

BIOLOGY/ALLIED HEALTH DEPARTMENT

Lifelines

ALUMNI SPOTLIGHT

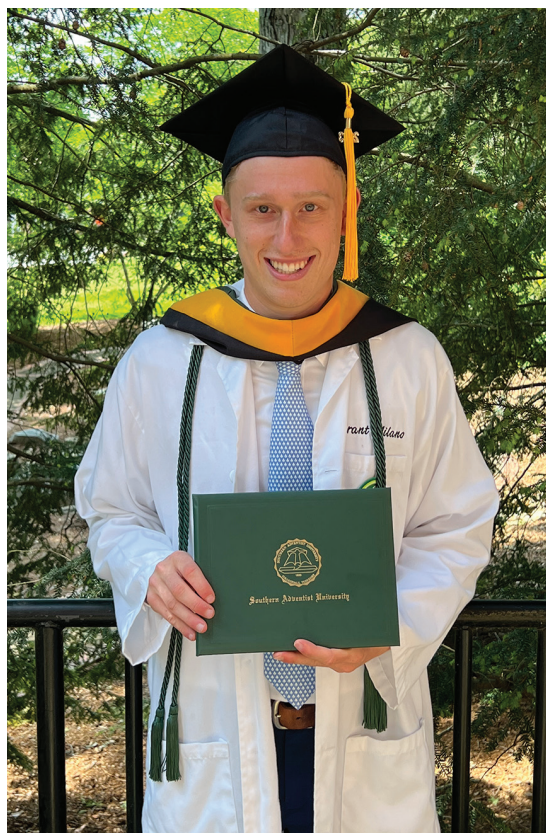
By Grant Milano, 2023 BS Biomedical Graduate

My heart pounded as the long-awaited email notification lit up my phone screen. This was it—the moment I had been working toward for years. Shadowing, volunteering, late-night study sessions, and countless applications had led to this. But as I opened the message, scanning for the answer I had been praying for, questions raced through my mind: Was this it? Would I have to apply again? Was this God’s plan for my life? Had it all been worth it?

Looking back, I realize my love for medicine started long before I received that email. As a young child, I was fascinated by the captivating world of healthcare—through books, movies, and endless hours of pretend play. Whether saving a stuffed animal with a toy stethoscope or reading medical books for kids, my passion only grew. It wasn’t until years later, during my undergraduate years in the halls of Hickman Science Center, that I truly began shaping this dream into reality.

Juggling demanding coursework, fascinating lab experiences, long hours of work, and the infamous late-night study sessions, I slowly built the discipline and resilience that would later benefit me in Physician Assistant (PA) school. The few hours of free time I could find each week were dedicated to researching possible careers, shadowing incredible providers, and asking more questions than a young child who just learned the word “why.” With each quiz, lab report, and exam, I felt my dream inching closer.

The application process was a true test of patience and perseverance (mixed, naturally, with self-doubt). Writing my personal statement forced me to reflect deeply on why I wanted to become a PA and the experiences that had led me to that point. After spending what felt like an eternity perfecting my essays, requesting recommendation



Grant Milano graduated from Southern in May 2023 with a BS Biology-Biomedical degree.

With each quiz, lab report, and exam, I felt my dream inching closer.

Alumni Spotlight, Cont. on Page 2



During his first semester of graduate school, Grant Milano learned how to administer an IV during clinical skills lab.

The journey isn't easy; it's filled with challenges, and it's long and difficult, but IT IS worth it. Trust the process, trust in God, and learn from any setbacks and struggles.

breath. When I opened my eyes, the words I had been praying for appeared on the screen: "Congratulations! We are pleased to offer you a seat in our class of 2026 PA program." I honestly don't remember anything else from the email, since a wave of relief, joy, and gratitude washed over me. Every struggle, late night, doubt, and prayer had been worth it.

The road to PA school was filled with challenges, but it shaped me into the person I am today. Through my undergraduate and application experiences, I learned the high value of perseverance, trust, and faith. And while my journey has just begun, I now carry these lessons, skills, and experiences to help me face any future challenge.

No matter what path you choose, here's my advice: keep pushing forward. Keep trusting, praying, and reminding yourself why you're working so hard. The journey isn't easy; it's filled with challenges, and it's long and difficult, but IT IS worth it. Trust the process, trust in God, and learn from any setbacks and struggles. Never lose sight of what brought you here and why you keep pushing. One day, that notification will pop up for you, too, and you'll look back and be able to say with confidence: I am where God wants me to be. He brought me this far, and He will carry me through. ■

letters, and rehearsing for interviews, I often questioned whether it was worth it. Each rejection or waitlist notification felt like a blow, but they were part of the journey I needed to take. Through all of the ups and downs, I leaned on my family, friends, mentors, and my faith.

