

# Bioluminescence

## What's glowing in the Biology Department

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### Welcome to Dr. Sean Sterrett

Dr. Sean Sterrett joined the Biology Department in January 2019 and will be teaching courses to support the Biology and MEBP programs, including BY 109 (Introduction to Biodiversity and Evolution), Wildlife Ecology, Herpetology, Seminar, research courses, and other offerings.

His research interest is in wildlife communities (including salamanders and turtles, as described below). Most recently, Dr. Sterrett was a Postdoctoral Research Fellow at the University of Massachusetts Amherst and also spent some time doing research for the US Geological Survey through Penn State University.

His doctoral degree is from the University of Georgia, while he did his undergraduate work at Butler University in Indiana – he has seen several parts of the country before landing in New Jersey! In his own words:

#### What led you to MU?

I got my start in research at Butler University as an undergraduate working on various ecological field studies involving freshwater turtles and salamanders. Those experiences changed my life. I have always wanted to be a part of a similar place that value those opportunities for budding scientists and it is quite obvious that Monmouth University shares those values.

#### What work do you hope to get started with MU students?

A common theme of my research is to understand how and if wildlife persist in human-dominated landscapes using a mixture of observational studies, mesocosm experiments and modelling exercises. I will be installing coverboard plots in Monmouth County, NJ to understand the demography of forest



Capturing an invasive Burmese Python (*Python bivittatus*) in the Florida Everglades during the 2016 Python Challenge

floor salamanders as part of the Salamander Population and Adaptation Research Collaborative Network (SPARCnet), a network of researchers across the Eastern U.S. (to be continued, p. 2)

### Dr. Kathryn Lionetti: Transfer Champion!



Dr. Kathryn Lionetti was the first recipient of the Jean Judge Transfer Champion Award, which recognizes faculty and administrators who go the extra mile for Monmouth's transfer students. The award was presented at a Center for Excellence in Teaching and Learning (CETL) event, "Ensuring the Success of Your Transfer Students" in October 2018. This was a panel presentation for faculty advisors, and Dr. Lionetti was one of experienced transfer advisors leading the panel. The goal of the event was to share best practices surrounding transfer advisement at Monmouth University – therefore, it was fitting to present the award at the event as Dr. Lionetti is an experienced and dedicated advisor for the transfer students to the Biology Department. Starting as a freshmen advisor in her second semester at Monmouth, (to be continued on p. 6)

## Biology Major: Student Athletes



Left: Sarah Gillogly playing lacrosse & McKinzee Barker playing basketball (right)

The Biology Department is very proud to have a high number of student athletes in our programs. These athletes must have a great deal of stamina to complete a complex major, balancing courses, long laboratory sessions, and in some cases, independent research projects, in addition to their athletic practice and competition schedules. These students have been successful in shining on the field/court/pool and in the classroom. Currently, we have six athletes with senior status in the Department. We asked the senior athletes how they have managed to be so successful at Monmouth. Overwhelming, the responses received demonstrated that they have learned excellent time management skills – studying in advance, keeping a good calendar of activities, and planning every ounce of free time. The athletes we have interviewed collectively indicated that achieving this balance is not easy, and it takes time to learn how to prioritize

and balance work on and off the field. When this balance is achieved amazing work can be accomplished. Sarah Gillogly, a senior lacrosse player almost did not major in science freshmen year but ultimately followed her heart to become an MEBP major. She immediately realized the time management challenge that athletics demands, stating, “It is a cliché at this point, but the biggest difference between people who fail in success in a science major and as a student-athlete is time management.” Junior swimmer Bradie Keelen told us, “I have actually found that I am more focused, and even get better grades, when I’m in season and have a more full schedule.” For Senior women’s basketball player McKinzee Barker, the biggest challenge has been finding time to study for exams. She commented, “I am always able to find a quick window to finish assignments, but actually studying is difficult due to my lack of free time. It is

also difficult to be in a learning state of mind to study, or even attend class. Most of the time I have to run to class after lifting or attending a two-hour practice that had plenty of learning involved on its own.”

Despite the challenges, succeeding in both realms has its own unique joys. Students are able to have fun using their athletic talents while at Monmouth, but still enjoy academically preparing for their future career. McKinzee commented, “It is extremely satisfying to know that despite the effort I had to put into my sport and how it usually takes away from the effort I can put into my class, I still somehow managed to do well. It is a very rewarding feeling.” McKinzee’s long-term career goal is to become a small and large animal veterinarian. She is hoping to spend some time after graduation working and shadowing several vets (**to be continued on p. 3**)



**Capturing an Alligator Snapping turtle (*Macrochelys temminckii*) in south Georgia. This individual was about 70 lbs**

### Welcome to Dr. Sean Sterrett continued...

using a common protocol to compare populations across the range of a species. I will also be employing field methods to understand terrestrial and aquatic turtle communities, including the use of radiotelemetry and unmanned aerial systems (i.e. drones). Much of my research aims to evaluate the impacts of road mortality on wildlife that move around landscapes to complete their life cycle. In Summer 2019, we are surveying citizen

science volunteers that actively move amphibians across roads in a remarkable synchronous migration event called the “Big Night”. We want to better understand their motivations, barriers and thresholds for participation.

