

FROM THE DEPARTMENT CHAIR



As we enter the new year, there is cause for reflection on all that 2018 brought the Department of Biology. In particular, we grew in terms of faculty, infrastructure, and support.

The Biology faculty grew by two tenure-track appointments in 2018. Our teacher-scholar fellow, Dr. Melkamu Woldemariam, joined the full-time faculty, as did Dr. Zaara Sarwar. Dr. Woldemariam has interests in plant chemical defenses and biochemistry, and Dr. Sarwar is our new microbiologist. These new colleagues offer unique classroom and lab opportunities for our students and are quickly becoming part of the fabric of the Department.

In terms of infrastructure, the ongoing renovations to the Biology Building are nearing their end. We are now joined physically to both the Science Complex and the STEM Building, and Biology finds itself at the center of 21st century science, both literally and figuratively.

Finally, we are receiving great support. A team of TCNJ scholars, including our own Dr. Janet Morrison, submitted a grant proposal to the Howard Hughes Medical Institute that was funded at more than \$1 million. This funding will allow existing faculty members to explore new pedagogical approaches via a summer workshop and teaching release to revise the courses in the core curriculum with emphases on inclusion and best practices.

TCNJ Biology is on the rise, and 2019 promises to be another banner year. I am humbled to represent such a successful and committed group of staff, faculty, and students.

~ Keith Pecor, PhD, Department Chair

Resplendent Renovations!

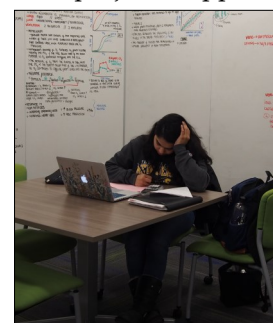


Despite the new STEM Building needing to provide much-needed space for departments other than Biology, our department still benefited nicely from the recent construction project. A number of spaces within the Biology Building have been re-imagined and re-constructed, providing newly upgraded spaces for study, research, offices and meetings. They have been very favorably embraced and inhabited as they have come to completion – ahead of schedule! Here's a photographic stroll past the new places:

- 1 - **Kress/Elliott Research Lab** (above) – formerly the Botany teaching lab
- 2 - **"Amanda World"** (right and bottom right) – formerly the microscopy suite
- 3 - **108 Group Study/Conference Room** – formerly Dr. Shevlin's lab (below)



Our thanks to all involved in making these projects happen!



NEWS BRIEFS

A Jolly Good Fellow

Biology professor and Dean of the School of Science Jeffrey Osborn, PhD, was recently honored with election as a prestigious Fellow of the American Association for the Advancement of Science. The award recognized his distinguished contributions to undergraduate science education and research experiences, faculty development, and teacher-scholar and student-scholar success.

A New Addition to Our Family

The Biology Department families keep growing! Just after the last issue of *Evolutions* was released, Mabel Vivienne joined our extended family, the daughter of Associate Professor Wendy Clement and her husband Michael Nordquist. Congratulations to all, including big sister Sylvie.

A New Grant Award

The American SIDS Institute has awarded Dr. Jeffery Erickson with a research grant to study the effects of developmental nicotine exposure on cardiorespiratory control in serotine-deficient neonatal mice.

Check Out the Digital Signage

In keeping with the College's intent to provide digital messaging displays across campus, some displays (monitors) have been installed in the Biology Building, and more are scheduled to be installed. They provide information about upcoming campus and departmental events and activities, and general information about campus resources and services. Requests for postings are handled by the Biology Office.

Evolutions is published twice yearly by the Department of Biology at The College of New Jersey.

Helen Kull, Editor biology@tcnj.edu

BA DEGREE IN BIOLOGY TO BE OFFERED

Traditionally, biology majors have been obligated to bulk up on science courses to prepare them to pursue a path to graduate school, medical school, or another professional program.

But with a new *Bachelor of Arts in Biology program*, which was recently approved by the Board of Trustees and the State, and will launch in spring 2019, TCNJ has opened up new career paths for its biology students.

"The bachelor of science is a very traditional degree program that includes a robust set of core science courses - not only in biology but also in chemistry, physics, and math," said Keith Pecor, professor and chair of the Biology Department. "As such it is a very prescriptive program with limited options for students who may wish to pursue other interests or other areas within the field."

