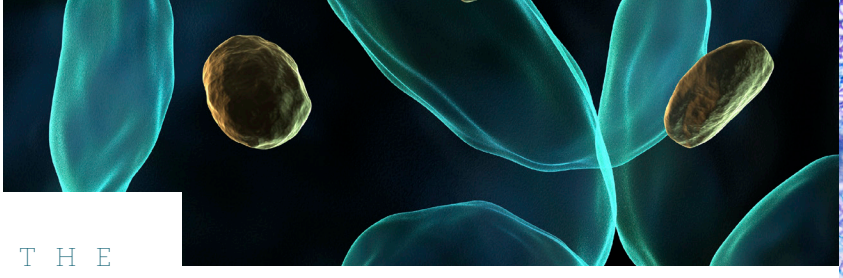


THE NICHE

V2 #2

DEPAUL UNIVERSITY | DEPARTMENT OF BIOLOGICAL SCIENCES

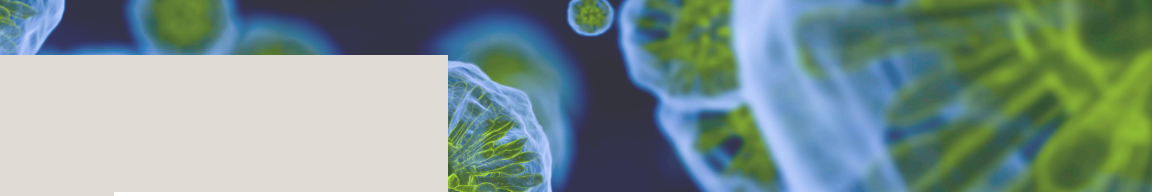
FROM THE DESK OF THE CHAIR

The College of Science and Health (CSH) is well into its second year, and the Department of Biological Sciences continues to make significant contributions to the growth and success of the new college. Enrollments in CSH are strong, as are enrollments in biological sciences courses. One of the biggest developments in CSH is the formation of The Alliance for Health Sciences between DePaul University and Rosalind Franklin University of Medicine and Science (RFUMS). The alliance will provide exciting educational and research opportunities for our students and faculty. For example, a research fund has been set up for joint investigations between faculty at DePaul and RFUMS. This type of funding will support additional research opportunities for both our undergraduate and graduate students. You can find out more about the alliance at **resources.depaul.edu/alliance**.

We also continue to work with the Health Sciences Department on curricular development. Recently, Sarah Connolly, Ph.D., was hired with a joint appointment in both departments and she will provide some exciting courses and research opportunities for our students in virology. You get an opportunity to read a profile of Professor Connolly in this issue of The Niche.

Just as the university has started to implement its strategic plan (Vision 2018: Dedication to Excellence, Commitment to Community), the department of biological sciences is also planning for the future. Throughout the summer of 2012, our faculty and staff examined our undergraduate and graduate programs. This examination culminated in a two-day retreat in August 2012. We developed some priority recommendations related to course scheduling, student learning opportunities, faculty hiring, changes to our graduate program and updates to our committee structure. This strategic planning process gives us a vision for the future and serves as an indicator of how hard our faculty and staff are willing to work to provide the contemporary, competitive curriculum and educational opportunities that our students have come to expect. I am excited about the future and, as always, we are grateful for your continued support. ◘

John Dean
Professor and Chair of Biological Sciences



NEW FACULTY PROFILE
SARAH CONNOLLY, PH.D.


CONNOLLY

The Department of Biological Sciences is proud to introduce our newest faculty member, Sarah Connolly, Ph.D. Connolly joined the department in September 2012 as part of a joint appointment between the Department of Biological Sciences and the Department of Health Sciences. Her area of specialization is virology, where she focuses her research on investigating how viruses enter cells—the critical first step of infection. She received her Ph.D. in cell and molecular biology from the University of Pennsylvania in 2003, where she studied how proteins on the surface of herpes viruses bind to receptors on cells. In 2004, she moved to her hometown of Chicago for postdoctoral studies with the Howard Hughes Medical Institute at Northwestern University. There she used viruses related to measles to examine how virus proteins physically transform their shape to force a cell to fuse with an incoming virus particle. In 2009, she joined Northwestern University Medical School and applied her work on virus-cell fusion to the field of herpes virus entry. At DePaul, she is continuing her work on herpes viruses, and is interested specifically in how virus proteins interact with each other and the cell to trigger the virus to fuse with the cell. Her lab uses molecular biology, microbiology, cell biology and protein biochemistry techniques to study the model human virus, herpes simplex virus type 1. In her first year Connolly has already been engaged in a wide variety of undergraduate courses, teaching General Biology I with lab for science majors (BIO 191), Health Research Literacy (HLTH 202), and Microbiology with lab (BIO 210). She has also already designed a new course, Molecular Virology (HLTH 390), that she expects to offer next year. Connolly tells us, “Thus far, DePaul has been fantastic! Both of my home departments are wonderfully welcoming and supportive. My interactions with students have been rejuvenating. They allow me to relive the wonder I experienced when I first learned all the cool stuff that biology has to offer!” The Department of Biological Sciences warmly welcomes Connolly to our faculty, as all of the excitement she has surrounding her teaching and research of virology is infectious.