### Can you describe what you think the addition of Herpetology and Wildlife Ecology will be for our students?

Monmouth University is positioned in a heavily suburbanized landscape; the perfect place for human-wildlife interactions,

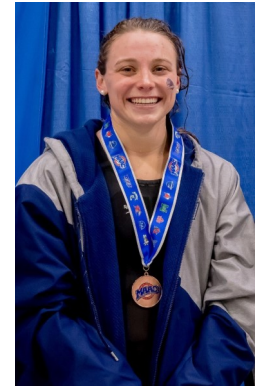
which are often situations that people either value or fear. I hope that both Herpetology and Wildlife Ecology and Management will instill an appreciation of wildlife, especially wildlife groups that have been misrepresented or even persecuted in the U.S. (i.e., snakes). Most fears of reptiles and amphibians can be traced back to unsubstantiated myths. A primary mission of both of these courses will be to demonstrate how the values of people contribute to the challenges of wildlife management and conservation.

**Biology Major: Student Athletes...**

in New Jersey and out of state, with the goal of applying for entrance to vet school for Fall 2020. After finishing at Monmouth, Sarah hopes to attend graduate school to continue studying marine and environmental biology and policy, though we may find her someday in the Peace Corps teaching conservation and sustainability – she is passionate about educating others about protecting our natural resources. As a student athlete, Sarah commented, “The biggest joys of being a student-athlete are without question my

teammates and also the pride that comes with knowing I am doing something that not a lot of people get to/can do. Being a student-athlete is really challenging mentally and physically and it is important to remind myself of that when things feel rough. It is also beyond amazing to have such a big support group behind me at all time and best friends for life that I get to make memories with every day.” Bradie is proud to be among the first recruits for the swimming team, which was re-instated at Monmouth in Fall 2015. During that first season, the freshmen class made up approximately half of the team. Seeing the team evolve

to become competitive in the conference has been exciting for her. Bradie hopes to continue her education in graduate school after Monmouth, and sees herself impacting patient care in a hospital setting in the future. For now, she is looking forward to the start of the next season, commenting, “I can't wait to start my final season and be able to make waves in the conference with my team. We have an incredible group of recruits coming in, which will only make our team stronger than it is now. I hope to improve my times and get on the podium at championships again next year! Fly Hawks!”



**Bradie Keelen, Biology Major** received 3rd in the conference for the 50 Free and 4th in the conference for the 100 Free.

**Advice for Younger Student Athletes...**



Senior Biology/MCP athletes Taylor, Corey, and Natalie... tackling a molecular biology assignment

**Sarah Gillogly:** Don't give up! It gets really hard at times but you can do it! If you love science and you love your sport, the university offers so many resources to help you. The academic advisors in the student-athlete recourse center are so amazing and helpful, there are all kinds of tutoring, and if you don't want to use those, chances are there are upperclassmen on your team who are also science majors that would love to help you out. Don't be afraid to ask for help and don't be afraid to be honest with your professors/coaches.

**McKinzee Barker:** The first thing I would tell younger athletes in this major is do not procrastinate! They will hear this advice plenty of times and still think they are able to do it. Trust me, you cannot. Also, do not be afraid to tell your teammates no. Often times they do not understand how rigorous your schedule as a biology major is. There will be plenty of nights you can spend with them, but there is only one chance to take a test. Make sure you are prepared for it before you spend your free time unproductively.

**Bradie Keelen:** I would tell younger athletes that they shouldn't be afraid to seek help! When I was younger I thought I had to do everything on my own and I thought that I was expected to have everything perfectly together. That thought caused me so much stress and definitely made my life more difficult than it needed to be. Monmouth offers so many helpful programs, from the Peer Mentor Program to Supplemental Instruction, and I think absolutely everyone could benefit from utilizing them. Go to office hours, ask questions, and put yourself out there. It can only help you.

*“Monmouth offers so many helpful programs, from the Peer Mentor Program to Supplemental Instruction, and I think absolutely everyone could benefit from utilizing them.”*

## Biology Major: Student Athletes



Sarah Gillogly

Men's Lacrosse  
Maxwell Brookes

Men's Tennis  
Aidan Bodeo-Lomicky

Will Cooke Wharton

Women's Basketball

**McKinzee Barker**

**Taylor Nason**

Alexa Wallace

Adriana Zelaya

Women's Bowling

Amanda Zappacosta

Women's Field Hockey

Megan De Lange

**Kelly Hanna**

Men's Track and Field

Ryan Ledda

**Corey Murphy**

Christopher Putnam

Chad Smiley

Men's Swimming

Ryan Hohman

Ryan Reutti

Women's Track and Cross Country

Ashley Sibia

Michelle Daniels

**Natalie Negroni**

Alyssa Repsher

Natalie Tavares

Women's Swimming

Alyssa Cherubino

Mary Emich

Bradie Keelen

Women's Soccer

Jesi Rossman

Women's Lacrosse

**Sarah Gillogly**

Antonella Henson-Vendrell

Chloe Novak

Women's Softball

Kayla Rosado

## Student Spotlight: Syed Mehdi A. Husaini

**How did you become so involved in student activities?**

I became involved in campus activities my first year by attending the involvement fair and listing my name for basically any student organization I had even a little bit of interest in, and then narrowing things down by trying out different clubs. One of the really special ones to me was the Student Government Association, since it seemed like a great way to be involved with all facets of the university at once, allowing me to involve myself in, and push forward, initiatives like administrative programs, new clubs on campus, club sports, and large-scale programming for the betterment of student life at Monmouth. It was pretty competitive to get into at first, requiring an application and an in-person interview in front of Senate, but I was chosen to serve and represent my class as a Freshman Senator, and have worked my way to being elect-



Syed Mehdi A. Husaini

ed as President of the student body this year. During my term, I have worked to help Senate implement a ton of new programming, such as The Nest, Monmouth's first and only on-campus food pantry; Inclusion Week, a set of student-run programming focused on conversations about diversity during the first week of April; Parking Ticket Amnesty Day, where students can donate to the food pantry to have a parking violation forgiven; and an appeals process along with other measures to keep SGA more transparent than ever. This has all been accomplished while preserving our older traditions like Homecoming, The Big Event, and Springfest to promote a sense of tradition in Monmouth's culture.

