

BIOLOGY/ALLIED HEALTH DEPARTMENT

From Biology Student to Physician Assistant

My path to becoming a physician assistant (PA) started when I returned from my year as a student missionary. I saw how the lack of affordable and accessible healthcare affected impoverished communities in Peru, and I realized that the same issue plagues communities all across America. When doing my research, I saw that PAs are uniquely poised to expand healthcare accessibility while also offering patients a more affordable option than seeing a doctor.

Back at Southern, I set out to add the necessary prerequisites to my pre-med degree. PA school often requires thousands of hours of healthcare experience, so I went to Emergency Medical Technician (EMT) school over the summer and got my EMT license. I started a part-time job as a mental health technician while also volunteering as an EMT at the local volunteer fire department.

After graduating with my biology degree in 2020, I took a gap year to help make my application stronger. I started working full-time as a patient care technician at Erlanger ER in downtown Chattanooga and also worked part-time as an EMT at Puckett EMS. Through both jobs I became very immersed in healthcare. I was able to see how medical providers, nurses, physical therapists, and many other healthcare

personnel work together to treat each patient. This immersion made me more excited to be a part of it all as a physician assistant.

While working on my school applications, I spent every day off researching PA programs, writing essays, seeking professional contacts to write letters of recommendation, shadowing a PA, and gathering the other required information. After months of work, I submitted my application to seven PA programs, wrote a few more essays, and then waited. Several months passed before I started hearing back from schools.

Physician Assistant, continued on page 2



Robinson volunteered as an EMT at the Tri-Community Volunteer Fire Department.

Life
Experiences

Physician Assistant, continued from page 1

My first interview invite came from a school in Oregon. Only 30 people were invited out of 400 applicants, so I was ecstatic! More interviews followed, and most of them were conducted over Zoom. By the time I'd completed all of my interviews, I had received an acceptance from Charleston Southern University. I am still on the waiting list for two other programs, but I quickly accepted CSU's offer.

I now plan to move to Charleston, South Carolina, for my PA program that starts in January. At this point,

I hope to work in preventative medicine when I graduate, so that I can help bring healthcare to communities with a shortage of healthcare providers. Throughout the whole application process, I learned a lot about the PA profession and the various application requirements, which were sometimes challenging. I hope to help future applicants navigate their way through the difficult process and enter the exciting profession of physician assistant.

By Eli Robinson, '20
Submitted to Professor Joyce Azevedo, PhD



Eli Robinson, 2020 BS Biology-Research Graduate

Gratitude: The Bridge Builder

Remember when you did that thing you worked so hard at, brimming with the desire to light up a loved one's smile? Remember when you presented the fruit of your labors, only for that happiness to die on the sword of apathy? You were hurt. You wondered what you could have done to make the person happier. Then you were angry. Why do people you love take your labors for granted? Couldn't the recipient at least have said, "Thank you"?

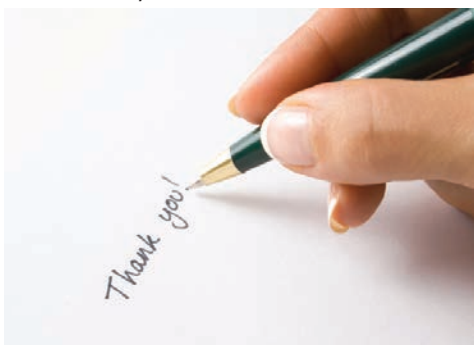
Ah, yes. Thank you. Those two words were drilled into most of us since we could talk.

"Johnny, what do you say to your Dad for helping you with homework?"

"Thank you."

"Jenny, your aunt gave you a compliment. What do you say?"

"Thank you."



"Jason, did you thank Mrs. Jones for the new toy?"

Why does this simple expression of gratitude illicit such an emotional response? Perhaps it's because feeling appreciated is so important. To be told that our efforts are seen can make the heaviest burden seem lighter. All of the pain feels worth it if our sacrifices were not taken for granted. To know that you are valued can be a soothing salve.

Even researchers have noticed that a simple "thank you" is a tried-and-true relationship builder and enhancer. Studies show that people want to connect more with those who take time to express their thanks than with those who don't. Relationship therapists often ask couples to take time to notice what efforts their partner makes for them and highlight it with a sincere thanks.

God Himself notices and is made glad by our thanks. In one of the Bible's most ironic stories, the despised foreigner is the only one in a group of 10 healed lepers who returns to thank Jesus.

His action is not lost on the Lord, who asks: "Were not all ten cleansed? Where are the other nine? Has no one returned to give praise to God except

this foreigner?" Then he said to him, "Rise and go; your faith has made you well" (Luke 17:17-19, NIV).

Believe it or not, we are designed to thrive on being grateful. Gratitude has been shown to improve both physical and psychological health by reducing negative emotions, increasing empathy, improving self-esteem, and increasing quality of sleep, just for starters.

