LOYOLA UNIVERSITY CHICAGO

Preparing people to lead extraordinary lives

Department of Biology Updates

Issue No: 8
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Inside this issue:

A Message from the Chair

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Dear Alumni and Friends of the Biology Department,

Welcome to our latest issue of the Biology Department newsletter. We have two issues per year, Spring and Fall, in which we hope to keep you up to date on departmental activities and achievements. In turn, I encourage you to please drop us an e-mail and let us know about any news and developments in your life and career (BiologyDept@luc.edu).

This semester has been challenging as all but a few courses were offered online. The faculty did a great job adjusting to the new normal during the pandemic. It has certainly been strange to see the empty buildings and campus during a very busy time when there were hundreds of students in the Quinlan Life Sciences Building at any given time. Most of us were teaching from home this fall. For faculty not familiar with online teaching protocols, this required a crash course over the summer. We will continue offering all our courses online this spring semester to prevent a hot spot in Rogers Park. We all hope that by Summer session and Fall semester we can go back to in person meetings and teaching. We miss the interaction with students which is limited by the online instruction model.

By mid-July our research labs opened at reduced capacity, and undergraduates were invited back to campus to work in them. Even so, this is being done with stringent protocols for decontamination, masking, and social distancing so that only a couple of people are in a lab at any one time. It has been difficult getting the work done under these conditions, although many of us have tried to catch-up with writing and analysis that can be done from home.

There have been several changes to the faculty. this summer and fall. First two of our most popular faculty retired in July, Dr. Howard Laten and Dr. Warren Jones. They are already being missed by the rest of us. Dr. Bill Kroll, a Loyola faculty member for a remarkable 45 years has also decided to retire this December. Three new Lecturers joined the full-time faculty this fall, Drs. Helena Palka-Hamblin, Molly Staley, and Shauna Price. We also hired three Instructors for this year, Dr. Thomas Hu, Dr. Dallas Krentzel and Stephanie Tolbert to teach Anatomy & Physiology, Freshman General Biology, and Genetics.

Our faculty continue to develop their teaching and research programs through this

challenging time. Our new upper administration, Provost, Associate Provost for Research, Dean of the College of Arts & Sciences along with a new Dean of the graduate school, have been working continually to deal with the crisis. With no notice they have done a great job organizing us for the new model of instruction while keeping students, staff, and faculty safe.

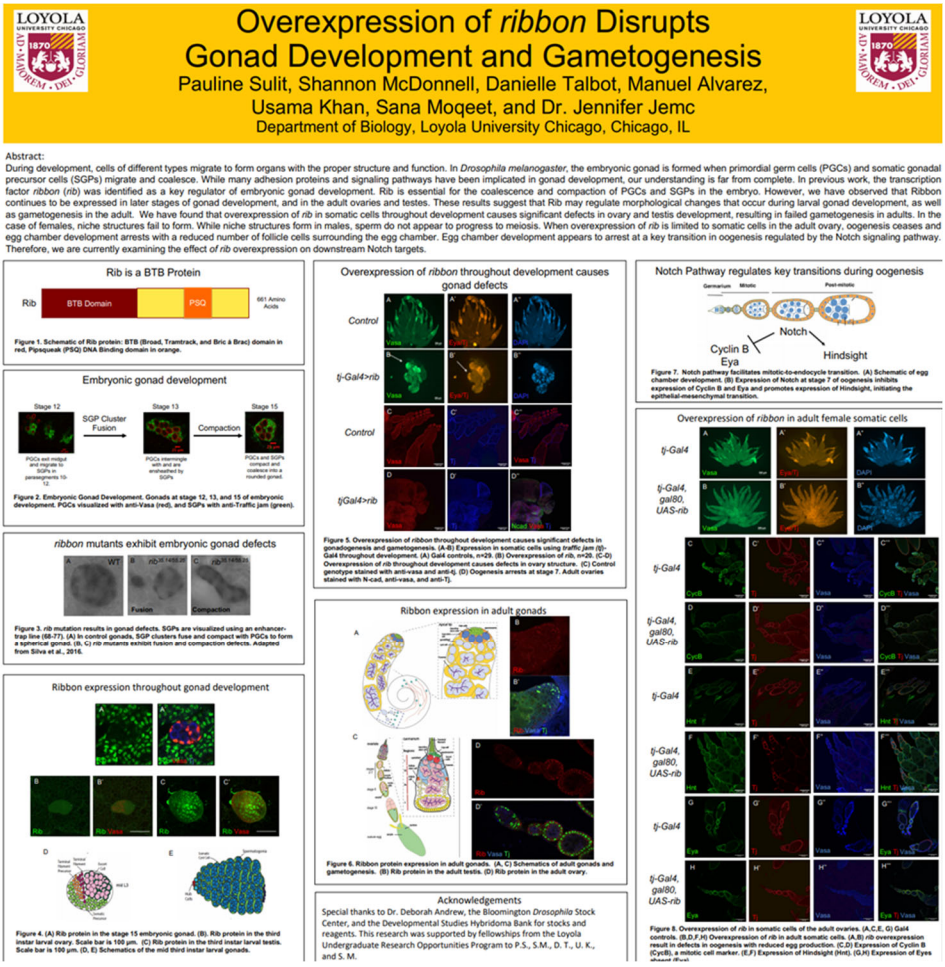
Biology's faculty and staff wish you all a Happy Holiday and a safe, productive new year.

