

BioNews

DEPARTMENT OF BIOLOGY NEWSLETTER

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CHAIR'S CORNER



Dr. Mark Bolyard

Welcome to Winter in Jackson! We made it through a busy end of the semester with lots of news! First, we are excited to introduce you to two new faculty members. Dr. Euna (Esther) Choi comes to us from a post-doctoral fellowship at the University of Nebraska-Lincoln. She has hit the ground running, teaching microbiology, special topics in Cell and Molecular Biology (on "RNA Biology"), senior seminar, and team-teaching the molecular biology lab. She and her family are adjusting to life in Jackson, and we are glad to have them here. Dr. Hannah Henson ('09) returns to Union and is teaching Principles of Biology, Physiology, and Developmental Biology. As her former undergrad research mentor, it is exciting to see the work she

is doing. At the same time, we miss our recent retirees, although one of them has not gone very far. Dr. Wofford taught a senior seminar section for us this Fall and taught Pathophysiology in the Winter. It has been good to see him on campus!

New things are also happening in the plant sciences! First, we purchased four herbarium cabinets, which were originally at Harvard, from researchers at Austin Peay University. We look forward to increasing our plant collection. We also have good news about our Arboretum, but I won't ruin Dr. Schiebout's surprise; see his article below for the details!

Two curricular changes are in the works as well. First, in an article by Dr. Lockett, he describes our transition from our Graduate Certificate program to a one-year non-thesis Masters in Biology. We plan to begin this program this fall. Second, we are working on offering internship credit. This one-hour experience will allow students to transcript their internship and allows us to provide students with valuable practical experiences.

The Union University Arboretum was designated as the Arboretum of the Month by the Tennessee Urban Forestry Council (TUFC) in the December 2016 issue of their newsletter. This past semester our Arboretum became officially recognized as a Level 1 Arboretum by the Tennessee Urban Forestry Council (<http://tufc.com/arboreta.html>). To obtain this status, an arboretum must have at least 30 trees correctly labeled that have met a determined quality level. In October two representatives from the TUFC came to campus and inspected our Arboretum and verified that we had met the criteria. At present, our Arboretum has 41 different tree species, and we are now working toward being recognized as a Level 2 Arboretum, which among other criteria would require 60 different labeled tree species. Various tree planting events have occurred over the last year to add trees to the Arboretum, most recently on the Day of Remembrance, November 1. For more information about the arboretum, or how you could be involved, visit the arboretum website (<http://www.uu.edu/arboretum/>).



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FACULTY PROFILE: DR. ESTHER CHOI

By Jonathan Bowman

Dr. Esther Choi was hired to begin Fall of 2016 to fill our Microbiology position, previously held by the irreplaceable Mrs. Smith. Although she has worked in several different model systems throughout her career, she considers herself a microbiologist, and obviously enjoys what she does: "I enjoy looking at microorganisms under the microscope that express many different fluorescent-tagged proteins. I love to search God's laws and care for living creatures through them." Dr. Choi earned her Ph.D. at University of Illinois at Chicago in Microbiology and Immunology. Teaching at Union University is not Dr. Choi's first teaching assignment; previously, she taught Medical Microbiology at the University of California, Irvine, and Molecular Biology and Genetics at the University of Nebraska, Lincoln. At these schools, it was difficult for Dr. Choi to develop close relationships with students due to such a large class size. She enjoys the Union teaching setting where she is able to get to know students more personally. Dr. Choi was attracted to Union because of its integration of faith and science. Both her faith and scientific

career can be used more effectively for fulfilling God's promises. This helps propel her passion to help college students grow spiritually, professionally, and mentally, so that they can work for God's kingdom in a secular world. As a teacher, Dr. Choi enjoys the students the most because of their motivation, focus, kindness, and sincerity.

Dr. Choi's primary course is Microbiology. Additionally, since research is such a vital component of a Biology education, Dr. Choi is expecting to conduct research with future students. Her research plans focus on an RNA binding protein, Pub1, in *Saccharomyces cerevisiae* (Brewer's yeast). Her studies



on Pub1, a stress granule component, will include tagging the protein with a fluorescent dye to better understand the architecture, dynamics, and regulation of stress granule formation.

Dr. Choi grew up in Seoul, South Korea. She met her husband in Chicago, and has been married for 13 years. According to Dr. Choi, her son, almost 3 years old, enjoys chasing squirrels on Union's campus, and loves to eat muffins at Modero, which is located in the Logos library. When she is not teaching, grading,

or conducting research, her hobbies include hiking and reading. Dr. Choi is a great addition to Union's Biology Department because of her extensive knowledge of microbiology and her experience in research, as well as her passion to help students grow spiritually, professionally, and mentally.

