September 2025 Volume 10

DePaul Biological Sciences

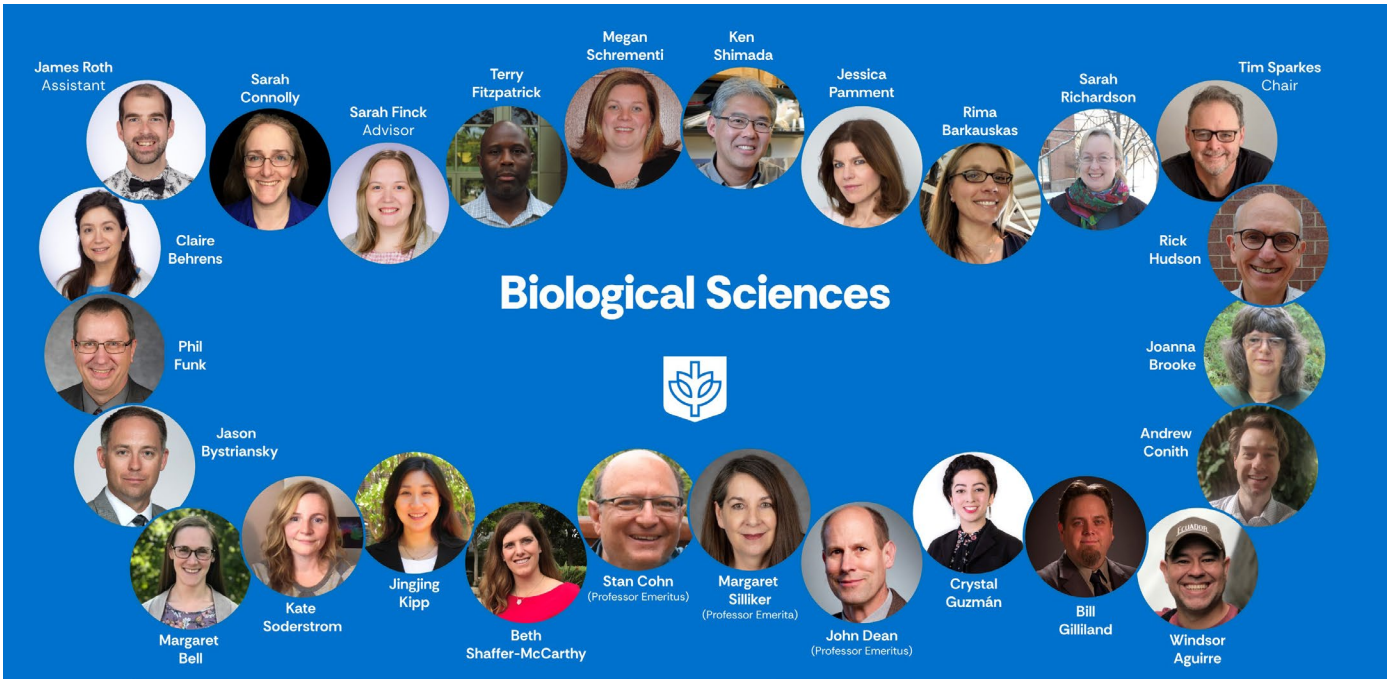
The Niche

From the Desk of the (Past) Chair, Tim Sparkes

This has been another exciting year for the Biology program as we have continued to develop new initiatives focused on student-centered teaching, community building, and supported more than a hundred students in research. These experiences are invaluable to the success of our students and the generous financial support of many of our friends have made these experiences possible.

It is now time for me to pass the torch to the new Chair, Dr. Joanna Brooke. I have no doubt that this transition will create even more exciting opportunities for us all and I can't wait to see Dr. Brooke's vision realized. An enormous thank you to all the students, faculty, staff and alumni who have supported the program over the last four years. It has been a wonderful experience, and I am grateful to have been given this amazing opportunity. Coming from where I did, I never imagined in my wildest dreams that I would ever be given this responsibility. As I often tell our students, there is always hope when you are willing to keep trying and I hope we always keep trying. ■

The Faces of the Biology Department



DEPAUL UNIVERSITY

From the Desk of the New Chair, Joanna Brooke

Looking back over the recent years, we have seen research in biology having significant impacts on our daily living, from improvements to human health, the efforts to rapidly diagnose and control the spread of disease across different organisms, to the use of omics research and bioinformatics to increase our understanding of the evolution of organisms. The World Health Organization and the One Health approach encourages us as scientists to keep pushing forward, to explore biological systems. For biologists at DePaul, this is a fascinating time to be a researcher.

I am a microbiologist whose research is in the area of infectious disease caused by bacteria. I started my research program at DePaul 23 years ago. From my own education and training to be a scientist, I know the value of getting experience in a research lab and I enjoy working with students who join my lab. Students get so much out of these experiences, developing their own path as biologists. One of my goals as the new Biology Chair is to help increase the number of opportunities that Biology students have to get involved in research in our department. I am encouraged by the development and implementation of several course-based undergraduate research experience (CURE) courses we have that provide authentic research experiences for our students. After graduating, our undergraduate students embark on various careers including in the professional health fields, education, research and diagnostics, to name just a few. Our MS Biology graduate program also continues to be successful, with students graduating and moving on into Ph.D. programs and other professional positions. I see that one of our strengths in research is our broad diversity, offering students opportunities across the biological fields, from investigating the cellular and molecular mechanisms of organisms through to whole-system biology.

The Biology department at DePaul houses several Excellence in Teaching award winning faculty. This is testimony to the high-quality instruction that we provide our students. Across the years I have witnessed several changes to our curriculum and I am pleased to see that we continue to ensure a rigorous and comprehensive education for all. It is this early preparation and substantial investment in our students by our faculty that will help them to carve out their own successful careers beyond their time at DePaul.

I look forward to welcoming new students into our program. Our recently launched BIO 101 course, Navigating and Succeeding in Biology, is open to all new Biology majors (first year and transfer students) and is designed to help them connect early with peers and useful resources.

As the new Biology Chair, I look forward with enthusiasm to working with faculty and staff to maintain a positive, happy, and productive environment that welcomes all Biology students into our program and into our biology community. ■

> "One of my goals as the new Biology Chair is to help increase the number of opportunities that Biology students have to get involved in research in our department."

Building Community: The Secret Key to Student Success

Research suggests that a student's academic success can be greatly improved when they feel a sense of belonging and community within their school. With this in mind, the Biology Department has created CERF: a Committee for Community Engagement, Resources, and Fun. The committee's aim has been to increase student involvement, foster a sense of belonging within the Biology Department, and create and advertise the resources available to students at all stages of their academic journey.

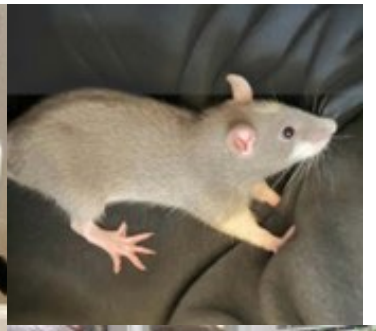
Logo for the Committee for Community Engagement, Resources and Fun

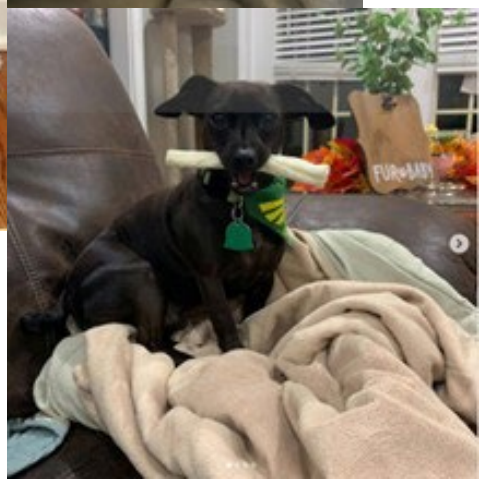
These resources have included such events as drop-in tutoring, an opportunity for introductory students to obtain instruction from upper level students, as well as the popular weekly 'Dippin' n' Sippin' event which allows students to gather socially and receive mentorship from their peers. The committee has also worked to create community engagement through improving the environment and culture at the University with such additions as bean bag chairs in the atrium of McGowan North and official Biology t-shirts bearing the student designed logo of the department.

Finally, the committee has worked to improve community and resource availability through our social media accounts. This has included a weekly update on events in the department on Instagram and Facebook, as well as the incredibly popular 'Pet of the Week' feature, where a pet from a Biology student or faculty is selected to be highlighted on the web.

In addition to improved academic performance, these community building measures have also been shown to improve student retention and positively impact students' mental health, all metrics we are witnessing with the implementation of these measures. ■

First students to try out the new bean bag chairs in the McGowan North Atrium.





Some of the featured stars of Pets of the Week.

BIO 101: Navigating and Succeeding in Biology: New Course Aims to Set Bio Students on the Path to Success

This year the department was thrilled to again offer a new 2-credit course designed for Biology majors in their first year of the program. The BIO 101 curriculum includes such things as an introduction to resources available in the department and how to write and present biological communications. Importantly, the course utilizes the assistance of peer mentors in presenting this material. Not only do these upper-level students have the benefits of having gone through many of the obstacles and challenges the incoming students are likely to face, but they also offer a less intimidating source for this information. By the end of the course, every student feels empowered to chart their own journey for success. Students become part of the learning community where they are provided with opportunities to develop a deep understanding of the resources available for support, strategies to overcome challenges they are likely to face, and career paths that are available post-graduation.

