

the Periodical

Southern Adventist University Chemistry Department



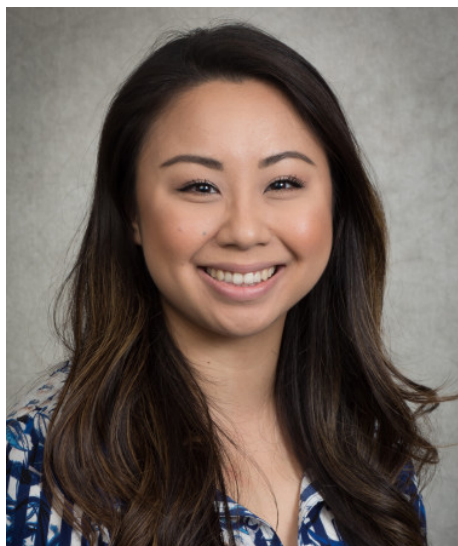
New Faculty Tamie Suzuki Shares Passion for Creativity

The Chemistry Department has welcomed Tamie Suzuki, PhD, to join its faculty following the departure of Loren Barnhurst. She is already very familiar with the Chemistry Department, having graduated from Southern Adventist University in December 2015 with a BS in Chemistry, Biochemistry Emphasis.

Following completion of her undergraduate degree, Suzuki took a position as a research assistant at Syracuse University and then began graduate study in organic chemistry there in the fall of 2016. During her graduate career, she worked as a teaching assistant and developed a strong reputation for the high quality of her teaching in the organic chemistry laboratory and recitation sections she taught. While developing her teaching skills at Syracuse, her fruitful research with trichloroacetimidates and functionalized indoles led her to progress rapidly toward completion of her doctoral dissertation, which she successfully defended this past April. She officially joined the Chemistry Department faculty in July, and her teaching

responsibilities this school year include Organic Chemistry I and II and Survey of Health Chemistry.

"I first fell in love with organic chemistry as an undergraduate at



Southern Adventist University and am thrilled to join the chemistry faculty at Southern and to be able to share this love with other university students now!" says Suzuki. She views organic chemistry as a "creative science," and she "is passionate about helping students develop their creative sides and

learn about God's thoughts, design, and creativity at a molecular level."

Suzuki was born in São Paulo, Brazil, but her family is currently living in La Sierra, California, where her father currently works as a physics professor at La Sierra University. She has two siblings who have also attended Southern: her sister, Tise (BS Biology-Biomedical, 2017), and her brother, Timothy, who is a current student. Before starting her position at Southern this past summer, she also got married, and the newlyweds welcomed a puppy to their family. She enjoys sweater weather, freshwater fishing, and spending time with God, family, and friends.

"We're truly blessed to have Tamie back here at Southern with us as a faculty member," says Brent Hamstra, Chemistry Department chair. "Her success as a teacher and researcher at Syracuse testifies to the strong foundation she received as a student here, and her familiarity with the Chemistry Department gives her an excellent understanding of the high standards and caring culture we've established here."

From the Department Chair

A few weeks ago, one of the Chemistry Department faculty members told me a story. She was talking with a colleague from another academic area, who mentioned that a student had asked him, "Why is your department so old and the Chemistry Department so young?" On hearing that, I was somewhat surprised to realize that there are at least some students who think we're a young department. Perhaps they are right.

It was not that long ago that I would have been considered one of the younger faculty members in the department, but those days are over. We now have a mixture of young and "experienced" teachers, and this is good. The new faculty members who have joined us over the past three years have brought a contagious energy to our department's work. Nuvia Saucedo has carried her excitement about chemistry to our freshman-level courses and to sponsorship of the Chemistry Club. Matthew Duffy has boosted our undergraduate research

program, producing increased motivation and success among our student researchers. He's also closely collaborating with Tamie Suzuki to build on the solid organic chemistry curriculum and teaching methods that the Chemistry Department is known for. Together, they are contributing innovations to our organic chemistry courses to improve our students' laboratory skills and their understanding of how to apply the principles of organic chemistry they're learning in the classroom to their work in the laboratory.