Best wishes,

Jim Cheverud

Students Persevere in Achieving Research Goals Despite COVID-19 Restrictions

Despite challenges posed by the COVID-19 pandemic, Loyola's students are resilient and continue to engage in hands-on research experiences in a variety of forms. While some students have shifted their focus to projects that can be completed remotely, focusing on large-scale data analysis and genome annotation, others have taken on projects that can be completed independently to adhere to recommended safety guidelines. Regardless of the form that research has taken, undergraduate and graduate students continue to advance our knowledge across the broad range of research areas in the Biology department, sharing their work at virtual conferences in their respective fields. Undergraduate students Claire Chaikin and Pauline Sulit of the Mierisch lab presented their work exploring the genetic regulation of gametogenesis at the *Annual Meeting of the Society for Developmental Biology* in July. In addition, undergraduates Victoria Hodkiewicz and Trisha Patel and Master's candidate Adrianna Soriano presented their work at the virtual *Midwest Drosophila Conference* in October. Students discussed their research on the molecular evolution of the insulin signaling pathway across *Drosophila* species and the role of Notch signaling in spermatogenesis with scientists from around the Midwest.



Support from the Biology Department and the Loyola Undergraduate Research Opportunities Program made this research possible.

New Epigenetics Course Offered by the Biology Department

A new permanent elective was added to the departmental course offerings in spring 2020. The course is titled "Epigenetics" BIOL381 and it is a cross-disciplinary offering in the departments of Biology (counting towards a B.S. and minors in BIOL, BIOM and BIOE) and Neuroscience (counting towards a B.S. in the molecular/cellular track).

The Epigenetics course was created and is taught by Dr. Holly Dimitropoulos, Advanced Lecturer, who has taught this course several times as a Special Topics course within the Department. Her post-doctoral research at NIH concerning the genetics and epigenetics of human aging was what initially sparked her interest in the field.

This comes at a time when epigenetics is at the forefront of genetics research and when an understanding of the way that genes are regulated and controlled by their environment is essential for all biologists and future physicians. Many biologists believe that epigenetics is the next frontier in research and modern medicine. Kang et. al (2019) published a paper called "Epigenetics for the 21st Century Biology Student" in the *Journal of Microbiology and Biology Education* showing their analysis indicating that the publication volume of epigenetics research will reach 20.7% of all genetics papers in 10 years (year 2029). Based on their analysis, they suggest that epigenetics be added to the biology undergraduate curriculum.

This course will introduce students to the most well-studied and characterized epigenetic and epigenomic mechanisms that have been identified. Such mechanisms include cellular and nuclear events in development, aging, chromatin regulation, DNA methylation, histone modifications and non-coding RNAs. Students will gain an appreciation of how different cell types can maintain drastically different gene expression patterns yet share the exact same DNA sequences.

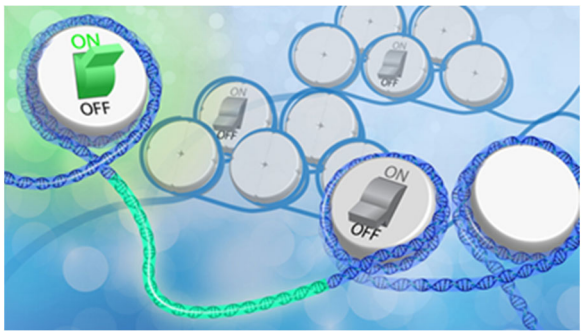


Photo credit: https://www.the-scientist.com/lab-tools/high-throughput-epigenetics-analyses-30163

Senior Biology Major, Roberto Flores, Awarded American Society of Plant Biologists Fellowship

Roberto Flores, a senior majoring in Biology, has received a prestigious *Summer Undergraduate Research Fellowship* (SURF) from the *American Society of Plant Biologists (ASPB)*. Roberto is mentored by Dr. Mike Grillo and his research is focused on identifying the genetic basis of specificity in plant-microbe interactions in the model legume, *Medicago truncatula*, and their symbiotic nitrogen-fixing bacteria. The SURF award is a national competition and provides a generous stipend, research expenses, and travel support for Roberto to present at the ASPB conference next summer. Roberto will be wrapping up his research project this spring semester and is currently applying to graduate schools to continue his education. He hopes to earn a PhD and pursue a career in research.

Cavanaugh and Sanger Receive National Science Foundation CAREER Awards

In January 2020, Dr. Thom Sanger and Dr. Dan Cavanaugh were awarded National Science Foundation (NSF) CAREER awards. The NSF CAREER–Faculty Early Career Development Program–is one of the most prestigious awards given to early career investigators. From the solicitation, it is awarded to "those that have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization." This award requires the investigator to synthesize their scientific research objectives with wide-reaching and impactful educational goals, paralleling the fundamental ethos of Loyola. To have two Biology faculty members receive this award in a single year is quite an achievement.

Dr. Thom Sanger was given the award to investigate the development of the vertebrate skull. For a moment, think about the shape of your head versus that of a horse, a dolphin, or an anteater. These are all mammals, vertebrates that all have fur, yet possess remarkably different head shapes that represent the unique lifestyles of those animals. The diversity in skull form gets remarkably larger when we incorporate the elongate face of an alligator, the beak of a bird, or the snout of a lizard into our thinking. In his newly funded project, Sanger will be investigating how this diversity is established in the embryo. In spite of decades of interest in skull development–often in the context of understanding craniofacial malformations in humans– the development of a lizard skull has never been formally described. Sanger has already shown that the rules that govern the development of mammalian and avian skull do not readily apply to lizards. His new research will shed further light on the previously undescribed processes that create the head of a lizard and allow him to reconstruct how modifications to the embryo over evolutionary time led to the diversity we now observe in skull form.

As part of this award Sanger will also advance high school and undergraduate biology education by developing new classroom exercises that capitalize on the inherent fascination of students with animal life. Sanger will team with a group of professional educators from the Chicago area to develop *Getting Ahead in Life: Investigations into the Vertebrate Skull*, transdisciplinary learning modules that allow students to collect, analyze, and interpret data that parallels that very investigations occurring in his lab. Embedded within these learning modules will be interviews with other leaders in the field of craniofacial biology, especially people from groups traditionally underrepresented in science. The learning modules will put a face on the scientific questions they are learning about in the classroom, faces that represent the diversity of students across Chicago and the entire United States. Efforts such as these have been shown to be integral for encouraging young students to pursue careers in science and engineering.

