



T H E N I C H E



FROM THE DESK OF THE CHAIR



The Department of Biological Sciences includes a dedicated group of faculty that continues to look for innovative ways to educate our students. In addition to the excellent work that the faculty do in the classroom, we also try to provide as many research experiences for our students as possible. Involvement in research is one of the most valuable experiences that our students can have here at DePaul. This experience allows our students to develop a hypothesis, design ways to test

their hypothesis, collect and analyze data, interpret their results, and present or publish their findings. All of which is done working side-by-side with a DePaul faculty member. Presenting and/or publishing the work is probably one of the more gratifying events for any scientist. Every November for the last eleven years DePaul has held the Science, Math and Technology Undergraduate Research Showcase. This showcase has allowed students the opportunity to present posters of their work to other DePaul faculty and students. At the last showcase in November of 2013, there were 20 posters at the event that included 23 undergraduate biology majors as authors.

In addition to the showcase event, several students from our department also presented at the Annual DePaul University Field Biology Symposium, the Chicago Area Undergraduate Research Symposium (CAURS) and the Illinois Louis Stokes Alliance for Minority Participation (LSAMP) Symposium. In addition to having our students present their work, we also brought in a fascinating group of seminar speakers, including one DePaul faculty member (Dr. Kozlowski) and speakers from other Chicago area institutions. These are all great opportunities for our students to proudly present their research and to learn how others effectively present their work. We will continue to support our students at these events and provide an exciting seminar series.

In this current issue of The Niche, you will read more about the departmental seminar series and you also will see photos of the science showcase presenters and read about the LSAMP Symposium and the student winners. We hope you enjoy this issue of The Niche, and as always, we thank you for your continued support. ▣

John Dean

Professor and Chair of Biological Sciences

LS-AMP STUDENT WINNERS AND PHOTOS

Hosted by the Illinois Louis Stoke Alliance for Minority Participation (LSAMP), the LSAMP Symposium brought together students, faculty and staff from around the state for two days of workshops, presentations and community interaction. This year, 26 students from the College of Science and Health (CSH) and the College for Computer and Digital Media (CDM), along with seven faculty and staff from CSH and CDM attended the annual event held at the Tinley Park Convention Center. The DePaul group consisted of LSAMP students, SACNAS and CIRRUUS students, as well as students with a general interest in STEM, many of which are Biological Sciences majors at DePaul. All of our students were professional and engaged, representing DePaul well. Additionally, they all volunteered at some point during the weekend, helping with registration and other activities.

DePaul joined the Illinois LSAMP in 1993; the goal of which is to dramatically increased the number of underrepresented students receiving undergraduate and graduate/PhD degrees in STEM fields. The DePaul LSAMP Research Scholars program is coordinated by the STEM Center, under the direction of Lynn Narasimhan. Quinetta Shelby, Margaret Silliker, and Robert Garcia served as judges as well as faculty mentors. Rhonda Harley, Max Barry, and Victoria Simek served on the organizing committee.

Poster Presentations

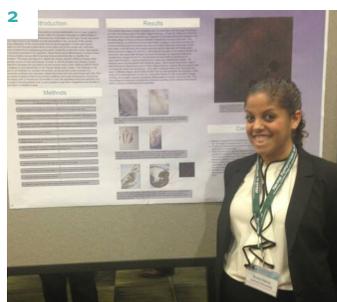
Maria Christina Ulloa—3rd place in Molecular Biology (RFU internship)
Danielle Araiza and Erica Valdez—3rd place in General Biology (Jason Bystriansky and Timothy Sparkes)

Oral Presentations

Maxine Loh—1st place in General Biology (RFU Internship)
Alejandra Luna—3rd place in General Biology (Jason Bystriansky)
Maria Sanchez—1st place in Molecular Biology (RFU Internship)



1. DePaul LSAMP award recipients
 2. Senior Biology Major Emily Harris



3. Senior Biology Majors Alejandra Luna and Ian Sanchez

SUCCESSFUL SEMINAR SERIES

One of the goals stemming from the biology strategic planning retreat in the summer of 2012 was to develop an enhanced seminar series that would not only provide learning opportunities for both faculty and students, but provide our students with additional opportunities to present their own research. Created and launched in the fall of 2012-2013, and continued in 2013-2014, our expanded seminar series (typically one event each month) has helped our department to enjoy spending our Friday afternoons together learning something new. The research seminar speakers have been a mix of current DePaul Biological Sciences faculty members, including Dr. Dorothy Kozlowski; DePaul Biological Sciences Alumni, including Dr. Jennifer Schmidt; and external collaborators and partners such as Dr. Hua Jin, University of Illinois Chicago and Dr. Mark Westneat, University of Chicago. By offering special events such as Darwin Day, Field Research Symposium, and Senior Research Symposium, it also has provided opportunities for students to present some of their own work throughout the year. We hope to continue these ongoing seminars for faculty, staff, and students from around DePaul to connect with each other in a relaxed way and learn more about some current issues and trends in biological research.

