News From The Chair

Well, it’s that time of year again. One day it’s sunny and 60°F, the next day it plummets to 30°F, and then back up to 50°F with rain. That’s Ohio weather for you—some things just never change. But, that is not true in the Biology Department because we have welcomed one new colleague this fall! Dr. Cristina Caldari is a tenure-track colleague who specializes in animal physiology. She teaches Comparative Physiology, and also will teach Multicellular Life (one of our core courses) and a new 300-level physiology course. Her research focuses on adipomunology which involves investigating the effects of adipokines on the immune system. For more details about Dr. Caldari please read page two. We also are welcoming back Dr. Thompson who returned from his successful full-year leave. Other important changes are Drs. Homan, Jen, and Liebl are currently on leave, and next semester Dr. Schultz will be on leave. As you can see, things are moving right along for faculty.

As for our students, they also are hard at work. Fourteen seniors are busy working on experiments, and they are beginning to write their theses for senior research. Students participating in a directed study are wrapping up their research projects. Other students are busy helping the department by tutoring for the Biosphere, serving as teaching assistants, and maintaining our animals and plants. Break begins soon so all students are either completing assignments, giving presentations, or taking exams. Finally, we have 60 majors that will graduate spring 2018 so seniors are making plans for post-graduation. Again, it’s busy, but the halls in Talbot are full of energy.

Another exciting piece of news is that we celebrated the 50-year anniversary of the Bioreserve. It was a special celebration too with talks given by Dr. Schultz. Be sure to read his presentation about the history of the Bioreserve (see page 3). In it, he explains how Dr. Alrutz’s passion and dedication were instrumental in establishing our cherished Bioreserve. Additionally, several alumni shared their passion for the Bioreserve by presenting their Denison research to our trustees. The Biology Department is thankful to Philip Hurst ’18, Elizabeth Postema ’18, and Aedin Brennan’16 for contributing to its success.

Please let us know what you’ve been up to by contacting Jenny or your former professors. We’d love to hear from you! Also, next spring we are planning to hold a pre-health and a medicine career panel. If you are interested in serving on a panel, please let me know at weingartc@denison.edu. Finally, I’ll end with a question. Can you guess who is dressed as the mad insect scientist? To find out, you’ll need to look at the pictures from our Halloween Happenings event on page four.

Enjoy the Bio Buzz!
Chris Weingart

Our First Duke Marine Lab Field Trip!

Eight students enrolled in Invertebrate Zoology spent a couple of days at the world-renowned Duke Marine Lab (DML) on the coast of North Carolina during Fall Break 2017. They were accompanied by their professor, Laura Romano, as well as Jessica Rettig. The students had the opportunity to explore several habitats including a marsh, sand bar, and open ocean (via dredging from a boat), collecting invertebrates that they subsequently attempted to identify in the laboratory. They found representatives of several phyla, with favorites being sea pork of the Phylum Chordata, a moon snail of the Phylum Mollusca, and a parchment tube worm of the Phylum Annelida. The students even had the opportunity to go on a memorable hike at high tide along the outer perimeter of the Rachel Carson Reserve, which is inhabited by wild horses (finally seen on the last day)!

It was a great trip despite the van breaking down on the way home in West Virginia!!

Funding for these types of opportunities is limited. This was a unique experience and the students learned so much. We hope to be able to have more field trips in the future.
Dr. Cristina Caldari, Assistant Professor