Dr. Thom Sanger

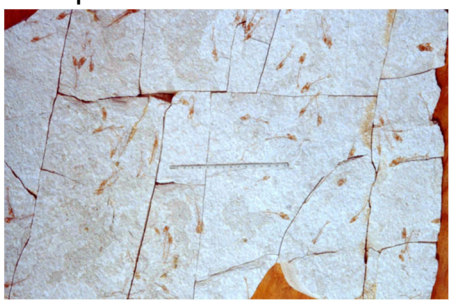
Dr. Dan Cavanaugh's lab studies the neurobiology of ~24-hour (circadian) rhythms using the fruit fly, *Drosophila melanogaster*, as a model organism. Circadian rhythms can be observed in many behavioral and physiological processes, and these rhythms depend on the function of a molecular clock that tracks time of day. The molecular clock is present in so-called clock cells in the brain and in peripheral tissues. Together, these make up an extended clock network that synchronizes behavioral and physiological processes with the external environment and organizes them with respect to one another. For example, the circadian system generates rhythms in feeding behaviors such that feeding occurs at optimal times of day, and concurrently upregulates metabolic pathways in anticipation of increased food intake. The CAREER award will support studies in which we will be investigating the interaction between different groups of clock cells. Specifically, we hope to identify neuronal pathways through which clock cells establish circadian rhythms of feeding behavior and to determine how feeding rhythms are coordinated with peripheral metabolic rhythms. These experiments will be conducted in collaboration with undergraduate researchers in the lab who will also serve as mentors for a summer high school internship program that will expand participation to groups traditionally underrepresented in the sciences.

Dr. Dan Cavanaugh

Stuart Lab Details Genetic Basis of Evolution in Stickleback in New Collaborative Publication

A fossil stickleback. The scale bar is in cm.
Photo credit: Dr. Mike Bell

The Stuart lab published a paper this year that was a rare inference of the genetic basis of change in the fossil record. This was the first fruit of a fun new collaboration with Dr. Mike Bell studying a unique data set comprised of fossil stickleback fish sampled from a single lake deposit continuously for 18,000 years, at nearly decade-level resolution. If you know anything about the fossil record, famously full of gaps, you know that this kind of sample is almost unheard of. The deposit formed in a Miocene lake ten million years ago as microscopic diatoms died and settled to the bottom, burying any fish that died concurrently. Thus, we can observe evolution directly merely by following trait change through rock layers. In the paper, we saw that the stickleback population evolved loss of pelvic armor girdles and spines over 10,000 years. The pattern of that loss, dominated by asymmetry of the shrinking parts, suggests that mutations to a single gene, *Pitx1*, likely drove loss. This inference is possible because *Pitx1* has been linked to similar asymmetry in modern stickleback.



A mass mortality event. Tens of stickleback died and were buried at the same time.
Photo credit: Dr. Mike Bell

Milanovich Lab Receives Grants to Study Biodiversity and Threatened Copperbelly Water Snake

The biology research lab, led by Joe Milonovich, has recently received two grants to fund research. The first will allow study of the implementation of pollinator gardens, bat boxes and wood additions to golf courses to help increase biodiversity. The second grant is for a survey of the federally threatened Copperbelly Water Snake in Indiana funded by the Indiana Department of Natural Resources and United States Fish and Wildlife Service. Details of the granting organizations as well as funding are detailed below.

Graduate student, Ryan Johnson, working on the golf course (USGA grant) project

United States Golf Association (USGA) grant: $60,000. 2020-2022. Golf courses in the United States can be excellent habitats for maintaining and enhancing regional biodiversity and this benefit is best expressed in areas dominated by anthropogenic land-use. Much of the biodiversity on courses is found within non-turfgrass areas, which in many cases can be improved to provide more complex habitat for biodiversity. Therefore, examining best management practices (BMPs) that can both facilitate biodiversity and engage patrons of the golf course community could benefit regional biodiversity and promotion of golf course environmental stewardship. The objectives of this research are to: (1) conduct an analysis of the effectiveness of newly constructed pollinator gardens within golf courses to increase abundance and diversity of diurnal and nocturnal invertebrate pollinators, (2) examine the usefulness of placing bat boxes within golf courses to facilitate the abundance and diversity of bats, and (3) quantify whether additions of coarse woody debris in golf course ponds can measurably increase abundance and biodiversity of macroinvertebrates. These data will provide a complete analysis of how three different ecologically-focused BMPs can influence biotic communities in golf course ecosystems and will provide much needed data on how the implementation of BMPs can make golf course ecosystems more environmentally valuable.

Indiana Department of Natural Resources (IN DNR)/United States Fish and Wildlife Service (USFW): $78.722. 2020-2022. Copperbelly water snakes (*Nerodia erythrogaster neglecta*; CWS), a subspecies of the plainbelly water snake, are listed as Threatened by the U.S. Fish and Wildlife Service in populations above the 40°N latitude where they have been in decline for decades. Several recent surveys show this species now only occurs in isolated pockets of habitat in the tri-state area of Michigan, Ohio, and Indiana. Therefore, a current assessment of the population status of CWS in its northern Indiana range is critical in order to provide conservation recommendations for this species in Indiana. Our objectives are to (1) use recent advancements of population monitoring techniques and frameworks for aquatic snakes to quantify the presence/absence, and potentially population demographics, occupancy, detection probabilities, and effort required to determine presence/absence of the species, and (2) use the proposed survey framework and techniques to gain information on Blanding's turtle, spotted turtle, and eastern massasauga populations across the region.