If you are interested in attending one of our upcoming research seminars, please visit our website to obtain the schedule for the 2014-2015 academic year: csh.depaul.edu/departments/biological-sciences/resources/Pages/Seminar-Schedule.aspx. As they become available, we will also post additional research seminar details and calendar reminders on our social media sites: [facebook.com/depaubio](https://www.facebook.com/depaubio) and twitter.com/depaulbiodept. Please send us any suggestions you have for future seminar speakers or events. We look forward to continuing the research seminar series in the 2014-2015 academic year and hope that many of you join us. □

Darwin Day
February 14th, 2014

Biology Research Seminar
The Beak of the Fish: Phylogenetics and Biomechanics of Coral Reef Fishes
Dr. Mark W. Westneat, Ph.D. Professor, Organizational Biology & Anatomy, University of Chicago
1-2 pm, McGowan South 104
Poster Presentation & Reception 2 pm, McGowan South Atrium

Biology Research Seminar
"Population and reproductive genetics in the whale shark (*Rhincodon typus*)"
Dr. Jennifer Schmidt, PhD DePaul alumna and Associate Professor of Biological Sciences, University of Illinois at Chicago
Friday, April 11th, 1:00-2:00pm McGowan South 104

Biology Research Seminar
"Neuroplasticity and Neurorehabilitation in an Animal Model of Traumatic Brain Injury: How can it inform clinical rehabilitation?"
Dr. Dorothy Kozlowski, PhD Professor of Biological Sciences, DePaul University
Friday, May 2nd, 1-2pm in McGowan South 104
Light refreshments will be served
Sponsored by the Department of Biological Sciences

The 2nd Annual DePaul University Field Biology Symposium
Friday, March 14
Bio 390/490, Field Research in Coastal Ecosystems
Drs. Bystriansky & LaMontagne, mentors
3 Oral Presentations and 2 Poster Presentations
Bio 318, Field Studies in Marine & Estuarine Biology
Drs. Bystriansky, LaMontagne, & Sparkes, mentors
4 Poster Presentations
Oral Presentations 1-2pm McGowan South 104
Poster Session 2-3pm McGowan South atrium
Light refreshments will be served
Sponsored by the Department of Biological Sciences



ALUMNI PROFILE

BRENDA CURTIS

Brenda Curtis (BS Biological Sciences 2003) knows the value of undergraduate research opportunities. Upon graduating from DePaul, cum laude, in 2003, she joined a PhD program in the department of Cellular and Molecular Biochemistry at Loyola University Chicago. Brenda recounted how her independent research experiences during her undergraduate studies at DePaul directly influenced her decision to pursue a career as a biomedical research scientist. “As a research assistant in the laboratory of Stanley Cohn, PhD, I was able to apply the scientific method I learned through coursework to actual research questions involving diatom motility, as well as hone basic laboratory techniques, including microscopy and image analysis. I had the eye-opening opportunity to present my work at the 42nd annual American Society for Cell Biology conference, which drastically shaped my career goals by sparking my enthusiasm for scientific collaboration.”

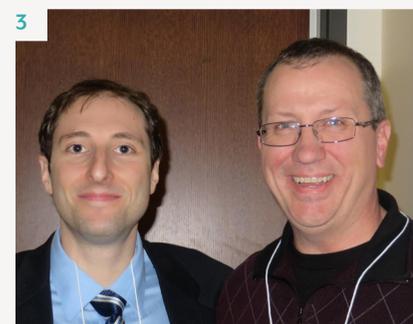


CURTIS

Brenda later obtained a fellowship from the College of Liberal Arts and Sciences to sequence a portion of the mitochondrial genome of a slime mold, *Didymium iridis* under the mentorship of Margaret Silliker, PhD, learning basic molecular biology techniques, and learning key concepts of experimental design, data analysis, and interpretation. This fellowship further fueled her passion for molecular biology, as she experienced the thrill of scientific discovery. Her aspiration to attain a doctoral degree in molecular biology stemmed directly from this fellowship.

Ultimately, she chose a doctoral research project that encompassed her favorite classes at DePaul: genetics, molecular, and developmental biology. Her doctoral project used a fruit fly model system to study how gene regulatory proteins, known as epigenetic factors, help to regulate the fly’s development. She received her PhD in 2010 and is currently a post-doctoral fellow at Loyola University Chicago in the Burn Shock and Trauma Research Institute. With the support of a post-doctoral national research service award (NRSA) from the National Institutes of Health, Brenda now has nearly a dozen publications. Her current research interests are centered on defining how epigenetic mechanisms regulate the inflammatory responses in the lungs that are triggered after thermal burn injuries to the skin.

