

# Lifelines



Biology/Allied Health Department

## RAM Clinics

What about “Mission Service” stateside? That is exactly what several students in the biology and chemistry departments have done over this past school year on Sundays.



Charity Penalzo, Pre-med Club President, speaking with a patient.

Pre-professional students (Dental, Medical, Optometry) have been serving the local community and obtaining hands-on medical experience and job shadowing all at once. They have volunteered at Remote Area Medical® (RAM) clinics that provide free medical care in Grundy County, Knoxville and most recently in Pigeon Forge, Tennessee. RAM Volunteer Corps is a non-profit, volunteer, airborne relief corps dedicated to serving mankind by providing free health care. RAM

has discovered such a great need for medical care for the working uninsured that they have concentrated more on stateside medical services recently. Volunteers fly and drive to the clinics from all over the eastern United States.

Students typically arrive at 5:30 a.m. on Sunday mornings, usually at a public high school in the east Tennessee area, and at 7:00 a.m. begin serving patients who have little to no health insurance. Scores of people are camped outside the doors and will form a line of up to 400 people. Twenty-five or more dental chairs are ready inside, as well as triage and registration areas. Eye glasses are ground on the spot in an optometry trailer and patients will obtain consultation and exams with physicians. Southern students have assisted optometrists in checking eye pressure and dilating pupils, assisted dentists, and shadowed physicians. The premed club raised their own money for transportation and food although this last time they did charge \$10 per person for a cabin and food to stay overnight as they have to arrive so early to begin the clinics.

One student remarked, “I observed Dr. Sasson, an oral surgeon, extract teeth from numerous patients. One patient told me that he had not seen a dentist in 34 years due to no insurance. It was awesome to see thankful patients walk away with fewer diseased teeth and a little more hope.”

There were 14 students who signed up for the February clinic, but only eight volunteers were needed. Some preprofessional students have participated in mission trips overseas, but this is something they can and do enjoy almost in their own community.



Kevin Crawford checking a patient's eyes.



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ADVENTIST UNIVERSITY

Power for Mind & Soul

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Renita Klischies, M.S.  
Rick Norskov, M.D.  
Lee Spencer, Ph.D.  
Keith Snyder, Ph.D.  
Debbie Strack, Office Mgr.  
Neville Trimm, Jr., Ph.D.

# Notes From the Chair

“It was He who gave some to be apostles, some to be prophets, some to be evangelists, and some to be pastors and teachers, to prepare God’s people *for works of service*, so that the body of Christ may be built up . . .” Eph. 4:11,12



Keith Snyder

look at the joy of serving others.

Michelle Erwin, a Southern graduate, serves others in a different way. She has combined her passion for marine mammals with the desire to serve others. When I last talked to her, Michelle was bubbling over with excitement about being able to help handicapped children experience the love of God through the dolphins He has created.

Rick Seidel, another Southern graduate, has taken Ephesians 4 literally. He has taught about God’s creation at the high school level for seven years, returned to graduate school for his doctorate, and has just accepted a position here in the Biology department. Rick brings the exuberance of youth, tempered with the acuity of knowledge, as he looks forward to serving God by teaching

His future leaders. Rick will be replacing Dr. Earl Aagaard as he retires from our department.

Dr. Aagaard has accumulated a wealth of knowledge and teaching skills over the past three decades. He has served the Seventh-day Adventist Church in many unique ways such as philosopher, tour guide, and Peace Corps proponent. His life of service has included the wish to help people think objectively. As an example of this ability, he has consented to write a short piece on the two sides of global warming.

Please continue to pray for us and our students as we seek to prepare God’s people for works of service so that the body of Christ will be built up.

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## Alumni News Corner

Ever since graduating with her B.S. in Biology from Southern, Michelle Erwin (class of ‘98) has been making a splash just about everywhere she goes. Following her graduation, she immediately went to work for the Dolphin Research Center in the Florida Keys. During her work there, she completed various internships on dolphin training, marine mammal medical care, public education, and show performances.

