment and top-tier facilities, including the animal facilities and zebrafish culture systems. In the lab, she is currently collaborating with local organizations to see how parasites respond to restoration efforts, as well as welcoming new graduate students in the lab. Current undergraduate projects range from studying macroinvertebrates in the Chicago River to analyzing how biodiversity changes affect the global burden of disease.

Chicago's diversity also played a role in Daki choosing DePaul, as Chicago offers a vibrant local community and closeness to her home in Puerto Rico. When she isn't in the lab or teaching, she finds balance through movement and nature. Daki is currently a student of Bomba dance, the oldest Puerto Rican music genre rooted in Afro-Boricua resistance and rich in heritage, history, and folklore. ■

New Faculty Hire: Dr. Jianfei Zhao



From the City of Brotherly Love to the City of Big Shoulders: DePaul University's Newest Plant Developmental Biologist

While many are familiar with the circadian clock (how organisms respond to a 24-hour day/night cycle), Dr. Jianfei Zhao's research focuses on something more long-term. His lab specializes in plant developmental timing—specifically how small regulatory RNAs act as master regulators to signal when a plant should transition from its juvenile vegetative phase to its adult vegetative phase and, eventually, to flowering. He describes it as investigating how plants read a “calendar”.

Dr. Zhao joined DePaul after earning his Ph.D. from Washington State University and following a postdoc at the University of Pennsylvania. His work has already made waves in the field. During his postdoc, Dr. Zhao discovered that these developmental clocks are tissue-specific rather than uniform across the entire plant. This discovery challenged established linear models in the field, suggesting that these transitions can be decoupled. This opens exciting opportunities for students to explore the molecular mechanisms of plant growth and development, with real-world applications in helping crops grow better and produce more.

When asked why he chose DePaul, Dr. Zhao highlighted the university's unique urban and research-active atmosphere. He went on to say, “It was very easy for me during my interview to picture my lab mentoring students here. Being in Chicago means I can easily plug into a wider network with nearby institutions like UChicago, Northwestern, Loyola, and UIC, sharing seminars and facilities while working closely with our genuinely eager students.”

Dr. Zhao is also actively recruiting students for his lab, offering hands-on experience with cutting-edge tools like CRISPR gene editing and RNA-seq analysis. For him, research is the ultimate teacher. His advice for students: “I suggest students avoid trivial questions and focus on the critical, pressing ones that really excite them.” He advises, “Stay focused, stay curious, and think systematically.”

This year, Dr. Zhao is teaching Biotechnology (BIO 220) and is looking forward to revitalizing the Plant Biology course (BIO 209) and developing advanced electives in Plant Molecular Genetics, Epigenetics, and Bioinformatics. An avid fan of nature and urban adaptation, he enjoys visiting botanical gardens, discovering local coffee shops, and keeping up with the latest science talks. ■

“I suggest students avoid trivial questions and focus on the critical, pressing ones that really excite them.”

Department of Biological Sciences 2025 QIC Excellence in Teaching Award Winner: Dr. Jessica Pamment



① How long have you been teaching at DePaul? What classes do you teach? What is your favorite class to teach?

"I've been teaching at DePaul for 16 years. The first class I taught was Bio 155 and it happens to be one of my favorite classes to teach, probably because it's one of the most challenging but also most rewarding classes I have taught. This is a challenging class because it is a required biology class for non-majors, most of whom aren't really that interested in biology. This class really forced me to reassess how I teach; it forced me to listen to students and made me realize that teaching is a dynamic process, that no matter what I have planned to cover in class, if I don't provide an environment that is conducive for students to learn, I am wasting my time. I learned a lot from this class, and it is still a class I look forward to teaching every year."

Classes Dr. Pamment currently teaches, or has taught:

- BIO 155 Introduction to Biology with Laboratory (non-majors)
- BIO 115 Introduction to Biology (non-majors)
- SWK 105 Science as a Way of Knowing
- BIO 260 Genetics

- BIO 191 General Biology I for Science Majors
- LSP 112 (She currently teaches a class that she developed called: *Bio Art: Exploring the human-nature relationship through art*. In the past she has taught another LSP 112 class called *Cloning and Biotechnology*)

② Receiving the QIC Teaching Award is a remarkable achievement. Over your years of teaching, how have you evolved or adapted your teaching style to better connect with and educate your students effectively?

"When I started teaching my focus was on being well-prepared; I spent months working on the material I wanted to cover in my Bio 155 classes. One important factor I hadn't considered was how my students- with their unique backgrounds and needs- would interpret what I was saying: would they understand the content? Would they make the connections to the real world I was hoping they would make? I came to realize that to teach effectively, I first needed to understand my students: where they came from, what was going on in their lives, what their goals were and maybe most importantly, what their prior experience with science classes had been like."

"I started giving a survey at the start of every quarter when I taught Bio 155. One of the most revealing questions I asked was for students to tell me how they felt about taking a science course. For the past decade I have consistently received similar results, between 50-70% of students report being anxious or fearful of taking a science class. The typical answer when I ask students why they feel this way is either because they had a negative experience in a prior science class and/or because students feel 'they can't do science.' After finding this out I realized that I had to prioritize making students feel

comfortable in a science class if I was to teach them effectively. I strive to make students feel they can ask questions in class, I interact with students on a personal level during labs, and I make my lectures engaging by including in-class activities which, like lab assignments, allow me to interact with students one-on-one. Additionally, I have incorporated a service-learning component to my Bio 155 class. This has proven to be a very impactful tool for engaging students. Not only do my students get to fulfill DePaul's Vincentian Mission, but they get to learn the material more effectively. This reflection by one of my students encapsulates why active learning is such an effective teaching strategy:"

"I was surprised by how much this reinforced concepts we had learned in class. Knowing the subject matter versus really understanding changed for me after teaching it to someone."

③ What, in your opinion, are the qualities and attributes that define an effective teacher?

1. Being organized: running a class has many moving parts, and although sometimes stressful for the teacher, I don't think the students should be feeling this stress, they have enough on their plates as it is. A class that is running smoothly (teacher comes prepared to class, deadlines and grading policies are clear, etc.) makes the students feel more comfortable in the class and they can focus on their job, which is to learn.

2. Being concise: although challenging for someone who knows a lot about a particular topic, being able to simplify it for students is essential. Breaking a topic down into simple parts and adding details over time makes learning a difficult topic much more manageable for students.

continued >

Department of Biological Sciences 2025 Qic Excellence in Teaching Award Winner: Dr. Jessica Pamment continued

3. Being able to read the classroom: Knowing when you are losing your students' attention is important. I try to get a feel for the classroom when I am lecturing: are students following what I am saying? If not, I need to stop and maybe change the way I just explained something. Sometimes taking a break is all the students need.

4. Showing empathy: Like all human beings, students are complex and have outside factors that affect how they perform in the classroom. Balancing being sensitive to what my students might be going through, while also following classroom policies is important.

4 If you could give one piece of advice to current students at DePaul, what would that be?

"Communication is key! No matter how small your concern is, you should always feel comfortable enough to talk with your professor. No question is a stupid question, but professors can't read your mind, so if you don't tell them what you are struggling with, they can't help you. Effective communication is also something you will need when you leave DePaul, so you can think of your college years as time to sharpen your communication skills before you enter the workforce."