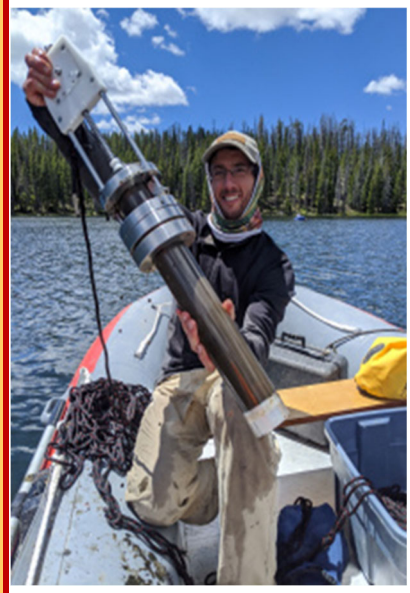
Bat boxes installed on golf courses.

Hoellein Lab Continues Research and Promotes Public Awareness of Anthropogenic Litter Impact

Dr. Tim Hoellein's research in recent years has included studies to measure the sources, fate, and biological interactions of anthropogenic litter (i.e., trash; plastic, metal, other litter types) in freshwater ecosystems. This work has been supported by the National Science Foundation, Illinois and Indiana Sea Grant, and the National Oceanic and Atmospheric Administration (NOAA). This year the pandemic cut off much of our field work, but we do have some important achievements to note. Undergraduate student Raul Lazcano published a paper on litter dynamics on Chicago Beaches, and started as a MS student in Hoellein's lab. Graduate student Lauren Wisbrock published two papers on how litter can be used for science lessons in K-12 classrooms. Finally, Dr. Hoellein was invited to submit an essay to *Science*, was interviewed for a story about pollution in the Great Lakes for *National Geographic*, and continues his leadership role with the Chicago River Litter Task Force, a multi-agency effort to measure and reduce litter in our river.

The papers described above can be found at the following links:
Trash Dance: Anthropogenic Litter and Organic Matter Co-Accumulate on Urban Beaches
Link to: https://www.mdpi.com/2076-3263/10/9/335
Let's Be Litter Free: Investigating Athropogenic Litter in Local Ecosystems
Link to: https://search.proquest.com/openview/15ddd93efeb791f6ac545c4c0542a876/1?pq-origsite=gscholar&cbl=36017
Talking Trash: A Human Problem with Human Solutions
https://www.nsta.org/science-and-children/science-and-children-aprilmay-2020/talking-trash
The global odyssey of plastic pollution
https://science.sciencemag.org/content/368/6496/1184.summary

Evolutionary ecology in the wild west!



A sediment core from Teapot Lake, Utah, taken in June 2020. We are still dating these cores but the bottom is likely to date back to the 1800s.

The eminent biologist Theodosius Dobzhansky famously stated *"Nothing in biology makes sense except in the light of evolution"*. This sentiment surely holds true for the Biology department. Evolutionary biology as emerged as a strength among our faculty, especially for several Assistant Professors that have recently joined the department. Two recent hires, Dr. Mike Grillo and Dr. Yoel Stuart, have been conducting field work in the western United States.

Dr. Grillo's lab is studying the mechanisms of adaptation and evolution in the plant genus *Astragalus*, commonly known as milkvetches. *Astragalus* is the single most diverse plant genus with over 3,000 species; however, it has been relatively poorly studied by biologists. *Astragalus* is particularly diverse in the western USA, for example there are over 100 species in Utah, but only 4 species in Illinois. This group of plants is renowned as hosts for specialized interactions with other species including mutualistic fungi and nitrogen-fixing bacteria, and insects that feed on their seeds. The goal of Dr. Grillo's research is to determine the extent to which co-evolution with other organisms contributes to the incredible diversification in *Astragalus*. In the summer of 2019 Matt Scott, a Master's student in the Grillo lab, spent 2 months collecting specimens in California, Arizona, Nevada, Utah, and Idaho. Matt is now collecting data from these specimens and conducting manipulative experiments in the greenhouse to test hypotheses regarding the role of biotic interactors on the evolution of this hyper-diverse plant lineage.

The Stuart lab was awarded an NSF grant this year to study the effects of radiation on population evolution. From 1951-1962, the U.S. Department of Energy detonated 100 nuclear weapons above ground at the Nevada Test Site. The resulting fallout spread radioactivity across much of Arizona, Nevada, and Utah. We know that radiation exposure raises mutation rates and negatively affects most organisms. It is unclear, however, what are the long term evolutionary impacts of radiation exposure. This is difficult to answer because science is often missing pre-radiation data and not much time has elapsed since testing. So, this project is using an approach called resurrection ecology. We took sediment cores from Utah lakes in June 2020 to isolate the dormant eggs of *Daphnia*—small crustaceans. Dormant eggs are laid annually, but they don't always hatch the next year, having been buried by sediment. We are going to "resurrect" eggs from before, during, and after nuclear testing to measure rates of hatching, survival, and reproduction. If radiation exposure does indeed negatively impact these populations, then we expect that populations from sediments deposited during and shortly after nuclear testing will have relatively low rates of survival and reproduction. Work is ongoing.

Biology graduate student Matt Scott collecting *Astragalus* plants in Utah during the summer of 2019.

Wheeler Lab Presents at Virtual American Society of Human Genetics Meeting

Ryan Schubert, a Bioinformatics BS graduate and Applied Statistics MS student from the Wheeler Lab, gave a platform presentation at the American Society of Human Genetics (ASHG) annual meeting in October 2020. His talk was titled *Multi-ethnic fine mapping optimizes proteome association studies.* Ashley Mulford and Elyse Geoffroy, both BS/MS students in the Bioinformatics program, each presented a poster at the meeting. Ashley's work was titled *STARD5 expression is associated with etoposide cytotoxicity in diverse populations* and Elyse's work was titled *Population matched transcriptome prediction increases discovery and replication rate in TWAS*. Elyse's poster was also selected as a "Reviewers' Choice" abstract. ASHG is attended by over 8,000 scientists from around the world and less than 8% of abstracts are selected for platform presentations and the top 10% of posters are selected as "Reviewers' Choice". The research presented is supported by Dr. Wheeler's NIH Academic Research Enhancement Award, which was successfully renewed for a second round of funding in May 2020. This grant is titled *Predicting Gene Regulation Across Populations to Understand Mechanisms Underlying Complex Traits* and provides Loyola students critical research experience, while engaging them in the social justice mission of the work, which aims to reduce the contribution of the genetics field to health disparities.