I'm excited about what these three talented individuals bring to the Chemistry Department. But while there is value in youth, there is also value in experience. So I'm pleased that our younger faculty have the opportunity to grow and develop professionally with the support, mentorship, and partnership of Rhonda Scott, Bruce Schilling, and Mitch Menzmer, who also continue to provide me with a better understanding of how to do my work well. We are blessed to have this combination of youth and experience right now



Brent Hamstra

in this department, and I think our students are fortunate benefit from that combination.

When Gordon Bietz was our university president, he often cited Albert Mayer's quote that "Education is a conversation between the older and younger generations on what is important." In the Chemistry Department, those aren't only conversations between faculty and students—they're conversations between faculty members that our students have the opportunity to observe. I hope that they're enjoying our conversations. I know I am.

Chemistry Website Updated

The Chemistry Department's website recently received several enhancements and updates. Pages providing information about the department's degree programs and faculty have been updated and streamlined for easier viewing, and the pages for the Chemistry Club have been expanded to include more information about past, current, and upcoming events.

A new section of the website focuses on career options available to people with chemistry degrees

and gives prospective students an idea of what chemists do on the job. Alumni may be interested in updated links to past issues of The Periodical and a new link they can use to donate to the Chemistry Department Affinity Fund and scholarship funds for chemistry students.

Additional features are currently being planned. To see the improved website for yourself, visit: **southern.edu/chemistry**



Alumni Spotlight

Adam Littell

When did you attend Southern Adventist University?

I attended from 2002 to 2008, and during the 2004-2005 school year I was a task force worker to Holbrook Indian School. I graduated in 2008 with a BA in chemistry and a minor in mathematics, with secondary education certification to teach both. Recently, I went back to Southern to take online classes for my MEd in Instructional Leadership through the School of Education and Psychology, which I completed in December of 2018.

What attracted you to Southern?

It was really the only college I ever considered. My friends were attending, and I had family in the area.

Why did you choose to study chemistry?

Ever since I was a young boy, I loved science and specifically chemistry. When I took chemistry in high school, I was fascinated by the way matter behaved given different conditions. I was interested in chemistry because I could learn more about God's creation and His power, and I could then share that with my future high school students.

Describe your experience at Southern.

I enjoyed most of my classes here, but I wish that I would have taken advantage of many more of the events offered through different departments, especially the Chemistry Department. My favorite memory at Southern has to be the semester that the Chemistry

Department needed another lab section of General Chemistry but realized that none of the professors had enough time in their schedules to teach it. I specifically remember the conversation I had with Professor Rhonda Scott when she asked if I would be interested in being the instructor for this new lab section. I was so honored and humbled that the professors had confidence in my ability to do this! That was truly a major highlight of my time at Southern.

Another favorite memory was my year away as a task force worker. I learned so much that year about myself and about teaching. I was able to teach Earth Science and 7th-grade and 8th-grade math. My friends and I were able to do quite a bit of traveling around Arizona and Utah, too. It was an amazing year for so many reasons! I also really loved my time as a chemistry tutor and teaching assistant for General Chemistry lab. Those were three years well spent!

Where was your favorite place to study?

Hickman's third-floor library.

What was your favorite class?

Inorganic Chemistry. I was able to learn about the properties and trends of all the elements. This was a very valuable class to me once I started teaching high school chemistry.

Tell us about your life immediately after Southern.

Once I graduated, I was hired at Union Springs Academy, a small boarding academy in Union Springs, New York. I was the math teacher there for three years and slowly transitioned out of



Chemistry graduate Adam Littell, '08, and his wife, Nina.

teaching math and into teaching the sciences, including chemistry, of course!

What are you doing today?

Today I am the vice principal of academics at Mount Pisgah Academy in Asheville, North Carolina. This job includes being a full-time teacher as well as a full-time administrator of the school. My administrative responsibilities include supervising and fostering the professional development of our teaching staff, providing direction for our entire academic program, and overseeing a satellite campus. I also teach Physics, Algebra II, Earth Science, and STEM. It's busy, yet rewarding.