Michelle now works at Gulf World Marine Park in Panama City Beach, Florida, where she is the senior Marine Mammal Trainer. In addition to working with veterinarians on medical issues, leading show performances, and facilitating transportation of the mammals under her care, Michelle also leads public encounters with the various marine mammals (dolphins, sea lions, seals, and penguins). According to one enthralled visitor, “Michelle Erwin, the vivacious Marine Mammal Trainer, guided us through our dolphin experience AND told us interesting details on dolphin anatomy and biology.”

Southern’s Alumni Council recently awarded Michelle with the ‘Young Alumnus of the Year Award’ for 2009. This award will be presented during the annual alumni banquet in October, 2009. We’re proud of you, Michelle!

It is great to hear from our alumni and we are looking forward to more Biology and Allied Health alumni news for our next newsletter.



# Dr. Aagaard Retires



“Papa” reading to Sophia Isabella Leslie Camacho.

Earl Aagaard, Ph.D. has lived a fulfilling life. A second generation San Franciscan, he attended Rio Lindo Adventist Academy near San Francisco, where he met his “wife to be” Gail Selby. His father and grandfather had attended Pacific Union College (PUC) and Earl followed their example. PUC had a profound impact on his life. His lab instructor had to be absent from an upcoming lab. Knowing that Earl had completed the lab earlier that week, the instructor asked him to teach the lab. Even though Earl was a student in the class, and felt somewhat inadequate for the task, he agreed to substitute for his instructor. After that experience, it became his passion to teach, and especially to teach at PUC.

Earl completed his Bachelor’s in Biology in 1969, married Gail, and both served as student missionaries in Bolivia, South America, the following year. After Bolivia, he completed his M.A. in Biology at PUC. In 1971, he enrolled at Colorado State University, in the College of Forestry and Natural Resources’ Ph.D. program in Wildlife Biology. After two years of study, Earl and Gail joined the Peace Corps, and he worked as a National Parks’

zoologist in Venezuela, completing the research required for his dissertation, entitled “Ecological Distribution of Small Mammals in the Venezuelan Andes”. After completing the data analysis in Colorado during 1976, the family returned to California for the birth of their son.

In 1978, Dr. Aagaard began four years of teaching science at the Adventist Academy in Modesto, where their daughter was born. The experience he acquired there laid the foundation for his career as a college/university professor. For 22 years Dr. Aagaard taught various biology and agriculture courses at PUC. In 2004, Dr. Aagaard was asked to join the Biology faculty at Southern Adventist University, where he has taught a variety of courses in Biology and Allied Health.

One of Dr. Aagaard’s main goals has been to broaden the view of students, to interest them in the natural world outside their professional vocation. He understands the importance for students on any career path—for example, medicine or dentistry—to be exposed to birds, gardening, philosophy, religion, etc. He is also committed to showing students that belief in traditional Christianity is fully

compatible with the empirical scientific enterprise. As part of Southern’s faculty, one of Dr. Aagaard’s important contributions has been helping to design the upcoming “origins center” that will line the halls of the Biology Department in Hickman Science Center.

Dr. Aagaard’s former students have gone on to become teachers, national parks’ personnel, physicians, dentists, professors, and more. Dr. Aagaard has traveled extensively, lecturing on “faith and science issues.” As he retires from full-time teaching, he looks forward to having more time to lecture, write, and spend time in the garden. But, most of all, he is anxiously looking forward to spending more time with his grandchildren. After 31 years of service in the Seventh-day Adventist educational system, we bid Dr. Earl Aagaard farewell as he heads to his new home in Oregon. His expertise will be missed, but we wish him God’s blessings as he embarks on this new phase of his life.

## New Professor Welcomed

Richard Seidel was recently hired as a professor in the Biology/Allied Health Department. He is a 1998 graduate of Southern and expects to receive his Ph.D. by June 2009. He will be replacing Dr. Aagaard who is retiring at the end of this school year.