Population matched transcriptome prediction increases discovery and replication rate in TWAS

E. Geoffroy[1], H. E. Wheeler[2], I. Gregga[1];
[1]Department of Bioinformatics, Loyola University Chicago, Chicago, IL, USA, [2]Department of Biology, Loyola University Chicago, Chicago, IL, USA.
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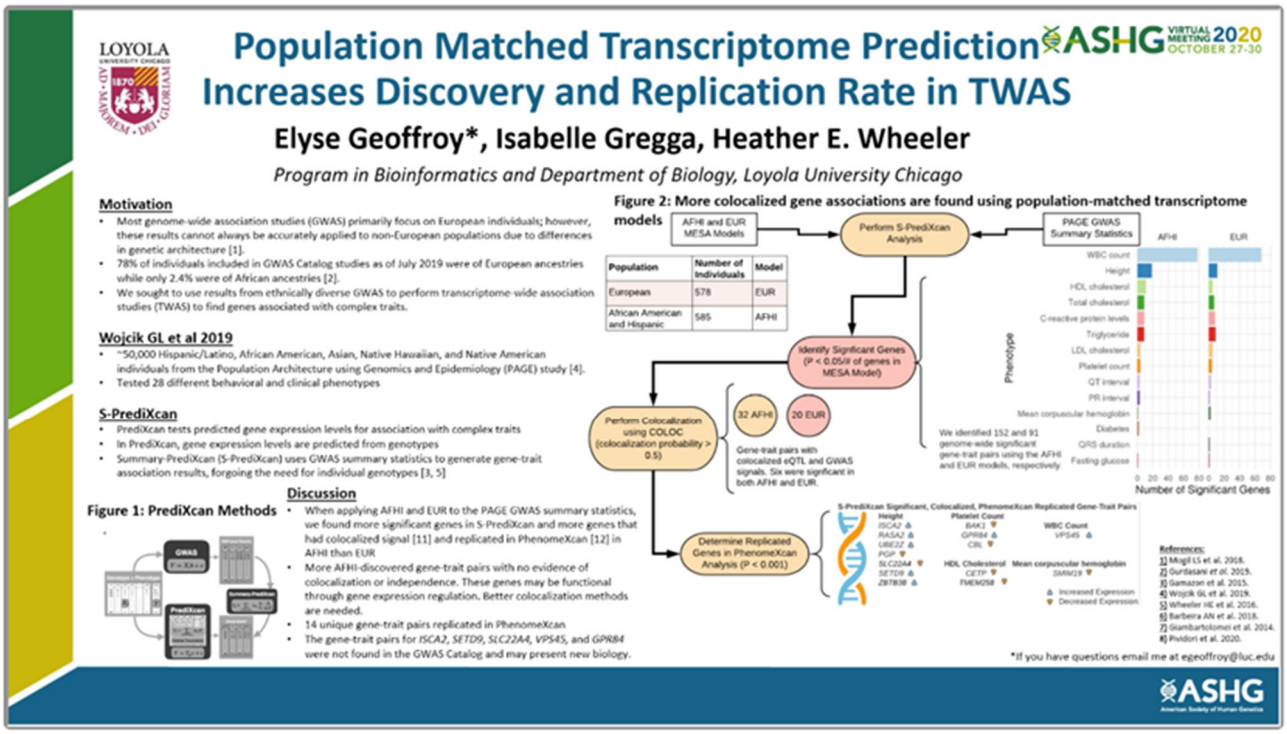

STARD5 Expression is associated with etoposide cytotoxicity in diverse populations.

A. Mulford[1], C. Wing[2], M. E. Dolan[2], H. E. Wheeler[1];
[1]Department of Biology, Loyola University Chicago, Chicago, IL, USA, [2]Department of Medicine, University of Chicago, Chicago, IL, USA.