New 3+ Programs with Rosalind Franklin University of Medicine and Science

1. Doctor of Podiatric Medicine
2. Doctor of Physical Therapy
3. MS Pathologists' Assistant
4. MS Physician Assistant Practice

New Certificate Programs

1. Cell Culture Techniques and Applications

Current Course-Based Undergraduate Research Experiences (Cure Courses)

1. BIO 307: Animal Physiology
2. BIO 320: Advanced Microbiology
3. BIO 360: Molecular Biology
4. BIO 362: Advanced Genetic Analysis

New STEAM (Science, Technology, Engineering, Arts, and Math) Course

1. LSP 112: Biology, Art, and Technology

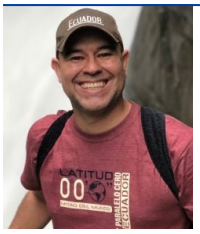
Additional New Courses

1. BIO 101: Navigating and Succeeding in Biology
2. BIO 140: Science of Beekeeping
3. BIO 299: Introduction to Research
4. BIO 313: Cell Culture Methods

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

Congratulations, Dr. Pamment, for your remarkable contributions to the Biology Department's academic mission. Dr. Pamment teaches Genetics, General Biology I, The Science Behind Human Health, Introduction to Biology, Focal Point Seminars, as well as an LSP 112 course she just developed: Bio Art: Exploring the human-nature relationship through art.

Department Awards and Selected Publications



Dr. Windsor Aguirre

Windsor Aguirre is a member of our College's Diversity, Equity, and Inclusion (DEI) Committee. This committee was honored last May, 2024 with the prestigious Diversity Award. This award recognizes their unwavering commitment and exceptional efforts in fostering an inclusive and equitable environment within our college.

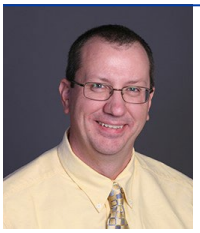
Dr. Margaret Bell

Walker KA, Rhodes ST, Liberman DA, Gore AC, Bell MR. Microglial responses to inflammatory challenge in adult rats altered by developmental exposure to polychlorinated biphenyls in a sex-specific manner. Neurotoxicology. 2024 Sep;104:95-115. doi: 10.1016/j.neuro.2024.07.009. Epub 2024 Jul 20. PMID: 39038526; PMCID: PMC11548868.

Dr. Andrew Conith

Conith AJ, Pascarella SM, Hope SA, Albertson RC. The evolution and genetic basis of a functionally critical skull bone, the parasphenoid, among Lake Malawi cichlids. Evol J Linn Soc. 2024 Dec 5;3(1):kzae039. doi: 10.1093/evolinnean/kzae039. PMID: 39758838; PMCID: PMC11694647.

Cooper WJ, Conith MR, Conith AJ. Surfperches versus Damselfishes: Trophic Evolution in Closely Related Pharyngognath Fishes with Highly Divergent Reproductive Strategies. Integr Org Biol. 2024 May 27;6(1):obae018. doi: 10.1093/iob/obae018. PMID: 38939103; PMCID: PMC11210498.



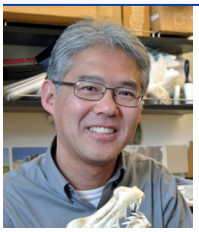
Dr. Phillip Funk

Funk PE. Insights into the diversity and conservation of the chB6 alloantigen. Front Immunol. 2025 Feb 20;16:1547896. doi: 10.3389/fimmu.2025.1547896. PMID: 40051637; PMCID: PMC11882424.

Dr. William Gilliland

Shaikh U, Sherlock K, Wilson J, Gilliland W, Lewellyn L. Lineage-based scaling of germline intercellular bridges during oogenesis. Development. 2024 Aug 15;151(16):dev202676. doi: 10.1242/dev.202676. Epub 2024 Aug 27. PMID: 39190553; PMCID: PMC11385318.

Gilliland WD, May DP, Bowen AO, Conger KO, Elrad D, Marciniak M, Mashburn SA, Presbitero G, Welk LF. A cytological F1 RNAi screen for defects in Drosophila melanogaster female meiosis. Genetics. 2024 May 7;227(1):iyae046. doi: 10.1093/genetics/iyae046. PMID: 38531678; PMCID: PMC11075555.



Dr. Kenshu Shimada

Shimada K, Motani R, Wood JJ, Sternes PC, Tomita T, Bazzi M, Collareta A, Gayford JH, Türtscher J, Jambura PL, Kriwet J, Vullo R, Long DJ, Summers AP, Maisey JG, Underwood C, Ward DJ, Maisch HM, Perez VJ, Feichtinger I, Naylor GJP, Moyer JK, Higham TE, da Silva JPCB, Bornatowski H, González-Barba G, Griffiths ML, Becker MA, Siversson M. Reassessment of the possible size, form, weight, cruising speed, and growth parameters of the extinct megatooth shark, *Otodus megalodon* (Lamniformes: Otodontidae), and new evolutionary insights into its gigantism, life history strategies, ecology, and extinction. Palaeontol Electronica. 2025;28①:1502. doi: 10.26879/1502. PMID: 40105087; PMCID: PMC7617484.

Pollerspöck, Jürgen, and Kenshu Shimada. "The first recognition of the enigmatic fossil shark genus Megalolamna (Lamniformes, Otodontidae) from the lower Miocene of Europe and M. serotinus (Probst, 1879) as the newly designated type species for the genus." *Zitteliana* 98 (2024): 1-9.

Antonio G. Armagno and Kenshu Shimada "The Extinct Shark Genus *Cretodus* (Lamniformes: Pseudoscapanorhynchidae) from the Uppermost Part of the Upper Cretaceous Fairport Chalk in Kansas, USA, and Its Stratigraphic and Ecological Significance," Transactions of the Kansas Academy of Science 127(3-4), 95-100, (25 November 2024).

continued >

Department Awards and Selected Publications continued

Dr. Kenshu Shimada

Shimada, K., Yamaoka, Y., Kurihara, Y., & Takakuwa, Y. (2024). Notice of formal repository of the remaining teeth of an associated fossil specimen of the megatooth shark, *Otodus megalodon* (Lamniformes: Otodontidae), to the Saitama Museum of Natural History, Japan. *Historical Biology, 37*(1), 154–155. https://doi.org/10.1080/08912963.2024.2344813

Karnes, Molly E., Rachel L. Chan, Jonathon P. Kuntz, Michael L. Griffiths, Kenshu Shimada, Martin A. Becker, Harry M. Maisch IV et al. "Enigmatic carbonate isotope values in shark teeth: Evidence for environmental and dietary controls." *Palaeogeography, palaeoclimatology, palaeoecology* 635 (2024): 111943.

Sternes, Phillip C., Patrick L. Jambura, Julia Türtscher, Jürgen Kriwet, Mikael Siversson, Iris Feichtinger, Gavin JP Naylor et al. "White shark comparison reveals a slender body for the extinct megatooth shark, Otodus megalodon (Lamniformes: Otodontidae)." *Palaeontologia electronica (Online)* 27, no. 1 (2024): a7.

Gayford, Joel H., Russell K. Engelman, Phillip C. Sternes, Wayne M. Itano, Mohamad Bazzi, Alberto Collareta, Rodolfo Salas-Gismondi, and Kenshu Shimada. "Cautionary tales on the use of proxies to estimate body size and form of extinct animals." *Ecology and Evolution* 14, no. 9 (2024): e70218.

Ortiz, Brianna E., and Kenshu Shimada. "Fossil Marine Vertebrates from the Upper Part of the Upper Cretaceous Hartland Shale from Republic County, Kansas, USA." *Transactions of the Kansas Academy of Science* 127, no. 3-4 (2024): 135-144.

Biological Sciences Seminar Series

The Department of Biological Sciences is committed to the discovery and sharing of scientific knowledge. We host monthly seminars to provide a forum to showcase the career journeys and current work of CSH faculty and students, investigators at area institutions, and collaborators nationwide. We invite everyone in the DePaul community to attend.

Journeys Seminar — A Journey of Molecules, Cells, and Memory

Dr. Okunola Jeyifous, Assistant Professor of Neuroscience at DePaul, took us on his own incredible personal journey from New York and the rainforests of Nigeria to his love of the NMDA brain receptor, which is responsible for learning, memory, and neuroplasticity.

Perspectives Seminar — Finding Artistic Inspiration in X-Ray Computed Tomography

April Neander is a research specialist and scientific illustrator at the University of Chicago. She shared her unique interests in the interrelation between art and science and how that has led her to where she is today, working in the Luo Lab and PaleoCT lab. Her work includes scientific illustration and visualization, micro-CT operations, and lab management.

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.

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.

TALITHA RAJAH
Dr. Rajah's research lab focuses on the cellular and molecular mechanistic effects of Gold(I) compounds as efficacious chemotherapeutic agents against human breast cancer cell proliferation, apoptosis, movement and invasion. In addition to cellular behavior, cell signaling proteins that might be affected in these processes will also be identified and quantified in human breast cancer cells.

KENSHU 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 paleo-ecology, 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.