**How do you balance your BY coursework and role in student government?**

I balance my biology coursework with my work in student

government by keeping my meetings and study times organized in a planner. This is definitely not easy, as the biology curriculum is extremely demanding as is. When paired with the meetings and responsibilities of the office of SGA President, I definitely have run into challenges when it comes to taking the right amount of time to study, engage in research as part of Dr. Kubera's lab, and volunteer at a local clinic. I make sure to keep my days highly organized and plan meetings and group study hours around each other, and take the time to make sure I'm prepared for each event and finish up any follow-up work. I am also very glad that our Biology Department at MU has professors that are so understanding and encouraging, as there have been times where I have needed to miss class or need extra help, and was...

**(to be continued on back cover)**

## Marine Biology with Dr. Jason Adolf Contributed by Dr. Jason Adolf

Since starting to teach the marine biology class in Fall 2017 I have had my students engage in outreach presentations through a collaboration with Ms. Jenn Crow's 7th grade class at Rumson Middle School. I value this assignment because it makes students have to think differently about communicating marine science. Monmouth students have to take a topic from class and come up with a 25 minute presentation that engages 7th graders. They also have to

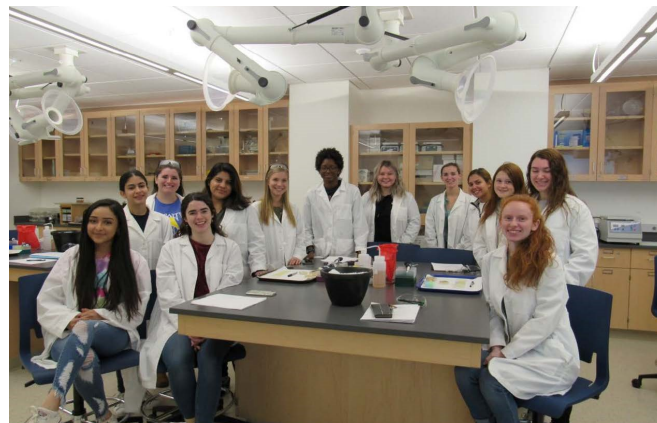
come up with an interactive, tactile activity relating to their topic. But mostly, I like seeing the mutual enjoyment of the Monmouth and 7th grade students on the day of the presentations, and hearing how much both sides enjoyed the experience.



## We Are Woman, Hear Us Roar: All Girls BY-110 Course... Contributed by Dr. Dorothy Lobo

BY 110-07 Lab in Fall 2018 was a section comprised entirely of women – 15 students, one faculty member, and lab prep staff that were all female as well! In the 17 years that I have been at Monmouth, this is the first class that I have ever had that was completely female (something I have not experienced since graduating from an all-women's college as an undergrad). I did not realize the make-up of the class, but some of the students noticed immediately on the first day and pointed it out. The students were of a very diverse background, ranging from incoming freshmen to a post-baccalaureate pre-professional student with multiple majors represented (molecular/cell, MEBP, and Health Studies). Despite the diversity, it was a very cohesive group – everyone pitched in to help each other, and the atmosphere was very positive.

"I have never been in a class consisting of just women. There has always been a mix of both men and women in all the previ-



*Abby Arango, Scharina Bencosme, Jordyn Chanley, Brianne Bracken, Karin Ordonez Vega, Marissa Marcello, Abbe-Gayle Burton, Eva Vykhopen, Jillian Haworth, Mikaela Widercrantz, Andrea Terris, Darlina Babula, Angelina Ireland*

ous classes I've been enrolled in, especially in science. Having the experience of being a part of an all women BY110 lab has most definitely been an eye opener for me. It shows me that women nowadays are making their comeback in terms of equality and I am so beyond grateful to have experienced this last semester. The overall atmosphere of the class was very inviting. I feel as though I was able to com-

municate just fine with each and every individual in the class, and I always looked forward to going to the class for that reason. I made quite a few friendships in that class that I know will last a lifetime and I am so lucky that I got to be a part of something as special as an all women lab."

– Mikaela Widercrantz, MEBP major, Class of '2022.

**"It shows me that women nowadays are making their comeback in terms of equality and I am so beyond grateful to have experienced this last semester."**



**Dr. Lionetti's Award, Transfer Champion**

**“Kathy has a very collaborative and collegial approach to transfer student advisement and registration... All-in-all, she is a passionate advocate for transfer students.”**



### **Transfer Champion! continued...**

she has guided both freshmen and upper-class students in Biology on the path to graduation through the years, and has also been serving as the Departmental Advising Coordinator. She handles approximately 30 incoming Biology transfer students in the summer preparing for the Fall semester, and typically another dozen or so that arrive in January for the Spring semester. It seems like there is never a shortage of transfer students to the Biology Department - Dr. Lionetti commented that the former transfer services secretary, Sherry McHeffey, used to joke with her and say "What are you giving away in Biology?" Regularly attending the transfer orientations, she often hangs around long after the formal program is completed to help students new to the University with their questions and last-minute course adjustments.