I have graduate degrees in animal sciences but I am, more than anything, an animal physiologist. I am particularly interested in immunology, nutrition, and disease, and the intersection among these areas. My lab will research the effects of adipokines, cytokines and hormones produced by adipose (fat) tissue, on the immune system, an area known as adipoinmunology. Part of my research plan is to look at nutritional interventions that reduce the production of inflammatory cytokines by adipose tissue. As a self-proclaimed fatty acid nerd, I want to study the effects of increasing ratios of omega-3 to omega-6 fatty acids on the production of these proinflammatory adipokines. Omega-3 fatty acids have been hypothesized to reduce inflammation in many different tissues by competing with omega-6 fatty acids as substrates for the enzymes that produce inflammatory molecules like prostaglandins, thromboxanes, and leukotrienes. Hypothetically, increasing the omega-3:omega-6 fatty acid ratio in the cell membrane will reduce the production of inflammatory molecules by increasing the chances that an omega-3 fatty acid will be used in the inflammatory molecule-production pathway, as opposed to a pro-inflammatory omega-6 fatty acid. In addition to looking at the effects of altering the omega-3:omega-6 fatty acid ratio on pro-inflammatory adipokine production I also want to determine how the different levels of these adipokines affect the innate immune system, focusing on monocytes/macrophages, specifically. My interest in this area stems from the fact that the adult and childhood obesity epidemic is resulting in an increase in the development of inflammatory diseases and autoimmune disorders (diabetes, cancer, cardiovascular disease, rheumatoid arthritis, etc.). Nutritional interventions could alleviate these issues while decreasing our reliance on the use of pharmaceutical drugs. In addition to geeking out about fats I enjoy animals of all shapes and sizes, particularly horses, dogs, cows, and cats, in no particular order. I am an avid horse rider and love the thrill of making horses jump over obstacles. I currently have a very cool five-year-old human named Nico, an eight-year-old Golden Shepherd named Brisket, who might be the best dog in the world, and a cat named Bossy (her name says it all).
During Big Red Weekend, Dr. Tom Schultz gave an informative talk, *The Denison Biological Reserve: 50 years of Teaching, Research and Fun*. If you would like to see the slides for that presentation, click on the link!

“This project at a university like Denison not only allows for a reduction in the university’s carbon footprint, but also educates students on alternative energy and just how viable it has become in 2017,” Greenfield said. “As tomorrow’s leaders experience solar energy in use today, they will take this knowledge with them out into the world, helping to accelerate the deployment of solar elsewhere.”

“Spicing up the understory: investigating the effects of resource sinks on spicebush fitness” P. Hurst poster title

Bioreserve Student Poster Session for Trustees. Thank you to current seniors and alumna, Philip Hurst ’18, Elizabeth Postema ’18, and Aedin Brennan ’16 for sharing your bioreserve experiences

This is but a beginning of what promises to be a real and fundamentally essential addition to the Denison science program. Because of our peculiar and fortunate position regarding adjacent land areas, we have, indeed, an obligation to promote ecological studies now so pressing on man’s future survival on this planet. (See photos on page 8).

— Robert W. Alrutz, Chairman of Biology
Students and Faculty had fun dressing up this Halloween season! We featured a “photo booth”, encouraged self-designed paper Jack-O-Lanterns and we had candy (which was appreciated by EVERYONE)!

Halloween Happenings!
2017 CUR Award for Undergraduate Research Accomplishments

The Council on Undergraduate Research (CUR) has announced that Denison University has been chosen as one of three recipients of the 2017 Award for Undergraduate Research Accomplishments AURA. CUR stated in the award announcement that "Denison University’s achievements as a leader in undergraduate research set your institution apart from other finalists for this award. In addition to making substantial progress in creating an undergraduate research-supportive institutional environment hewing to COEUR principles, Denison University’s exemplary program features a strategic commitment to creating a sustainable funding model for faculty-student summer research through the Summer Scholars program endowment. The growth and breadth of this program is impressive. This is a model that other institutions may wish to emulate."

This recognition is a terrific tribute to the outstanding work done by our faculty and students in the area of undergraduate research. It also provides the opportunity to recognize the leadership of Margot Singer, Joan Krone, Jessica Rettig, and Cookie Sunkle in our summer scholar program, which was the featured program in our award application. For more information on the award, see our press release regarding this achievement and CUR’s announcement regarding all three recipients.

~ President Adam Weinberg

This summer, Dr. Heather Rhodes and biology student Melanie Amo ’18 spent the summer in Woods Hole, Massachusetts, conducting research at the Marine Biological Laboratories. It was an exciting and productive summer, studying the olfactory systems of African clawed frogs. Melanie and Dr. Rhodes isolated cloacal fluids (frog pee!) and skin secretions and presented them at different dilutions while recording the electrical activity of the receptors in the nose. Melanie is now analyzing the data for her senior research project.

Part of what made the summer special was the setting – Dr. Rhodes served as the Associate Director of the Grass Fellows Lab at the MBL. This lab houses 10 exceptional neuroscience graduate students and postdoctoral fellows who conduct independent research for the summer. Melanie showed Denison at its best, doing a great job with her own research project while also learning about everyone else’s. She also served as pitcher for the lab softball team and helped build a giant tick for the 4th of July Parade!