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

Alumni Spotlight: Albert Vo, DDS

1. **What year did you graduate and what degree did you receive from DePaul?**

   I graduated from DePaul University in 2005 and received my degree in Biological Sciences.

2. **What was your main scientific interest while you were at DePaul?**

   While majoring in Biology, I was drawn to courses related to microbiology. Fortunately, I was given the opportunity to work in a microbiology lab under the teaching of Dr. Joanna S. Brooke, where I had the privilege to participate in research projects, contribute to published articles, and present a poster at a microbiology conference.

3. **What were your first academic steps after leaving DePaul? Are you part of any organizations/committees that you would like to highlight?**

   After DePaul, I decided to pursue a career in dentistry and was accepted into the UIC College of Dentistry. Along the way, I also joined the military where I served for 8 years.

4. **How has your experience at DePaul prepared you as a profession in your field? What did you enjoy the most about your experience at DePaul?**

   I started my college career at a large university where I felt lost in lecture halls with 200 students where the closest interaction I had with a professor was through a teaching assistant. When I transferred to DePaul University and majored in Biological Sciences, I knew that DePaul was a better fit for me. The smaller class size meant that the professors were more accessible, allowing me to better understand the materials that were being presented. If it wasn't for their patience and empathy, I may not have done as well academically. In turn, it afforded me the opportunity to pursue a career in the field of dentistry.

   What I enjoyed the most about DePaul was the relationship I built with classmates and faculty. Moreover, what made the DePaul Biology department special was that the faculty and staff truly had their student's best interest at heart. I personally felt that the faculty at DePaul was not only interested in academic growth, but they were also interested in personal growth as well. ■

"When I transferred to DePaul University and majored in Biological Sciences, I knew that DePaul was a better fit for me."

DePaul University's Very Own Kenshu Shimada Receives Prestigious William Gregory Award for Service

This past fall, DePaul's very own, Dr. Kenshu Shimada, received the Joseph T. Gregory Award at the 84th Annual Meeting of the Society of Vertebrate Paleontology (SVP) held in Minneapolis on November 2, 2024. Awarded each year, SVP recognizes only the best, brightest, and most dedicated with this award, showcasing Dr. Shimada's incredible service and offerings to the society as a chair of its Government Affairs Committee. The award was once given to acclaimed film director Steven Spielberg, uniting the two men once more in their shared love of paleontology. This year marked Dr. Shimada's 35th consecutive year in attendance, demonstrating what a positive impact the annual meeting has had and continues to have on his life.

"In a heartfelt moment at the banquet, the outgoing SVP president characterized me as 'the hardest-working SVP committee chair,' while also recognizing my research productivity and balancing roles at DePaul," Shimada recalled. "During my award acceptance speech, I urged everyone to stay engaged, make informed decisions and vote to create a better world for the science of vertebrate paleontology."

Through countless hours of research, Dr. Shimada has emerged as an invaluable leader in the field of paleontology. His research on the Megalodon, a lamniform shark, has brought to light inconsistencies with previous conclusions about these prehistoric sharks. For example, his research team recently revealed that the Megalodon's body structure was not as wide as previously believed but rather, must have had a more slender form.

Dr. Shimada has been on SVP's Government Committee for 20 years, since joining in 2005, and took on the role of chair in 2011. He has written papers in defense of recommended guidelines impacting the field of paleontology on public land in the United States and continues to address global issues, which involve unlawful or immoral trading of fossils. He hopes to continue to chair this committee in the future and continue to work to ensure that scientific laws and knowledge continue to protect fossils around the world. ■

> Click this link to dig deeper into Dr. Shimada's research: https://csh.depaul.edu/faculty-staff/faculty-a-z/Pages/biological-sciences/kenshu-shimada.aspx

Bachelor of Arts Versus Bachelor of Science Degree in Biology

What is a Bachelor of Arts degree (B.A.) in Biological Sciences and how does it compare to a Bachelor of Science degree (B.S.) in Biological Sciences?

Bachelor of Arts in Biology

The B.A. in Biological Sciences degree in the sciences is more varied than a traditional B.S. in Biological Sciences degree, allowing students flexibility to explore a broad field of topics while also completing the Biology major's coursework. The B.A. in Biological Sciences degree enables students to acquire a strong knowledge base in biology and provides options to pursue elective study in other fields, such as sociology, language and psychology as just a few examples, combined with requirements in science cores like biology and chemistry. As a B.A. student in Biology, you cultivate a multi-disciplinary foundation in life science with elements of arts and humanities for a broad education. A B.A. in Biological Sciences is a very flexible option that allows students to customize their education based on their future career goals while developing a wide set of skills beyond biology. There are opportunities to pick up technical skills as part of your B.A. education in a variety of courses including course-based undergraduate research experiences (CURE) if you decide to pursue graduate school or a more research-oriented career after you complete your B.A. in Biological Sciences,

The B.A. in Biological Sciences program may also be a good choice for students considering programs in areas such as allied health careers that may not require a full year of certain courses. A B.A. in Biological Sciences degree may even help students obtain careers outside of traditional scientific fields, like continuing on with law school or more public facing roles like science communication specialist or health care management. Additionally, thanks to the flexibility of the program requirements, students interested in a future career in medicine or health related fields, can complete all their necessary prerequisite coursework required for graduate or medical school, while completing their B.A. in Biological Sciences degree.

Bachelor of Science in Biology

A B.S. in Biological Sciences program is more specialized, focusing on developing and perfecting your skills within biology, and requiring more coursework in math- and science-focused courses. As with the B.A. in Biological Sciences program there are general education courses in the arts and humanities but they are a smaller subset of your overall course work in the sciences. In the B.S. in Biological Sciences program, you will take a full course load of required science core classes in biology, chemistry, mathematics, and physics. The curricular structure of the B.S. in Biological Sciences program is not as flexible as the B.A. in Biological Sciences, but it provides in-depth training and a broad foundation in science. This makes it ideal for students who are sure of the career they want to pursue, or those that prefer a more research-intensive profession. If you are considering a graduate degree in a scientific field, a B.S. in Biological Sciences program may be a good place to start. The technical focus of a B.S. in Biological Sciences along with a strong academic performance may help you get accepted into top programs.

It's important to note that neither degree will exclude you from a specific career path altogether. For example, a degree in biology, B.A. or B.S., are both excellent pathways to prepare for medical school, as long as you are careful and complete all of your prerequisite coursework and other requirements for entry. Hard work, experiences in and out of the classroom, connections developed along the way can lead you to a myriad of biology-based careers, regardless of your degree. Keep in mind, no path is the same for every student, and that you can change your courses and degree designation part way through your program. Just be sure to check-in regularly with academic and faculty advisors, to keep track of your progress and make any adjustments you may need in order to meet your requirements for your future career goals by graduation.

Is a B.A. harder than a B.S.? Is one better?

You may be asking yourself, is one degree harder or better than the other? In either path, all degrees will require dedication, hard work and focus. One needs to keep in mind that one person's difficulty may not be the same as someone else's. It can depend on your personal strengths, interests, and history. For example, some students might find a B.S. more challenging, given you are required to have more intense focus, depth, and hands-on time with technical, research oriented or scientific concepts. While some students might find a B.A. tougher because of the variety of coursework required across many different disciplines. Your personality, learning style and life experiences can play a role in your perception of which degree you might feel more challenging. As times change and as employers' requirements change, a B.A. and a B.S. degree can be equally valuable and both can provide solid foundations of knowledge and training. Base your decision on your interests and goals, work hard and you can achieve your dreams and career goals. ■

Meet the Biology Advisor Sarah Finck

Navigating a university career in the sciences can be daunting, but for biology and neuroscience majors at DePaul University, Sarah Finck is a cornerstone of support and guidance. Originally from St. Louis, Missouri, Sarah has called Chicago home for over a decade, though her loyalty to the St. Louis Cardinals remains unwavering. With a deep love of literature, world travel, and Oscar-nominated films, she brings both personal and professional richness to her role as a student advisor.

A proud double Demon, Sarah holds two degrees from DePaul and has served the university in various roles for almost seven years. Her extensive knowledge of the university makes her a perfect resource for students seeking clarity and direction throughout their academic journey.

Beginning with course selection help and registration questions, Sarah's primary role in the department is helping students fully understand their degree requirements. From day one through graduation this includes everything from GPA requirements for specific degrees, liberal studies requirements, and honor program details.

Sarah's approach is holistic. She tries to get to know each student individually, tailoring her guidance to align with their personal goals, challenges, and experiences. Whether students are selecting courses for the upcoming term, contemplating adding a minor, planning a study abroad experience, or looking for future employment advice, Sarah is ready to provide thoughtful, customized support.

Transfer students often face unique challenges when adapting to a new academic environment. Sarah helps form a realistic plan for graduation given the various nuances of transferred courses and varying requirements.

While she doesn't provide academic tutoring or research placements directly, Sarah empowers students by helping prepare them on how to best approach faculty about the opportunities that are available. She also helps students identify relevant CURE (Course Based Undergraduate Research Experiences) courses that are currently being offered.

Sarah encourages students to maximize their advising appointments. "Use the notes section when scheduling, this tells me what you want to discuss. Doing this lets me familiarize myself, prepare, and anticipate for our meeting so our conversation can be as effective as possible." For new students, she advises reviewing AP or dual-enrollment credits in advance to help avoid duplicate coursework. "Most students don't know the ins and outs of all their major requirements, and the great thing is they don't have to. That's my job." Sarah recommends "you come with a plan for your own schedule, then I can check that everything looks reasonable and help you make adjustments if necessary. If you show up at the meeting with no idea what courses you want or need, I can also come up with a schedule with you from scratch."