This brings us to my final interview of the application cycle: the last school, the last shot before possibly waiting another year, reliving the application process, and facing potential rejections and discouragement. The interviewers asked tough questions. Some I had prepared

for through countless mock interviews, while others caught me completely off-guard. But as I spoke about my passion for patient care and the experiences that had shaped me into the person sitting before them, the nerves faded and a sense of peace washed over me. Regardless of the outcome, I knew I had given my best, tried my hardest, and would keep trusting God's plan for my life, no matter what.

Fast-forward to that long-awaited email notification. My heart felt as if it were in my throat as I clicked on the message, closed my eyes, and took a deep

DEPARTMENT HAPPENINGS

By Keith Snyder, PhD, Department Chair

Professor Ben Thornton arranged two **Sabbath hikes for biology/allied health** students and their friends. On February 15, our destinations were South Cumberland State Park and Savage Gulf State Natural Area, which included **Foster Falls, Greeter Falls, School Branch Falls, Savage Falls, Denny Falls, and Laurel Falls**. At Savage Gulf, a starter hike of about five miles also exposed students to the unique rock formation called Great Stone Door.

A separate trip to **Virgin Falls Pocket Wilderness** began in the Hickman Science Center parking lot at 6:45 a.m. on Sabbath, March 8. A few hours of travel delivered us to the trailhead. At the start of the hike, we followed a river as it descended into the valley. At one point, the river cascaded over a 45-foot cliff, where it vanished into the ground. Then we went behind a waterfall into a cave that is large enough to hold several semi-trucks! Another waterfall emerged directly from the cave at the top of a hill, and you could see deep into the cave from there. That waterfall flowed through several cascades before hitting the ground below and disappearing into another cave. The last waterfall was Virgin Falls, which also flowed from a cave, then spectacularly fell over a cliff and vanished into the ground. Each of these waterfalls was amazing and unique



Biology/Allied Health Department faculty pose with models purchased using Giving Day 2024 funds.

in its own way. We were “pleasantly tired” after about 10 miles of hiking.

Giving Day 2025 has come and gone. Because of YOU, we had another successful fund-raising event for much-needed equipment this year. Due to production challenges, we did not receive all of the models purchased with funds from Giving Day 2024 until just recently, but the students are really enjoying being able to have enough models to study in our full labs. This year, we have raised funds to purchase two sets of mobile microscope setups. This will include

computing power, a microscope with projection capabilities, a smart board to project and write on, and a stand for mobility. We are so thankful to all who could help us with tools that will enrich many of our classes.

Articles in scientific peer-reviewed publications are flowing out of the Biology Department. We are especially proud of Professor David Nelsen and the work of many of his students. Bolded names are professors and students from our department.

Dept. Happening, Cont. on Page 4



A hike on Sabbath, February 15, led to a variety of beautiful waterfalls.



Students enjoyed a 10-mile hike to Virgin Falls Pocket Wilderness on Sabbath, March 8.

Dept. Happenings, Cont. from Page 3

Published

1. Hayes, W.K.; Gren, E.C.K.; **Nelsen, D.R.**; **Corbit, A.G.**; Cooper, A.M.; Fox, G.A.; Streit, M.B. It's a Small World After All: The Remarkable but Overlooked Diversity of Venomous Organisms, with Candidates Among Plants, Fungi, Protists, Bacteria, and Viruses. *Toxins* **2025**, *17*, 99. <https://doi.org/10.3390/toxins17030099>, <https://www.mdpi.com/2072-6651/17/3/99>
2. Ullmann, P.V., Caputo, C., **Snyder, K.**, Chadwick, A., Ash, R.D. **2025**. Trace Element Taphonomy of the Hanson Ranch Edmontosaurus Bonebed Supports its Origin Via Transportation

of a Mass Death Assemblage. *Chemical Geology*. 627:122501.

<https://doi.org/10.1016/j.chemgeo.2024.122501>

Submitted

1. Chemical Management Strategies for the Invasive Joro Spider, *Trichonephila clavata* (Araneae: Araneidae). To: *Journal of Economic Entomology*. Authors: Angela Chuang, **David Nelsen**, Jordan Bailey, Michael Sitvarin, **Hannah Bergmann**, Vicky Bertagnolli, **Everaldo De Araujo**, Beth Donohoe, Wyatt Geitner, **Sarah Hunter**, **Jared Ing**, **Justin Park**, **Kaitlyn Vasquez**, **Amani Wang**, David Coyle.

2. Cytoplasmic Phylogenetics of the Introduced Joro Spider, *Trichonephila clavata* (Araneae: Araneidae) in North America. To: *PeerJ*.