What are some challenges?

Boarding academy life is all-consuming. The challenge is that working there is not just a job; it's a lifestyle. It's very rewarding, and I greatly enjoy it, but the workload is immense.

What are some rewards?

While it is nice to see students learn the course content, the real joy comes from helping students

and building relationships. Some students immediately appreciate what I try to do for them, while others don't truly appreciate it until they are gone from academy life and realize what I had been trying to train them for.

What advice do you have for current students who want to make the most of their time at Southern?

Be involved! Join a choir, go to vespers, participate in

Chemistry Club, study abroad, be a student missionary. Take all of the opportunities that present themselves to you, and enjoy your time at Southern, because there will never be another time in your life like it. Trust me, you'll miss things you never thought you would, such as vespers, pasta day, SonRise, lawn concerts, etc. Study hard and excel academically, but remember that there's more to the college experience than books.

Anything else you would like to share with us?

Thank you to the Chemistry Department for this opportunity to share and for providing part of the foundation that helped me get to where I am currently in my career!

Interview by Dennisse R. Blood

Department Happenings

Goodie Boxes

The history behind the "Goodie Boxes" tradition started shortly after I came to Southern Adventist University in 1996. Rhonda Scott, then the chair of the Chemistry Department, started to put up small Christmas stockings on a bulletin board in the department office each December for all of the chemistry majors. This was done as a way of enticing majors to stop by the office more often. Nancy Schilling decided that during the rest of the school year, the bulletin board could hold small boxes into which we could periodically place edible goodies. Since we are here in Collegedale with McKee Foods nearby, Little Debbie snacks tend to show up in



Bruce Schilling with the "new" famous "Goodie Boxes"



The old "Goodie Box"

the boxes fairly often.

The "Goodie Boxes" have become a Chemistry Department tradition spanning most of the last 22 years. This year, office manager Dennisse Blood put time and effort into upgrading from paper boxes to small bags made of material that she found with science symbols and elements. They are arranged on the bulletin board in the shape of the periodic table. All chemistry

majors and faculty members have their picture associated with a unique element. Students were initially interested in seeing which element was theirs. Currently assigned alphabetically, it has been suggested that they should be assigned so that each student's personality would match the properties of the element on his or her "Goodie Box."

By Bruce Schilling

Biblical Applications

“Transformation”

In the Fall 2015 issue of the Periodical, I addressed the power of a catalyst in chemical transformation, and how Christ through the Holy Spirit can catalyze a difficult situation in our lives and bring good from it.

Building off that idea, in this issue I would like to consider something related. The physical and chemical processes that we find so intriguing and captivating in chemistry, don't occur simply because we wish them to. They can only be brought about by very specific conditions. Students taking physical chemistry discover that a gas condenses only within a specific range of temperatures and pressures. In



quantitative analysis (as well as in general chemistry) students observe that indicator color change during a titration occurs only at a very specific volume ratio. Organic chemistry students learn that the transformation of one chemical substance into another requires a very specific sequence of condi-

tions and additions of reagents. In the same way, bringing about moral or spiritual transformation in our lives does not occur simply because it is wished so. Rather, it requires a very specific external Agent, accompanied by very specific conditions of the heart and mind. The Apostle Peter said, “there is salvation in no one else, for there is no other name under heaven given among men by which we must be saved,” Acts 4:12 (ESV). “He saved us, not because of righteous things we had done, but because of his mercy,” Titus 3:5. “Jesus replied, Love the Lord your God with all your heart and with all your soul and with all your mind,” Matthew 22:37.

