



# BIO BUZZ NEWSLETTER

## Notes From the Chair ~Jeff Thompson

The 2015-2016 academic year is a big one for the Biology Department, as we are implementing substantial changes to the biology major curriculum. BIOL150 is no more, Cell & Molecular Biology has undergone a major facelift (no more Gal4 project!), and a brand new course is coming on board. The new “core” curriculum is a three-course sequence: “Molecular Biology & Unicellular Life”, “Multicellular Life”, and “Ecology & Evolution”. It is designed to tell a great story: how life originally emerged on our planet, and how it has evolved and diversified over the past ~3.5 billion years. The first course, “Molecular Biology & Unicellular Life” focuses on the molecular processes that enabled unicellular organisms to emerge, initially examined from the perspective of prokaryotes, then through unicellular eukaryotes. “Multicellular Life” continues the story, exploring how multicellularity emerged, moving up through the level of tissues, organs, systems, and whole multicellular organisms. We conclude the story in Ecology & Evolution, which provides a perspective of life through an ecological lens, while also formally covering evolutionary theory to tie the overall story together. Quantitative reasoning and writing are addressed in a strategic, developmental manner throughout the core to ensure that our students acquire the skills needed for success in our advanced-level courses and beyond. And all three courses provide many opportunities for group-designed experimental work so that our students learn how to be practicing biologists. It’s been an enormous amount of work on the part of the department to put this new plan together, but we are very excited to finally put everything into motion!

In addition to our new curriculum, we have a number of new faces in the department. We are joined by **Dr. Ellie Nguyen**, a cell biologist, and **Dr. PJ Torres**, an ecologist, who are both here for the 2015-2016 academic year. Additionally, we have added a new support staff member: **Teresa Smit**, a 2015 Denison graduate (and bio major/senior fellow) was hired as the Greene Biological Laboratory Specialist, a one-year position supported in part by the Leon C. and Grace Smith Greene Endowed Academic Venture Fund, to help manage and coordinate the transition from the old core to the new core lab curriculum. More on each of them is included in this newsletter. As for “returning faces”, we are happy to have **Dr. Ayana Hinton** and **Dr. Clare Jen** back with us this year, after both being on leave last year. And lastly, a familiar face with a new title, **Dr. Heather Rhodes** was awarded tenure and promoted to Associate Professor this past spring, and is on her well-earned sabbatical this semester.

Read on to learn more about all of the goings-on in the department!



### 2015-2016

Standing: PJ Torres, Teresa Smit, Clare Jen, Ayana Hinton, Laura Romano, Jessica Rettig, Jenny Etz, Geoff Smith, Rebecca Homan, Eric Liebl, Jenna Monroy, Andy McCall, Whitney Stocker

Seated: Warren Hauk, Ellie Nguyen, Chris Weingart, Jeff Thompson, Kevin Suh, Tom Schultz

# BioBuzz features biology department community outreach



## "Science, It's Elementary!"

On Sunday, November 8th, about 30 students from Denison, with many being biology majors, participated in the annual "Science, It's Elementary!" program at Granville Elementary School. Laura Romano has organized this program (on behalf of the local PTO) for three years, each time recruiting students as well as scientists/engineers from the local community. This year, about 200 kids (and their parents) attended an opening act featuring cool animals like the sloth brought by The Wilds, and then rotated through six sessions in disciplines such as biology, chemistry, paleontology, physics, engineering, and environmental science. For example, students in Laura Romano's Invertebrate Zoology class did a session focused on locomotion in marine invertebrates, while students in Jenna Monroy's Comparative Physiology class did a session focused on the effects of exercise on memory. Joo Hyung Park '18 and Jed Dioguardi '18 assisted a local paleontologist with his session, and Jaime Kass '17 and Kim Huggler '17 from Tom Schultz's Entomology class brought insects to share with students in the front lobby. (About a dozen students from the Denison Chemical Society also participated in the program, offering a session related to the different states of matter). All of the students seemed to really enjoy time spent "down the hill" interacting with kids and sharing some of what they have learned through their science coursework at Denison!