Authors: James Russell, Nicholas Mizera, Christopher Brown, Angela Chuang, David Coyle, **David Nelsen**

3. Machine Learning Classification of Fossilized *Pectinodon bakkeri* Teeth Images: Insights into Troodontid Theropod Dinosaur Morphology from the Hanson Ranch Bonebed in Eastern Wyoming, Late Cretaceous. To: *Machine Learning and Knowledge Extraction*. Authors: Harvey Alferez Salinas, Jacob Bahn, **Keith Snyder**. ■

Origins Presentations Feature Creationist Paul Nelson

By *Abhishek Thavamani, PhD*

Paul Nelson, PhD, from the Discovery Institute based in Seattle, Washington, recently visited Southern Adventist University and delivered a series of thought-provoking presentations about Intelligent Design. He gave three different talks, addressing diverse audiences.

A New Name for Creationism?

In his first presentation, which was open to all Southern students, Nelson critically examined the claim that Intelligent Design is merely a repackaged version of creationism. He engaged students in innovative thought experiments by introducing the concept of “intelligence detectors” and how humans can naturally differentiate between events that were intentionally orchestrated using intelligence versus those due to undirected causes (natural laws). Examples included the case of “Robert Clark Ridge” and the

concept of “diagnostic intent,” or how we infer intelligence behind certain events rather than attributing them to physics or mere coincidence. Nelson then posed this question: If we can detect intentionality in everyday life, why not in biology? He cited Galen, who centuries ago discussed intelligent design in biology, to show that the debate over natural versus intelligent causes is far from new.

Nelson also led students through various intriguing discussions, from the logic behind Stonehenge as an accepted work of intelligence to the work of astronomer Jill Tarter of the Search for Extraterrestrial Intelligence (SETI) program, who would consider a Pi signal as a marker for intelligence from outer space. Nelson asked: If structured signals from space could be considered evidence of an intelligent mind, why shouldn't biological structures with similar or even much more complexity and precision be viewed in the same way?

ORFan Genes Shaking the Tree of Life?

Over lunch, Nelson talked to professors who belong to a Faith and Science discussion group led by Greg King, dean of Southern's School of Religion. In this talk, Nelson delved deeper into his own research about a class of genes that do not have the classical Open Reading Frame (ORF) structure of a protein-coding gene. Nicknamed “ORFan” genes because of their uniqueness in sequence, these genes do not share homologies with any other gene sequences from other species. Nelson cited a few examples of recently discovered ORFan genes that play a very important role in the development of individual species of salamanders, leafhoppers, and other insects. He reported that increasing numbers of ORFan genes are being discovered in many species, so that the uniqueness in genetic sequences is raising doubts



Paul Nelson addresses professors during a Faith and Science luncheon.

about a common origin for all biological species, or the proverbial “Tree of Life,” as many evolutionists believe.

Problem of Foresight in Evolutionary Explanation

In his final presentation to the students and professors of the Biology Department, Nelson focused on the metamorphosis and development stages of the monarch butterfly, especially its golden chrysalis stage. He described how imaginal discs form during the larval stages, which later become the adult butterfly’s structures, including its perfectly shaped proboscis. Nelson also introduced the “vanishing bridge” paradox of animal development and showed how this analogy raises important questions regarding natural selection and heredity as fundamental evolutionary mechanisms.

In regard to an equally fascinating organism, *C. elegans*, he quoted Bruce Wallace to emphasize the significance of the zygote’s founder cells and how the worm’s decisions in the development process seems to result in its many different cell types. Nelson said that he detects very little common ground between “animal development,” “natural selection,” and “common descent,” which is where the paradox exists. He then touched on the “rule of sufficient description,” em-

phasizing how scientific explanations must adequately account for observed phenomena. Drawing on the Wright brothers’ invention of controlled flight, he argued that biological complexity similarly requires an explanation beyond mere chance and necessity.

We’d like to share a few comments from students about the presentations, which challenged students and faculty to critically examine the foundations of scientific inquiry.

Abby Tching: “I was intrigued by Dr. Nelson’s use of thought experiments rather than by pure persuasion... ‘evolution is not the enemy’ but rather conflict stems from the interpretation of ideas rather than the data itself.”

Lincoln Yaste: “What stood out most to me about Dr. Nelson’s presentation was his argument about butterfly metamorphosis. He compared it to Houdini escaping from a locked box...metamorphosis also requires similar foresight. The full developmental process must be in place from the beginning to produce a viable result.... His presentation helped me better appreciate the complexity of biological mechanisms like metamorphosis and how our understanding of these concepts points to a Creator.”

Matthew Recalde: “Paul Nelson gave me new insight into how we view and detect evidence of intelligent design by giving real-life examples...by tackling different angles of various positions, such as methodological naturalism and metaphysical naturalism. One interesting case Dr. Nelson pointed out was evolution’s inability to have “foresight,” using the example of a caterpillar metamorphosing into a butterfly.”