She finds that her career as a biomedical scientist is richly rewarding and that sharing her passion for scientific inquiry through teaching and mentoring young scientists is extremely fulfilling. She appreciates the constant challenges and discovery within her work, as well as the communal and international nature of a career in science. She is a strong advocate for science, stating, “Without scientists, there would be no discovery or progress in treating disease. Science expands the frontiers of our collective knowledge. It is a career in which curiosity, hard work, and dedication can better the lives of millions of people.” From diatoms, to slime mold, to flies, to trauma treatment—Brenda truly understands the universal power of scientific inquiry. □



1. Former Biological Sciences Departmental Chair Leigh Maginniss and current Departmental Chair John Dean
2. Ali Grecco, Heather Anderson, and Derek Moore, presenting at the Science Showcase
3. Science Showcase guest speaker Michael Kharas and his faculty mentor Phil Funk

4. Windsor Aguirre and Cat Collins at the Science Showcase
5. Dorothy Kozlowski at the Biology Christmas Party
6. Maxine Loh and Rhonda Harley during Darwin Day presentations



SCIENCE SHOWCASE

We are proud to once more list some of our student researches, along with the titles of their presentations, who participated this November in presenting some of their ongoing work as part of the annual Science Showcase poster presentations. Congratulations to everyone on your great work. The student presentations are listed below, followed by a list of the faculty advisors.

DANIEL BALTUDIS Fossil marine vertebrates from the Upper Cretaceous Lincoln Limestone in Colorado.

CARLA BENEDETTO Characterization of the Transitional Region of the Axial Skeleton in Three-Spined Stickleback.

CATHERINE COLLINS Body Shape Divergence in Invasive Round Goby in the Chicagoland area.

KIARA FARMER, TESFEY GEBREKIDAN, AND EDWARD GLUZMAN The Effects of Silver NanoParticles on Brine Shrimp Development

ALLISON GRECCO Patterns of white spruce cone production in Wisconsin and Michigan.

ALEXANDER HADDAD Virus entry into cells: defining the interactions that mediate the first step of herpesvirus infection.

DELANEY HALPIN, LINDSEY MAURER, ERIC RICE, AND AMANDA WOLSKE Analysis of Repression and Population Effects on Light-stimulated Motility in Diatoms.

MELISSA HORTHER Do parasite eggs resemble the food supply of target hosts in the acanthocephalan *Acanthocephalus dirus*?

PERRI JACOBS Growth pattern of the smalltooth sandtiger shark, *Odontaspis ferox* (Lamniformes: Odontaspidae).

JENNIFER KACZOR Relationship between eye sizes and preferred habitats in lamniform sharks.

MICHELLE LAJKO Virus entry into cells: defining the interactions that mediate the first step of herpesvirus infection.

MAXINE LOH Age of induced Bipolar Disorder by GSK3- β Activation on Learning and Memory

MICHAEL LORDEN Sampling the arthropod community in habitats of Red-Headed Woodpeckers (*Melanerpes erythrocephalus*).

PETER MOCHEL Effects of exhaustive exercise on gill ion regulation in rainbow trout.

DEREK MOORE Avian guild diversity across urban ecosystems of South Asia.

TARA POYER Regulation of the Na⁺/K⁺-ATPase beta subunit in gills of three-spine stickleback (*Gasterosteus aculeatus*) during acclimation to changing salinity.

SHOWCASE PRESENTERS AND PHOTOS

RACHEL REYNOLDS Adaptive evolution and phenotypic plasticity of the axial skeleton in the threespine stickleback.

DIMITAR SLATEV Spatial patterns in predation of clams by moon snails.

REBECCA URSIN Effect of Vitamin A Deficiency on Ovary Development and Ovulation

WEBSTER VITAL Exposure to a cannabinoid receptor 1 (CB1) agonist during early adolescence impairs the maturation of GABAergic transmission in the adult prefrontal cortex.

Congratulations as well to all of their faculty mentors: Windsor Aguirre, Jason Bystriansky, Stanley Cohn, Jalene LaMontaigne, Jeremy Rosenkranz, Kenshu Shimada, Tim Sparkes, Ray Tse, and Kuei Tseng

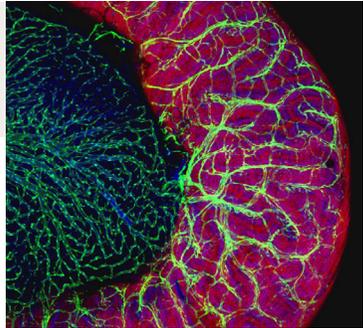


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RESEARCH IN ACTION

THE ART OF SCIENCE



Every year Aquaneering, a manufacturer of a fluidized bed biofiltration systems for aquatics research, holds the Art of Science Photomicrography Calendar Contest. Senior Biology Major Erica Binelli's image of gut tissue in adult zebrafish taken with the Biological Sciences confocal microscope, won 3rd place in their 2014 calendar contest. Images are judged on both technical execution and artistic rendition by an outside panel of science and art professionals. The three winning photos are featured on the next year's calendar, which is distributed in the January issue of Zebrafish Magazine and promoted in ALN Magazine. In addition, winners are awarded up to \$1,000 in cash prizes. You can see Ms. Binelli's photo and download a copy of the calendar at: aquaneering.com/calendar_photomicrography_and_contest.php. 