Students in the Fall 2015 Population and Community Ecology class (BIOL 375) conducted one of their class research projects at the Granville School's new LandLab. We have been conducting research on the wetlands at the Land Lab that has involved both Denison students and Granville students (ranging from 2nd grade through 12th grade).



This property is in the process of being converted from corn fields into wildlife habitat that students and teachers in the Granville school district can use for teaching and learning. In BIOL 375, the



students sampled insects during one lab, and plant diversity and abundance in another lab, so that they can examine ecological relationships between the two. During each lab the Denison students worked in teams with students from the Granville High School ecology class (mostly sophomores) to collect data. Dr. Rettig and Dr. Smith, co-instructors of BIOL 375, will be sharing data from these samples with the high school class, so that those students can begin to document how the animal and plant life in the Land Lab changes over time.

### Fall '15 DUBS vs Faculty Kickball game

The students clobbered the faculty on Saturday, Oct. 3rd. A good time was had by all!



Find us on Facebook and ask to join!

269 members and growing!



# New faces, fresh perspectives



## Ellie Nguyen, Visiting Assistant Professor

I am very happy to join the vibrant biological community at Talbot Hall, where I can pursue my passion in teaching molecular biology. My research and teaching interest encompass the areas of molecular plant pathology.



Plants are constantly exposed to a variety of pathogenic microbes and pests. Thus, plants have developed diverse mechanisms to fine-tune defense responses to different types of enemies. Cross-regulation between these signaling pathways may allow the plant to prioritize one response over the other. Then, what is the connection between biotrophic microbe- and herbivorous insect-triggered resistance signaling pathways that converge on one gene? In previous work, we identified SUPPRESSOR OF *rps4*-RLD 1 (SRFR1), as a negative regulator of effector triggered immunity against the bacterial pathogen *Pseudomonas syringae* pv. tomato. Surprisingly, *srfr1-1* plants showed increased resistance to herbivory by the beet army worm *Spodoptera exigua* and to parasitism by the cyst nematode *Heterodera schachtii* compared to RLD. This finding places SRFR1 at an intersection between multiple defense pathways. More details about this story has been published recently on *Molecular Plant Pathology* journal with the title "The *Arabidopsis* immune regulator SRFR1 dampens defenses against herbivory by *Spodoptera exigua* and parasitism by *Heterodera schachtii*".

Besides biology, my second interest is college science education with post-doctoral academic training. Thus, I am also conducting research on this field in collaboration with Dr. Marcelle Siegel at the University of Missouri-Columbia (MU). Recently our team has focused on research about College Science Teaching training and follow-up case studies to understand how four former graduate students at MU (including me), who were trained in the college science education courses, have employed what they learned to their pedagogical methodologies.

I've joined the team of teaching Molecular Biology and Unicellular Life - Biol 210 for my one year visiting here. My hobby is scenic photography and crystal stones. Last but not least, I always serve chocolate candies in my office, Talbot 327, so please stop by anytime that you need some sweets.

## PJ Torres – Consortium for Faculty Diversity Fellow, Biology



I'm an ecologist and most of my research is done in tropical freshwater systems. I work in the Long Term Ecological Research project in Luquillo, Puerto Rico (LUQ-LTER) looking at the effect of large dams on ecosystem processes in small streams across the island. Large dams act as migration barriers to the native river fauna, particularly for freshwater shrimp assemblages. In many cases, shrimp are unable to reach streams located above large dams resulting in their complete extirpation from those areas. Thus far my research found that in the absence of shrimp, these affected streams show decreased rates of organic matter processing, and altered seasonal patterns in nutrient cycling across the ecosystem. Here at Denison I'm currently teaching a nonmajors Biology course titled "Use and Abuse of Freshwaters" which focuses on current freshwater issues and their biological consequences or causes, covering topics from life histories of aquatic organisms and how these are affected by local pollution, to global scale water conservation. In the spring semester I'll teach the Ecology and Evolution course. I'm also starting small research project looking at the different roles of consumers in the leaf decomposition process across a land-use gradient within the Clay run subwatershed. I will evaluate the role of invertebrates and microbes in this process and how they respond to different levels of anthropogenic disturbance. When I'm not in the field, office, or lab you can find me in any of the local sports team venues or road-tripping to visit new cities and MLB stadiums.

