

Biology/Allied Health Department

Construction in Biology

Building the Degree

Southern Adventist University's Biology program has been very successful in preparing students for medical and dental careers. In 2012, we began the process of expanding our program to include a degree tailored for those students interested in graduate school and biological research.

Our new B.S. Biology degree, with an emphasis in research, includes four core classes: Intro to Biological Research (Biol 282), Proposal Writing (Biol 305), Research in Biology (Biol 476) and Senior Thesis (Biol 496). Our goal with this degree is to attract a new group of students who desire all the environmental and spiritual benefits Southern has to offer and who want to prepare to be biblically-based research scientists in industry, government, academia, and medicine. We will prepare students to enter the world of research, the world where we study the works of the Creator with uncompromised values and authority.

During fall semester of the sophomore year, students learn the fundamentals of doing biological research, designing controlled experiments, data collection, and statistical analysis. During winter semester of the same year, students work one-on-one with a professor and write up an original research proposal (Biol 305) they will conduct during their junior year (Biol 476). During the junior year, these students will present their in-progress research in a poster session on campus during Research Day and at a regional or national science convention (last year we took eight students

to the annual meetings of the Association of Southeastern Biologists). During their senior year, the students write a formal thesis (Biol 496) and make an oral presentation on campus and at an appropriate science convention.

Building the Space

Building this degree was the beginning, but that first step required increased space. With a growing undergraduate research program, space allocation was at a premium. Because of the need for additional space, the department drew up plans to renovate the Hickman Science Center greenhouse and turn it into a dynamic undergraduate research facility. In August of this year, the Undergraduate Research Facility opened a new phase of growth within our department. This new space is designed with research in mind down to the smallest details.



New Hickman Science Center undergraduate research facility.

Building the Culture

Research and inquiry is where science comes alive. To continue building this



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academic culture, we have created a cross-disciplinary venue for students to receive constructive critiques of their research methods, ideas, analysis, and presentations. Once each month, students who are participating in research in Hickman Science Center (biology, chemistry, and physics) get together during lunch and present their research. Each month a different department presents. Lunch is provided by the departments in rotation.

Students are stretched to learn how different areas of science conduct and analyze research. They are drawn out to see how major thought questions involve biology, chemistry, physics, and math. After just the first session, it was exciting to see physics students talking with biology students about how their disciplines inform each other. Biologists and chemists learned of ways they can better collaborate and participate in research together. Southern science faculty shared their views supporting and guiding student research and presentations.



Brianna Taylor at winter 2014 ASB meeting.

Building the Future

Building the future involves vision. As we look into the future, we would like to see a Biology Boot Camp where freshmen biology students come to Southern before beginning their first semester here and learn how to be successful in General Biology and learn if a degree in biology is right for them. Other universities have experienced a 10-20 percent increase in freshmen success rate in General Biology after going through similar programs.

We also envision a summer research institute for high school students who see research in their future. These students will compete for a four-week stipend to conduct summer research. Students who are accepted into the program will spend eight hours a day working alongside student mentors and supervising faculty, learning research techniques used in world-class facilities. They will collect, analyze, and present their work in poster and oral presentations. Students who complete the program will receive a grant to fund their future research while attending Southern Adventist University.

Building the Finances

To build the above program, will take both monetary support and dedication from the faculty and staff at Southern. In February 2013, the Biology Department established the Biology Research Endowed Scholarship Fund through the Advancement office at Southern. The purpose of this endowment is to fund

student research, including presenting at professional meetings.

Knowing that research is becoming more important for pre-professional (pre-medical, pre-dental) students and those continuing on to graduate school, 100 percent of the Biology Department staff supported this scholarship with their contributions.

The goal is to build this endowment to \$50,000 by 2016. As of November 1, there was \$2,705 in the endowment. Those interested in being a part of the growth and development of student research in the Biology Department can help by adding to this endowed scholarship. Visit southern.edu/biology and click on "Give to the Biology Department." Then select "Biology Research Endowed Scholarship Fund." If mailing a gift, send to: Southern Adventist University, Advancement Office, P.O. Box 370, Collegedale, TN 37315 or call 423.236.2772 to make a gift over the phone.

The faculty and staff are dedicated to preparing students to enter the world of research by building degrees, a research lab, a culture, and visioning for the future. At Southern, we train students to study the works of the Creator with uncompromised values and authority. Thank you for choosing to be a part of this growth through your prayers, letters of support, professional contributions, and financial support.

By Ben Thornton

International Conference on the Bible and Science: "Affirming Creation"

Faith and Science Council met in St. George, Utah, August 15-24, 2014

The Faith and Science Council (FSC) of the General Conference of Seventh-day Adventists sponsored an international conference based on the denomination's understanding of biblical creation. The goal was to bring

together the academic dean, a religion professor, and a science professor from every Adventist college or university around the world. The presentations were in-depth from both the scientific and religious views. The location allowed field trips to the Grand Canyon and Zion National Parks, places where most of the participants had never been. The delegates were awestruck at both places, and gained

an understanding that could not be paralleled anywhere else in the world. Overall, the conference was successful at conveying the Seventh-day Adventist position and the reasons for a biblical creation to the delegates. The hope is that these fortunate few will carry their new understanding of this underlying doctrine back to their respective schools.