DUBS hosted a meet and greet ice cream social to kick off the semester. This event allowed students and faculty to get together and enjoy some Whit’s. For some of the first-year students, this is the first time they met biology faculty outside of their classes. Around 50 people came and enjoyed spending time together, and we had the perfect amount of Whit’s to go around!

Congratulations to Seniors Jorge de la Torre and Tyler Billings! Their review paper on colon cancer, along with Visiting Professor Dr. Angela Zhou, was published by the International Journal of Hepatology and Gastroenterology in September!

Denison Biology Alumni & Faculty
This group is intended to help the faculty and alums of Denison Biology stay in touch!

Find us on: facebook

And as always, if you’d prefer to no longer receive this alumni newsletter, please send a request to be removed from the mailing list to biology@denison.edu.
It’s been a good year for me — I traveled far afield from Biology in my career and into the world of finance. Upon leaving good ole, DU, I went to Business School (with my Biology degree) for an MBA and later into the investment banking world. I started the first female investment banking firm that underwrote muni bonds in the country, and later also managed money for others.

Now though, I’ve moved beyond this focus, and have several things in development. I am the creator of WomensWealthMoney (the first Authority website for women and money that is on the web), and I am designing a series of courses called: The Heroine’s Journey to True Wealth. The first course will be up on the web in September of this year. I have written a book called, ‘A Girl Needs Cash’ (Random House), and will have a new book coming out shortly on the Heroine’s Journey.

It’s all a long way from Biology!! And most surprising, about six months ago I met someone who I didn’t know at Denison, a guy who also loved Denison the way I do, and we’ve been having a very happy time together!!

~Joan Perry ’73

As a teacher at Champion Middle School in Champion Ohio I was recently awarded the prestigious Arthur S Holden Jennings Science Teacher Award. Only one Science teacher in Ohio receives this honor each year. I was also one of three formal or informal teachers in the state of Ohio to receive their Environmental Education Certification. My newest challenge has been 4 new honey bee hives that my Science Club will be raising. The entire 5th grade just completed a stewardship with the Cuyahoga Valley National Park by cutting invasive Privet along the Cuyahoga River.

~Dave Murduck Biology/Geology Major ’83

I just wanted to pass on a brief update. I graduated from Case Western Reserve University School of Medicine in late May 2017. Earlier in the year, I was inducted into the Alpha Omega Alpha Medical Honor Society. I matched into the Orthopedic Surgery residency program at University Hospitals of Cleveland Medical Center/Case Western and will be starting my residency training in July! I hope all is well in Granville!

~Alex Benedick ’12

I absolutely loved being a biology major at Denison. Dr. Bob Haubrich was my mentor and inspiration, and I still vividly remember my excitement during his classes. He cared so much about each of us. His office was always open to talk. He invited us to his home for social time. He took us on field trips. He influenced me to pursue research at Woods Hole Marine Biology Lab. He helped me prepare for medical school.

He loved saying ‘ontogeny recapitulates phylogeny.’ He almost poetically taught physiology and anatomy, and he captured the whole idea of climax communities that I still seek out to this day.

I’m so glad he continues to be honored. Sometimes one professor can make the difference in an education. He was it.

My career ended up well - the MBL, medical school, MBA with medical emphasis, many years practicing with a group that cares for the homeless individuals and families in Boston. Thanks, Dr. H.

~Greg Wagoner ’69

Just wanted to let you all know that as a ’67 Biology major, I’m a month away from rolling off the Board of Directors of the air conditioning technical society, ASHRAE. I’m a fellow and life member of the society. And everyone wondered what someone could do with a degree in Biology. BTW, I have no intention of retiring any time soon. :-)~Dan Int-Hout ’67

Chief Engineer, Krueger Manufacturing division of Johnson Controls

http://krueger-hvac.blogspot.com/

Through the Ronneberg Series, we held an alumni career panel featuring a wide-array of professions, showcasing non-medical fields. We thank the following alums for helping us out!

• Aedin Brennan ’16 - Business Development Associate with Menden Capital
• Amber Burgett ’06 - College professor
• Emily Cunningham ’96 - Instructor of the Columbus Zoo and Aquarium School
• Cody Grasser ’09 - Wildlife Biologist & former Peace Corps member
• Rima Jurjus ’15 - Civil and environmental planning and design, CAD, GIS
• Sarah Karr ’08 - Small business owner - Roving Acres Farm, producer of specialty fibers