## Teresa Smit, Greene Biological Lab Specialist

I have heard that the first few years out of college can be quite challenging adjusting to the working world if you are not in a position where you are respected and trusted. I am thrilled to say that that isn't the case for me. I was incredibly surprised and honored when I was offered the newly created Greene Biological Laboratory Specialist position in the department. Knowing I wanted to work for a year after I graduated from Denison with a B.S. in Biology, I knew that there wouldn't be a better place for me. The department has been supportive, encouraging, and maintained the same high expectations, if not higher, placed upon me as a student, allowing me to grow as a young adult and an employee.



Coming into this role, I didn't know just how much time and effort went into making sure lab periods ran smoothly, ranging from the actual setup and prep to its pedagogy. Now, having contributed to nearly every aspect of lab development, I understand how critical my role is in the department. This realization was a bit daunting at first, but I have found my hard work to be incredibly rewarding. Although I've only officially been a part of the department for a few months, I already know that this job experience is the gold standard. I'll be sad to leave in May, but law school awaits. Go Biology!

After graduating from Denison in 2008, I started medical school at Jefferson Medical College in Philadelphia. I graduated in 2012 and began my residency training in Family and Community Medicine, also at Thomas Jefferson University, in the Urban Underserved Care Track. I am graduating (yet again!) from residency in June 2015, and traveling west to Tucson, Arizona to work for the Indian Health Service. I will be providing medical care for adults and children, as well as prenatal care, in a critical access hospital on the Tohono O'Odham reservation.

So nice to hear everyone's updates!  
Hope everyone in Granville is doing well. :)  
~**Bridget Peterson, MD, '08**

# Alumni News



**Grant Adams '11**, former Peace Corps volunteer, with the lizard he discovered.  
(Grant Adams)



<https://www.washingtonpost.com/news/speaking-of-science/wp/2015/10/23/this-peace-corps-volunteer-helped-discover-a-lizard-unknown-to-science/>

**Doug Kramer '67**: Thank you very much for honoring Dr. Haubrich with a re-commissioned study space, Bob Haubrich was really the heart and soul of Denison Biology. I was honored to speak at his memorial service on campus. I remember driving south from a canoe trip on the Spanish River in Canada to be there. I am glad the Denison department is "biology" rather than separate departments of zoology and botany.

My own relevant news is that I completed an about-to-be-published article, surely the last major article of my career, the core of the article began with my studies of ethology with Dr. Haubrich. The title may not reflect this, but the main theme of my career and of this article has been the relevance of ethology to psychiatry. *The History of Family Psychiatry. Child and Adolescent Psychiatric Clinics of North America*. One of my early articles relevant to ethology - actually I think the first - in the context of psychiatry was written around 1977, but wasn't initially accepted by the (prestigious) journal to which I sent it. I just sat on it, as I was busy with my clinical career, and then had the opportunity to publish it in the Denison Journal of Biological Science that honored Dr. Haubrich's career.

**Lena Christiansen '09**:

"Things are going very well here! I'm still in the Advanced Research Department at Illumina in San Diego. I feel very lucky to be where I am, I have the opportunity to publish, collaborate with universities, travel, present my work at conferences, and jump into novel ways of thinking and creating. My brain never gets bored here :) I recently wrote a chapter for Springer's *Methods in Molecular Biology* on an assay I've been working on for the past year, look out for Christiansen et. al. in their Haplotyping issue this Spring! I'm excited to see so much interest in CPT-seq and excited to jump into single-cell work come the new year."