By Mitch Menzmer

Transformation

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V J W J M P D S S U O E T H G I R L C F
O N Z Y S E R U T A R E P M E T Q R W H
Z W E R D R N O R N L K I I C A E I I Z
E K O F B I D O O T E N M H K M V S L X
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S H A V W I W E I I A Y O E P F J B A Z
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H M Y N A A K S C E V Z L R E N O G O J
Z I O M P L L J N E W S A A S A G G Z T
X C T R K X Y N Z P C X P T S R G T V K
A A Y X A H Y S N K J J T I U T P N A R
J L X B H L T E T B Y W S O R Y U Y U Q
N L C K K Q I L H D V Y O L E I L U W B
F T T M Z X I A U D L S V V S A T A E H
G D W J Y G Z X W A D R W D C R H U U W
L H H X B T J W N Z P Z N Q A W Q H A K
Y F K S E C Z A H S U H Q E G V O D J L

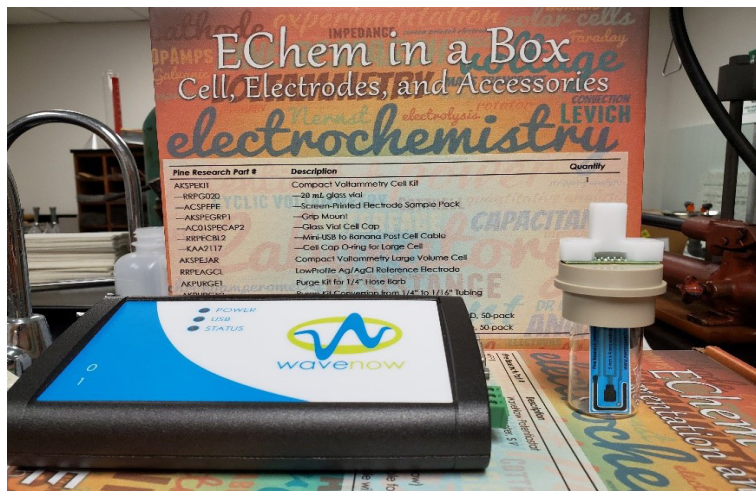
Word Bank:

CATALYST
CHEMICAL
CONDITION
HEART
HEAVEN
MERCY
MIND
MORAL
PERIODICAL
PRESSURES
RATIO
REAGENTS
RIGHTEOUS
SALVATION
SOUL
SPIRITUAL
TEMPERATURES
TRANSFORMATION
VOLUME

Department Happenings (continued)

New Electrochemical System

This past summer, the Chemistry Department purchased a WaveNow© Electrochemical System from Pine Research. The instrument is capable of doing traditional potentiometry experiments such as chronoamperometry and linear and cyclic voltammetry. This particular model is designed for use in student labs and includes screen-printed electrodes (SPE) of working, reference, and counter electrodes (all in one). This is really exciting, as SPE and related devices have gained a lot of momentum in research and development and in analyte detection. Research articles written about SPEs have more than doubled since last year! Future use of this instrument includes senior research projects, Instrumental Analysis lab, Inorganic lab and



Physical Chemistry lab. This new instrument will expand our students' skill set and better prepare them for research careers. The equipment is highly portable and can be used in a variety of locations throughout the department. The image accompanying this description

shows the SPE in a 20 mL electrochemical cell with a mini-USB connector for data recording. We are very thankful to God for this new addition.

By Nuvia Saucedo

Periodic Tables Available for Teachers and Students

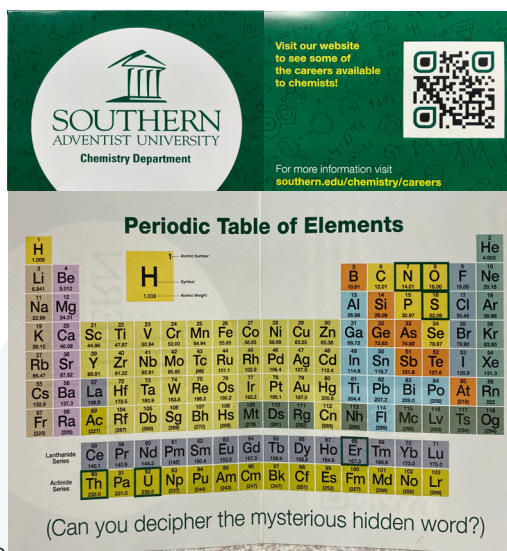
The Chemistry Department, in conjunction with Marketing and University Relations, has developed a compact 3" by 5" foldable periodic table for use by students taking high school chemistry courses. The outside of the table advertises the Chemistry Department and its website, with a link and QR code for a page on the department website that contains information about careers in chemistry.

