Plant Ecology Class 2016 relaxes in an oak dome after research.

e-symBIOsis

DEPARTMENT OF BIOLOGY - SPRING 2016

THIS ISSUE OF SYMBIOSIS PROVIDES UPDATES ABOUT THE RESEARCH OF UNDERGRADUATE STUDENTS.

Research Highlights

Juan Manuel Gonzalez is passionate about nature—plants in particular. One of his life goals is to optimize human-earth relations through plant research. Juan's work in the Chen lab focuses on the determination of changes in protein abundance and signaling status in tomato leaves in response to pathogen infection. He explores plant-microbe interactions at the proteomic level and focuses on phosphorylation, a key signaling mechanism employed by plants in response to stress.

Iryna Mysnyk is completing her senior thesis on the characterization of genetic mutations that activate cell protection pathways. Her studies use a small and well-characterized model organism, the nematode *Caenorhabditis elegans*. After working closely with Dr. Keith Choe for the past year, Iryna is now set to graduate and commence her studies at UF's College of Dentistry.

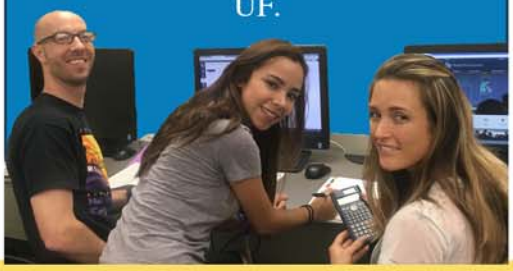
Since **Jackie Schneider** joined Dr. Sixue Chen's lab in the spring of 2015, she has harvested hundreds of seeds, purified plenty of proteins, and amassed an abundance of Western blot films. Jackie is working to understand the mechanism of how plants respond to the environment. She has recently coauthored her first publication with graduate student Tong Zhang and Dr. Chen.

Hollie Dutcher likes swamps. Proof of her commitment to their conservation is clear in a recently published paper entitled "Saving Cypress" (The Palmetto, spring 2016). In this article, she and her undergraduate advisor, Dr. Francis E. "Jack" Putz, propose a novel approach to stopping the unsustainable use of cypress forests—clearcutting them for landscaping mulch. While she continues to strive to protect cypress, her new project, which is still in its formative stage, concerns the yield of charcoal from controlled burns.

SF2UF

Bridge to Baccalaureate Program

A large grant from the National Institutes of Health will help to increase the number of students from underrepresented groups who transfer from Santa Fe College to UF to study in biomedical and behavioral science-related fields. The goal of the "SF2UF Bridge to Baccalaureate Program," led at UF by our own Dr. David Julian, seeks to increase the diversity of community college students who go on to research careers in the biomedical sciences. Julian pointed out that more undergraduate students transfer to UF from Santa Fe College than from all other community colleges combined, but few are from under-represented groups major in biomedical and behavioral science-related disciplines. SF2UF will provide opportunities for advisers, science faculty, and students to work together to strengthen the bridge between the two institutions, and help transfer students transition to UF.



Department of Biology
Bartram-Carr Hall
Gainesville, Florida 32611

PHONE: 352-392-1175 FAX: 352-392-3704 www.biology.ufl.edu www.biology.ufl.edu/administration/donate/

Marine Biology class summer 2015

Biology Learning Assistants (LAs) are undergraduate students who lead classroom exercises in Integrated Principles of Biology II. In this "flipped" environment, the typical lecture and practice elements of a course are reversed: students read an assignment or watch a video prior to class, then work through problems in class. Biology's LA program, which integrates peer teaching within this collaborative environment, is an innovative approach to transforming undergraduate science education at UF. The Biology Learning Assistants Program is co-directed by Drs. Christine Davis and Alice Harmon.

The **BioS program** provides a pathway to a five-year, combined B.S. and M.S. degree for low-income students pursuing careers in biotechnology, life science research, or in other STEM disciplines. Students who are accepted into the program become BioS Scholars who will participate in research with a faculty mentor for four years. The program is designed for low-income students who have some advanced biotechnology or other STEM experience, such as previous participation in the Florida High School Biotechnology Program or other appropriate academic program or extracurricular science projects. More information about the program is here: http://bios.biology.ufl.edu.

Congratulations 2016 Biology graduates!

SPECIES SPOTLIGHT

The **yellow-bellied sea snake** (*Hydrophis platurus*) is the only fully pelagic reptile in the world. But that isn't its only unique quality—the snake is also the most widely distributed squamate reptile, with a habitat ranging from southern Africa across the Indo-Pacific to Central America. Yellow-bellied sea snakes recently came into the spotlight when three were found along the central California coast, farther north than all previous records. Such range extensions are likely to increase as the oceans continue to warm.

For now, this distinctive species is abundant off the Pacific coast of Costa Rica where Professor Harvey Lillywhite and his collaborators discovered that these marine snakes need to drink fresh water. After it rains, they quench their thirst from freshwater lenses that briefly float on the ocean surface. Today, Lillywhite and UF colleague Dr. Coleman Sheehy are continuing this research, currently investigating the genetics and phylogeography of this singular sea snake.

CHAIR'S NOTE

Why become a biologist? For me, it was because I love the living world, and want to preserve it. That same love of and desire to heal the world unites our diverse students, staff, and faculty. Our inaugural electronic issue of Symbiosis highlights the varied interests and accomplishments of our undergraduate students. Our pre-health students are committed to improving the quality of human life via improving health. Of course, human life and health are inextricably intertwined with the rest of life on earth. For example, many emerging diseases result from parasites shifting from non-human animal hosts to humans. These shifts occur in part because humans are living in new environments, and encountering new pathogens as a result. Ecological degradation and global change have also been implicated in emerging disease. But the importance of the well-being of our planet and its ecosystems extends far beyond human health, to the continued existence of life on earth. The wonderful interactions of living things and their environments are worth learning about for their own sake. Celebrate life and heal the world: study Biology! - *Dr. Marta Wayne, Professor & Department Chair*