As each student's university journey progresses, Sarah remains a source of support. "Transitions, whether from high school, another college, or a semester to quarter system, can be tough," she says. "If you hit academic bumps along the way, I'm here to help you find a way back. There's no judgment, just a focus on developing a plan to get you back in good standing."

One of Sarah's most important reminders is that each student's path to graduation is unique. "Well-meaning friends might offer advice, but it's best to check with an advisor for guidance specific to your academic plan. This can help avoid potential mistakes that could delay your graduation."

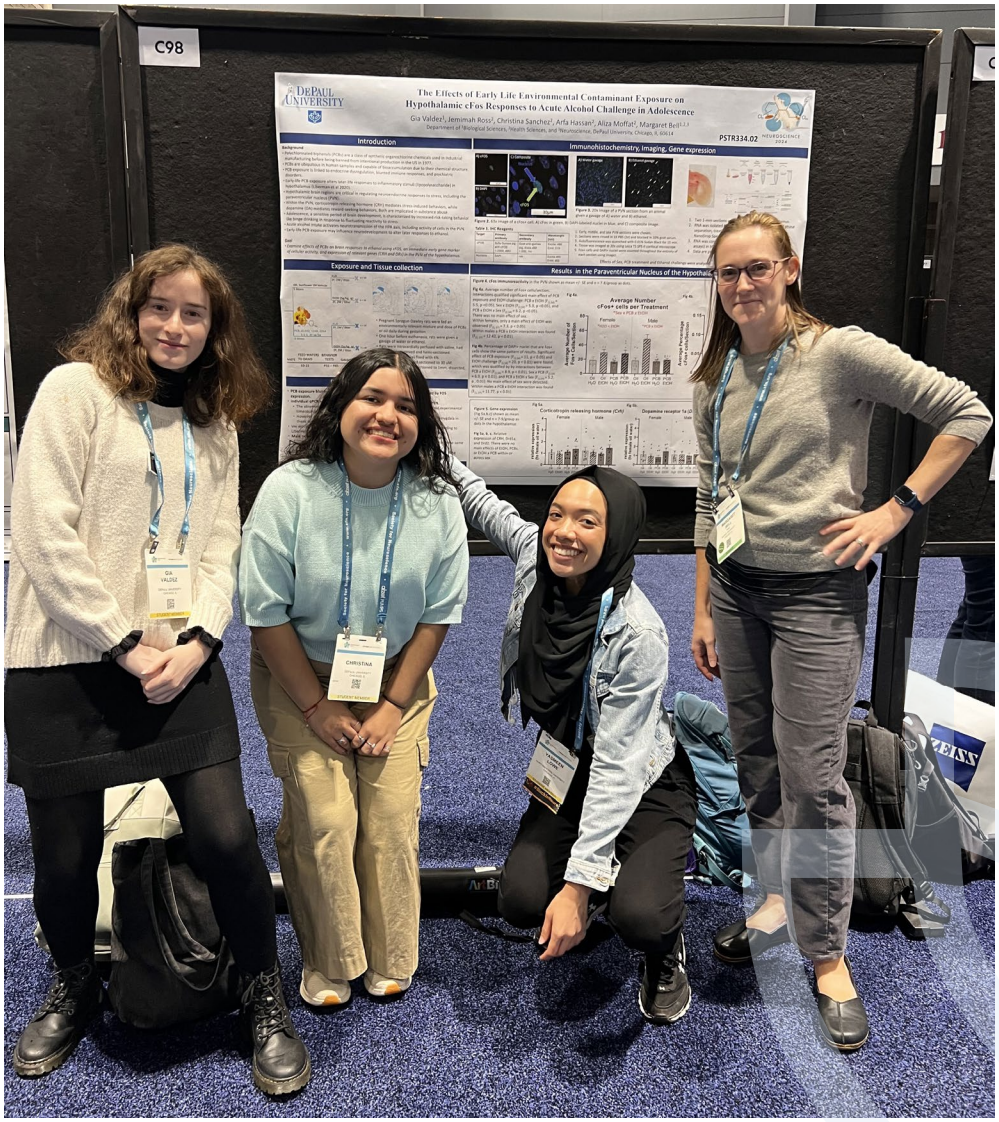
When asked for a few pieces of advice, Sarah says: "Be curious and ask questions. Don't assume you know everything. A second set of eyes can prevent last-minute surprises when you're close to graduating." She also emphasizes the importance of reading university emails and regularly checking the Biology Student Guide.

"Advisors like me are here to make suggestions and recommendations, but you make the final decision as to your schedule. While you're under no obligation to do what your advisor suggests, you should consider their advice carefully because they have a lot of experience." ■

> Due to the volume of students she supports, Sarah recommends scheduling 30-minute appointments for more in-depth questions. For simpler concerns, email remains an efficient way to reach her (sfinck@depaul.edu).

2024 Chicago Society for Neuroscience

This conference took place in Chicago, IL at McCormick Place Convention Center from October 5–9, 2024.



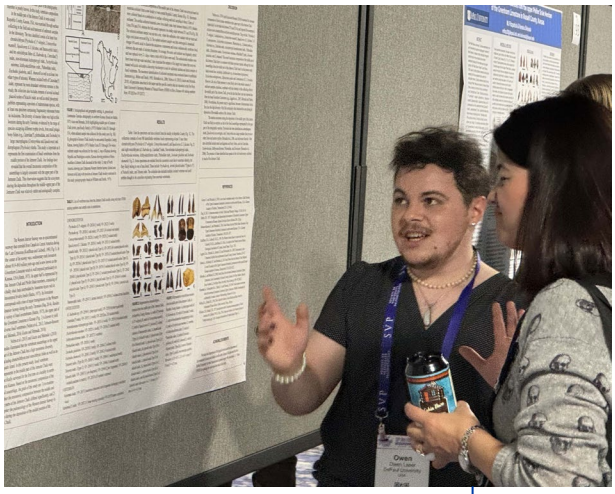
IN ORDER FROM LEFT TO RIGHT:
Gia Valdez (MS Bio, current), **Christina Sanchez** (BS Health, current), **Yasmeen Lowe** (BS Neuro, 2021 grad; now in PhD program at Northwestern University), **Dr. Margaret Bell** (DePaul Associate Professor in Biology, Health Sciences, Neuroscience).

84th Annual Meeting of the Society of Vertebrate Paleontology

Antonio Armagno (MS), MJ Fitzpatrick (BS), and Owen Laser (BS) presented their research in Minneapolis, Minnesota on October 29 – November 3, 2024 at the Annual Meeting of the Society of Vertebrate Paleontology.

Armagno, A., and **K. Shimada**. Fossil vertebrate diversity and palaeoecological implications of a new fossiliferous horizon from the Late Cretaceous Smoky Hill Chalk, Western Kansas, U.S.A.

Fitzpatrick, M.J., and **K. Shimada**. Late Cretaceous marine invertebrates from the upper Pfeifer Shale Member of the Greenhorn Limestone in Russell County, Kansas.



Laser, O., and **K. Shimada**. Late Creteceous marine fishes from the middle part of the Jetmore Chalk (lower Turonian) in north-central Kansas, U.S.A.

22nd Annual Undergraduate Stem Research Showcase (CSH)

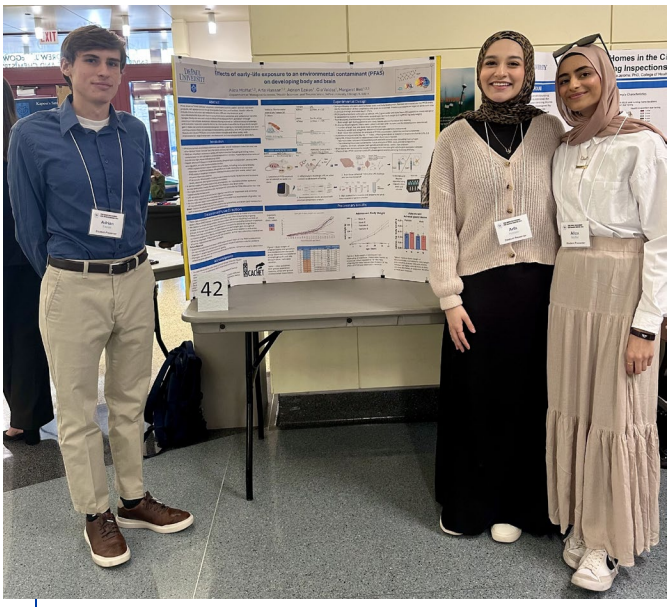
DePaul Alumna, Sarah Teemer, was the keynote speaker at the annual STEM research showcase in the McGowan South atrium on November 1, 2024. Sara received her Bachelor of Science in Biological Education (2016) and Master of Science in Biology (2019) from DePaul University. She is currently a Ph.D. Candidate at Virginia Tech. During her Master's at DePaul University, she examined modification of host behavior and transmission of the parasite *Acanthocephalus dirus*, and the effects of development, intraspecific conflict, and host sex on the parasite-host relationship.