Dr. Lionetti admits that handling the registration of transfer students comes with unique challenges. Often transfer students arrive at Monmouth with a lot of general education courses completed, but not always as many of the science courses needed for the degree. Registration is more challenging due to prerequisite requirements for courses that do not always perfectly match what has

been completed, as well as the timing of course offerings in the semester of their arrival. Transfer students often arrive to register after current Monmouth University students completed registration, so open spots in classes are often difficult to find. Sometimes parents are involved with the course selection, and it can be difficult to ascertain if the student is fully on-board with the academic plan. Despite these challenges, Dr. Lionetti does her best to get transfer students full schedules that will have them on-track to graduate in timely manner. She realizes that transferring itself is often a stressful situation, commenting that "isn't always a first choice plan for the student." Despite the challenges, Dr. Lionetti untiringly strives to give the students the most seamless entry into their program as possible.

It is the success in students adjusting to Monmouth that brings some of the greatest joy, and has kept Dr. Lionetti dedicated to advising at Monmouth. She stated, "I love to work with students who are excited to attend MU and to take the next step in their lives. Helping students feel welcome and assisting with their transition is something I truly enjoy and I especially like having them in class so I can get to know them and monitor the transition process. I like

serving as an ambassador for MU. It gives me great pleasure to see them progress and eventually graduate from MU." What is especially bittersweet about this award is that it is named after Jean Judge, whom Dr. Lionetti has known for about 29 years since her first day starting as a freshmen advisor.

Anthony Urme, Director of Transfer Student Services & Undeclared Services, commented that Dr. Lionetti consistently goes the extra mile to help students, "Kathy has a very collaborative and collegial approach to transfer student advisement and registration. She is in constant contact with our office to make sure new students get optimal schedules and are registered in a timely manner. She works hand in hand with our team to ensure that students' transfer credits are maximized via substitutions or updated course evaluations. All-in-all, she is a passionate advocate for transfer students." Transfer Services is dedicated to improving the experience of transfer students at Monmouth University, and has strived to improve the orientation for transfer students, as well as the advising and registration of incoming Hawks. Transfer Services plans to bestow the Transfer Champion award annually during National Transfer Student Week in the Fall.

### **Lab Safety Corner....**

Spring is in the air and the weather is warming up. Soon many of you ladies will be wearing those cute shorts/shirts and strappy sandals and you guys will be sporting shorts and a tee. But remember it is important to be properly dressed when working in the laboratory.

On hot summer days, bring a pair

of long pants and closed toes shoes to the lab and change into them when you get there! And remember to always wear your lab coat when working in the lab!

**REMEMBER!!!  
NO FOOD OR  
DRINK IN THE LAB!**



## Using Fractal Patterning to Explore the Coastline and Human Body Contributed by Dr. Karen Pesce and Tom Herrington (UCI)

Dr. Karen Pesce received a Faculty Enrichment Grant from the Urban Coast Institute (UCI), along with her collaborator in the Mathematics Department, Dr. Sandra Zak, to use fractal patterning to explore the coastline and the human body. Fractals are repetitive, complex patterns that exhibit self-similarity on all scales and can be analyzed through mathematical modelling. Examples of fractals include plants, the coastline, the structure of the lungs, and even the pattern of a heartbeat. Both Dr. Pesce and Dr. Zak are currently teaching courses for future elementary school teachers in the Interdisciplinary Studies for Elementary Educators major, BY 202 and MA 305, and desired to design and teach an interdisciplinary curriculum module that would focus on the study of fractals in nature to engage future teachers.

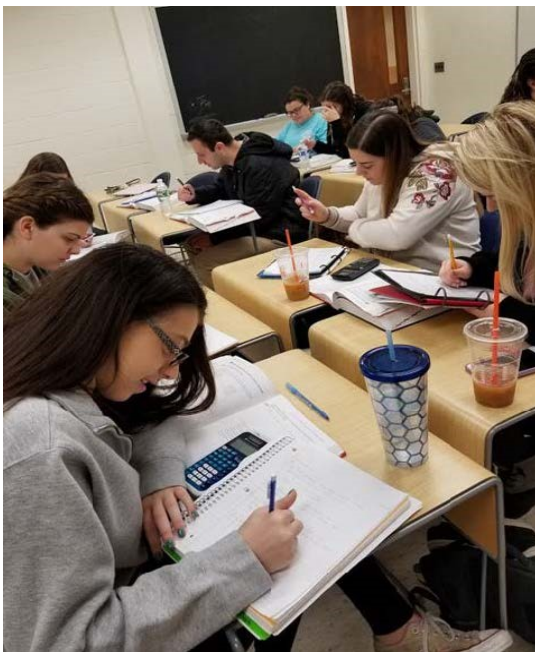
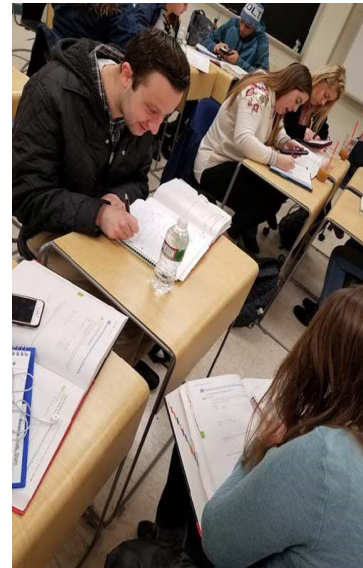
In MA305, students will attempt to measure the length of a portion of the New Jersey Coast, first in the classroom using maps and later by actually visiting the coastal location. With the selection of a variety of different types of measuring tools, and making successive measures, the students will discover that the coast will have a longer and longer length as they use better measuring tools and account for more and more of the coastal geography. This is the key motivation for studying fractals; however it also will serve to focus the attention of the students on the features of the coastal environment.