So go ahead. Take time to send a thank-you note to the professor who wrote a letter of recommendation for you. Deliver a thank-you basket to your friend who let you borrow a car for a week. Say a simple thank you to the person who held the door open for you when your arms were full. It'll work wonders—for you and for them.

By Josué Vega, senior mass communications major
Submitted to Associate Professor Noemi Gonzalez,
MS Biology

For more information, check out:
7 Scientifically Proven Benefits of Gratitude That Will Motivate You to Give Thanks Year-Round, by Amy Morin at forbes.com
The Ripple Effects of a Thank You, by Jill Suttie at greatergood.berkeley.edu

Department Happenings

Hickman Science Center's monthly research meetings resumed in person this fall with biology research majors Matthew Gano, Treson Thompson, and Rachel Kowski presenting updates on their projects at the September meeting.

Southern Arboretum installed 36 additional arboretum signs on trees across campus. Cheryl Craven organized a "Walk Through the Memorial Trees" on November 4 for family members of loved ones.

Joyce Azevedo taught General Biology over the summer at Rosario Beach Marine Laboratory, Washington.

Randy Bishop took a group of

students to Andrews University to look at the Allied Health degree programs they might want to enter after leaving Southern.

Aaron Corbit is on Sabbatical this fall—a much-deserved break after developing and then teaching A&P I this summer.

David Nelsen led students Treson Thompson ('22), Emma Canaday ('21), and Peter Elvin ('21) in presenting original research to the American Arachnological Society. In another feat, Nelsen placed 10th out of 180 runners in the ten-mile Stump Jump.

After teaching Plants in Medicine,

Animal Physiology, Histology, Anatomy & Physiology, and Smoky Mountain Flora for 15 years, Rick Norskov retired from full-time service in the Biology Department. As an adjunct, he is still teaching two of his favorite classes: Plants in Medicine and Histology.

Noemi Gonzalez began teaching Animal Physiology this fall after teaching 80-plus students Basic Microbiology online over the summer. Ann Foster developed this online class three years ago, and Professor Gonzales has been fine-tuning it the past two summers. It is a very popular class.

Happenings, continued on page 6



Matthew Gano presents a research update at the September research meeting.



Ecology's fearless leader, Professor Ben, pointing the way to island ecology.

Palau Adventist Wellness Center

When deciding what to do before graduating from Southern Adventist University, I immediately knew that I wanted to serve as a student missionary (SM). Months prior to my SM semester, some concerning thoughts were running through my mind. COVID-19 almost made it impossible for me

to work in my desired location at the time, and I couldn't think of a backup option. At one point I felt unsatisfied with myself spiritually and did not believe I could ever become a successful missionary. I took these concerns to God countless times in prayer,

and because of Him, I was able to travel to my chosen location despite COVID-19 and gained a more uplifting perspective of God's true purpose for me.

Since August 2021, I have been serving at Palau Adventist Wellness Center. **Palau, continued on page 4**



L-R: Brandon Park (biology alumnus, '21), Allie Mae Magtanong (biology major), Dr. Kat Estrada, and Paul Cooper (biology alumnus, '21) at the Adventist church in Koror, Palau.

Center in Koror, Palau, as a dental assistant and hygienist for the local community. The dental clinic serves patients who need fillings, root canal treatments, extractions, crowns, and dentures. My main responsibilities as an assistant include preparing specific materials and instruments for certain cases, welcoming and seating patients, and assisting the dentists during procedures.

I've also had the great opportunity to gain hands-on experience and patient interaction as a dental hygienist guided by the local dentists. For cleaning appointments, I use an ultrasonic scaler to remove any plaque buildup or calculus from the patient's teeth, followed by flossing and polishing. This experience has truly challenged my dexterity skills and given me unique insights into the dental field, which has been very helpful to me as a pre-dental student. I personally love getting to know each patient's family background or daily life, and later discussing ways to further improve his or her oral health.

A great concern at this clinic is associated with "chewers," or patients whose teeth reveal heavy black stain

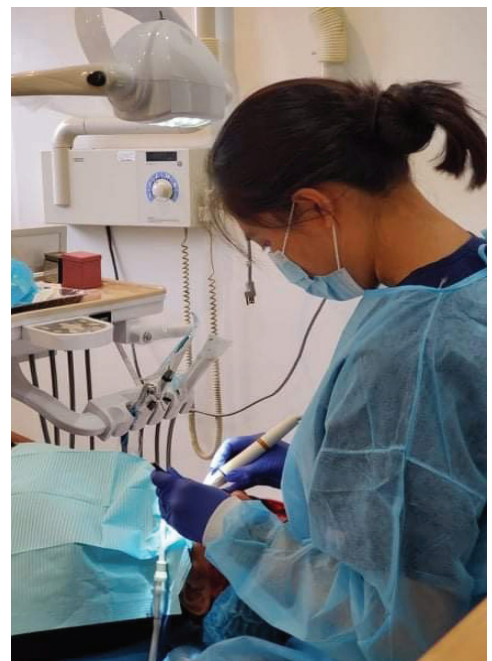
-ing and may appear very flat and mobile. This is caused by chewing betel nut, which is a common cultural activity here in Palau. As hygienists, we like to sincerely pray for them and their chewing habits. It can be a very emotional moment, as some try very hard to quit these habits while avoiding social pressure. It is very rewarding to see the patient's delighted face once they view their "new" teeth, after most of the stains have been removed.