As a PhD student at Virginia Tech, she focuses her work on behavior, disease, and conservation. Her thesis research investigates the role of the host microbiome and its influence on disease transmission at the population level. Sara works closely with the Interfaces of Global Change to develop strategies for effective science communication. She believes that scientists have a crucial role in addressing ecological issues, and that many of these issues are also social problems.

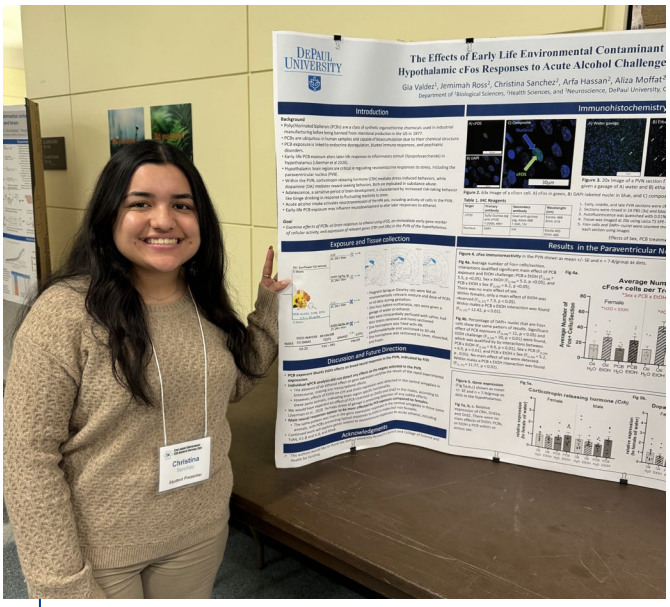
"The Scientist: An Unexpected Journey"

Sara Teemer poses with her Master's thesis advisor and Biology Department Chair, **Dr. Tim Sparkes**, holding the shirt that Sara designed during her time at DePaul.

This showcase gives DePaul students the invaluable experience of communicating their findings with fellow students, DePaul faculty, and visiting scientists through poster presentations.



Adrian Ezsias (BIO), **Arfa Hassan** (HLTH), and **Aliza Moffat** (HLTH) present their poster titled *Effects of early-life exposure to an environmental contaminant (PFAS) on developing body and brain.*

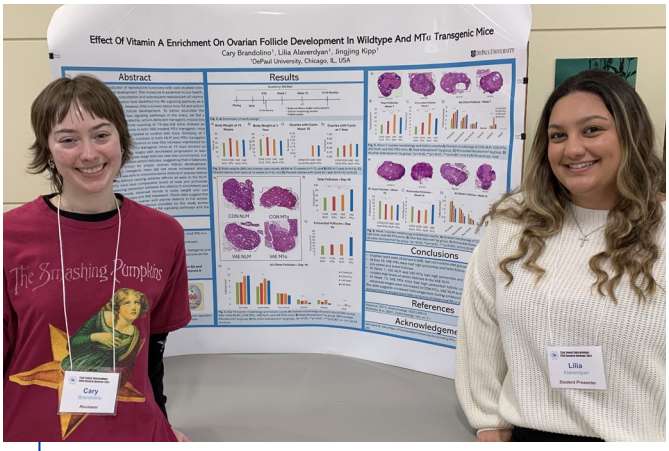


Christina Sanchez (HLTH) presents her poster titled *The Effects of Early Life Environmental Contaminant Exposure in Hypothalamic cFos Responses to Acute Alcohol Challenge in Adolescence.*

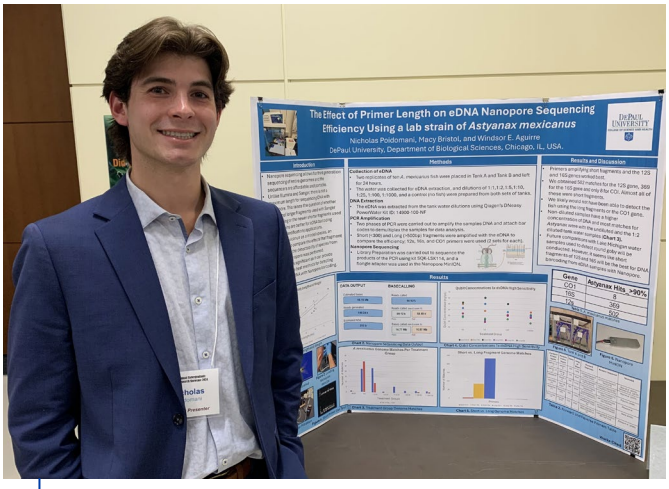
continued >

22nd Annual Undergraduate Stem Research Showcase (CSH) continued

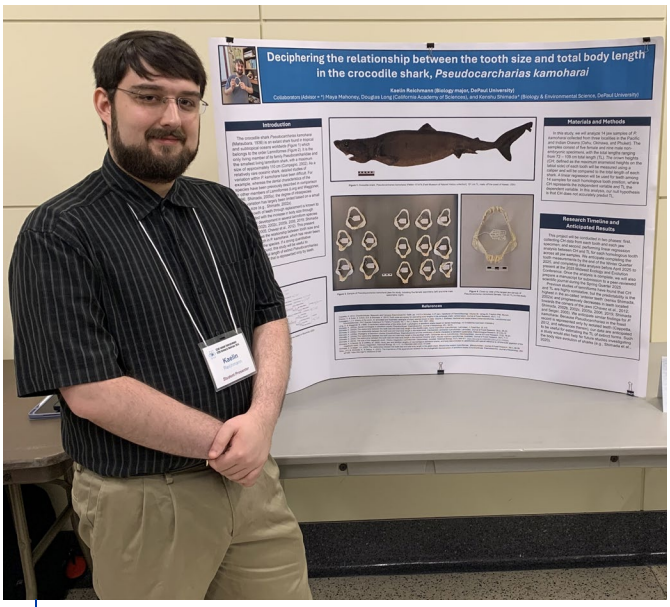
Mikko Fredrick (BIO) presents their poster titled *Fossil vertebrate diversity and palaeoecological implications of a new fossiliferous horizon from the Late Cretaceous Smoky Hill Chalk, Western Kansas, U.S.A.*



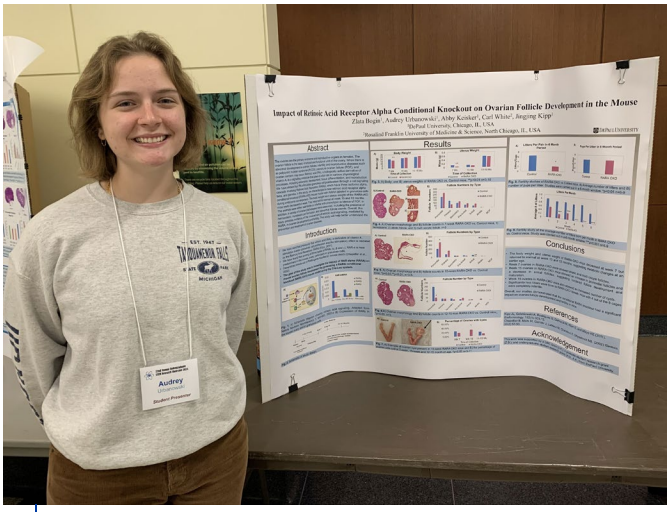
Cary Brandolino (M.S. BIO) and **Lilia Alaverdyan** (BIO) present their poster titled *Effect of Vitamin A Enrichment on Ovarian Follicle Development in Wildtype And MTα Transgenic Mice.*



Nicholas Poidomani (BIO) presents his poster titled *The Effect of Primer Length on eDNA Nanopore Sequencing Efficiency Using a lab strain of Astyanax mexicanus.*

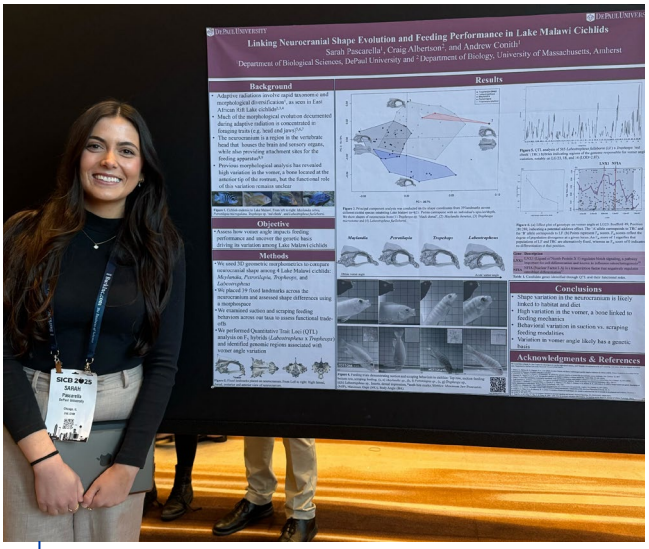


Kaelin Reichmann (BIO) presents his poster titled *Deciphering the relationship between the tooth size and total body length in the crocodile shark, Pseudocarcharias kamoharai.*



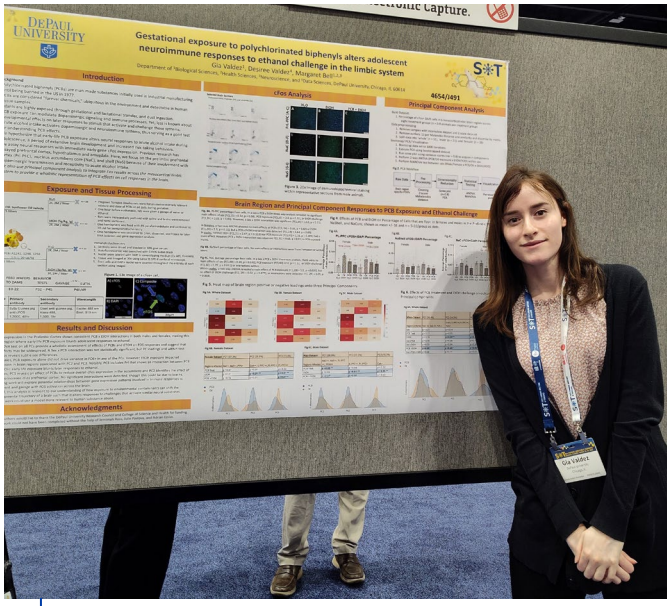
Aubry Urbanowski (BIO) presents her poster titled *Impact of Retinoic Acid Receptor Alpha Conditional Knockout on Ovarian Follicle Development in the Mouse.*

2025 Society for Integrative and Comparative Biology



Sarah Pascarella (M.S. BIO) presented her poster titled "Linking Neurocranial Shape Evolution and Feeding Performance in Lake Malawi Cichlids" at the Atlanta Marriott Marquis in Georgia on January 3-7, 2025.

