

T H E N I C H E



LETTER FROM THE CHAIR



It is with great pleasure that I introduce the latest issue of The Niche. We have had a change in the editorial staff that puts together our departmental newsletter. Justine Amato has recently joined us as an Academic Advisor and will be serving alongside Dr. Cohn as a co-editor. Justine is very familiar with DePaul. She received both her BA in Psychology and her M. Ed. in Counseling from DePaul. She also worked in the DePaul Career Center and was a Graduate Coordinator in the Office of Advising and Student Services in the College of Science and Health (CSH). We are delighted that Justine has joined our staff

and we are confident that she will help us continue the great tradition in our department of advising and mentoring students.

Many of you may also already be aware that DePaul has hired its next president. Beginning July 1, Dr. A. Gabriel Esteban will take on the position of DePaul's 12th president. Dr. Esteban was formerly the president at Seton Hall University. We look forward to working with the new president especially regarding issues that directly affect CSH and our department.

Over the last year, the faculty and staff in the department have continued to examine and refine our curriculum to better serve the needs of our students. Some of the most recent changes include the addition of a Physiology Concentration and a revision of our Biotechnology Concentration into a Microbiology and Biotechnology Concentration. This now gives us a total of seven concentrations in the major. The details can be found on our website at: <http://go.depaul.edu/biology>. In addition, we have also made some significant changes to our graduate program that will provide the students with more time to conduct their research and will better prepare them to communicate science to their peers and to the general public. These changes, in my opinion, will enhance our graduate program without compromising the breadth and rigor that we value. CSH has also added a new major in Neuroscience. Departmental faculty member Dr. Dorothy Kozlowski is the director of this new interdisciplinary program.

Lastly, I should mention that this will be my final chairs letter for The Niche. My appointment as chair of the department ends on July 1, 2017 and I have decided not to seek reappointment. I have served as departmental chair for a total of eight years; two of those years as an Interim Chair and six years (two three-year appointments) as Chair. I have overseen a number of changes to the department both in terms of its curriculum and personnel. Eight new faculty members have been hired during my term of service and they are all well on their way to successful careers. I am very optimistic about the future of the department and I feel that it is time for new leadership. Starting in July, I will be rejoining my colleagues as a regular faculty member. I want to thank all of the departmental faculty, staff and students for their support over the years. It has been a pleasure to serve the department and I look forward to working with the next chair to continue to move the department forward. I also want to thank you, our readers, for your continued support. I hope you enjoy this issue of The Niche and please come visit us or contact us. We would love to hear from you. ■

John Dean

Professor and Chair of Biological Sciences

DARWIN DAY SEMINAR: DR. LYDIA HOPPER



This February, we celebrated what would have been Charles Darwin's 208th birthday. To honor Charles Darwin, we had a department reception with a delicious cake and other tasty treats. Students working in evolutionary research had the opportunity to present posters on their work to their peers and other faculty members. Best of all, we were joined by Dr. Lydia Hopper,

Assistant Director of the Lester Fisher Center for the Study and Conservation of Apes at the Lincoln Park Zoo. Dr. Hopper, who earned her Ph.D. at the University of St. Andrews in the United Kingdom, spoke about Chimpanzee innovation, social learning, and cultural evolution. Dr. Hopper was the recipient of our annual Darwin Day Speaker Award which included a Darwin bobble-head figurine. Our annual Darwin Day celebration was a great success, and we are so thankful that Dr. Hopper joined us and inspired us with her presentation. □



1. Biology faculty, Dr. LaMontagne and Dr. Aguirre with speaker, Dr. Lydia Hopper (center).
2. Undergraduate students enjoying the Darwin Day celebration

3. Graduate Students enjoying the Darwin Day celebration
4. Our festive and delicious Darwin Day cake

UNDERGRADUATE SCIENCE SHOWCASE

We are so proud to once more list some of our student researchers, along with the titles of their presentations, who participated this past November in presenting some of their ongoing research work as part of the annual College of Science and Health Undergraduate Science Showcase poster presentations. Congratulations to everyone on your great work.



EMILY BAUMGARTNER, L-Plastin Knockout Mutants and The Great Neutrophil Race

BRENDAN COMUZZIE, NEEP²¹ Membrane Protein Orientation

KIM-MARIE DAM, Longitudinal Imaging of Early HIV-1 Infection in situ

ELENI GALANAPOLOUS, Repression of Direction Change Response in Diatoms by Multi-species Treated Medium

FRANCESCO GUZZO, Fossil vertebrates from the Jetmore Chalk Member of the Upper Cretaceous Greenhorn Limestone in north-central Kansas.