In BY 202, environmental issues relating to the coast such as

coastal erosion and pollution will be explored. Students will first learn about these topics in the classroom using case studies, lab activities and simulation software. During the field trip, students will gain a deeper understanding of these issues. In addition, aspects of the human body will be studied using fractals. For example, both the human heart rate and lung exhibit fractal patterning. By recognizing and studying patterns that correlate with healthy function, it may be possible to identify alternate patterns that would be indicative of disease states including heart and lung disease as well as cancer.

The impact of this work will extend to future high school students, as Dr. Pesce and Dr. Zak wrote in their proposal for the grant, "We believe that this module will not only provide future educators with the content expertise needed in both math and science but also provide the tools so that they can deliver interdisciplinary curricula in multiple stem areas in their future classrooms. Students will gain insight into how research is extended in both fields, an awareness of the complexity of the ideas involved, and most importantly knowledge of our coast and the work that is being taken to investigate and understand it. We also hope that our emphasis on field studies in the local community will be translatable for them in their future schools."

Faculty Enrichment Grants were awarded by the Urban Coast Institute (UCI) to support faculty for one semester for projects that will enhance existing curriculum, allow for new curriculum development, research and scholarship, or team-teaching opportunities. Founded in 2005 as a University Center of Distinction, the UCI serves the public interest as a forum for research, education, and collaboration that fosters the application of the best available science and policy to support healthy and productive coastal ecosystems and a sustainable and economically vibrant future for coastal communities. UCI Scholars are supported by funds contributed through the generosity of donors to the Urban Coast Institute through the Marine Science and Policy Initiative (MSPI) challenge grant campaign and through contributions to the UCI and the Heidi Lynn Sculthorpe Summer Research Program.



Photos of BY 202 students hard at work in class.

## Next Gen Igniting Science Interests at Monmouth University & Beyond Contributed by Michael Mazzucco



Photo from NextGen outreach Tissue Culture Workshop

The ASBMB Chapter at Monmouth University (MU), founded in 2016 and moderated by Drs. Martin Hicks and Jo Ouellet, sponsored numerous educational and career events. Chapter meetings each semester draw in attendance of 20 – 50 students, and have been used as the starting points for numerous other meetings and events throughout the semester. One such activity has been the introduction of

a Student Speaker series in the spring, during which 20-30-minute talks were given from undergraduate students from the laboratories of multiple investigators in the departments of Chemistry and Biology with the goal to promote, strengthen and widen the student research community at MU. These seminar series were useful as opportunities to spread awareness of research on our campus and in preparing undergraduate researchers for presentations at conferences at the local, regional, and national level. The

chapter also promotes attendance at regional meetings among its members, typically renting a van to transport researchers to conferences in both the Fall and Spring semesters. A Faculty Research Showcase was also held in the Fall, with 85 potential undergraduate researchers in attendance.

The club also has been very active in both outreach and service activities. Our chapter developed and organized a workshop targeted to undergraduates interested in

pursuing research at the MU campus. This full-day “Lab Skills Bootcamp”, held in May 2018, was led by student leaders (10-chapter members) who introduced new researchers (42 attendees) on the standard operating protocols for lab safety, tissue culture and molecular biology techniques as well as operation of shared equipment. Several events have also been held to bring awareness of biochemistry, molecular biology, and STEM to the local community as well. One such activity was the Strawberry DNA Extraction Project, an outreach initiative started by Dr. Megan Phifer-Rixey, Assistant Professor, Biology Department, at MU. Chapter members taught multiple sessions to 4th and 5th graders. Students successfully extracted DNA from strawberries using common household items, and importantly, bonded with their undergraduate mentors. The program was well received by students and teachers alike, and was carried out at four local elementary schools, reaching 80 students in the surrounding areas of Long Branch, Ocean, and Wanamassa. **(continued on p. 9)**

## Experiential Education Spotlight Contributed by Mia Collucci



### Anticipated graduation date?

May 2019

### Where did you complete your ExEd experience (site & city)?

Memorial Sloan Kettering- Middletown, Monmouth Location Josie Robertson Surgery Center, New York City

### How did you choose to do this experience?

I received an email from pre-health advising with information for the Clinical Oncology Open Learning (COOL) Scholars Program. In the program description it included information regarding how the program would operate and what I could potentially gain from being a COOL scholar. I have had shadowing experience in pediatrics and cardiology prior to this internship, but never in oncology. I felt that this would be a perfect opportunity to gain clinical

and surgical exposure in the field of oncology. As a COOL scholar I would not only gain clinical and surgical observation, but I would also participate in team-based conferences, 1-on-1 teaching with MSK’s health care team, and witness the screening, diagnosing, and treating of a variety of cancers.