The flexibility of the BA will allow students to personalize their program of study and provide greater opportunities to pursue a second major, or a minor, either within the School of Science or in other academic areas across TCNJ.

The BA will offer students the opportunity to gain technical knowledge, communication skills, and

exposure to the ethical standards of science, while also gaining experience in areas such as education, business, or the humanities.

"This program gives students additional flexibility to pursue other courses to complement their interest in biology," Pecor said.

The philosophy behind adding the BA in biology program was reinforced by a TCNJ alumni panel held last year. At that event, graduates from the Biology Department spoke about their current careers in biotech fields or on the business side as opposed to working in labs.

This BA option will also provide opportunities for additional mentoring to ensure that students chose the path that's right for them. "As a department, we agreed that this would require some additional investment by faculty in advising students based on their interests and career goals," Pecor said. "We are happy to put in that time to give our students the opportunity to tailor the program best fit to their short- and long-term goals."

—Luke Sacks originally wrote this article for the School of Science webpage.

WELCOME NEW BIOLOGY FACULTY



The Biology Department is very pleased to welcome microbiologist and biochemist **Zaara Sarwar, PhD**, as an Assistant Professor in the department with teaching responsibilities for Microbiology, Principles of Microbiology, and other relevant courses. Dr. Sarwar attended Queen's University in Canada, where she earned her Bachelor of Science in Chemistry and Mathematics; and Syracuse University in New York, where she earned her PhD in Structural Biology, Biochemistry and Biophysics.

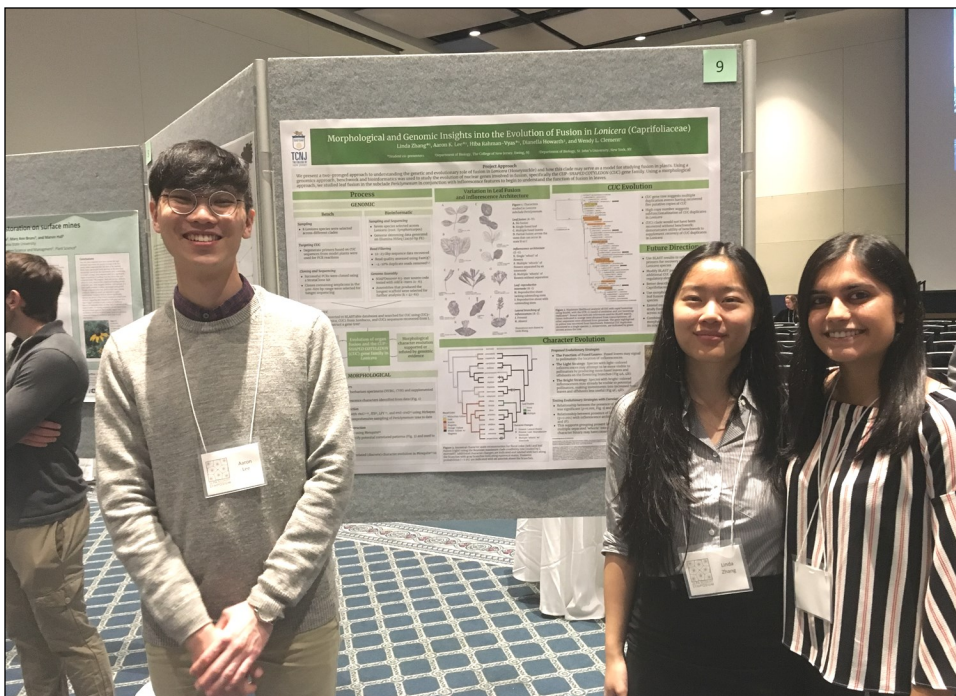
Her PhD research investigated the regulation of biofilm formation in the bacterium *Myxococcus xanthus*. Her post-doctoral research at SUNY College of Environmental Science, and her current research, seeks to investigate the role of signal transduction and gene regulation in pathogens in order to understand the molecular basis of virulence, and to identify potential therapeutic targets. Dr. Sarwar is very excited about mentoring students in research. She states, "I've designed my research program at TCNJ to provide (*continued pg. 3*)

SCHOLARSHIP

Research Presentations

Dr. Clement and six of her research students attended the Pennsylvania Botany Conference held in State College in November. They presented two posters of their research, and one garnered a first-place tie for Best Undergraduate Poster. The students attending the conference were Evelyn Kulesza, Dianella Howarth, Aaron Lee, Hiba Rahman-Vyas, Nicole Tineo, and Linda Zhang. (see photo, right)

Madison, Wisconsin was the location of the 13th International Zebrafish Society Conference held this past summer. Dr. Marcia O'Connell and two of her research students—Jaclyn Kaletski and Elena Ventura—attended the conference, presented posters of their research, and attended a variety of other research talks, presentations and events.