By Keith Snyder



David Nelsen, Ph.D., Joins Biology Department

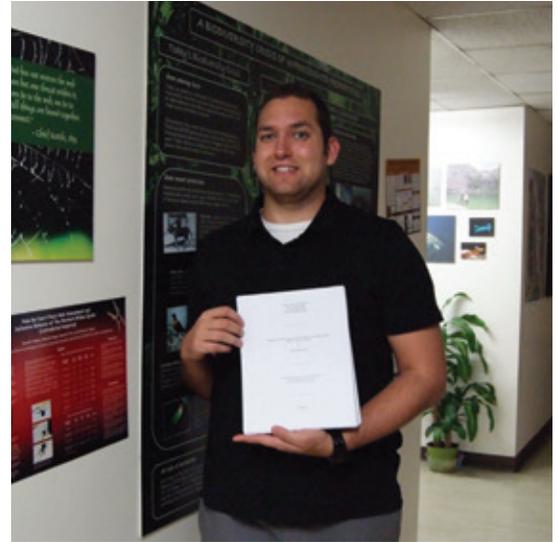
David Nelsen, Ph.D., has joined the Biology Department, coming from Loma Linda University where he studied under Bill Hayes, Ph.D. His doctoral work investigated how spiders use metabolically expensive products such as silk and venom for predation and defense.

After acquiring his doctoral degree, Nelsen worked on a post-doctoral position studying the paleohistology of dinosaur bones. This information can tell us about the biology of dinosaurs before death, and demographic information about the specimens found in large bone beds. An additional study

is to extract macromolecules from the bones to determine how diverse taphonomic histories impact the preservation of fossils.

Coming to Southern has been a bit of a homecoming for Nelsen because he graduated from the University of Tennessee at Chattanooga with a B.S. in Biology and has family in the area. When he is not in his laboratory or classroom, he and his wife, Marie, are keeping up with their five-month old daughter, Pearl.

By Ann Foster



Pre-medical and Pre-dental Students Attend Southern Union Medical/Dental Retreat

“Which fork do I use first, the salad or dinner fork? What is a salad fork?” These and other questions regarding the personal and spiritual lives of medical and dental professionals were asked by students who spent time with them at the recent Medical/Dental Health Professional Retreat sponsored by the Southern Union of Seventh-day Adventists.

Four pre-medical and four pre-dental students from Southern were introduced to physicians and dentists in a personal way at this biennial event October 10–11 in Gatlinburg, Tennessee. Each student was paired with a host medical or dental family and enjoyed one-on-one time Friday evening after the meeting and Sabbath morning during and after church.

Realizing the importance of intergenerational mentoring in connecting future medical professionals to the Adventist church (¹Kinnaman, 2011), the Southern Union sponsored these aspiring future physicians and dentists.

A student commented: “I absolutely loved the conference! It was so wonderful to be able to spend time talking and getting to know Adventist

health care professionals. I appreciated their honest words of wisdom and special encouragement very much.”

“It was a really positive experience being able to talk and connect with doctors and their families this past weekend. I was able to learn more about what my life might be like academically and family-wise.”

Southern’s Alumni Association also partnered with the Southern Union again this year by providing Sabbath lunch for Southern alumni, the host families, and their students. A highlight of Sabbath lunch was the attendance of Charity Penaloza Russell, M.D. and her husband, John. Russell was one of the first pre-medical students to attend this gathering back in 2008 when the pre-med/pre-dent student mentoring program began. She graduated from Loma Linda University School of Medicine this past summer and is in her first year of residency in North Carolina.

Rick Norskov, faculty sponsor of the pre-med/pre-dent students, remarked that this experience of intergenerational mentoring is working.

“This weekend saw the mentoring process come full circle,” Norskov said in reference to Dr. Russell’s serving



Back row: Jeffrey Mair, Brad Beiseigel, Austin Wagner, Jon Sundin, Front row: Shelby Webb, Lauren Santos, Marsie Mawuntu, Alex Scott

as a host physician. “We are grateful the Southern Union Medical/Dental Health Professionals Department values mentoring future professionals.”

Director and Associate Director from the Southern Union, Jim and Bonnie Davidson, have continued to support these students. Also, the Southern Alumni Association has begun a career mentoring program called LEAP this fall. For information, visit southern.edu/alumni/leapmentoring.

¹Kinnaman, David & Gabe, Lyons. (2011). *You Lost Me. Why Young Christians are Leaving the Church...and Rethinking Faith*. Baker Books, Grand Rapids, MI.

By Rick Norskov





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Department Happenings

Donation from Andrews

Southern's affiliation with the Andrews University Medical Lab Science (MLS) program has resulted in many positive outcomes. Our students are highly successful in the program and several have come back to work locally in Chattanooga. One of them, Daniel Gonzales, has just been hired to be a professor in their program.

When Andrews decided to completely revamp the two major labs for the MLS students, they were able to get several new chemical and biological

hoods. The older hoods still had a lot of use left in them, and they were offered to us. Keith Snyder traveled to Andrews, loaded one hood onto a trailer, and drove it back to Southern. An additional benefit was that we were able to get the spare filters from the other hood, so we now have many thousands of dollars' worth of equipment for just the cost of transportation. We hope to get the "new" hood set up soon because research students already have a need for it.

By Keith Snyder

Alumni Bird Count

The annual alumni bird count was led by alumni host, Jay Dedeker, and departmental host, Valerie Lee. The eight people that attended were split into two groups. One group did a count on the promenade and one headed toward the Student Park. In all, over 20 species were identified by sound or sight. While the counts were tallied, everyone enjoyed a box breakfast from the dining hall. Come join us next year!

By Valerie Lee