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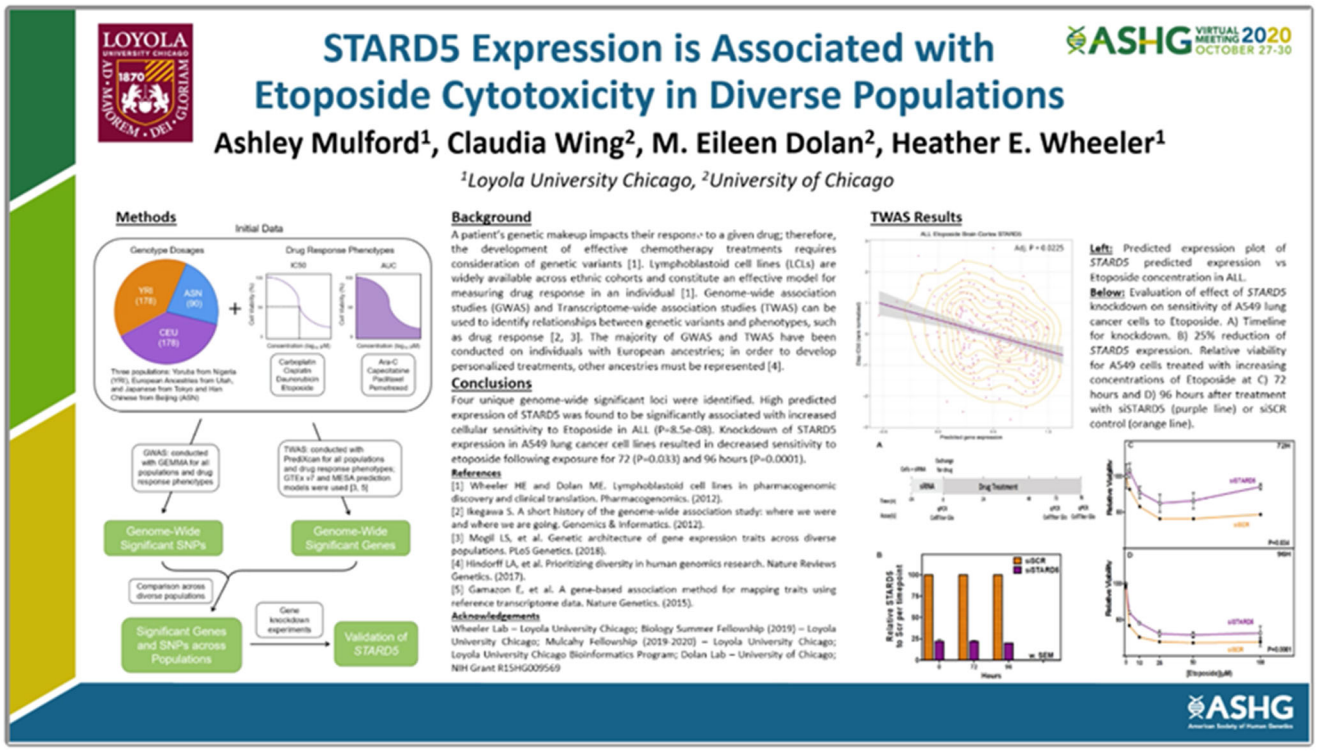
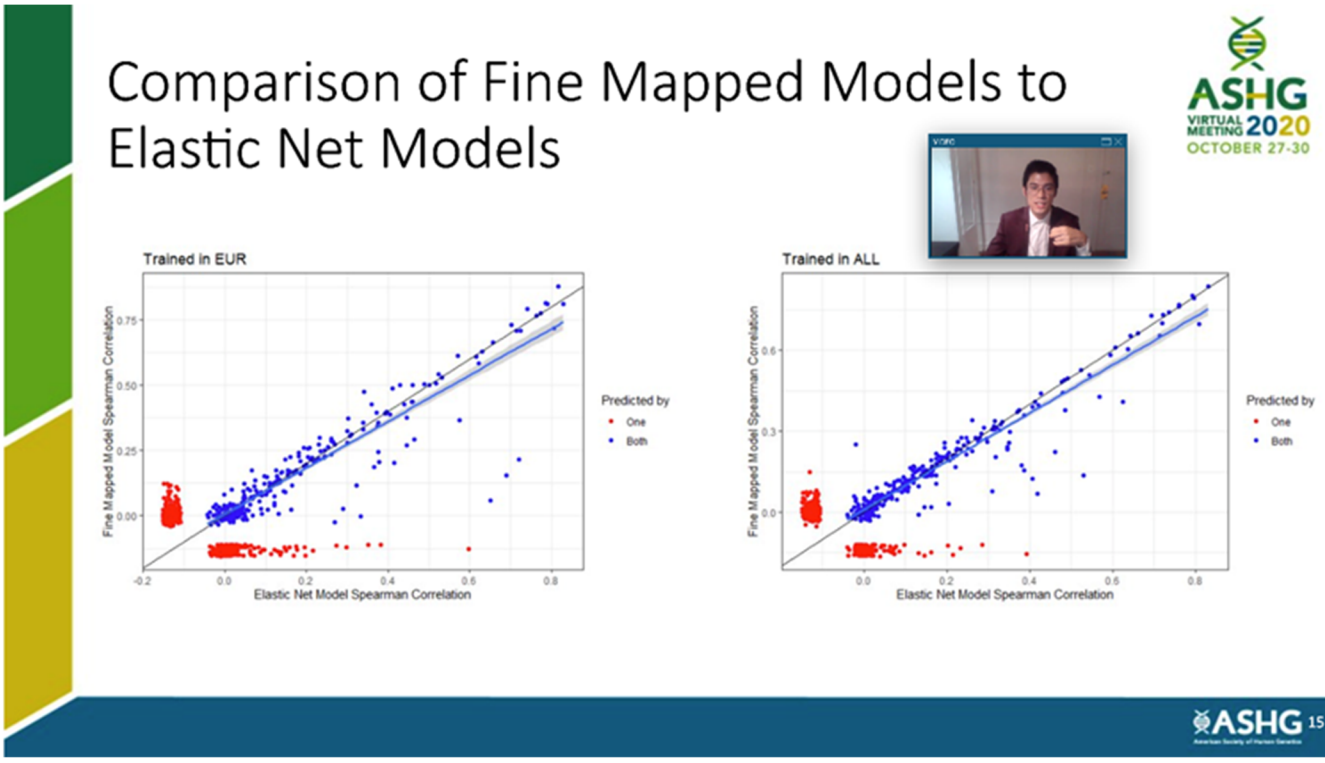




Bill Kroll Retires after 40 Years of Service to Loyola University Chicago

Senior Lecturer Dr. Bill Kroll is retiring after the Fall 2020 semester. Dr. Kroll has been an integral part of the Biology Department, teaching both laboratory and lecture courses in courses such as General Biology and Ecology. Below, Bill reflects on his time teaching and mentoring to thousands of students over the last 40 plus years.

What brought you to Loyola?

BK: A 1970 Ford Maverick. With 128,000 miles on it. Earl Scheib Red. Sweet ride.

During your time here, you have held several roles – teacher, mentor, chair of JSHS. What has been your favorite or most memorable role?