GLOBAL BRIGADES 2013

Global Brigades is the world's largest student-led global health and sustainable development organization. Since 2004, Global Brigades has mobilized thousands of university students and professionals through programs that work in partnership with community members to improve quality of life in under-resourced regions such as Honduras, Panama, Nicaragua and Ghana, while working to preserve and learn about the country's culture.

The DePaul Chapter of Global Brigades has been recognized for its ability to mobilize hundreds of students and now includes business, microfinance, dental, architecture (Project Z), water, medical and public health brigades. The DePaul chapter is special because of its ability to systematically work with more than 300 other university groups around the world to benefit more than 130,000 Honduran and Panamanian community members annually.

Over a dozen biology majors went on a recent brigade to Honduras (medical and public health) over the December Intersession. These Global Brigades seek to develop sustainable health initiatives for the communities they visited. Hundreds of patients are treated; student volunteers deliver public health workshops and provide preventative health education. Electronic patient records are collected for future visitations to monitor overall community health trends, students learn to take patients vitals (e.g. blood pressure, as seen below), help distribute medication and treat wounds. The photos you see are just a few images that capture some of the great work biology students did from their brigade. ◘

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1. Public Health Brigade; Guaricayan (Fancisco Morazan), Honduras—Students built a latrine, shower, stove, concrete floors and water storage system for family. Back Row (left to right): Yui Okamura, Julia Gigler, Kelly Keffer, Demi Runjo, Allisha Blood, Monica Sullivan and Alexandra Paul; Front Row: Joanne Ramirez, Cindy Lopez Garcia, Lauren Maitland, Olivia Garcia, Abraham Lopez, Kaitlin Vass.
2. Medical Brigade; Practicing Taking Blood Pressure—Alexandra Paul, Monica Sullivan, Yui Okmaura.
3. View of Tegucigalpa, the capital of Honduras.

ALUMNI PROFILE
NICK DISPARTI

DISPARTI

Nick Disparti (B.S. in biological sciences, 1993) is an example of how skills and abilities developed while doing research at DePaul can serve as a great foundation for a variety of job opportunities, regardless of the model system. After briefly serving in the Coast Guard and taking some classes at Harper Community College, Nick came to DePaul. Once at DePaul he quickly took the opportunity to get involved in undergraduate research, working in the lab of Stanley Cohn, Ph.D. As a student research assistant in the lab, he worked on understanding diatom movement. Besides learning the actual physiology and life history of diatoms, Nick was introduced to a variety of laboratory techniques including microscopy and image analysis. While briefly considering graduate school, Nick instead decided to use his talents in the technical end of the business community. Upon graduation, the techniques he learned at DePaul allowed him to quickly receive a job offer from Leica Microsystems in Deerfield, Ill., where he held positions as product application specialist for Electron Microscopy, Specimen Preparation and Clinical Histology until promoted in 1997 to business development manager for these product lines.

After having cooled to the Chicago cold, in 1999 he joined McBain Instruments and Leica Microsystems in San Diego, Calif., as their research imaging specialist for Southern California. Working with investigators at institutions such as UCSD, UCLA and Caltech, he provided training and application support for research microscopy, image analysis and live cell real-time confocal microscopy. This work helped numerous scientists to visualize the precise locations and interactions between intracellular components. Knowing he had a higher calling (or at least a desire for higher altitudes), in 2006 he came to Leeds Precision Instruments and Olympus America as the confocal laser scanning microscopy and live cell imaging specialist in Denver, Colo., for the Rocky Mountain region.

In reflecting on his time at DePaul Nick states, “My education at DePaul and time working with Cohn provided me the solid foundation I needed to go into industry. The opportunity as an undergraduate to work in a lab conducting experiments alongside faculty, analyzing data and attending the American Society for Cell Biology meetings was pivotal to my early career success. For me, the most rewarding part of my career has been the opportunity to apply my DePaul education and training every day while working with a variety of investigators in diverse fields such as cellular and molecular biology, neuroscience, physiology, virology, vision science and cancer research.”

An avid skier, Nick currently lives in Colorado Springs, Colo., with his wife and two dogs.