5 Share your favorite teaching memory.

"Several years ago, I had a Bio 155 student who was terrified of taking biology. I know she was terrified because she told me she had been having nightmares about taking a science class. As it turned out, this student was the strongest student in the class. At the end of the quarter, she had earned the top spot in the class, and she told me Bio 155 was the first science class she had enjoyed and that she no longer felt 'she couldn't do science.'"

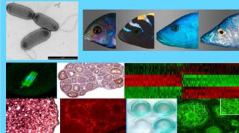
6 What advice or insights can you offer to aspiring educators looking to excel in their teaching careers, especially in the field of science?

"I would say one of the most important traits to work on is to make yourself approachable. When there is a big chasm between the teacher and students you are likely to only reach a small fraction of your students. Only when students can effectively communicate with you will you be able to truly help them. If you don't know what the problem is, you can't address it!" ■

Biological Sciences Seminar Series

The Biological Sciences Seminar Series continued this past academic year, showcasing the career journeys and research of faculty and students at DePaul University and collaborators nationwide. This series provides students, faculty, and the DePaul community with the opportunity to discover and stay abreast of the scientific discoveries happening at DePaul and beyond.

**BIOLOGICAL SCIENCES
MEET AND GREET**

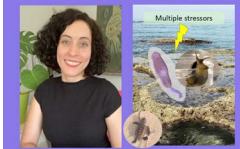


Meet Biology faculty and graduate students
Learn about course offerings, research opportunities,
and student organizations

Thursday, October 2nd 2:30pm McGowan South 105
Reception with refreshments to follow & free lab coats for Biology majors!

**BIOLOGICAL SCIENCES
JOURNEYS SEMINAR**

Dr. Daki Díaz-Morales
Assistant Professor, DePaul University Biology



Multiple dressers

From sea turtles to "yucky" worms:
on becoming a parasite ecologist

Open to all – undergraduate and graduate students
Tuesday 21st 1:00pm, McGowan South 105
Or on Zoom, Meeting ID: 4123593004
Password: 101824

**BIOLOGICAL SCIENCES
Darwin Day Seminar**

Dr. Jianfei Zhao
Assistant Professor, DePaul University Biology



From Darwin to microRNAs: Evolutionary
Logic of Plant Developmental Timing

Open to all – undergraduate and graduate students
Monday February 9th 2:00pm, McGowan South 105
Or on Zoom, Meeting ID: 4123593004
Password: 101824

**BIOLOGICAL SCIENCES
PERSPECTIVES SEMINAR**

Phil Nicodemus
Research Director, Urban Rivers



Chicago Urban Rivers: Transforming Urban
Waterways into Wildlife Sanctuaries

Open to all – undergraduate and graduate students
Monday March 2nd 2:00pm, McGowan South 105
Or on Zoom, Meeting ID: 4123593004
Password: 101824

**BIOLOGICAL SCIENCES
Journeys Seminar**

Dr. Andrew Hawkey
Assistant Professor, Midwestern University



Dr. Andrew Hawkey
Midwestern University Biology

Drugs, Pollutants, and Other Chemicals: Converging
questions and answers in developmental neuroscience

Open to all – undergraduate and graduate students
Monday April 20th 2:00pm, McGowan South 103
Or on Zoom, Meeting ID: 4123593004
Password: 101824

Biology Department Student Conferences

2025 Great Lakes Student PaleoConference (GLSP)

A group of Dr. Kenshu Shimada's students attended the 2025 Great Lakes Student PaleoConference in Cincinnati, Ohio from September 12th–13th.



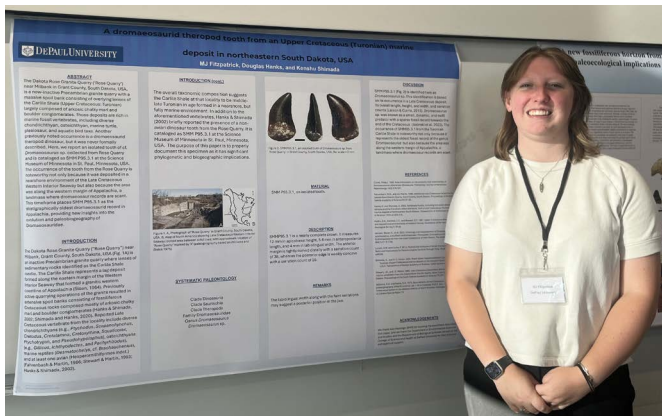
IN ORDER FROM LEFT TO RIGHT:
(back row): **MJ Fitzpatrick** (BS), **Antonio Armagno** (MS), **Eduardo Garcia** (MS), **Kevin Prehm** (MS), (front row) **Natalia Rosinski** (ENV), **Maha Mahoney** (MS), and **Kaelin Riechmann** (BS).



Armagno, A. G., and K. Shimada. 2025. Fossil vertebrate diversity and paleoecological implications of a new fossiliferous horizon from the Upper Cretaceous Smoky Hill Chalk, Logan County, Kansas [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].

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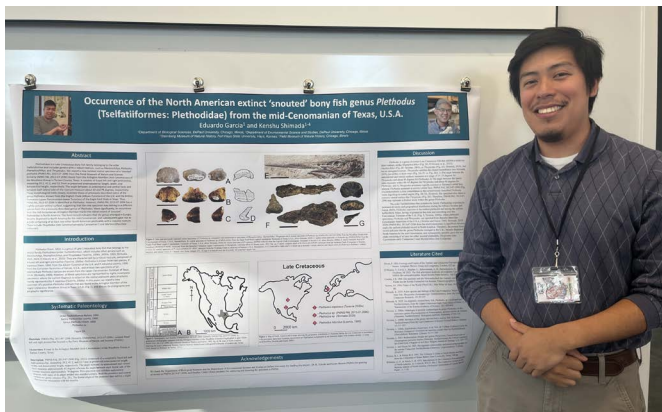
2025 Great Lakes Student PaleoConference (GLSP) continued



Fitzpatrick, M. J., H. D. Hanks, and K. Shimada. 2025. A dromaeosaurid theropod tooth from an Upper Cretaceous (Turonian) marine deposit in northeastern South Dakota, USA [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].



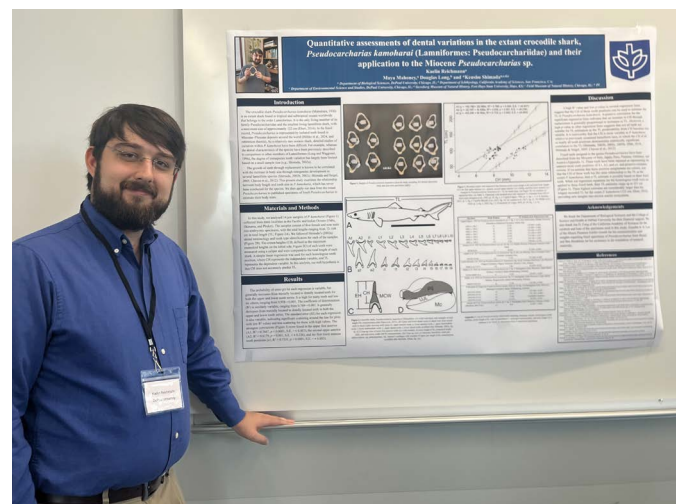
Prehm, K., B. S. Goode, and K. Shimada. 2025. Using filtered longwave ultraviolet light to locate vertebrate remains in the middle Campanian Cliff House Sandstone Formation of the San Juan Basin of New Mexico, USA [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].