Since leaving Southern in 1998, Mr. Seidel taught for seven years at Guam Adventist Academy (Talofofo, Guam) and Spring Valley Academy (Centerville, Ohio). While on Guam, he earned a M.S. degree in Biology with a Tropical Marine Biology and Ecology emphasis.

Currently, he is a Ph.D. Zoology candidate at Miami University, Oxford, Ohio. His dissertation is being written on his research on *Gammarus*, a small invertebrate animal living in desert freshwater springs. His work combines field ecological study of the animals with laboratory work on the DNA of various populations.



Mr. Seidel is married to Irma and they have a three-year old son. The future Dr. Seidel is no stranger to the teaching profession and not just from his high school teaching. His grandfather, Donald Seidel, taught many years ago in the Biology Department of Andrews University. His father is an administrator at Kettering Medical Center in Dayton, Ohio.

We are looking forward to Dr. Seidel joining the biology staff. The students will appreciate his enthusiasm and energy. After he gave a General Biology lecture recently, one student commented, "Hire him now!"

## Global Warming

The average surface temperature on earth appears to have warmed over the last several centuries. There are questions about the quality of data being collected because of creeping urbanization and other issues, but it seems clear that since the Little Ice

Age in the 1600s, global average temperature has increased slightly. Measurements show an increase of .75 degrees F. since 1900. This general warming trend has been in place since the last Ice Age ended, conventionally dated to 12,000 years ago.

This has not been a steady and continuous trend—since the 19<sup>th</sup> century, we see ten years of decline in the five-year running average during the 1880s, and another decline in the first decade of the 20<sup>th</sup> century. After another ten-year decline in the 1940s, there was no particular trend until the late 1970s, when the curve turned up again—but only for about 20 years. In 2009, we've had no particular change since the turn of the millennium.

So, what's going on? The short answer is that it depends on who you ask. The giant Global Circulation Models, running in super-computers and attempting to make sense of the world's climate, are reporting that it is the carbon dioxide emitted by human technological activities that is driving the warming we've measured. It's true that carbon dioxide levels are increasing, and that CO<sub>2</sub> is a greenhouse gas. As carbon dioxide builds up in the atmosphere, it tends to trap heat waves and warm the biosphere. That's actually a good thing since, without the greenhouse effect, our planet would freeze. On the other hand, if there were too much of this effect, we would end up like Venus, holding in so much heat that every living thing would cook. The scariest prediction about the human-induced global warming hypothesis is that unless we take dramatic and costly action, the ice caps at the poles and in Greenland will melt, and sea levels will rise up to 30 feet and swamp our coastlines.

However, the picture isn't actually that clear. For instance, most of the recently observed warming occurred before 1940, while the really large increases in human-produced atmospheric carbon dioxide

came after WWII, at the same time that the warming leveled off for almost 40 years. Carbon dioxide has continued to increase steadily, even though we're in another "pause" in the long-term warming. Those who question human responsibility for the observed trend to emphasize the "long-term trend" . . . the one going on since the last Ice Age. They also point to an interesting fact shown in the Vostok ice cores from Antarctica (<http://en.wikipedia.org/wiki/File:Vostok-ice-core-petit.png>). In these cores, it's clear that warming occurs first, and only later does the carbon dioxide content of the atmosphere rise. Conversely, cooling of the atmosphere is followed by lower levels of carbon dioxide.

How one views human-induced catastrophic global warming probably mirrors one's position on the political spectrum. Those who trust the government to protect the environment and want increased state control of citizens' activities, tend to be adamant that human beings are a major threat to the health of the biosphere. Those more suspicious of government power, and who place a higher value on individual liberty, emphasize alternatives to human causes of the current warming. These include the sunspot cycles that produce varying luminosity of the sun, the cosmic ray levels affecting the earth's cloud cover, and the cyclical nature of global temperature in the past.