TRANSITION OF CERTIFICATE PROGRAM TO A MASTER'S DEGREE (NON-THESIS)

By Dr. Marc Lockett

The Biology Department is pleased to announce the transition of our Graduate Certificate Program in Pre-professional Biology to a Master's Degree in Biology (non-thesis). While we are still awaiting final approval from SACSCOC (our accrediting agency), we are excited about this new challenge. We are confident this will assist in our recruiting efforts for our graduate programs and will represent the first (and, to date, only) M.S. program in the College of Arts and Sciences at Union. This move should allow our program to better meet the needs of our prospective students, who will receive a degree upon successful completion, and aligns more favorably with competing programs.

The new M.S. program will require an additional 5 hours of coursework (minimum of 30), completed in one academic year, culminating in the generation of a literature-based research paper. Students will work closely with a faculty mentor to develop their paper over the course of their year on campus and will present their work publicly at the Union University Scholarship Symposium in May. We are genuinely excited about the future of Biology graduate education at Union and look forward to introducing additional programs, including a M.S. in Conservation Biology.



Drs. Kerfoot and Blaschke gave a presentation on dinosaurs and birds to Thelma Barker Elementary first graders in November.

FACULTY PROFILE: DR. HANNAH HENSON

By Haley Hathcock

Dr. Hannah Henson is new to the Union Biology Department Faculty this year; however, she is not a new face on campus.

Originally from Marion, Illinois, Dr. Henson came to Union University to pursue her undergraduate degree in Biology with a concentration in Cell and Molecular Biology. Upon graduating from Union in 2009, she went on to the University of Tennessee Health Sciences Center where she received her PhD in Cancer and Development in 2014. During her time at UTHSC, Dr. Henson worked on a project researching the blood-brain barrier in zebrafish. Before coming to Union in 2016, she served as a Postdoctoral Associate at the University of Kentucky, and taught for a semester as an adjunct professor at Transylvania University in Lexington.

During the Fall, Dr. Henson taught Principles of Biology and Pathophysiology. In the Spring, she will be teaching Principles of Biology and Physiology.

In her free time, Dr. Henson enjoys being outdoors.

Was there a particular professor that you had at Union that made you want to pursue biology as a career?

Coming in as a freshman at Union, I knew that I was interested in biology, but wasn't sure that I wanted to declare it as my major. However, after taking Dr. Weaver's BIO-112 course, I realized that a career in biology was something that I wanted to pursue. She made the topics

we studied relevant to everyday life, and what impressed me the most was her emphasis on the fact that studying biology was an opportunity to learn more about God and His creation. Coming from a public high school, this was something new to me in regards to how science/biology points us to Christ.

Why did you decide to return to Union to teach?

After teaching for a short time at other institutions, I knew that if I was going to teach biology, I wanted to teach somewhere that would allow me integrate my faith with the topics I was teaching. I also realized what a privilege it would be to teach students about biology in a way that I was taught during my time at

Union. My professors at Union really equipped me for the challenges I would face after leaving Union and entering the scientific community. I wanted to have the same opportunity to equip students and share my experiences from a Christian perspective. Also, Union has a sense of community that I have not experienced on other campuses, and I feel honored to be a part of it.



What is it like from the other side of the classroom, most specifically at Union as an alumna?

Being on the other side of the classroom has taken some adjustment, but I have enjoyed my experience here. Initially, it was a little strange having an office

next to former professors, but everyone has been very welcoming. I have a lot of memories from my time here as a student, and it's nice to walk around campus and think back on those times. It has also been neat to see how the campus has changed since I graduated.

Do you plan to work with students on research projects?

I do plan to work on research projects with students. I actually have a student who will start working on a project during Spring semester. During graduate school and as a postdoc, I worked with zebrafish as a model system to understand how the brain and eye develops. The plan is to continue working with zebrafish here at Union. The first project will be looking at the effects of glucose on brain barrier development.

Is teaching what you wanted to pursue when you came to Union as a student?

As a freshman, my initial plan was to go to medical school and become a pediatrician. However, after volunteering one summer at a hospital, I soon realized that the medical field was not for me. I decided to go into research and planned to work at a children's research hospital. During graduate school, I did my research at St. Jude Children's Research Hospital, which was a great experience. However, what I enjoyed the most was mentoring undergraduate students who would work in the lab during the summer. During my postdoc, I worked in a research lab at the University of Kentucky and also taught part time as an adjunct at a small liberal arts college. While I enjoyed working in the lab, what I looked forward to the most was teaching and working with students. This experience also made me realize that teaching was the career path I wanted to pursue.