Garcia, E., and K. Shimada. 2025. Occurrence of the North American extinct 'snouted' bony fish genus *Plethodus* (Tseftatiiformes: Plethodidae) from the mid-Cenomanian of Texas, U.S.A. [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].



Mahoney, M., and K. Shimada. 2025. A morphological comparison of the jaw curvature of *Carcharodon hastalis* and *Carcharodon hubbelli* to extant lamnid sharks (Lamniformes: Elasmobranchii) [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].



Reichmann, K., M. Mahoney, D. J. Long, and K. Shimada. 2025. Quantitative assessments of dental variations in the extant crocodile shark, *Pseudocarcharias kamoharui* (Lamniformes: Pseudocarchariidae) and their application to the Miocene *Pseudocarcharias* sp. [2025 Great Lakes Student PaleoConference, Cincinnati, Ohio: September 12–13, 2025].

Midwest Microbial Pathogenesis Conference



Maria Robledo presented her poster titled *Exploring the effect of two protein synthesis-inhibiting antibiotics on phage activity against *Stenotrophomonas maltophilia** at the Midwest Microbial Pathogenesis Conference on October 4, 2025, in St. Charles, Illinois. Maria has been awarded a 2026 Undergraduate Research Assistant Program (URAP), a competitive, grant-funded initiative, for developing a new method to grow and treat biofilm colonies with bacteriophages with Dr. Joanna Brooke. She plans to present her results at the Chicago Area Undergraduate Research Symposium (CAURS) in 2026.

85th Annual Meeting of the Society of Vertebrate Paleontology (SVP)

A group of Dr. Kenshu Shimada's students attended the 85th Annual Meeting of the Society of Vertebrate Paleontology in Birmingham, United Kingdom from November 12th-15th.

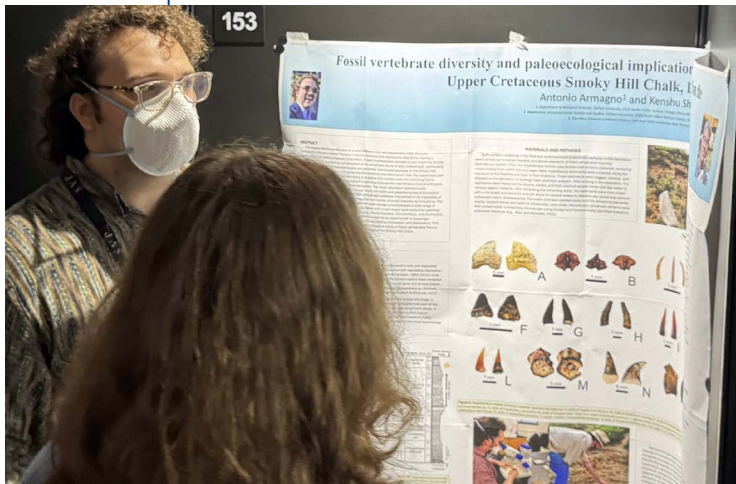


IN ORDER FROM LEFT TO RIGHT:
Dr. Kenshu Shimada, **Antonio Armagno** (MS), **MJ Fitzpatrick** (BS), **Kevin Prehm** (MS), **Kaelin Riechmann** (BS), and **Eduardo Garcia** (MS).

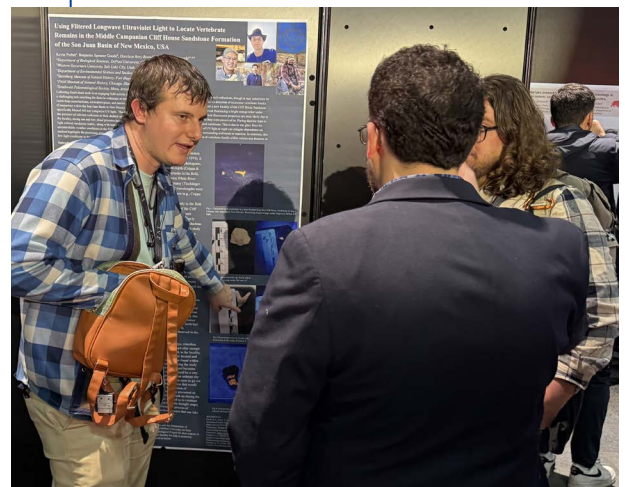
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85th Annual Meeting of the Society of Vertebrate Paleontology (SVP) continued

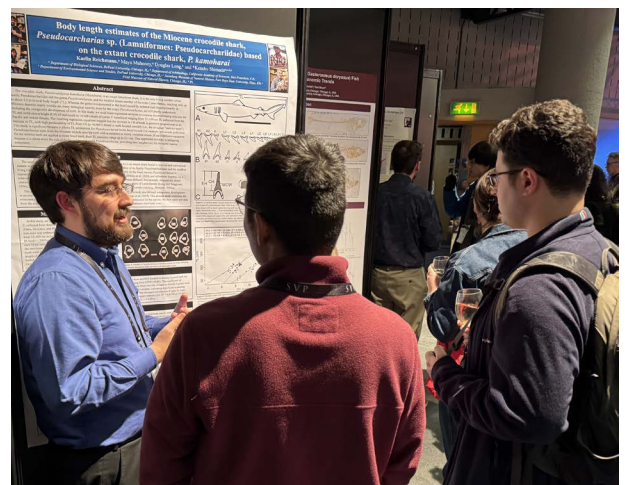
Armagno, A. G., and K. Shimada. 2025. Fossil vertebrate diversity and paleoecological implications of a new fossiliferous horizon from the Upper Cretaceous Smoky Hill Chalk, Logan County, Kansas [Annual Meeting of the Society of Vertebrate Paleontology, Birmingham, England, U.K.; November 12–15, 2025].



Prehm, K., B. S. Goode, and K. Shimada. 2025. Using filtered longwave ultraviolet light to detect fossil shark teeth at night in the Upper Cretaceous Cliff House Sandstone Formation of the San Juan Basin in New Mexico, USA [Annual Meeting of the Society of Vertebrate Paleontology, Birmingham, England, U.K.; November 12–15, 2025].

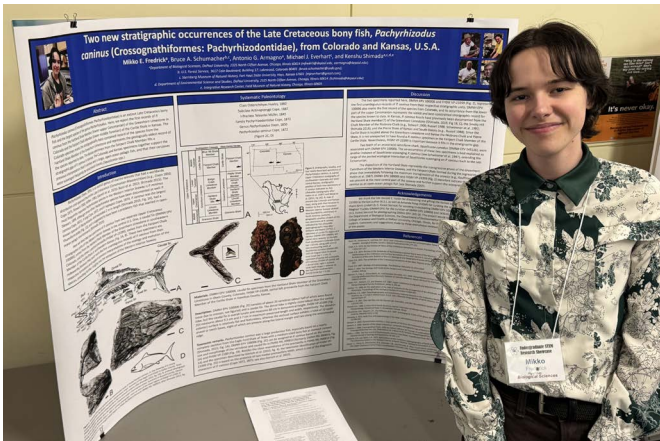


Fitzpatrick, M.J., H. D. Hanks, and K. Shimada. 2025. A dromaeosaurid theropod tooth from an Upper Cretaceous (Turonian) marine deposit in northeastern South Dakota, USA [Annual Meeting of the Society of Vertebrate Paleontology, Birmingham, England, U.K.; November 12–15, 2025].