BK: *I suppose, my involvement w/ STEM education which was primarily the Junior Science and Humanities Symposium (JSHS) and the Research and Engineering Apprenticeship Program (REAP) for 35 years. I met so many dedicated teachers/ mentors and amazing student researchers over the years. Inspiring. And I am so thankful for my Loyola students who tell me that I had a positive impact on their lives.*

What are some of your favorite memories of Loyola, the students, and your colleagues?

BK: *Well, you nailed it, and in sequence. Number one, my students. I would have retired several years ago, but I didn't want to leave those interactions. My colleagues were also right up there. And by colleagues, I don't only mean my faculty colleagues. I'll get to them in a minute. I mean staff people, too. Not just in Biology, but also other departments. And even folks in the Rogers Park community. Hi, Gladys.*

As for my faculty colleagues, the Bio Department, in my 40 years, has always had a family feel. As in any family, there were occasional disputes, but I always felt that everyone was ultimately pulling together to achieve a common goal of educating students and conducting important research.

I must include teaching in Rome, Summer 2015. I had a class largely consisting of Spanish exchange students who were amazing. Then there's Rome. And Italy.

What are some of the things that have changed over your time at Loyola?

BK: *When I arrived here in 1980 (sigh), Loyola was primarily a commuter campus. Most students came from the Chicagoland area. They drove to campus in the morning and went home when their classes were finished. That was pretty much the case until Fr. Garanzini transformed the campus during his tenure. Now, not only are most of our students residents on campus, but I was stunned to learn that in 2018-2019, the majority of our students were from out-of-state. Awesome!*

Dr. Bill Kroll leading Ecology lab for undergraduate students

What are some of your hopes for the future of the Biology Department?

BK: *I hope that the contributions that we make to the city, the country and the world will be more appreciated by the administration. We help to produce SO many doctors, nurses, vets, health care professionals, technicians, teachers and scientists (both professional and citizen)…Our department needs all possible support in our efforts. The pandemic should only reinforce this idea.*
Oh, yeah…I also hope they erect a 40 foot statue of me in a cowboy hat playing a Telecaster in front of the main entrance of LSB. Just sayin'…

Dr. Bill Kroll will be missed as a full-time faculty member, but he will still be part of the department teaching courses as needed. Thank you for your service, Dr. Kroll!

Updates from Retired Faculty Members

From Domenic Castignetti:

We are doing well in retirement and I am keeping busy doing a number of academic things including writing questions for high school level biology examinations and Dottie is doing one on one tutoring for a 7 year old since his school only meets in person every other week. She helps him in the "home" weeks and has seen him improve in his language and other skills.

I have agreed to remotely teach a "Science and Society" course for the Honors Program for the Spring semester. It will focus on "Biology, Medicine and Society." Right now on the steep learning curve for online teaching, but am taking an IT course to learn how to teach on-line and use the many facets of Sakai's arsenal. Should be an interesting semester and I wonder who will gain more, me or the students.

From Howard Laten:

After 40 years as a member of the Biology faculty, Dr. Laten retired on June 30 of this year. During that time, he had the pleasure of mentoring the research of 124 undergraduates and 15 Master's students. Over 5,000 students have taken his Genetics courses, and he still owns an extensive collection of genetics-themed T-shirts that he will continue to wear with pleasure. He takes great pride in the student-nominated awards he has received including teaching (Sujack) and mentoring (Langerbeck), and in developing and serving as founding director of the Bioinformatics B.S. program. He continues to work on research publications and improving his golf game. He has no plans to abandon Chicago for warmer climes. Already greatly missing students and colleagues, he will keep in touch with the department and looks forward to continued contact with former students.

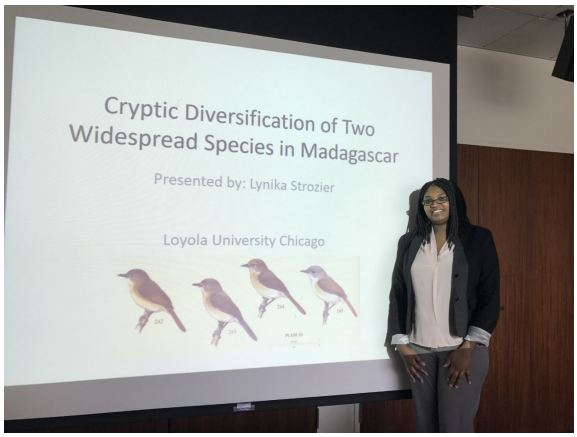
In Memoriam: Lynika Strozier

We lost our dear friend and alumna, Lynika Strozier (M.S. in Biology, 2017), in June 2020. As protests over the murder of George Floyd raged across America and the social media campaign of #BlackBirdersWeek was trending, the world lost one of its few African American scientists to COVID19. The coincidence of timing was a viciously ironic reminder of the challenges faced by people of color. But Lynika was more than just a statistic in these harsh times.

Lynika started at Loyola in 2013 with an already established passion for STEM and drive to learn more about the scientific process. She worked in Dr. Sushma Reddy's lab on a project focused on the genetics of birds of Madagascar. Prior to her enrollment, Lynika had already gained substantial experience working in the DNA lab of the Field Museum where she worked on projects ranging from plants to ants. During her career, Lynika worked on several NSF-funded projects and played a key role in many biodiversity discoveries, including the descriptions of new species of birds, liverworts, and lichens.

Lynika was always a sunny presence as she walked through the hallways greeting everyone with a friendly smile. She was a fixture in the Reddy lab where undergraduates and other grads sought her out for light conversation or serious advice. Lynika was always willing to lend a hand and equally ready to ask for help when she needed it. Like other graduate students, she struggled with some of the requirements of her degree. At one point, she felt so defeated that she almost gave up. We talked through it and motivated her to push on since she was close to finishing. Lynika stayed on to not only finish her M.S. in Biology at Loyola, she also simultaneously completed an M.Ed. degree from UIC in 2017.