PHOTO GALLERY

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1. **Keynote Speaker**—Calvin Williams, B.S. in biology, 2007, at the Undergraduate Science Research Showcase
2. **Undergraduate Science Research Showcase**—Stan Cohn, Ph.D., Amanda Wolske and Tomasz Kordes at the showcase
3. **Peggy Notebaert Nature Museum's Run for Science**—From left: Carolyn Martineau, Ph.D., Suzi O'Hare, Julia Gigler, Rhonda Harley and Betsy Montgomery
4. **2012 Holiday Party**—Biological Sciences Departmental Assistant Telesia Jones
5. **Meet and Greet**—Michael Lordon, Wendy Hobbie and Fiona Lane at the 2012-2013 Departmental Meet and Greet
6. **Darwin Day**—Guest Speaker, Windsor Aguirre, Ph.D.

NATURAL SCIENCES, MATHEMATICS AND TECHNOLOGY UNDERGRADUATE RESEARCH SHOWCASE

In November 2012, a number of our students presented some of their ongoing research as part of the annual Science Showcase poster presentations. We are proud to list these students below, along with the names of their presentations. *Congratulations to everyone on your great work.*

WALE AFOLAYAN Master Parameters in the W3(OH) region.

PENELOPE ANTONOPOLIS Sequencing Na/K ATPase beta subunit isoforms in rainbow trout.

ERICA BINELLI Immunohistochemical optimization for nerve detection in juvenile zebrafish.

EYAD BITTAR Effects of exhaustive exercise on whole body ion and water balance in rainbow trout.

CARMELLA GALLUZZI Anatomy of the Late Creataceous bony fish, Micropycnodon kansasensis.

MATHEW FRANCIS Editing of mitochondrial RNA in Didymium iridis.

ALLISON GRECO Southwestern range limits: White Spruce characteristics in Wisconsin and the upper peninsula of Michigan.

MELISSA HORTHER Seasonality of infection and growth relationships in an acanthocephalan parasite.

PERRI JACOBS Growth pattern of the small tooth sandtiger shark Odontapis ferox.

TOMASZ KORDES AND AMANDA WOLSKE Repression and habituation of light-stimulated motility in diatoms.

TSVETOZARA KYOSEVA Similarities between various orthomolecular species and their effect on the Alzheimer's beta amyloid peptide.

NELL LANGER Cranial musculature of three modern thresher shark species.

MAXINE LOH, BRITTANY SWANSON AND ASHAR KHAN Temporal and spatial variability in coliform bacteria and orthophosphates in Prairie Wolf.

LUKE MOCKAITIS The toxic effects of the beta amyloid peptide on neural cells and various orthomolecular species.

SHANNON NAUGHTON, KALAH BERMUDEZ AND LIANNA DIMASO Melatonin, a sleep aide can possibly be used as a preventative for Alzheimer's disease.

JOANN PACHECO Sequencing Na/K ATPase isoforms in the American eel.

KALIA PARKER AND JULIA JUSTUSSON Curcumin, not just a spice used in cooking, but a preventative for the misfolding of the Alzheimer's beta amyloid peptide.

LILLIAN PEREZ Nature and Nurture: How heredity and environment affect transcriptomic brain differences in Apis mellifera sub-species.

BRANDON POLASKEY The effect of alcohol on the beta amyloid peptide.

ROBERT SCHUCH Examination of soil colloids using microscopy.

KAITLYNN TRACY AND ANDREA THOMPSON Stability of antioxidants in sunscreen after ultra-violet radiation exposure.

VINH VU Isolation of microsatellite loci from Hoplias microlepis, a large predatory fish from western Ecuador.

RAYMOND WENK The structural determination of the beta amyloid peptide via the H/D exchange by the use of nuclear magnetic resonance.

Congratulations as well to all of their faculty mentors: Windsor Aguirre, Jason Bystriansky, Sandra Chimon-Peszek, Stanley Cohn, Sophie-Charlotte Gleber, Michelle Hastings, Matthew Hudson, Jalene LaMontagne, Elizabeth LeClair, James Montgomery, Sandra Chimon Peszek, Anuj Sarma, Kenshu Shimada, Margaret Silliker, Tim Sparkes and Ray Tse.

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RESEARCH IN ACTION

FIELD RESEARCH CAN BE INFECTIOUS

This issue's research in action picture is from the lab of Timothy Sparks, Ph.D., showing the effect of parasitic infection of an isopod. One of the current interests of the Sparks' lab is on the effect of parasites (known as thorny headed worms) on a small type of freshwater crustacean known as an isopod. These parasites first infect the isopods, which are then consumed by fish which become the final host of the parasite. The infection of the isopods by these parasites causes them to become lighter in color, thus increasing their detectability by the fish. This raises their chance of the fish finding and ingesting the infected isopods, and thereby becoming infected by the parasite as well. Sparks was one of the developers of the new field studies course in South Carolina featured in the last issue of The Niche. You can find out more about the types of research being done by the Sparks Lab, and some of their recent publications, by going to Sparks' webpage at **csh.depaul.edu/departments/biological-sciences/faculty-and-staff/Pages/sparkes.aspx.**