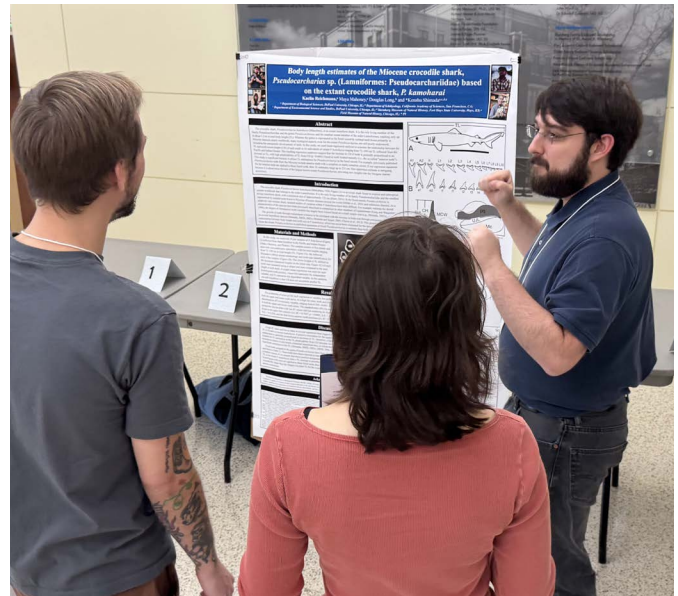
Reichmann, K., M. Mahoney, D. J. Long, and K. Shimada. 2025. Body length estimates of the Miocene crocodile shark, *Pseudocarcharias* sp. (Lamniformes: Pseudocarchariidae) based on the extant crocodile shark, *P. kamoharui* [Annual Meeting of the Society of Vertebrate Paleontology, Birmingham, England, U.K.; November 12–15, 2025].

23rd Annual Undergraduate Stem Research Showcase



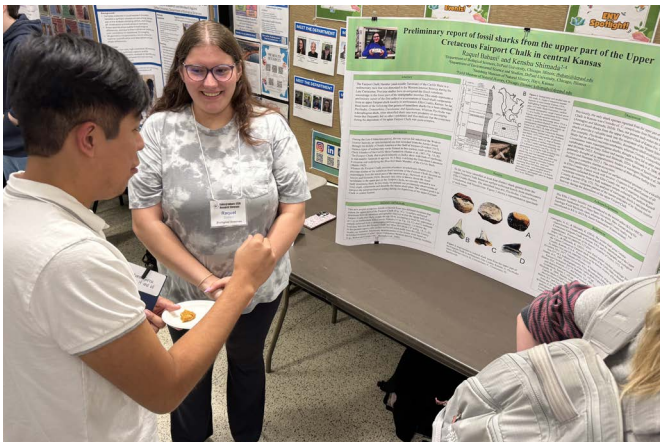
POSTER TITLE: Two New Stratigraphic Occurrences of the Late Cretaceous Bony Fish, *Pachyrhizodus caninus* (Crossognathiformes: Pachyrhizodontidae), from Colorado and Kansas, U.S.A.

STUDENT RESEARCHER: **Mikko Frederick**; FACULTY ADVISOR: Kenshu Shimada



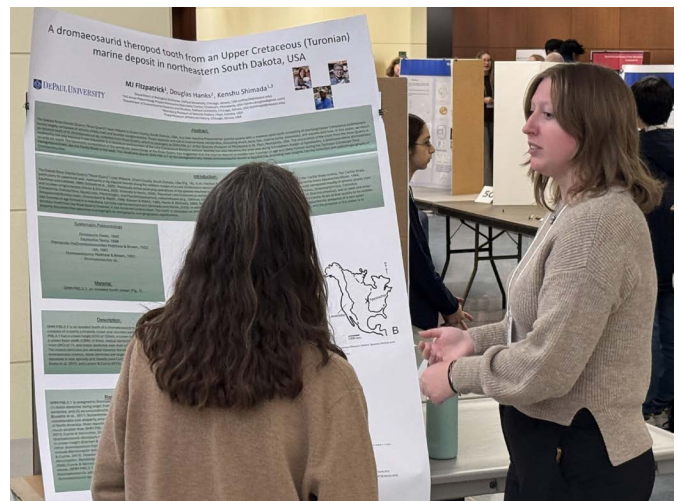
POSTER TITLE: Body Length Estimates of the Miocene Crocodile Shark, *Pseudocarcharias* sp. (Lamniformes: Pseudocarchariidae) Based on the Extant Crocodile Shark, *P. kamoharui*.

STUDENT RESEARCHER: **Kaelin Reichmann**; FACULTY ADVISOR: Kenshu Shimada; Program: Undergraduate Research Assistantship Program (URAP)



POSTER TITLE: Preliminary Report of Fossil Sharks from the Upper Part of the Upper Cretaceous Fairport Chalk in Central Kansas

STUDENT RESEARCHER: **Raquel Babani**; FACULTY ADVISOR: Kenshu Shimada



POSTER TITLE: A Dromaeosaurid Theropod Tooth from an Upper Cretaceous (Turonian) Marine Deposit in Northeastern South Dakota, USA

STUDENT RESEARCHER: **MJ Fitzpatrick**; FACULTY ADVISOR: Kenshu Shimada



POSTER TITLE: Fossil Marine Fishes from the Middle Hartland Shale (Upper Cretaceous: Upper Cenomanian) in Northcentral Kansas

STUDENT RESEARCHER: **Riley Sharon**; FACULTY ADVISOR: Kenshu Shimada

2026 Midwest Ecology & Evolution Conference (MEEC)

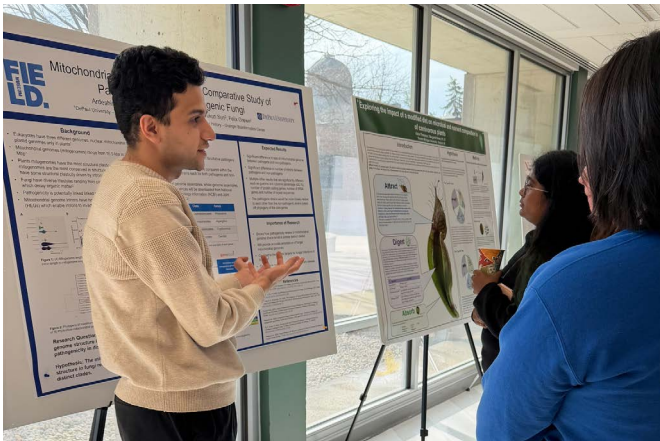
Congratulations to all the BIO and ENV students who attended the Midwestern Ecology and Evolution Conference on March 28–29 at Eastern Michigan University. Eleven students—four undergraduates and seven graduates—from the Biological and Environmental Sciences departments showcased their research. Projects spanned diverse topics, including ecosystem restoration and the impact of Chicago River sewage on fish parasites. We appreciate our amazing students, faculty, and staff for making this happen and showcasing the excellence of their research!