2025 Society of Toxicology

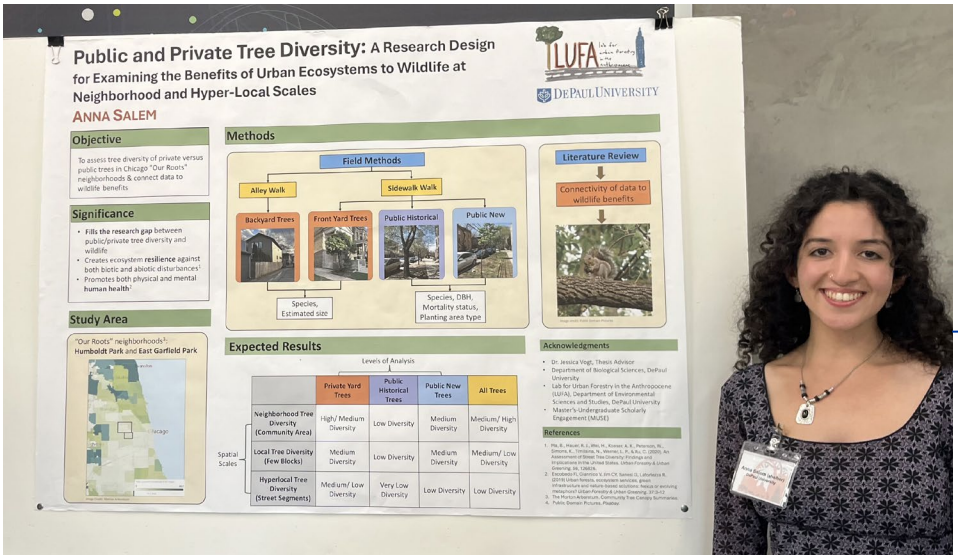


Gia Valdez (M.S. BIO) presented her poster at the Society for Toxicology conference titled "Gestational exposure to polychlorinated biphenyls alters adolescent neuroimmune responses to ethanol challenge in the limbic system."

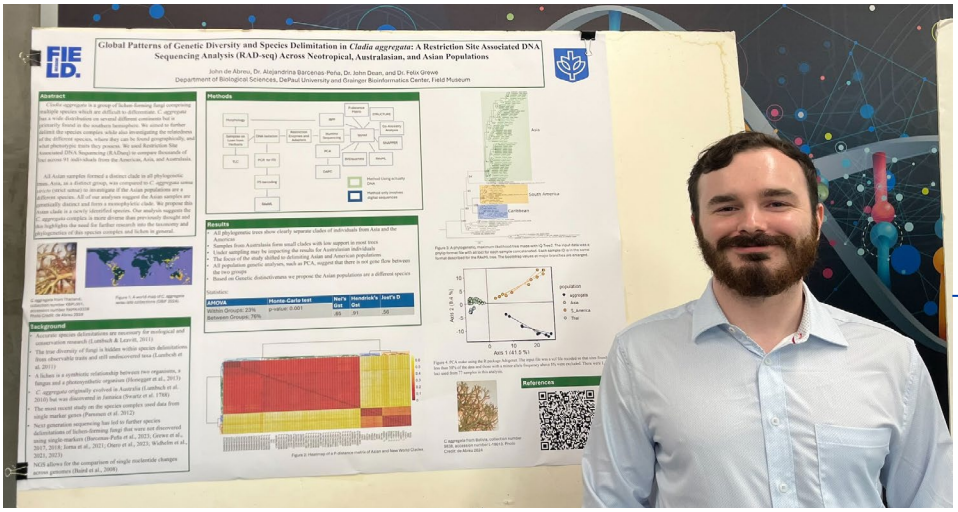
2025 Midwest Ecology & Evolution Conference (MEEC)

IN ORDER FROM LEFT TO RIGHT:
John de Abreu, **Joseph Sharon**, **Kaelin Reichmann**, **Owen Howard**, **Antonio Armagno**, **Anna Salem**, and **Maya Mahoney**.

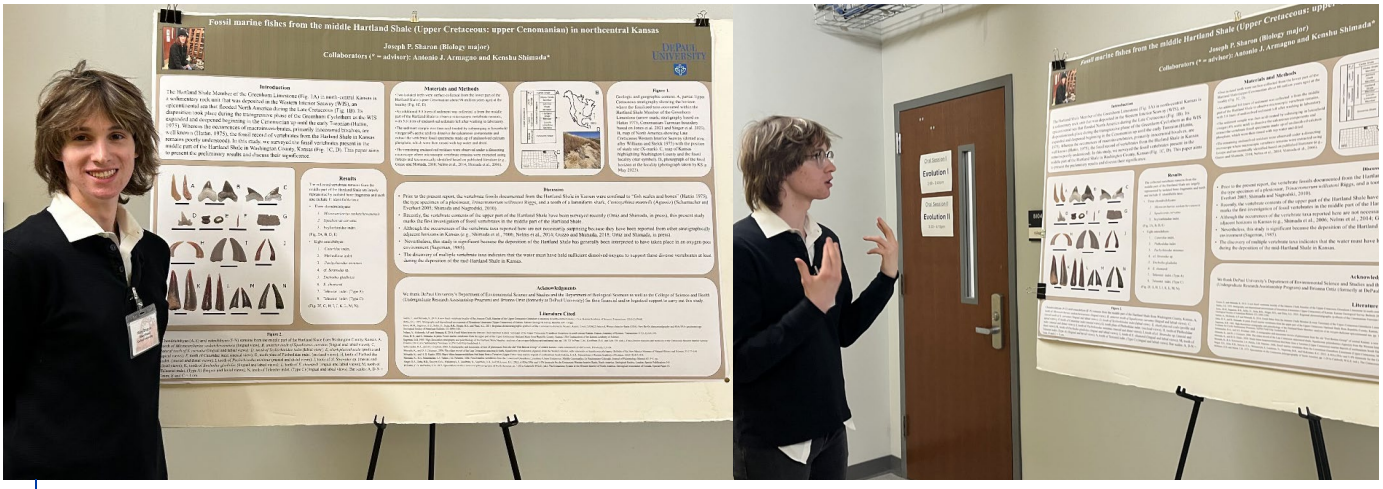
MEEC 2025: BIO Student Poster Presentations



Anna Salem (M.S. BIO: Vogt [ENV]): Public and private tree diversity: A research design for examining the benefits of urban ecosystems to wildlife from neighborhood to hyper-local level



John de Abreu (M.S. BIO: Grewe [Field Museum]): Gene Flow and Species Delimitation in Cladia aggregata



Joseph Sharon (B.S. BIO: Shimada): Fossil marine fishes from the middle Hartland Shale (Upper Cretaceous: upper Cenomanian) in north central Kansas