Upon completing her degree, Lynika went on to lab positions at the Field Museum and Rush University and teaching positions at the School of the Art Institute of Chicago, where she was the Biology Labs Coordinator. In the beginning of 2020, she was excited to begin a faculty position at Malcolm X College and had just completed a most unusual semester that required a sudden pivot from in-person to online teaching due to the pandemic. Lynika did all of this with full enthusiasm and optimism. She motivated her students to want to learn more, despite the circumstances.



Lynika is a true inspiration. She worked hard to overcome many challenges, including a learning disability that she spoke openly about. With the staunch support of her grandmother, Sharon Wright, who raised her, she learned that this meant she had to try harder than

others to reach her goals. She credited a supportive network of mentors starting from high school through college and graduate school. She developed a love of science when she got a position in a research lab while at Truman College. She often talked about how experiential science in a lab can help to engage and introduce youth from underserved communities to STEM careers. One of her lifelong goals was to develop educational programs for urban youth. Hearing her story about her successes and tragic demise, many of the Chicago institutions that supported Lynika are creating internship programs in her name to encourage young Black students towards STEM fields. At Loyola, we are working towards creating a joint program with Senn High School, which Lynika attended, to sponsor students in research experiences. We hope to honor and remember Lynika's legacy by working to advance the education of other young Black women.

Loyola University Chicago Herbarium Preparing Database to Publish Collection of Nearly 4000 Preserved Plants

The Loyola University Herbarium is a collection of nearly 4000 preserved plants, some of which date from the 1930's. The collection has been registered with Index Herbariorum as "LUC" (sweetgum.nybg.org/science/ih/). Index Herbariorum is "a worldwide index of 3400 herbaria and associated staff where a total of 350 million botanical specimens are permanently housed."
We now are preparing to publish the specimen database on-line so that our information can be shared with other researchers. This involves "cleaning up" the database which is an Access file created in the 1990's by John Quinn, the former lab coordinator. Archivists from Cudahy Library, especially Greer Martin, have been guiding the transformation. We are working to make the entries consistent throughout the database. We are also working to make the entries conform to the Darwin Core terminology, which is meant "to provide a stable standard reference for sharing information on biological diversity." This has required changing some of the categories in the current database and adding others. In addition, we are going back to look at the specimens themselves for information that was not entered in the original database – like reproductive condition for example.

Roberta Lammers-Campbell, Ph.D.
Curator Emerita, Loyola University of Chicago Herbarium

Masters of Arts in Medical Sciences (MAMS) Class of 2021: Still a MAMily!

Would MAMS still be MAMS if it was online? That was our concern as we transitioned the successful program to a virtual format as COVID-19 ravaged our nation. Maintaining the rigor of our academic program was not a worry, but how would the "MAMS Magic" occur online? The close relationships that our students form amongst themselves, the emotional and psychological support they offer to one another, the study groups, the camaraderie. MAMS is so much more than just 8 advanced biology courses! With the help of our alumni and a lot of Zoom, we are still a MAMily! The study groups are virtual, the volunteering is virtual, and yes, the instruction is virtual. Thanks to a program offered at Stritch School of Medicine, the entire class has become certified Contact Tracers and are qualified to help track the spread of COVID-19. MAMSers are still tutoring children, working with their senior citizens, serving GetMePPE, and more. And our alumni? Danny Loizzo at UIC and Megan High at Strich have organized mentoring programs at their medical schools just for the current MAMSers. And other alumni have served as "Pea Pod" mentors to the new students: giving guidance and reassurance. THANK YOU Sarah Dynia, Guian Estupigan, Chris Hagen, Lavanya Logan, Luke Davis, Clarence Alexis, Vincent Rogers, Jeewon Chon, Artemis Markopoulos, Gil Maloul, Caroline Hollier, and Sarah Haugh!! Our students make the magic happen!

Staff Changes in the Biology Department

After 7.5 years of service to the Biology Department, Frank Inglima will be leaving Loyola University Chicago to pursue an opportunity as the Assistant Director at UChicago's Careers In Healthcare Program. Frank first came to the Biology Department to serve as the Biology Department Assistant and most recently has been the Masters of Arts in Medical Sciences (MAMS) Advisor. Frank is known for always having a smile on his face and welcoming demeanor for anyone who came into the Biology Department office. Thank you, Frank, for your service to the Biology faculty, staff, and students over the years – you will be greatly missed!

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ABOUT THIS NEWSLETTER

This newsletter was compiled by Dr. Jennifer Zitzner and Mercedes Mac Laughlin and edited by Drs. Jim Cheverud, Jen Beshel, Michael Burns, and Caroline Turner for the purpose of keeping our departmental alumni abreast of new developments, programs, and events."

We would love to hear from you!

If you know someone whom you would like to see featured in the Faculty or Alumni Spotlight section, or have ideas about things you would like to see in future newsletters, please send an email to: biologydept@luc.edu

Also, we here in the Loyola Biology Department just love hearing from our alums. So don't be a stranger! Please email us at biologydept@luc.edu, let us know where you are, what you're doing, and send us pictures if you have them!

Alumni Support

The University and the Department of Biology are extremely grateful for the generosity of all our donors. Donations in any amount from one to thousands of dollars are appreciated and help the department serve our students. Your support of the Biology Department permits us to continue many programs and services including:

- Student research fellowships
- Travel funds for students to attend local and national meetings
- Professional development opportunities for Biology Faculty
- Equipment for teaching and research laboratories

If you would like to make a gift to the Biology Department Gift fund, you may do so in two ways:

Online: Click here to be directed to the secure donations website

Mail: Please mail checks to:

Loyola University Chicago
Biology Department
c/o Stephanie Tomakowski
820 N. Michigan Avenue, Ste. 1721
Chicago, Illinois 60611

Please include in the memo line: Biology Department Gift Fund