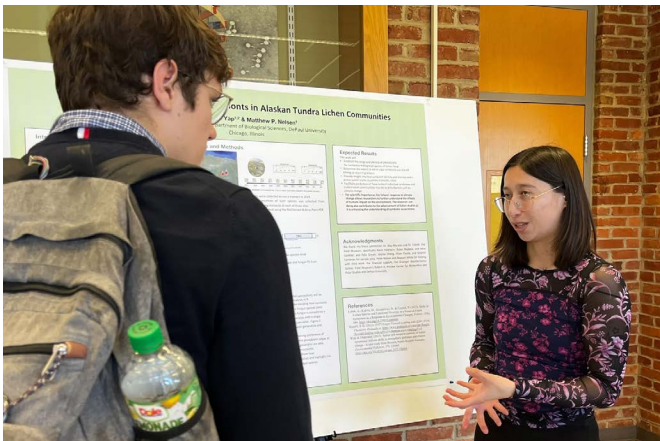
FRONT ROW: Eduardo García (BIO: Shimada lab), Peter Zwarycz (BIO: Conith lab), Terry Delaney (BIO: Díaz-Morales lab), Ardeshir Irani (BIO: 'Field Museum' lab), Emily Rodríguez (BIO: Conith lab); **BACK ROW:** Sharon Daya (BIO: Conith lab), Demy Rose Yap (BIO: 'Field Museum' lab), Rachel Kistingner (ENV: de la Sancha lab), Angelina Wang (ENV: Klimas lab), Nada Jabra (BIO: Díaz-Morales lab), Soha Ali (BIO: Díaz-Morales lab).

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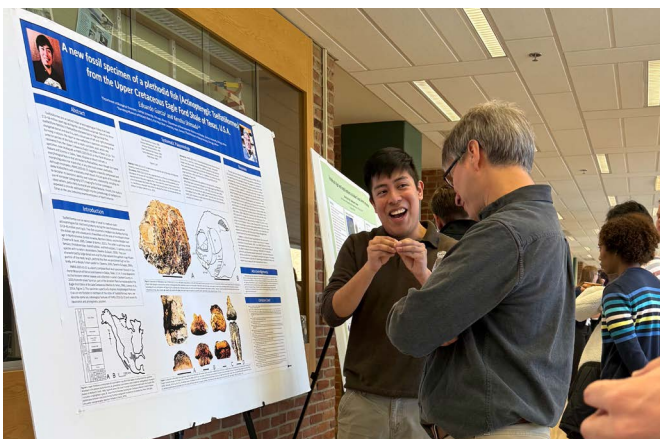
MEEC 2026: BIO Student Poster Presentations



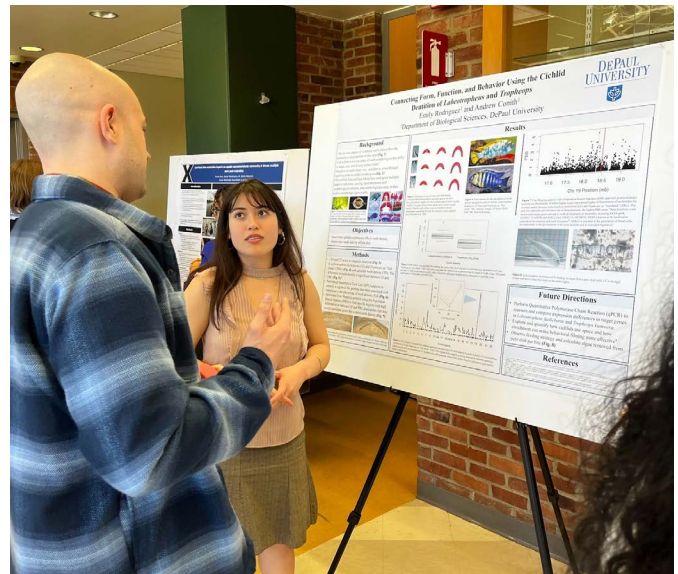
Ardeshir Irani presents his poster titled *The Evolution of the Mitochondrial Genome: Fungal Lifestyle and Molecular Mechanisms*.



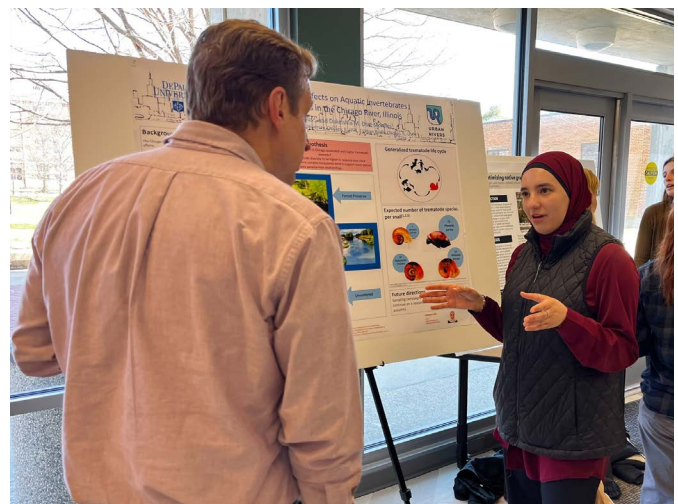
Demy Rose Yap presents her poster titled *Variability of Fungal and Algal Symbionts in Alaskan Tundra Lichen*.



Eduardo Garcia presents his poster titled *A new fossil specimen of a plethodid fish (Actinopterygii: Tselfatiiformes) from the Upper Cretaceous Eagle Ford Shale of Texas, U.S.A.*



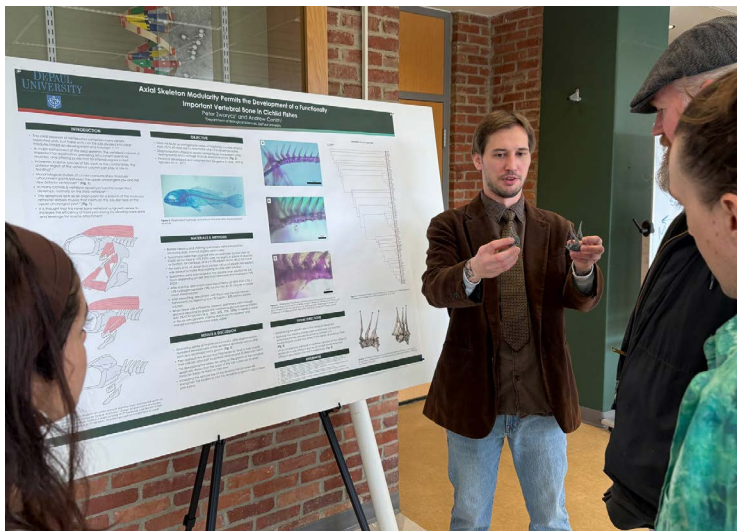
Emily Rodriguez presents her poster titled *Genetic factors influencing tooth density in algivorous East African Cichlids: Labeotropheus fuelleborni and Tropheops sp. "red cheek"*.