After going through an application process, that required two recommendation letters and a personal essay, I was contacted for an interview with the directors of the program. I was eager to accept an offer as one of the two COOL scholars at the MSK Monmouth location, as I knew I was accepting a 6-week experience that would provide me an extensive **(continued on p. 9)**



**Next Gen continued...**

We carried out a hands-on Tissue Culture Workshop with the Academy of Allied Health and Sciences (Neptune, NJ), a local high school, in January 2019, at MU School of Science. In a day-long workshop, 12 volunteers worked with 35 students with the assistance of 4 professors to teach and establish standard operating procedures in preparation and pH adjustment of buffers, aseptic technique in the tissue culture hood, splitting cells, trypan blue staining, hemocytometer cell counting, fixation of cells, staining with DAPI and visualization using fluorescence imaging. Our current outreach event, called NextGen Ignition is being done in partnership with the New Jersey Program for Acceleration and Computer Science, and will bring molecular biology to at-risk teenagers

from the local towns of Neptune, Long Branch, and Asbury Park, NJ. Participants in the program will be taught about Lambda bacteriophages, DNA restriction enzymes, and gel electrophoresis. In this 'hands-on' teaching, students will cut DNA, load onto agarose gels, and visualize DNA with fluorescence. This event is being supported by the ASBMB Student Chapters Outreach Grant, and results about this event and other outreach events conducted by the chapter will be presented in a poster at the 2019 ASBMB Annual Meeting. Members are hoping to have a pancake dinner this Spring, and to be active during Scholarship Week in April.



**ExEd Spotlight continued...**

introduction in the clinical and surgical management of different cancers, but especially breast cancer.

**What new insights did you gain from completing ExEd?**

Over the course of six weeks I met a range of diverse patients and was able to hear about their personal stories, and view compassion as a form of medicine that should be shown more in healthcare today.

The personal stories I was present for were not only eye-opening and moving, but made me realize that cancer affects all types of people and comes in all different shapes and sizes. Other than witnessing the power of compassion, I was able to see how the many different branches of oncology come together to treat a patient. I gained a focused introduction to the clinical management of breast cancer that included breast imaging, medical oncology, and radiation oncology. I also gained a better understanding of the different types and presentations of

various cancers, as well as insight into how these cancers are screened, diagnosed, and treated.

**What was the most memorable part of your experience?**

The most memorable part of my experience was traveling to the Josie Robertson Surgical Center to watch mastectomies and lumpectomies from inside the operating room (OR). This was the first time I had ever been inside an OR as an observer and learner. My experience in the OR could be compared to the first time I was in anatomy and physiology lab, seeing the functions of life as a tangible object. I had a preconceived idea of what each model would look like and how they would each connect to form a system. Before stepping into the OR, I also had a preconceived idea of what I would see and how each procedure would be performed. Watching each lumpectomy and mastectomy was not what I had expected. Each surgery is unique and pertinent to the individual patient, presenting with its own challenges, possible complications, and room for error. I witnessed each

health professional in the room coming together as a unit, and each providing a role to the patient and overall procedure. Each member of this surgical team supports the other, in efforts to provide both necessary and effective care for the patient. Being in the OR confirmed by interest in becoming a member of a healthcare team, providing a service that aids the overall health status of the patient.

Also, my co-Cool Scholar and I, presented in front of medical oncologists and other healthcare professionals defining what a mastectomy is, and the clinical steps leading up to surgery.

**Do you have any advice for students beginning to plan for ExEd?**

Summer is not for sleeping. Time off from a vigorous semester is the perfect time to gain experience and exposure into various work environments, shadowing educated professionals. No knowledge is wasted knowledge, and any opportunity where knowledge can be gained is worth the application and interview process.

## Biology Faculty Publications and Presentations for 2018

### Publications

Danylchuk, A.J., **J.A. Tiedemann**, and S.J. Cooke. 2017. Perceptions of Recreational Fisheries Conservation Within the Fishing Industry: Knowledge Gaps and Learning Opportunities Identified at East Coast Trade Shows in the United States. *Fisheries Research* 186 (2017): 681-687.

Fox, A.G., E. S. Stowe, **K.J. Dunton**, and D. L. Peterson. 2018. Seasonal Occurrence of Atlantic Sturgeon in the St. Johns River, Florida. *Fisheries Bulletin* 116: 219-227.

Frisk, M.G., O.N. Shipley, C.M. Martinez, K.A. McKown, J.P. Zacharias, and **K.J. Dunton**. 2019. First observations of long-distance migration in a large skate species, *Leucoraja ocellata*: Implications for population connectivity, ecosystem dynamics, and management. *Marine and Coastal Fisheries*, *in press*.

**Klee, R.J.\***, **Zimmerman, K.I.** and **Daneshgar P.P.** (In Press) Community succession after cranberry bog abandonment in the New Jersey Pinelands. *Wetlands*.

Mack, K.L. **Phifer-Rixey, M.**, Harr, B., and M. W. Nachman. 2019 . Gene expression networks across multiple tissues are associated with rates of molecular evolution in wild house mice. *Genes*. 10(3), 225.