FRANKLIN JOAQUIN, Failure to Launch: The Threespine stickleback of Lake Michigan

EVAN JOHNSON-RANSOM, The Late Cretaceous chimaeroid fish, *Ischyodus bifurcatus*, from southern California, and its paleogeographic significance

MELINA KANJI, Effects of Temperature Variation on the Formation of Vertebral Anomalies in *Astyanax mexicanus*

KIRBY KARPAN, Buggin' the Bugs: An Examination of Insect Biodiversity in the Shedd Aquarium Gardens

ABIGAIL LEEPER, Soil Nutrients & Reproductive Variation of White Spruce in the Huron Mountains

DENNIS MAY, A Simplified Strategy for Introducing Genetic Variants into *Drosophila* Compound Autosome Stocks

CRISTIAN OVIES, Efficient Screening of HIV-1 Mutants Resistant to Integrase Inhibitors in a Random Mutant Library

GABRIELLE PRESBITERO, Linkage Disequilibrium and Haplotype Variation in the alphaTub^{67C} gene of *D. melanogaster*

NATASHA WIERZAL, Vertebral Length Variation in *Gasterosteidae*

DEISI WILLIAMSON, Death signaling by mutant chB6 Alloantigen

ALUMNI PROFILES

KRYSTLE VELASCO, MOT, OTR/L (BS BIOLOGICAL SCIENCES, 2012)

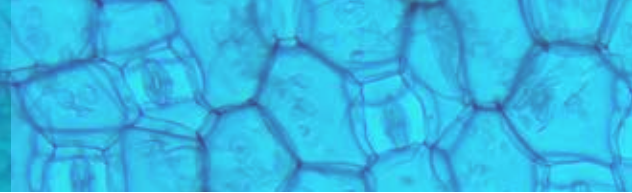
Krystle Velasco an occupational therapist who credits her interest and passion for the profession to the scientific knowledge, experiences, and foundational integrative skills acquired from her academic studies at DePaul University. Starting as a student majoring in biological sciences, with a pre-health concentration, she hoped to further her studies in order to become a pediatrician. It was not long after taking a variety of interactive biology classes offered at DePaul did she realize that there was an “art” to biology, and science was a route to channel creativity. From then on, she took advantage of the endless opportunities to continue growing within all elements of the biology field by taking courses such as ecology, neurobiology, cell biology, mammalian adaptations, genetics, and anatomy and physiology. The lab courses fostered the artistic side of science by combining knowledge and technical skills with observation and analytical skills to design experiments to further understand the uniqueness of life. Krystle would then use these skills and experiences to build an admiration for the individuality of each human being and study occupational therapy, where art, science, and compassion collide.



KRYSTLE VELASCO

Upon graduating magna cum laude with a BS in biological sciences and a minor in applied psychology, Krystle was accepted into a Master of Occupational Therapy program at Midwestern University in Downers Grove, IL. There, she was able to apply all the knowledge and skills acquired from the biological sciences department at DePaul to study how to enable individuals’ engagement in meaningful daily activities after they encounter some type of disability. The neurobiology, anatomy, and physiology courses taken at DePaul provided Krystle with the underlying understanding of how disability impacts the brain and function of the human body. The heavy emphasis on research and experimental design at DePaul also supported Krystle’s experience with conducting a year-long research study on the psychosocial effects of participating in an adapted sport (golf) for individuals with amputation.

Since graduating with her Masters in Occupational Therapy in 2014, Krystle has gained experience practicing in the areas of upper extremity rehabilitation, mental health and community integration, dementia and geriatrics, skilled nursing facilities, and outpatient pediatrics. Currently, Krystle works for a special education cooperative in Illinois’ DuPage County providing school-based occupational therapy services to participating school districts. The population of students she works with on a day-to-day basis has a wide range of diagnoses/disabilities including, but not limited to,



ADHD, Autism, motor delays, Down syndrome, Fragile X, cerebral palsy, sensory processing disorder, and general developmental delays. While at the schools, Krystle is consistently using her scientific/biology-related knowledge of anatomy and physiology, brain plasticity, motor learning, and motor and sensory integration as the driving force of her interventions. She uses biology-based experiences to help students improve their self-care, handwriting and other fine motor skills, executive function, and sensory processing/self-regulation.

Krystle is honored to have been a part of DePaul's biology program that fostered life-long learning. She continues learning new things about life and the extraordinary human body daily through communication with other disciplines, reading up on current research, and interactions with her clients and students. She is a firm believer that without biology and science, there would be no foundation for which special education services are built on, let alone any health-related services, and she is thankful that DePaul helped open her eyes to see that.

NEW ACADEMIC ADVISOR FOR BIOLOGICAL SCIENCES

Justine Amato is the new academic advisor in the Department of Biological Sciences, and the newest editor of the Niche Newsletter. Justine is a “Double Demon” graduate of DePaul University, having earned her BA in Psychology in 2012 and her M.Ed in Counseling in 2016. She is thrilled to be back at DePaul working in the College of Science and Health. Justine decided to pursue a career in counseling and advising due to her passion for helping students succeed. She has worked in both the high school and college setting, assisting students with their academic needs, college and career goals, and social-emotional concerns.