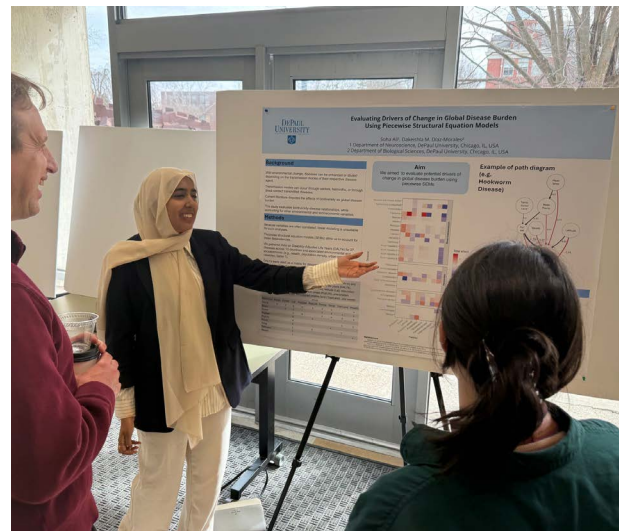
Nada Jabra presents her poster titled *Urban River Restoration Effects on Aquatic Invertebrates and Associated Parasites in the Chicago River, Illinois*.

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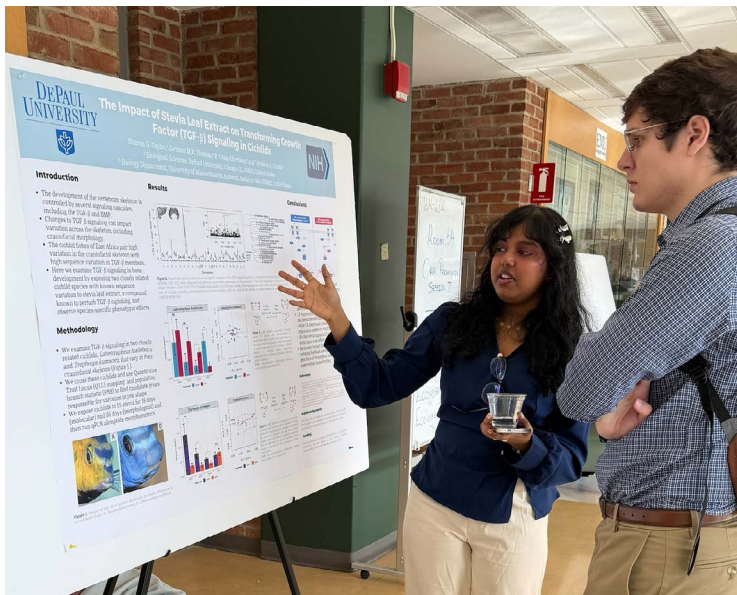
MEEC 2026: BIO Student Poster Presentations continued



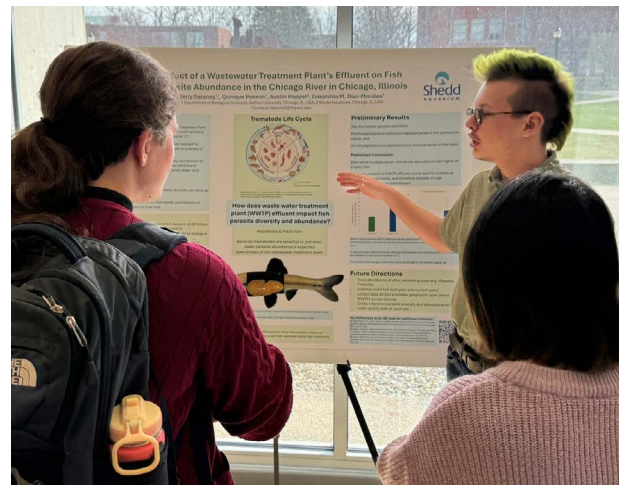
Peter Zwarycz presents his poster titled *Axial Skeleton Modularity Permits the Development of a Functionally Important Vertebral Bone in Cichlid Fishes.*



Soha Ali presents her poster titled *Evaluating Drivers of Change in Global Disease Burden using Piecewise Structural Equation Models.*



Sharan Dayan presents her poster titled *The impact of Stevia leaf extract on Transforming Growth Factor (TGF-β) signaling in cichlids.*



Terry Delaney presents their poster titled *Effect of a Wastewater Treatment Plant's Effluent on Fish Parasite Abundance in the Chicago River in Chicago, Illinois.*

2026 Biology End of the Year Celebration

2026 Student of the Year award



Kaelin Reichmann receives BIO's 2026 Student of the Year award from Dr. Joanna Brooke.

Kaelin Reichmann has earned DePaul University's 2026 Biology Student of the Year award following a nomination from Dr. Kenshu Shimada, who noted unprecedented enthusiasm for a senior in his 25-plus years. Reichmann has published in the *Journal of the Ocean Science Foundation*, presented at international conferences, and secured two CSH URAP grants for distinct research on sharks and dinosaurs. Beyond his research, he acts as a leader in Dr. Shimada's lab, a peer mentor for the Biology Department, co-founded the DePaul Biology Club, and performs community outreach through Shedd Aquarium tours for high school interns.

The following students were nominated for the Student of the Year award:

Maro Aroutiunian,
nominated by Dr. Windsor Aguirre

Sharon Grace Dayan,
nominated by Dr. Andrew Conith

Benjamin Klapperich,
nominated by Dr. Windsor Aguirre

Omar Ocampo,
nominated by Dr. Windsor Aguirre

2026 CSH Honors Celebration



Kaelin Reichmann (center) receives the Dean's Award for Outstanding Academic Achievement at CSH's Honors Celebration on June 6, 2026, with Dr. Joanna Brooke (left) and Dr. Kenshu Shimada (right).

Dr. Rick Hudson Retires After 21 Years of Teaching

Congratulations on your retirement. Thank you for your 21 years of teaching contribution and service to the department. We wish you all the best in your retirement.



Dr. Rick Hudson (left) accepts a piece of artwork as his parting gift from Department Chair, Dr. Joanna Brooke (right).



Biology colleagues celebrate with Dr. Hudson at lunch.

Alumni Spotlight: Deborah Corcoran



For many incoming DePaul University students, the path to a career in medicine is a straight line aimed toward an MD. But for Deborah “Debbie” Corcoran (BS ’19)—formerly Debbie Liberman—a chance placement in a research lab at DePaul University transformed a checkbox on a medical school application into a lifelong passion for scientific discovery. Like many in the pre-med track, she sought out research experience to bolster her credentials. That search led her to the lab of Dr. Margaret Bell, where Debbie quickly found herself more enamored with pipetting and data analysis than MCAT prep.

“I just absolutely fell in love with research,” Debbie recalls. “I was always procrastinating my MCAT studying by working in the lab. Dr. Bell gave us the freedom to take ownership of our own projects, and I quickly realized I could do this as a career.”

Today, Debbie is a sixth-year PhD candidate at the NYU Grossman School of Medicine, where she is tackling one of the most challenging diagnoses in oncology: pancreatic cancer. Her

research focuses on the tumor microenvironment, the complex ecosystem of healthy cells and structural networks that surround a tumor. Unlike many other cancers, pancreatic tumors are comprised of up to 80% fibrotic tissue, which Debbie describes as a “spider web” of dense matrix that acts as a physical barrier against therapy. Using cutting-edge technology such as single-cell RNA sequencing and spatial transcriptomics, Debbie is working to understand how cancer cells communicate within the environment. By making sense of this “big mess,” she hopes to identify vulnerabilities in the tumor’s support system that could make it more favorable to treatment.