During Sabbath hours, we have participated in Bible studies and church services with some of our clinic staff. One of my favorite experiences is singing to hospital patients at their bedside. I will never forget when our group sang to a sleeping patient who opened his eyes mid-song and gasped in delight when he heard all of us singing to him! It was an incredibly touching moment.

I know that God has called me to take a step forward in my faith in Him. That big step just so happened to be this semester of student missionary work. Because of the example Jesus has demonstrated for me, I have

undoubtedly developed a stronger passion for service and addressing the needs of others. My experiences here in Palau remain significant in my spiritual journey with God, and I cannot wait to see what else He has in store for me during my remaining months of service.

By Allie Mae Magtanong, senior biology major
Submitted to Professor Tim Trott, PhD



Allie Mae Magtanong cleaning a patient's teeth as a dental hygienist.

What Is Student Research?

Due to wide usage of the term “research” in today’s society, many students are unsure of what research in the sciences actually involves. They wonder: Is it relevant for me? What is research really like? What would I learn? What exactly does a researcher do? Would I enjoy it?

To help answer these questions, we’ve asked several biology majors to tell about their involvement in the different types of research projects currently taking place in the Biology Department.

Rachel Kowski is working on a project to help determine the effects of deer browsing on flora diversity and abundance. “Although I am still in the very beginning of my research project, I have enjoyed the process,” she says. “So far, a skill that has become incredibly useful to me is being able to find good literature. Being able to sift through journals and other papers while finding the data or information that I need has guided me in writing my research paper. Through working on this project, I have come to better understand the importance of asking questions. I’ve realized that every question I’ve had while researching, which I thought was holding me back, has actually gotten me further than if I hadn’t taken the time to inquire on my own.”

Jessica Leal is helping define a microfossil bonebed that contains the bones of a small dinosaur, fish, and crocodile. She comments: “While working to collect data for my research at Southern, I have had the oppor-

tunity to observe and learn from professionals who have shared their love of learning. The encouragement and support that my peers and advisers exhibit have helped me grow as a researcher and an individual. My experience thus far has helped me develop confidence to lead out in my own project and to ask for help when necessary. I am thankful for the mentoring I have received, which has allowed me to expand my knowledge in multiple areas of science and other disciplines.”

“**I’ve realized that every question I’ve had while researching, which I thought was holding me back, has actually gotten me further than if I hadn’t taken the time to inquire on my own.**”

Megan Marquez has experimented with scorpions to see how they change their defensive behaviors while they are hiding under a rock compared to when they are uncovered. She is preparing the data for analysis now.

Aiste Valentavicius is creating a model for students to use to judge the strength of their application to medical school. Once complete, students should be able to see how well their GPA and MCAT scores stack up against students who have been accepted to medical schools in the past. She shared: “I have learned that

research is a long and complex process and that it requires a careful and consistent approach. Research is discovering and interpreting new ideas in the world. Research will allow me to broaden my in-depth analysis of the world around me. It will also help me to develop stronger collaborative skills with those around me.

Elise Watts is analyzing her data on black widow spiders to see if they regulate the amount of silk they use to defend themselves based on the type of attacker: biological versus nonbiological attackers, known predator versus retaliation from prey.

By Keith Snyder, PhD
Chair of the Biology Department



Jessica Leal sifting soil for microfossils at Hanson Research Station, Wyoming.

Power for Mind & Soul

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**Happenings, continued
from page 3**

Keith Snyder spent the summer digging up dinosaur bones at the Hanson Research Station, Wyoming, and teaching Entomology at Rosario Beach Marine Laboratory, Washington.

Ben Thornton led ecology students on their yearly adventure through the Okefenokee Swamp and Cumberland Island. Other Ecology trips included exploring cave ecology at Mammoth Cave National Park, hiking in the Smoky Mountain National Park, snorkeling in the Conasauga River, and canoeing down the Hiwassee River.

Tim Trott stepped in as department chair this summer while Professor Snyder was digging and teaching. Professor Trott and David Nelsen also

taught the six-day “BIOS” boot camp for preparing students to succeed in General Biology when they start the fall semester.

Jill Zollinger joined us as an adjunct, teaching Anatomy & Physiology labs this summer and fall.

By Ben Thornton, PhD



Ecology students enjoy Cumberland Island, Georgia.