Each of these two groups has evidence to bring to the table, and perhaps the most unfortunate feature of the current disagreement is how political it has become, with those who dissent from the conventional wisdom being treated as "heretics" and labeled "deniers." This is unacceptable in what is a quintessential scientific question, one that should be settled by reference to the data and its logical interpretation, not by the exercise of political power to gain victory over those who disagree.

**Biology  
Graduates  
08-09**



Brendon Brockmann  
Biology



Kevin Crawford  
Biomedical



Kevin Haag  
Biomedical



Bansuk Ju  
Biology



Lynette Khan  
Biology



Dasha Kulakov  
Biomedical



Lincoln Llewellyn  
Biology



Flor Osorio  
Biology



Amanda Parker  
Biology



Rebecca Peck  
Biology



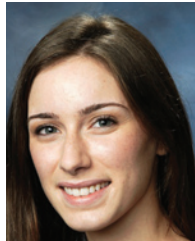
Brenda Prindle  
Biology



Bradley Schleenbaker  
Biology



Benjamin Smith  
Biomedical



Megan Souza  
Biology



Brent Willard  
Biology



Lisa Wilson  
Biology

*No pictures available:  
Barry Howe, Biology  
Joshua Kim, Biology  
Nathan Strub, Biology  
Tenielle Teske, Biology  
Sam Willis, Biomedical*

**Allied  
Health  
Graduates  
08-09**



Kimberly Benfield  
A.S. Physical Therapy



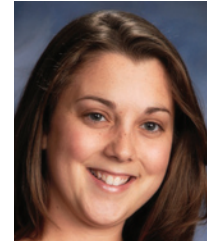
Ama Boakye-Dankwa  
A.S. Physical Therapy



Trisha Burnham  
A.S. Speech Pathology



Timothy Gotshall  
A.S. Physical Therapy



Amanda Gray  
A.S. Physical Therapy



Trina Holland  
A.S. Physical Therapy



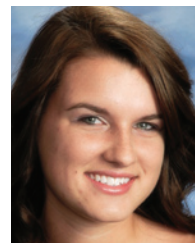
Andrew Johnson  
A.S. Physical Therapy



Spenser Lim  
A.S. Occupational Therapy



Rashi Mason  
A.S. Occupational Therapy



Erica Mosher  
A.S. Physical Therapy



Esther Nooner  
A.S. Speech Pathology



Allison Thomason  
A.S. Speech Pathology

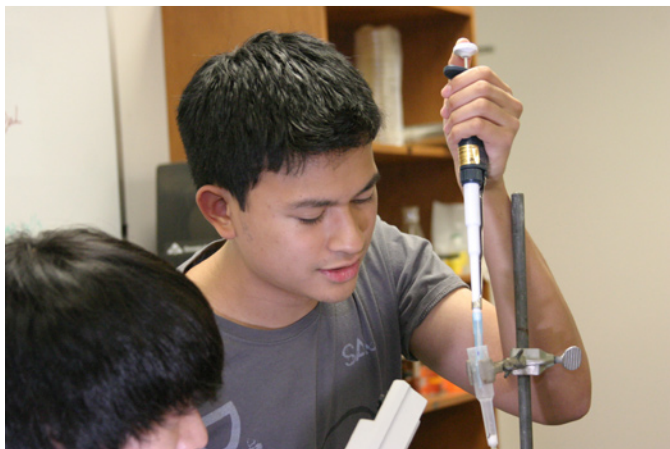


Rochelle Thompson  
A.S. Speech Pathology

*No pictures available:*

*Nichola Campbell & Danielle Grandy - A.S. Occupational Therapy  
Rebecca McCluskey, Allison Mirande & Noelle Snyder - A.S. Dental Hygiene  
Eric Paddock & Jeremy Wampler - A.S. Physical Therapy  
Heather Wilson - A.S. Nutrition & Dietetics  
Angela Ahn, Oni Chitu, Allan Faigao & DaHye Sung - Clinical Lab Science*

# Snapshots



Tania Fuentes working on her Cell & Molecular lab notebook.

AJ Pastor pipetting in Cell & Molecular lab.



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