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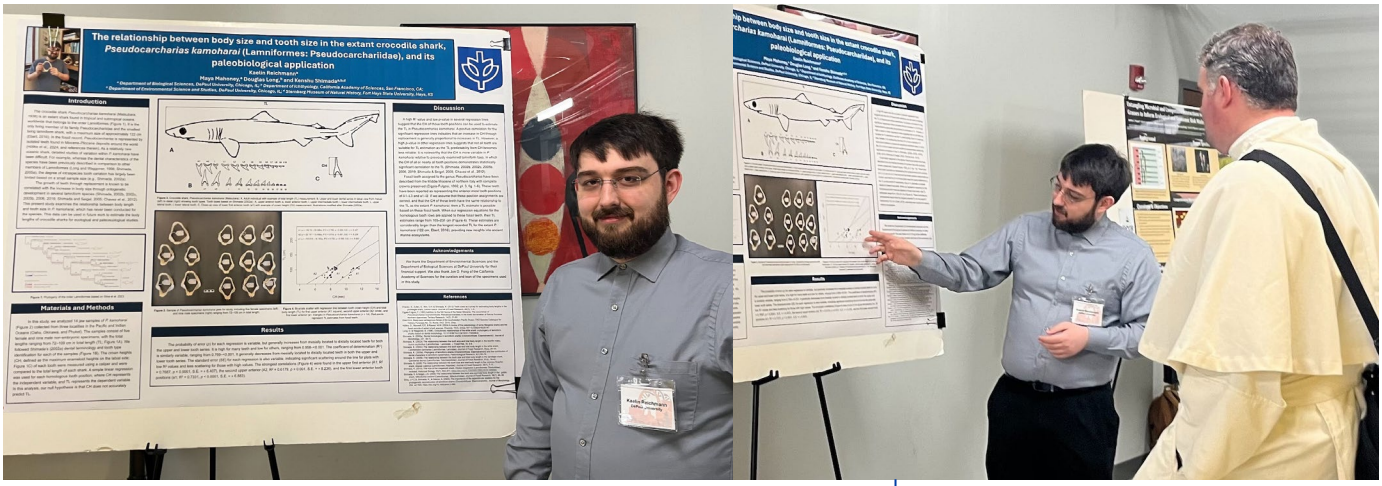
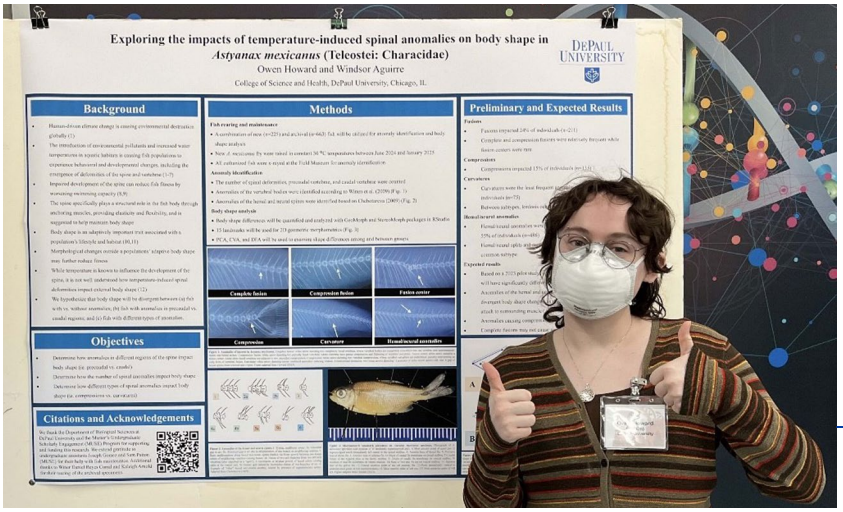
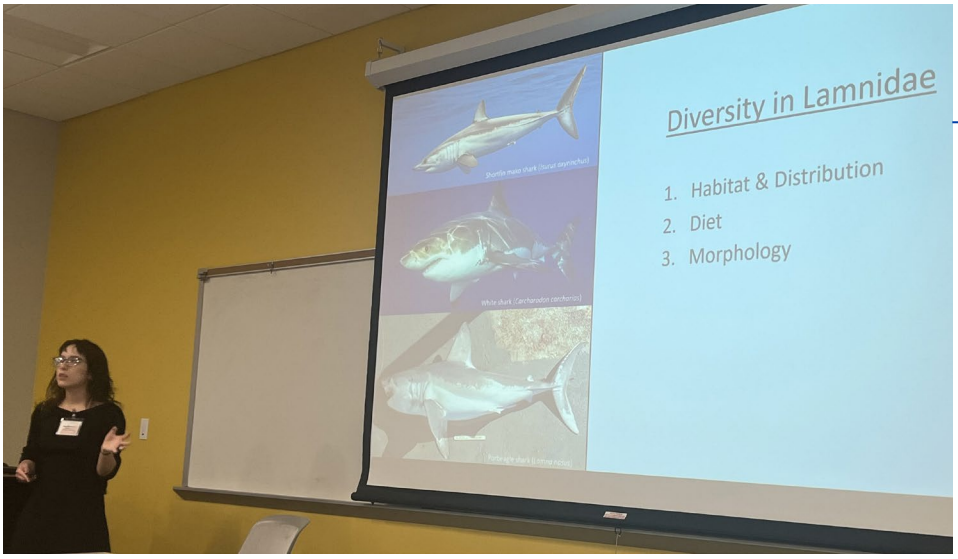
MEEC 2025: BIO Student Poster Presentations continued



Kaelin Reichmann (B.S. BIO: Shimada): The Relationship Between Body Size and Tooth Size in the Extant Crocodile Shark, Pseudocarcharias kamoharai (Lamniformes: Pseudocarchariidae), and Its Paleobiological Application



Owen Howard (M.S. BIO: Aguirre): Exploring the impacts of temperature-induced spinal anomalies on body shape in Astyanax mexicanus (Teleostei: Characidae)



Maya Mahoney (pictured) (M.S. BIO: Shimada): Evolutionary implications of tooth function on jaw curvature in the mackerel shark family, Lamnidae (Elasmobranchii: Lamniformes)

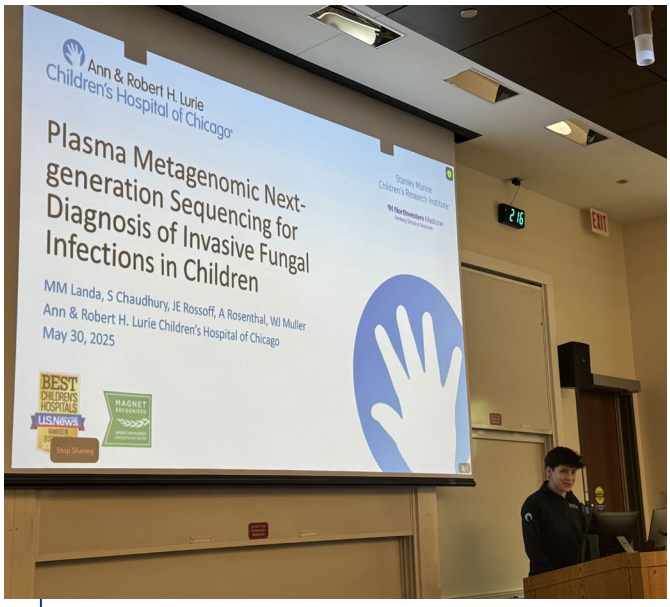
Antonio Armagno (M.S. BIO: Shimada): Fossil vertebrate diversity in the uppermost Niobrara Chalk (Upper Cretaceous) in western Kansas, and its paleoecological implications

2025 Senior Symposium Photos

Riley Rosenfeld
Senior of the Year

Riley Rosenfeld accepts her award for graduating Biology Student of the Year with Timothy Sparkes at the annual Senior Symposium. Riley was nominated by professor Kate Soderstrom for her dedication on the Community Engagement, Resources, and Fun committee along with her help designing the Biology Department's new drop in tutoring program.

Mario Landa accepts his runner-up award for graduating Student of the Year. Mario was nominated by professor Windsor Aguirre for his work on a DNA barcoding project in his lab along with his hard work as a Biostatistics teaching assistant. He helped Mario discover his true passion for microbiology, which led him to his work at Lurie Children's Hospital.