Dr. Clement's students Aaron Lee, Linda Zhang, and Hiba Rahman-Vyas stand by their research poster, "Morphological and genomic insights into the evolution of fusion in *Lonicera*," which tied for first place for best undergraduate poster at the Pennsylvania Botany Conference in November.

Newly Published

Nardone JA, Patel S, Siegel KR, Tedesco D, McNicholl CG, O'Malley J, Herrick J, Metzler RA, Orihuela B, Rittschof D, and Dickinson GH. 2018. Assessing the impacts of ocean acidification on adhesion and shell formation in the barnacle *Amphibalanus amphitrite*. *Frontiers in Marine Science*. 5:369.

Clement WL, Prudic KL, and Oliver JC. 2018. Exploring how climate will impact plant-insect distributions and interactions using open data and informatics. *Teaching Issues and Experiments in Ecology*. 14.

Veerapandian, A., Aravindhan, A., Takahashi, J.H., Segal, D., Pecor, K., and Ming, X. 2018. Use of head computed tomography in the pediatric emergency room in evaluation of children with new onset afebrile seizure. *Journal of Child Neurology* 33:708-712.

Welcome New Biology Faculty (continued from pg 2)

students with a comprehensive and multidisciplinary experience in cutting edge research in microbiology, molecular biology, genetics and biochemistry." We are so pleased to have her join our department family.

The Biology Department is also delighted to have **Melkamu Woldemariam, PhD** officially join the department this past semester as an Assistant Professor of Biology, having been with us last year in the position of a Teacher Scholar Fellow. Dr. Woldemariam is a plant biologist who specializes in molecular and chemical ecology. He received his BS and MS degrees at Addis Ababa University in Ethiopia, and earned his PhD at the Max Planck Institute for Chemical Ecology in Germany. He did post-doctoral research at the Boyce Thompson Institute in Ithaca NY, focusing on his interest in understanding the regulatory genes that manage plant defense responses to herbivorous insects.



Accepted for Publication

Lundgren B, Sarwar Z, Feldman K, Shoytush J, and Nomura C. 2018. SfnR2 Regulates Dimethylsulfide-Related Utilization in *Pseudomonas aeruginosa* PAO1. *Journal of Bacteriology*. November 2018 JB.00606-18.

Poster Presentations

Dr. Jeffrey Erickson presented a poster in June at the 2018 International Conference on Stillbirth, SIDS and Baby Survival in Glasgow, UK, entitled "Functional Recovery from Neonatal Breathing Abnormalities in 5HT-Deficient *Pet-1* Knockout Mice Following Developmental Exposure to Nicotine."

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THE COLLEGE OF NEW JERSEY

TCNJ



UPCOMING EVENTS

Tri-Beta Induction Ceremony **Friday, April 12, 7 pm, ED 212**

Some of our best and brightest biology majors will be inducted into the local chapter of *Beta Beta Beta*, the national biology honor society, at this annual event. The leynote speaker for the 2019 event is Professor Mecky Pohlschroder, PhD, a microbiologist at the University of Pennsylvania, who will discuss some of her research. Alumni are particularly invited to join us.

Save the Date: Alumni Weekend **Campus wide, Fri & Sat, May 3 & 4**

Come join the PRIDE as Lions gather from far and wide! A variety of events and activities will be happening, as well as your chance to catch up and hang out with friends!

Senior Awards Dinner **Friday, May 10, Location TBD**

Awards for Excellence in Biology will be presented to a handful of Seniors at this annual banquet.

COMMENCEMENT!

Thursday & Friday, May 23 & 24

Celebrate with family, friends and alumni as members of the Class of 2019 receive their diplomas and set off for fame and fortune. The time and location for the Biology Department Ceremony has not yet been announced, but will certainly be posted on the TCNJ website in the near future. The Main College-Wide Ceremony will be held in Lions Stadium at a time yet to be announced over the course of the two-day event.