Debbie is a firm believer that the image of a scientist as a lonely figure in a dark corner is a myth. To her, communication is one of the most vital tools in a researcher’s kit. “Especially in this climate, it’s so important that scientists can communicate the importance of research to the broader public,” she notes. That commitment to community has followed her to New York City. Debbie has volunteered with BioBus, bringing hands-on science experiments to underserved communities, and served as a mentor for first-generation college applicants through the iMentor program.

As she prepares to defend her dissertation in July, Debbie has her sights set on the biotech industry. A self-described “data junkie,” she hopes to work with clinical trials or high-dimensional patient data to continue making order out of biological chaos.

While her scientific achievements are impressive, Debbie credits much of her professional development to her time outside the lab—specifically at DePaul’s Ray Meyer Fitness Center. Starting as an entry-level employee and working her way up to a building manager, Debbie learned the soft skills that are often overlooked in scientific training. “It’s challenging to work with your peers,” she says. “Navigating that balance of taking a leadership role while maintaining those relationships helped me immensely as I became a senior PhD student. I also learned how to manage my time between a full course load, the lab, and work.”

Reflecting on her time at DePaul, Debbie’s fondest memories aren’t just of the experiments that worked, but of the people she met along the way. “Surrounding yourself with people who are good for you is the best thing you can do as an adult,” she says. “I still have my best friends from the ‘Ray’ calling me to ask when my defense is. That support means everything.” ■

“I just absolutely fell in love with research,” Debbie recalls. “I was always procrastinating my MCAT studying by working in the lab. Dr. Bell gave us the freedom to take ownership of our own projects, and I quickly realized I could do this as a career.”

Department of Biological Sciences 2026 QIC Excellence in Teaching Award Winner: Dr. Margaret Bell



Congratulations, **Dr. Bell**, on your remarkable contribution to the Biology Department's academic mission. She joins the growing list of fabulous professors in the Biology Department – Dr. Windsor Aguirre, Dr. Joanna Brooke, Dr. John Dean, Dr. Jessica Pamment, and Dr. Tim Sparkes – to win this distinguished award. Dr. Bell teaches Cell Biology (BIO 250), Introduction to Endocrinology (BIO 386), Brain and Behavior (BIO 126), Introduction to Biology I (BIO 191) Lab, Physiology of Poverty (BIO 225/HLTH 325), Foundations of Health Sciences (HLTH 200), and One Health Chicago (HON 110: a Discover Chicago Course).

DePaul Humanities Center Fellowship Award Winner (2026–2028)



Congratulations to **Dr. Jianfei Zhao** who has been awarded a DePaul Humanities Center Fellowship (2026–2028). During this fellowship, Dr. Zhao will pursue his research, Bridging Biology and the Humanities Through Plants: Past Insights, Present Crises, Future Resilience.

Distinguished College of Science and Health Early Career College of Science and Health Alumni Achievement Award



Becca Ursin, PhD (CSH '15)
Scientist, AstraZeneca

The College of Science and Health honors Dr. Becca Ursin with the Early Career College of Science and Health Alumni Achievement Award. This award recognizes individuals who embody the college's values and mission, demonstrating significant achievements in science and health and making meaningful contributions to society. Becca graduated from DePaul with a major in Biology in 2015.

Within a decade of earning her undergraduate degree at DePaul, Rebecca (Becca) Ursin, MS, PhD, has distinguished herself as both a decorated scientist and champion for diversity in STEM. From her beginnings as a standout student-athlete to her current role leading cutting-edge immunology projects at one of the world's foremost pharmaceutical companies, Becca's journey reflects resilience, dedication, the bolstering of diverse voices, and an unwavering commitment to excellence.

Becca has won multiple awards for her work at the bench and in the scientific community, including the New Investigator Award from the Organization for the Study of Sex Differences and lifetime achievement honors from the Johns Hopkins Delta Omega Society.

Equally impressive is her dedication to advancing equity in science: she founded, chaired, and coordinated several diversity and inclusion initiatives at Johns Hopkins, co-directed the Ragon Women in STEM Empowerment group, and continues to champion representation today through leadership roles in the industry.

As a scientist at Astra Zeneca, Becca leads projects aimed at developing first- and best-in-class therapeutics against autoimmune disease indications. Her path—from presenting undergraduate research at DePaul, to earning advanced degrees at Georgetown and Johns Hopkins, to postdoctoral training at the Ragon Institute of Harvard, MIT, and MGH—demonstrates not only her scientific rigor but also her determination to open doors for others.

As a student at DePaul, Becca became interested in Dr. Jingjing Kipp's reproductive biology and polycystic ovarian syndrome (PCOS) research, as she had been diagnosed with PCOS only a few years before. Now a new mother, Becca credits research like Dr. Kipp's for helping women with PCOS build families and opening doors to young, enthusiastic undergraduates like herself.

Becca's achievements in discovery, leadership, and advocacy embody the highest ideals of our alumni community. She stands as a role model for women in science and an inspiring example of how dedication and vision can transform both a field and the lives of those within it.

Department Publications



Dr. Margaret Bell

Bell, Margaret R, Katherine A Walker, Gia M Valdez, Carissa E Dressel. Advances and challenges in studying effects of EDCs on tissue-resident macrophages in inflammation. *Journal of the Endocrine Society*, 2026. doi.org/10.1210/jendso/bvag044



Dr. Andrew Conith

Conith, A.J. Lake Tanganyika cichlids partition habitat by time. *Nat Ecol Evol* 9, 1763–1764 (2025). doi.org/10.1038/s41559-025-02847-9



Dr. Sarah Connolly

Fan Q, Longnecker R, **Connolly SA**. 2025. Species-specific gB ectodomain interactions and cytoplasmic domain stability regulate herpes simplex virus fusion. *mBio*.14(1): e0342425. [doi 10.1128/mbio.03424-25](https://doi.org/10.1128/mbio.03424-25)

Wood CL, Commisso G, **Díaz-Morales DM**, McClenachan Loren, Rollins R, Slapeta J, Whalen CJ. 2026. “What is “normal”?” Defining baseline states of infection for ecosystems” in: *The Ecology and Evolution of Marine Parasites and Disease*, Oxford University Press. doi.org/10.1093/9780197790847.003.0011

Wood CL, Boatman G, Boyd D, Christner SR, Commisso G, **Díaz-Morales D**, Goldsmith J, Kuhl B, Leslie K, Ortega E, Perales-Macedo DM, Perron B, Thirtyacre J, von der Ohe S, and Whalen CJ. 2026. Power to the parasites! Parasite biodiversity for elementary learners. OER Commons. oercommons.org/courseware/lesson/143173.

Hill-Spanik KM, **Díaz-Morales DM**, Atkinson SD, Georgieva S, Sures B, Davis EW 2nd, Kmentová N, Vanhove MPM, Schütz R, de Buron I. Exploring hidden parasite diversity during a ParasiteBlitz across a coastal habitat gradient using environmental DNA metabarcoding. *J Helminthol*. 2025 Oct 13;99: e114. doi: 10.1017/S0022149X25100801. PMID: 41078228.