Ellie Rose Emde: “It was such a pleasure listening to and learning from the two presentations by Dr. Paul Nelson. ... His argument style was not coming from a ‘this is right and that is wrong’ [perspective] but rather a ‘this is how you apply logic.’ Dr. Paul Nelson made the remark that each one has ‘detecting equipment’ outside of the tag of religion.... Christians can confidently believe in Intelligent Design within the scientific realm.” ■



Biology students attend an E. O. Grundset Lecture on February 27, 2025.

Biology Graduates 2024-2025



Reyna Adame
BS Biomedical



Emil Alav
BS Biomedical



Shania Amador Osorto
BA Biology



Nicholas Belenson
BS Biomedical



Gabriel Brown
BS Biomedical



Esther Chang
BA Biology



Logan Chang
BS Biomedical



Jay Choi
BA Biology



Allison Connelly
BS Biomedical



Everaldo De Araujo
BS Biomedical



Claire Elias
BS Biomedical



Jarod Fernander
BA Biology



Kiran Finley
BS Biomedical



Isabella Han
BS Biomedical



Wilson Hannawi
BS Biomedical



Cheyenne Hyde
BS Biomedical



Jared Ing
BS Biomedical



Joonbum Lee
BA Biology



Michaela Lohr
BS Biomedical



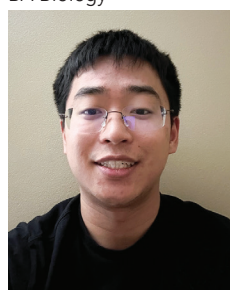
Maxwell Moon
BA Biology



Amaris Murillo-Mena
BS Biomedical



Andrew Park
BS Biomedical



Justin Park
BA Biology



Evona Paunganwa
BA Biology



Amanda Pocas Leitao
BA Biology



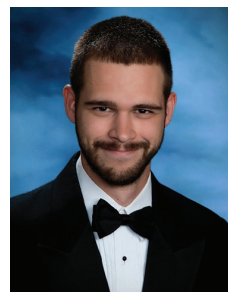
Nathan Ro
BA Biology



Emily Rojas
BS Biomedical



Andrew Sangar
BS Biomedical



Ben Shull
BS Biomedical



Lukas Smith
BA Biology



Lauren Vitangcol
BS Biomedical



Caroline Wagner
BS Biomedical



Jennifer Watkins
BA Biology



Trenton Wilkens
BS Biomedical



Jeffrey Yaste
BA Biology

Allied Health Graduates 2024-2025



Aleena Anderson
AS Dental Hygiene



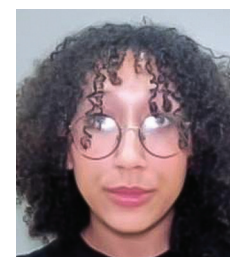
Katelynn Appel
AS Dental Hygiene



Reagan Arner
AS Speech Pathology



Frederick Duran
BS Health Science
AS Dental Hygiene



Arionna Haakenson
AS Speech Pathology



Apollo Jayme
BS Medical Lab Science



Wen Jun Ma
BS Medical Lab Science



Giselle Marsollier
AS Speech Pathology



Emmanuel Marte
BS Health Science
AS Speech Pathology



Daryen Matheson
AS Dental Hygiene



Dana McGrew
BS Medical Lab Science



Macy McIntosh
BS Health & Wellness
AS Nutrition & Dietetics



Mia Mitchell
AS Physical Therapy



Sharmaine Monreal
BS Medical Lab Science



Sarah Moody
AS Speech Pathology

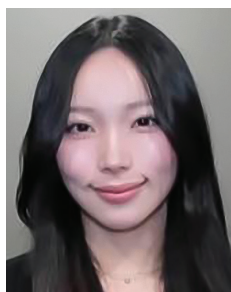
Allied Health Graduates, Cont. on Page 8

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Tise Suzuki, PhD
David Nelsen, PhD
Keith Snyder, PhD
Abhishek Thavamani, PhD
Ben Thornton, PhD
Tim Trott, PhD

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Allied Health Graduates 2024-2025 Cont.



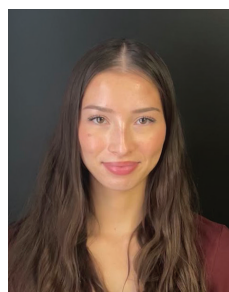
Lia Narikawa
AS Dental Hygiene



Elijah Oyoyo
AS Physical Therapy



JM Rigel Razon
BS Medical Lab Science



Anne Rupert
AS Dental Hygiene



Himari Tono
AS Nutrition & Dietetics



Mikko Villarin
BS Psychology
AS Physical Therapy



Mikko Villarin
AS Physical Therapy