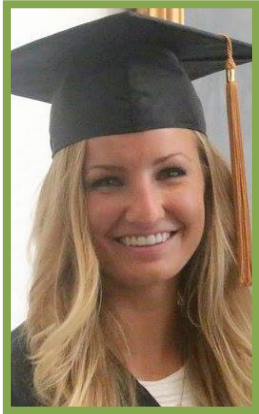
PUERTO RICO!

Plans are underway to offer the non-majors Survey of Biological Concepts course and a new Tropical Ecology course in Puerto Rico this summer! Drs. Kerfoot and Schiebout have put together an amazing trip for students to be able to study and experience the diversity of ecological systems on the island: terrestrial, wetland, coastal and marine! These are photos from a trip to Puerto Rico that Dr. Schiebout took in January; they show just a portion of what students will be able to experience through these course offerings.



ALUMNI SPOTLIGHT: DR. ERIN SPENCER

by Brooke Meadows



Dr. Erin Spencer, DMD graduated from Union University in May of 2012 with a Bachelor's Degree in General Biology. Two weeks later she began dental school at the Medical

University of South Carolina (MUSC) in Charleston, South Carolina. She recently began practicing dentistry with Aspen Dental in Nashville, Tennessee.

What are some favorite memories from your undergraduate years at Union?

My favorite memories from undergrad all center on my best friends. I was president of Kappa Delta Sorority and made lifelong friends during my time in that chapter. I remember one time when it snowed and classes were cancelled, we took the lids off plastic bins across the street from White Hall and raced down the hill. I can neither confirm nor deny that we may have ended up in the road after "sledding down." That's definitely one of my favorite memories. I also loved taking Gross Anatomy with Dr. Huggins because we delved into the beauty and intricacy of the human body in the context of a divinely inspired design. My favorite class at Union was definitely ecology. We took a trip to the smoky mountains and I'll never forget that because we had so much fun. I am also deathly afraid of ticks, so I would frequently scream along the hikes and

make people pick the ticks off me. Truly my favorite class though since I love the outdoors so much!

What inspired you to pursue this career path?

I was inspired to pursue dentistry because I have always felt living a wholehearted life is best achieved when helping others. I also grew up painting and drawing. Art class was always one of my favorites. Most people tend to forget that there is a lot of artistry, intricate technical ability, and fine motor skills required in the realm of dentistry. I am actually right brain dominant, and typically left brain people enter the field but I guess I am an exception! I also had braces twice while growing up, in addition to many other dental appliances. I love my smile now and I love helping others reach that same level of contentment with who they are. It's fulfilling when a patient tells me they can smile for the first time in years.

What was the hardest part of getting to where you are now?

The most difficult portion of my life was my first year of dental school. I had just left the "Union bubble" two weeks prior, and I was in a new city 12 hours from home. Dental school is four years, and when you have just begun you cannot fathom ever actually graduating. It took a lot of perseverance, and while I would not want to do it again, I am very glad I stuck with it. Anything worth having requires a lot of work, and that applies to careers and relationships. I often cried to my mom during the first year because I wanted to give up. I'm thankful I had her to lean on and to remind me of God's presence in my life.

Which professor had the biggest influence on your time at Union? Why?

I think that I would have to say Dr. McMahan had the heaviest influence on me during my undergraduate years. He was tough! He expected so much out of us as students, and it was extremely difficult to receive an A in his class. He is also the professor I had to go visit the most in his office in order to get that A I so coveted. I remember making an 89 one semester and just being so upset with myself over it. So if any of you are like me, just remember it's not the end of the world and you can still go on to achieve great things! I actually still correspond with multiple professors at Union because they inspired me so deeply. I want to say a special thank you to Mrs. Popplewell, Dr. Weaver, Dr. Madison, Dr. Wofford, Mrs. Huggins, and Dr. Huggins. I'm sure there are more I am missing. I loved biology because of all my wonderful professors. I think of them all the time and am so grateful they were a part of my higher education experience.

Do you have any advice for current students?

My advice for current students is to remember that every day matters, and every day you can be doing something to achieve your dream. Never stop learning. I pick up new hobbies and new areas of interests weekly to keep my mind excited! I learned to surf when I was in dental school at the age of 23, and being out on the water became one of the places I could feel closest to God. Find what you're passionate about and pursue it wholeheartedly, even when it gets difficult. Remember that God is able to do immeasurably more than all we ask or imagine!



UNION UNIVERSITY
DEPARTMENT of BIOLOGY

1050 Union University Dr. | Jackson, Tennessee 38305
731.661.5750

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Have you "liked" our Facebook page? It's a great way to keep in touch. You can see current happenings like the February hatching of praying mantis from a species collection done by the fall Invertebrate Zoology class! (shown here on Dr. Blaschke's hand, measuring about 6 mm long)