I am now a senior research technician at Memorial Sloan Kettering Cancer Center in New York City. I'm working in the lab of Dr. Kayvan Keshari studying cancer metabolism and hyperpolarized MRI technology for tumor imaging. I'm also starting my master's degree in bioethics at New York University this fall.

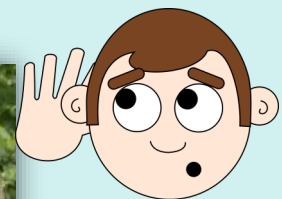
I'm hoping I'll be able to come for a visit sometime in Granville - it's been too long!

**Kelly Folkers '12**

Glad to see all is still well in DU's biology department! I'll be defending my thesis and graduating with my M.S. in Environmental Toxicology from Texas Tech University in June. My research here involves pesticide interactions and mosquito ecotoxicology. I also just received one of my department's top two masters student awards.

This Fall I'll be beginning my Ph.D. in Entomology at Clemson university, studying agricultural insect pests.

Shout out to Dr. Schultz for all his help along the way! ~**Thomas Bilbo '12**



**Laurel Symes '07**, makes NPR again, in good company with Rex Cocroft, U of Missouri.

<https://news.denison.edu/2015/09/listening-closely/>





# Bio Buzz

DEPARTMENT OF BIOLOGY  
DENISON UNIVERSITY

Do you have an update  
for the Spring BioBuzz?  
[biology@denison.edu](mailto:biology@denison.edu)

Past issues of the Bio Buzz may be  
found in the Digital Repository:

[http://ohio5.openrepository.com/](http://ohio5.openrepository.com/ohio5/handle/11282/576945/browse?type=dateissued)

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## DIGITAL COLLECTIONS

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](mailto:biology@denison.edu).



### 1983 Archives



Dr. Ken Loats, Dr. Robert Haubrich, Dr. Gail Norris, Ms. Julie Mulroy, Dr. Robert Alrutz, Dr. Raleigh Pettegrew, Dr. Kenneth Klatt, Dr. Bonnie Lamvermeyer

“Dr. Norris introduced me to scientific methods that have remained with me for a lifetime,” said Dr. Millett. He has put those methods to good use. Dr. Millett went on to earn his medical degree at Yale University School of Medicine. In addition he graduated from the USAF School of Aerospace Medicine in 1971 and received his M.P.H from Florida International University in 1987. He also served active duty in the U.S. Air Force from 1970-78 and was the Assistant Air Attache and Post Medical Officer at the American Embassy in Moscow in the mid-seventies. Later in his career Dr. Millett was the Director of Flight Medicine at Eastern Airlines where he directed medical programs for 4,500 pilots and 7,500 flight attendants. Currently Dr. Millett is the Executive Vice-President of the Civil Aviation Medical Association and serves as the president of the Airlines Medical Directors Association.

It is Dr. Millett’s hope that other Denison Biology students who were impacted by Dr. Norris would consider honoring him with a contribution to the fund. Did Dr. Norris have an impact on your Denison experience? If so, Dr. Millett and the college invite you to make a contribution to the fund. You may mail a check made out to Denison University, with Dr. Gail Norris Endowed Scholarship Fund marked in the memo portion of your check.

Dr. David Millett, '63, was so impacted by his advisor in the Biology department, Dr. Gail R. Norris, that he decided to create an enduring honor. In 2014 Dr. Millett established the Dr. Gail Norris Memorial Endowed Scholarship Fund, a fund that will exist at Denison in perpetuity. The Fund’s expendable income will be used to provide scholarship for students with financial need, with first preference going students studying biology.

*Dr. Norris was a professor of biology at Denison University briefly before serving for eight years as the head of the biology department at Mount Union College in Alliance, OH. He was invited back to Denison where he taught biology and pre-med courses from 1959 until his retirement in 1984. During his tenure at Denison, he spent most summers at various universities throughout the country and at the nuclear reactor in Oak Ridge, Tenn., as a researcher investigating biological occupational hazards, particularly lung diseases.*

*Dr. Norris passed away on July 10, 2010 at the age of 91.*

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