Mack, K.L., Ballinger, M.A., **Phifer-Rixey, M.**, and M.W. Nachman. 2018. Gene regulation underlies environmental adaptation in house mice. *Genome Research*. <https://genome.cshlp.org/content/early/2018/10/10/gr.238998.118>

**Marchese, V.\***, **Juarez, J.\***, **Patel, P.\***, and **Hutter-Lobo, D.** (2019) Density-Dependent ERK MAPK expression regulates MMP-9 and influences growth. *Molecular and Cellular Biochemistry*. *In press*.

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**Phifer-Rixey, M.**, Bi, K., Ferris, K.G., Sheehan, M.J., Lin, D., Mack, K.L., Keeble, S.M., Suzuki, T., Good, J.M., and M.W. Nachman. 2018. The genomic basis of environmental adaptation in house mice. *PLoS Genetics*. <https://journals.plos.org/plosgenetics/article/authors?id=10.1371/journal.pgen.1007672>

\*Popkin, S., \*Nanchanatt, A., \*Mauterer, M. and Rhoads, D.E. 2018. Co-administration of amphetamine with alcohol results in decreased alcohol withdrawal severity in adolescent rats. *Behavioural Pharmacology* 29:547–550.

**Tiedemann, J.** 2018. The BOFFFF Principle: Do Bigger Stripers Make Better Spawners? *The Fisherman Magazine*. Volume 46: November 2018.

**Tiedemann, J.** 2018. Spring Blues: Slammer Savagery and Science. *The Fisherman Magazine*. Volume 46: April 2018.

### Presentations

**Andre, N.\***, **Engstrom, C.\***, **Tampy, A.\***, **Tiedemann, J.** , and **Phifer-Rixey, M.** Using microsatellite genotyping to characterize migration patterns in Striped Bass. Evolution in Philadelphia Conference, Philadelphia, PA. September 2018.

**Badlowski, G.A.\***, and **K.J. Dunton**. 2018. Trends in the Abundance and Spatial-Temporal variation of Sharks and Rays in New Jersey Coastal Waters. 148th Annual Meeting of the American Fisheries Society Atlantic City, NJ, August 19-23.

**Daneshgar, P.P.** 2018 Climate change impacts on maritime and mangrove forest ecosystems. *Biodiversity, Earth and*

**DeTorre, M.C.\***. L. Holt, M.G. Frisk, R.M. Cerrato, and **K.J. Dunton**. 2018. Seasonal Diet and Prey Selectivity of Atlantic

Environmental Science Graduate Research Seminar. Drexel University. May 3, Philadelphia, PA.

**DeTorre, M.C.\***, L. Holt, M.G. Frisk, R.M. Cerrato, and **K.J. Dunton**. 2018. Seasonal Diet and Prey Selectivity of Atlantic Sturgeon in a Coastal Marine Aggregation. 148th Annual Meeting of the American Fisheries Society Atlantic City, NJ, August 19-23.

**Donovan, T.\***, **Hanna, K.\***, **Walton, L.\***, **Popo, C.\***, **Riley, M.\*** and **Daneshgar, P.P.** 2018 Plant Community Impacts on Northern Diamondback Terrapin Nest Site Selection and Success. Mid-Atlantic Diamondback Terrapin Working Group. Jacques Cousteau National Terrapin Estuarine Research Reserve, Tuckerton, NJ.

**Dunphy, B.**, Bastian, R., Kukowski, J., Trembley P., McGuigan, M 2018. "An Active Learning Approach Utilizing Case Study Presentations to Demonstrate Physiological Principles in Anatomy and Physiology. Statistical Analysis on the Use of Active Learning in Anatomy and Physiology." Poster presented at SENCER Summer Institute 2018.

**Dunphy, B.** "An active Learning Approach Utilizing Case Study Presentations to Demonstrate Physiological Principles in Anatomy and Physiology" Poster Session Human Anatomy and Physiology Society (HAPS) conference, Columbus Ohio, May 26-28, 2018.

**Dunton, K.J.**, **J.A Webb\***, **L. M. Kelly\***, **E. Ingram**, D.A. Fox, M.G. Frisk. 2018. Temporal Monitoring of the Endangered Atlantic Sturgeon (*Acipenser oxyrinchus*) in Sandy Hook Bay. Symposium Titled: Applied Sturgeon Science: Impact Assessment, Monitoring, Protection, Management, and Restoration. 148th Annual Meeting of the American Fisheries Society Atlantic City, NJ, August 19-23.

Ingram, E., **K.J. Dunton**, and M.G. Frisk. 2018. Occurrence of Atlantic Sturgeon in the New York Wind Energy Area. 148th Annual Meeting of the American Fisheries Society Atlantic City, NJ, August 19-23.

**Jacob, J.\***, **Soni, S.\*** and **Lobo, D.** 2018. Effects of manuka and kumquat essential oils on the growth and Viability of human cancer cell lines. Metropolitan Association of College and University Biologists (MACUB) Annual Meeting, October 2018.

**Klee, R.\***, **Zimmerman, K.** and **Daneshgar, P.P.** 2018 Community Succession After Cranberry Bog Abandonment Within the New Jersey Pinelands. Ecological Society of America Annual Meeting. August 5-10. New Orleans, LA.

**Longo, T.\***, **Shaheed, S.\***, **Vera, S.\***, Ballinger, M., Nachman, M., and **Phifer-Rixey, M.** Variation in reproductive traits among house mice adapted to different climates in the Americas. Evolution in Philadelphia Conference, Philadelphia, PA. September 2018.