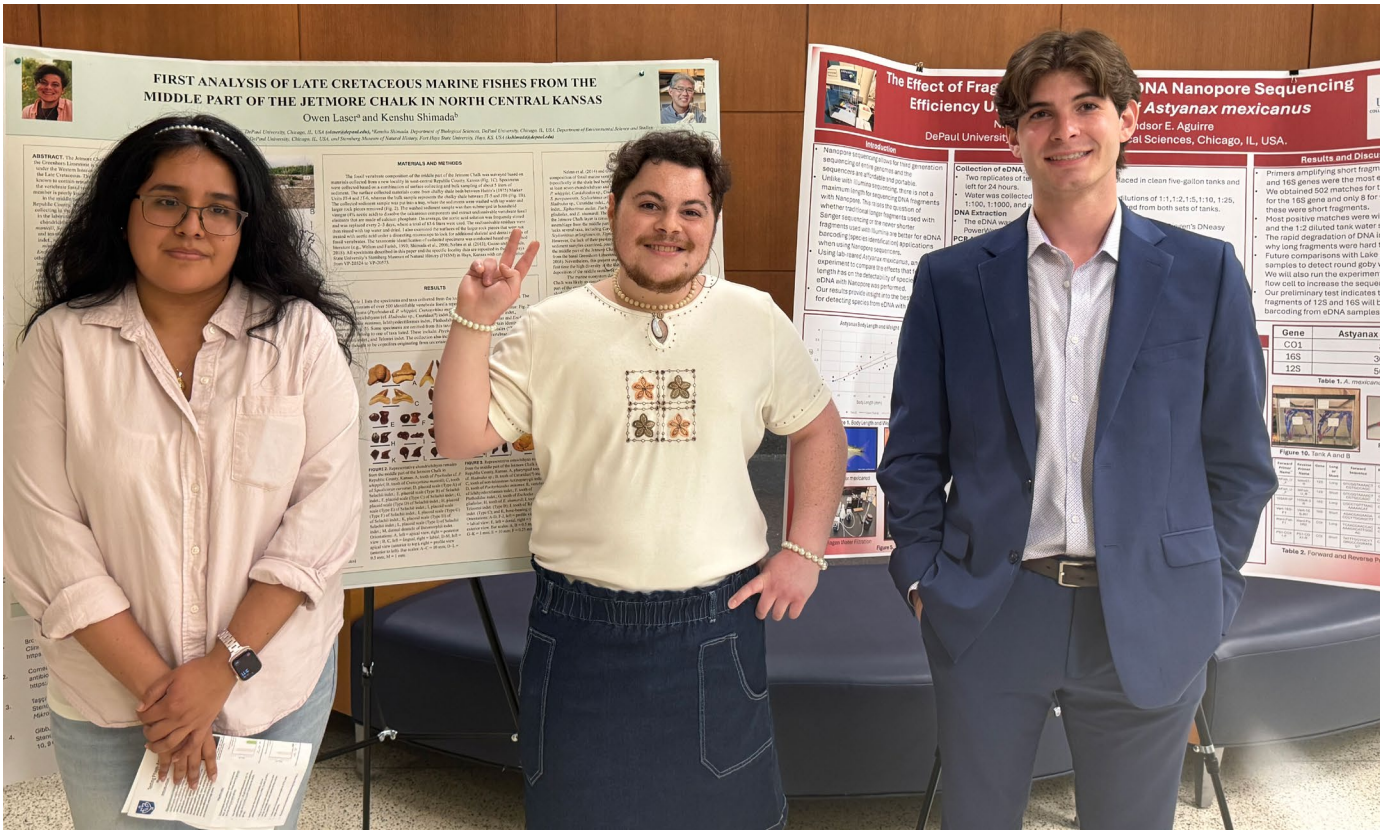


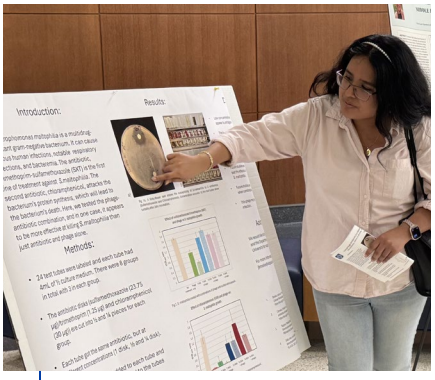
Mario Landa presents his research talk in collaboration with Lurie Children's Hospital of Chicago on Plasma Metagenomic Next-generation Sequencing for Diagnosis of Invasive Fungal Infections in Children.

continued ›

2025 Senior Symposium Photos continued

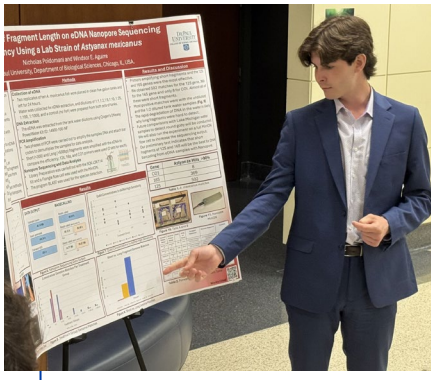
Maria Robledo, **Owen Laser**, and **Nicholas Poidomoni** all presented their posters at the annual Senior Symposium.





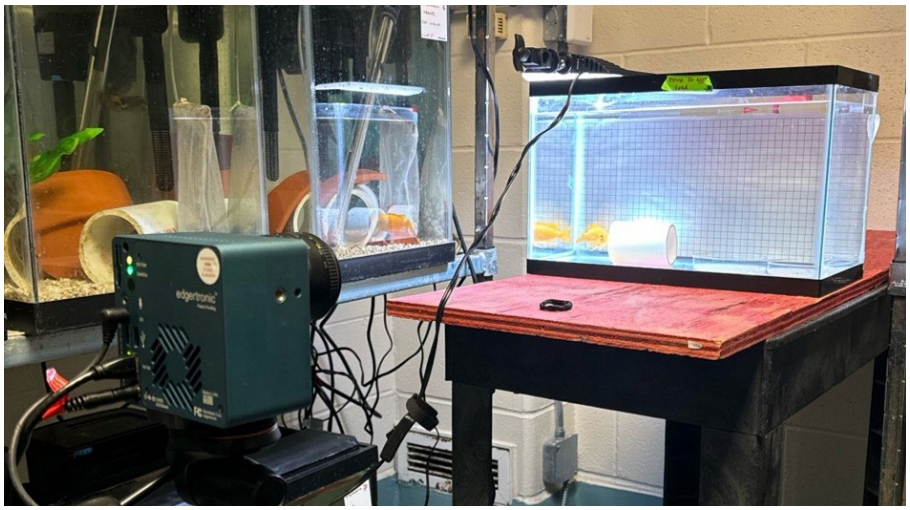
Maria Robledo presents her poster at the Senior Symposium titled *Testing Phage-Antibiotic Combinations Against S. maltophilia.*

Owen Laser presents his poster at the symposium titled *First Analysis of Late Cretaceous Marine Fishes from the Middle Part of the Jetmore Chalk in North Central Kansas.*



Nicholas Poidomani presents his poster at the symposium titled *The Effect of Fragment Length on eDNA Nanopore Sequencing Efficiency Using a Lab Strain of Astyanax mexicanus.*

Research in Action:
DePaul Biology Graduate Student Sarah Pascarella

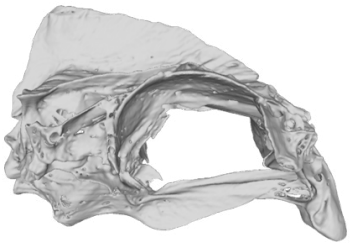


High-speed camera positioned for recording cichlid feeding behavior.

My research focuses on understanding how skull shape influences feeding behavior in Lake Malawi's rock-dwelling cichlid fishes. I'm particularly interested in the vomer bone, which sits at the front tip of the skull and appears to play an important role in feeding strategy.

The four genera I study (Labeotropheus, Tropheops, Maylandia, and Petrotilapia) show high variation in vomer shape. These cichlids have colonized different depths and microhabitats along Lake Malawi's rocky shores, evolving distinct feeding strategies that range from forceful scraping to precise picking and suction feeding. I want to understand how differences in vomer morphology relate to each species' ability to capture and process food.

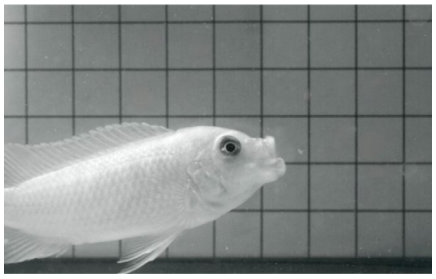
To investigate these relationships, I film cichlids feeding in controlled lab conditions using a high-speed video camera. This lets me capture the detailed jaw and head movements during feeding strikes. After recording each feeding event, I use software to place anatomical landmarks which allow me to calculate various metrics that quantify feeding performance and connect it to specific aspects of skull shape. I'm also interested in the genetic basis of this skull shape variation. Through quantitative trait loci (QTL) mapping, I identify genomic regions linked to variation in vomer morphology. This genes-to-phenotype approach helps reveal how genetic changes can lead to functional morphological differences. ■



CT scan depicting skull (right lateral view) from a wild-caught Lake Malawi cichlid.

Petrotilapia microgalana, one of the species included in high-speed video analysis.

Labeotropheus fulleborni displaying its distinctive hypertrophied snout, a specialized feeding adaptation.



Snapshot from high-speed video showing *Maylandia callainos* during prey capture.

Research in Action:
DePaul Biology Undergraduate Student Kaelin Reichmann

Kaelin Reichmann, majoring in Biology within the Ecology and Evolution concentration, poses here with his study subject, the crocodile shark jaw.

I am a third-year undergraduate student studying comparative vertebrate anatomy in Dr. Kenshu Shimada's lab. My research project focuses on the understudied shark species *Pseudocarcharias kamoharai,* also known as the crocodile shark. This rare oceanic shark is the smallest (ca. 1 m) living member of the shark order Lamniformes, more commonly referred to as mackerel sharks. Due to its rarity, studies of the crocodile shark have been limited to small sample sizes until recently. We were lucky enough to acquire a sample of 14 crocodile shark jaws from a wide range of sizes to study their teeth in detail quantitatively. The goal of this study is to examine if the crown height of each tooth type in the crocodile shark can be used to estimate its total body length using simple linear regression. My preliminary results indicate that the crown height of the anterior-most (frontmost) teeth can be reliably used to predict a crocodile shark's length with minimal error. This is an especially exciting result given the presence of *Pseudocarcharias* teeth in the fossil record around the world, and some of these teeth a well-preserved crown. When my regression equations are applied to these fossils, the largest individuals are estimated to have measured almost twice as long as the largest living crocodile shark, providing a new insight into the ancient marine ecosystems these sharks lived in.

This mentored experience producing novel research in comparative anatomy has inspired me to pursue my career in paleontology, the scientific study of prehistoric life. I am also very grateful for the opportunity to present my research at three different conferences over the 2024-2025 academic year, as well as the URAP (Undergraduate Research Assistant Program) grant I received from the College for both Spring and Winter Quarter 2025. ■

GIVING BACK TO STUDENT RESEARCH: **Kendall Jackson** (M.S. BIO) dissects isopods and counts isopod eggs using a dissection microscope in Dr. Timothy Sparkes' lab. Her thesis project is called "Trade-offs in Life History and Personalities in Isopods".

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Acknowledgments: The Niche Team

Editors: Claire Behrens, Rima Barkauskas, Joanna Brooke, Katherine Soderstrom

Special thanks to: Sarah Pascarella and Kaelin Reichmann for their contributing articles.