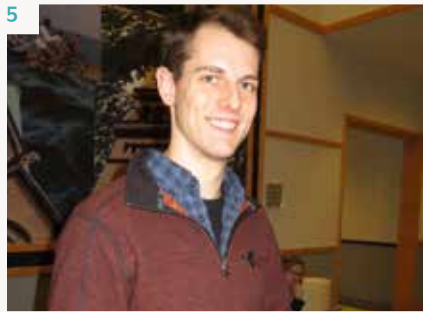


JUSTINE AMATO

Justine's favorite part about her role thus far has been meeting her students and learning more about their interests, goals, and life at DePaul. Biology students are encouraged to schedule an appointment with Justine, not only to review their course options, but also to develop and discuss their short and long-term goals, and to debrief about any challenges that arise.



PHOTO GALLERY



1. Christian Ovies, Amira Affaneh, and Dr. Margaret Bell at the Biology Meet and Greet hosted during fall quarter
2. Graduate student Joe Frumkin celebrates the Cubs World Series win
3. Raj Ranganathan (Health Science), Thomas Borders (Biology), and Emily Mosher (Psychology) present their research at the Science Showcase

4. Graduate students Zach Langston, Jesse Hacker, Alaina Pfenning, Shannon Gallagher, Max London, Robin Redline enjoying the Darwin Day celebration
5. Tom Moran celebrates Pi day with a delicious piece of pie
6. DEEP Club President, Michael Wade, advertises his student group at Darwin Day

BIOLOGY STUDENT INTERESTS RUN DEEP



During the Spring Quarter of 2016, several professors and students got together and saw the opportunity to create a club that represented the ecology and evolution interests of students in the biological sciences. They came together to form a new student group known as DEEP (DePaul Ecology, Evolution, & Physiology).

The group has since grown into a club of 15+ undergraduate and graduate students with a diverse group of interests related to biology. At bi-weekly meetings, they discuss research papers, watch science documentary films, and discuss student opportunities in research and internships. Additionally, they discuss upcoming seminars and events throughout Chicago that provide students with opportunities to gain exposure to biology outside of DePaul. This spring, they will be attending The Midwest Ecology and Evolution Conference and The March for Science Chicago. They are always open and excited to welcome new members to their club.

DEEP seeks to carry out DePaul's mission in its commitment to welcoming all who seek to better understand the subjects of the club's focus. They believe that evolution, ecology, and physiology are vital to preserving the health of our planet, as well as furthering the collective appreciation for the natural world, and represent an urgent need in the face of expanding human impact on our climate.

DEEP seeks to actively advance the collective understanding of ecology, evolution, and physiology, and to use the combined expertise of all those in the club in developing one another's opportunities and abilities within their academic and professional careers. The club plans to reach outward into the community, serving with their time and knowledge, and help those organizations that can generate a positive impact on the fields of ecology, evolution, and physiology.

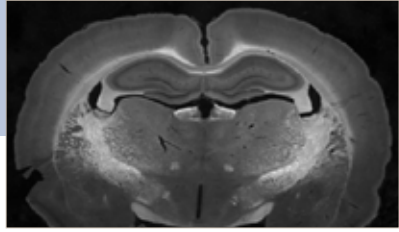
For more information about the club or about becoming a member, you can contact DEEP by email at deep.depaul@gmail.com, or check them out on Facebook and OrgSync @DePaul Ecology, Evolution, and Physiology. Become one of the students in Biology who dares to have DEEP thoughts.

(DEEP members pictured above: Thomas Borders, Emily Baumgartner, Megan Smith, Franklin Joaquin, Michael Wade, and Alima Sajwani)

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 Follow us on Twitter: [@depaulbiodept](https://twitter.com/depaulbiodept)

RESEARCH IN ACTION



RESEARCH IN ACTION

The latest projects of Biology faculty member Dr. Kozłowski have revolved around trying to understand why getting multiple concussions can be so detrimental. Clinical studies have shown that repeat concussions result in an increased risk of neurodegenerative diseases such as Alzheimer's and Parkinson's and an increased incidence of depression and anxiety. To better understand the underlying mechanisms, students in Dr. Kozłowski's lab, along with her collaborators at Rosalind Franklin University of Medicine and Science (RFUMS), have developed a model of closed head injury to begin to address these questions. They investigate the results of an impact produced directly on the head of an anesthetized adult rat, and its effect on deficits in movement and memory. They discovered that multiple concussions had longer lasting movement and memory deficits, as well as the early signs of depressive and anxiety behaviors. While concussions tend to be an invisible injury that doesn't produce visible damage to the brain, subtle microscopic measurable differences were seen in slices of rat brains that had repeat concussions. For more details on this work, check out their article in the Journal of Neurotrauma at: <http://online.liebertpub.com/doi/10.1089/neu.2016.4517>. □