Dr. William Gilliland

Stanek TJ et al. 2025. Recombination Suppression Drives Expansion of the *Drosophila* Dot Chromosome Malik H, editor. *Molecular Biology and Evolution*. 42(12): msaf304. doi.org/10.1093/molbev/msaf304



Dr. Dakeishla Díaz-Morales

Díaz-Morales DM, Atkinson SD, Boyd D, Commisso G, Christner S, Jones I, Leslie K, Thirtyacre J, Whalen CJ, Kuris AM, Mann J, Bart H, Wood CL. 2026. Stressor interactions affect myxozoan abundance in a 42-year dataset from the Pearl River, Louisiana, USA. *Parasitology*.

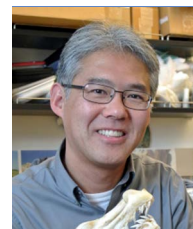


Dr. Gwendolyn Knapp

Seipelt-Thiemann R., Boury N., **Knapp G.S.**, Garcia Costas A., 2025. Podcast Annotation and Resources in Microbiology. Iowa State University Digital Press.

Hentati Y, Reese E, Curran C, Miller EM, **Díaz-Morales DM**, Kreling SES, Verocai GG, Prugh LR, Schell CJ, Wood CL. 2026. Detection of *Echinococcus multilocularis* in coyotes in Washington State, USA highlights need for increased wildlife surveillance. *PLOS Neglected Tropical Diseases*.

Musiol M, Grabner DS, **Díaz-Morales DM**, Nachev M, Descamps S, Fonteneau F, Sures B, Carravieri A. 2026. Diversity of helminths parasitising North-East Atlantic and Antarctic seabirds. *Journal of helminthology*.



Dr. Kenshu Shimada

Shimada, K., M. Elstrup, H. Lauridsen, T. Sørensen, and M. Siversson. Accepted. Rediscovery of the associated gigantic vertebrae of the extinct megatooth shark, *Otodus megalodon*, from the Upper Miocene Gram Formation in Denmark, and comments on its paleobiological significance and the maximum possible size of the species. *Palaeontologia Electronica*.

continued >

Department Awards and Selected Publications continued

Dr. Kenshu Shimada

Fitzpatrick, M. J.U, and **K. Shimada**. 2026. Late Cretaceous marine vertebrates from the upper half of the Pfeifer Shale Member of the Greenhorn Limestone in central Kansas, USA, and comments on the geologically oldest mosasaur remains in Kansas. *Transactions of the Kansas Academy of Science*, 129(1-2):33–46.

Mianutti, L. F., **K. Shimada**, and J. P. Ca. B da Silva. 2026. The musculature and skeleton of the pelvic fin of the crocodile shark, *Pseudocarcharias kamoharai* (Matsubara) (Elasmobranchii: Lamniformes): morphology and sexual dimorphism. *Anatomical Record*, 1–17. doi.org/10.1002/ar.70201

Maisch, H. M. IV, R. E. Narducci, E. Proulx, M. A. Becker, and **K. Shimada**. 2026. Gigantic burrfish (Tetraodontiformes: Diodontidae) tooth plate batteries from the Pliocene Yorktown Formation on the submerged continental shelf, North Carolina, USA. *Journal of Vertebrate Paleontology*, 45(6): e2612762. doi.org/10.1080/02724634.2026.2612762

Moyer, J. K., G. J. Watkins-Colwell, and **K. Shimada**. 2026. Atypical dentition of a Porbeagle Shark (*Lamna nasus*) highlights odontological considerations in the taxonomy and phylogenetics of sharks. *Anatomical Record*, 1–8. doi.org/10.1002/ar.70163

Reichmann, K.U, M. G. MahoneyG, D. J. Long, and **K. Shimada**. 2026. Quantitative assessments of dental variations in the crocodile shark, *Pseudocarcharias kamoharai* (Lamniformes: Pseudocarchariidae) and their implications for fossil *Pseudocarcharias*. *Journal of the Ocean Science Foundation*, 45:36–47. doi.org/10.5281/zenodo.18049121

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Laser, O. M.U, and **K. Shimada**. 2025. Fossil marine fishes from the middle part of the Jetmore Chalk (Upper Cretaceous: Lower Turonian) in Republic County, Kansas, USA. *Transactions of the Kansas Academy of Science*, 128(3–4):270–280. doi.org/10.1660/062.128.0313

Fredrick, M. E.U, B. A. Schumacher, A. G. ArmagnoG, M. J. Everhart, and **K. Shimada**. 2025. Two new stratigraphic occurrences of the Late Cretaceous bony fish, *Pachyrhizodus caninus* (Crossognathiformes: Pachyrhizodontidae), from Colorado and Kansas, U.S.A. *Transactions of the Kansas Academy of Science*, 128(3–4):256–266. doi.org/10.1660/062.128.0311

Shimada, K., P. B. GonzalesU, M. J. Everhart, G. A. Liggett, D. J. Martin, and B. A. Schumacher. 2025. A new marine vertebrate assemblage from the Upper Cretaceous Lincoln Limestone, Comanche National Grassland, southeastern Colorado, USA, with comments on the vertebrate assemblages at or near the contact between the Graneros Shale and Greenhorn Limestone in Colorado, Kansas, and Nebraska. *Transactions of the Kansas Academy of Science*, 128(3–4):180–200. doi.org/10.1660/062.128.0302

Maisch, H. M., IV, M. A. Becker, V. J. Perez, and **K. Shimada**. 2025. Sharks and rays (Chondrichthyes: Elasmobranchii) from the Peace River and Tamiami formations (late Miocene–early Pliocene) on the submerged continental shelf near Venice, Florida, USA. *Palaeontologia Electronica*, 28(3): a49. doi.org/10.26879/1529_palaeo-electronica.org/content/2025/5629-fossil-sharks-and-rays-venice-florida-usa

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Dr. Jianfei Zhao

Doody, E., **Zhao, J.**, Sharma, B., and Poethig, R.S. The DELAYED ABAXIAL TRICHOMES Helitron has dual functions in vegetative and pollen development in *Arabidopsis thaliana*. *Proceedings of the National Academy of Sciences U.S.A* (2026) in press.

Tovar-Aguilar A., **Zhao, J.**, Poethig, R.S., and Gillmor S. Abnormal hypophyseal and suspensor divisions in *Arabidopsis dc1* embryos are not attributable to a single miR156-targeted *SQUAMOSA PROMOTER BINDING PROTEIN-LIKE (SPL)* gene, but likely involve redundant genetic pathways and /or modulation by genetic background. *Plant Reproduction* (2025) 38:20.

Giving Back To Student Research



Undergraduate students **Grace Mackar** (front left), **Micah Nelson**, and **Denver Wafer** (back right) work independently to identify an unknown bacterium in a medical microbiology lab (BIO 210).

Undergraduate students **Sasha Vaselinha** (left) and **Aurelija Zalane** (right) catch amphipods for a BIO 192 stream ecology experiment. Their student-developed experiment tests whether amphipods prefer colonized (with fungi and bacteria) or uncolonized leaves.



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