**Longo, T.\***, Ballinger, M., Nachman, M., and **Phifer-Rixey, M.** Variation in reproductive traits among house mice adapted to different climates in the Americas. William Paterson Undergraduate Research Symposium, Paterson, NJ. April 2018.

**Phifer-Rixey, M.**, et al. The genetics of environmental adaptation: house mice in the Americas. Population, Evolutionary, and Quantitative Genetics, Genetics Society of America, Madison, WI. May 2018.

**Phifer-Rixey, M.**, et al. The genetics of environmental adaptation: house mice in the Americas (invited talk). William and Mary, Williamsburg, VA. November 2018.

**Reiss, B.\***, **Dunton, K.**, and **Phifer-Rixey, M.** DNA extraction from Atlantic Sturgeon spine and fin tissue. William Paterson Undergraduate Research Symposium, Paterson, NJ. April 2018.

**Rhoads, D.E.**, \*O'Shea, C. and \*Telatin M. Lipid Raft Dynamics in the Adolescent Brain under the Influence of Chronic Ethanol and Caffeine. American Society of Biochemistry and Molecular Biology at Experimental Biology 2018, San Diego CA, April 22, 2018.


**Rhoads, D.E.** Leadership Skill Development in an Undergraduate Biochemistry Lab. American Society of Biochemistry and Molecular Biology at Experimental Biology 2018, San Diego CA, April 22, 2018. Selected for oral presentation.

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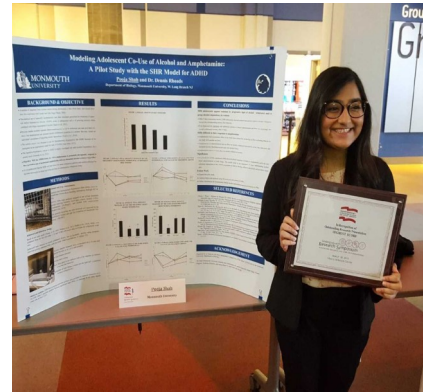
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## Biology Student Recognition...

The Biology Department would like to congratulate Pooja Shah for receiving a research grant (\$1000) from the Independent College Fund of New Jersey (ICFNJ) and then won the top award for best poster presentation at the ICFNJ research conference.



**Student Spotlight continued...**  
assisted by an eager faculty member.

**What are your future goals at MU and beyond?**

I plan on attending medical school after I graduate in May 2020, and intend to focus on working in health equity. I haven't decided if that means working in public health policy or administration, but I hope to obtain an MBA along the way to help mitigate aspects of the socioeconomic gradient in American healthcare to promote better patient outcomes regardless of race, class, and status. My experiences in the classroom and as

President of SGA have given me a good foundation for that journey in terms of knowledge, leadership, and decision-making, and I hope to make a difference in the healthcare industry one day.

**What advice would you give to younger students who want to become involved and make a difference here?**

If I had to give advice, I would definitely say don't be afraid of stretching yourself too thin at first. It is a much better move to get involved in things you like and then adjust your level of involvement depending on your primary objective, which is coursework and performance in

classes. It's okay to take that risk because you will never want to have regrets about the opportunities you may have been able to take advantage of. I would also say younger students should get involved in extracurricular work that is outside of their area of study to broaden their horizons and make themselves more well-rounded. You will get plenty of exposure to content if you major in the life sciences, but other opportunities on campus can help you grow and develop your ability to interact with others and make positive change on your surroundings. Lastly, make sure to schedule time to take care of yourself!

**Sebastian Vera, Megan Phifer-Rixey.** Identifying pathways with signals of global regulation linked to environmental adaptation in house mice (poster). William Paterson Undergraduate Research Symposium, Paterson, NJ. April 2018.

**\*<sup>#</sup>Shah, Pooja and Rhoads, D.E.** Modeling Adolescent Co-Use of Alcohol and Amphetamine: A Pilot Study with the SHR Model for ADHD. Research Conference of the Independent College Fund of New Jersey, Liberty Science Center, NY, March 19, 2019.

\*Telatin, M., \*Shah, P.M., \*Negroni, N.C. and **Rhoads, D.E.** An alcohol-adapted lipid raft: Is it a target for amphetamine and caffeine? Mid-Atlantic Pharmacology Society Annual Meeting, Philadelphia PA, September 27, 2018.

**Tiedemann, J.A.** and A.J. Danylchuk. 2018. Strippers for the Future: A Collaborative Angler-Based Research and Education Partnership. Presented at the American Fisheries Society Annual Meeting. Atlantic City, NJ. Abstract in: Abstracts of the 2018 American Fisheries Society Annual Meeting.

**Vasas, C.J. \*, A. M. Salamone\*, G. A. Badlowski\*, L. M. Kelly\*, T.A. Ohntrup\*, A.J. Rondella, and K.J. Dunton.** 2018. Collaborative Efforts to Evaluate the Demographics and Post-Release Movements of Sharks Captured in the Recreational Land-Based Surf Fishery. Symposium Titled: Bringing in the Experts: Collaborative Research Partnerships with Fishing Industry Stakeholders. 148th Annual Meeting of the American Fisheries Society Atlantic City, NJ, August 19-23.

<sup>#</sup>Pooja Shah received a research grant (\$1000) from the Independent College Fund of New Jersey (ICFNJ) and then won the top award for best poster presentation at the ICFNJ research conference.