Professor Brent Hamstra, Chemistry Department chair, says: "With 2019 being the International Year of the Periodic Table and the 150th anniversary of Mendeleev's version of the periodic table, we thought it was a good time to share the periodic table and information

about the field of chemistry with students. We want to help students understand chemistry better and know more about how a chemistry

degree might fit in with their future plans and goals."

The department plans to freely provide these periodic tables to chemistry teachers at academies throughout the Southern Union to use with their students, and to prospective students as they visit the Chemistry Department or talk with the department faculty. If you know of a chemistry teacher or student who is not at a Southern Union academy who would be interested in receiving this periodic table for student use, contact the Chemistry Department at 423.236.2931 or chemistry@southern.edu.



Department Happenings (continued)

Student Missionary Bonds with Boys at Bolivian Orphanage



Mason Clark, '20, working in the fields (and having a little fun on the side).

As a veteran summer camp counselor, I thought I had the “single dad of 10” gig down to a science. So, when presented with the opportunity to take a year off from school to be a house parent and teacher at an orphanage/boarding school in Bolivia, I figured I had what it took. Little did I know that I was about to be pushed off into the deep end of the pool known as “parenting.”

I discovered some key differences between working at our orphanage, Familia Feliz, and being a counselor at summer camp. The first was the language barrier. Nearly all of the kids and some of the volunteers spoke only Spanish.

Another major difference was the length of time spent with each group of kids. At summer camp, you generally get a different group of kids each week. Even if you have a tough camper, there's always a light at the end of the tunnel, because the following week brings a new group and you don't have to deal with the problem camper anymore! In Bolivia, however, I was assigned to the same 10 boys all semester long (and in some cases the whole year). In light of these differences, I realized that my situation in

Bolivia was much closer to what I imagine parenting is really like.

After being with the same group of kids week after week, it was only a matter of time before conflicts arose. Discipline was a way of life at Familia Feliz, and any inconsistency in punishment only caused more issues. I



quickly learned that punishments weren't just a trial for the kids. They were just as bad—and sometimes worse—for the house parents. Someone must make sure the kids follow through with their penance.

This principle of “dual punishment” manifested itself one sweltering Sunday morning as I worked with my boys out in the field. Another teacher, after discovering my boys playing a crude game, had given them the task of planting plantain trees while everyone else went to town for ice cream. As their house parent, it was my duty to stay behind and make sure they

worked, a task I found much easier if I worked alongside them. I hadn't done anything wrong, but as the guardian of my 10 boys, I received the punishment.

One of the harshest punishments given at Familia Feliz is expulsion. Parting ways with three of my boys when they were given this consequence was one of the biggest challenges I had to face as a house parent. Those three were probably the most difficult and rebellious of my boys, but contrary to what one might think, it was extremely difficult to see them go. Expulsion was a lose-lose situation, because many of the kids at Familia Feliz came from broken (and often abusive) families. It was a loss for the volunteers at Familia Feliz, in that we no longer had the power to help and influence the expelled kids, and it was a loss for kids who had to return to a difficult home environment.

I was assured that such a punishment was given only when the recipient had acted in a way that threatened the well-being of others, which was the case with my boys. All three had been aware of the rules, and they deserved their punishment. But it was heartbreaking when one of the boys began begging to stay, out of fear for what his parents would do when they learned of his offense. In the end, because he had previously been given many chances to improve his behavior, the decision was made to send him—and the other two offenders—home.

I went from being a father of 10 to the father of seven in the



"Teacher, take a picture for Facebook!"



Mason Clark, '20, and the Casa de los Vegetales at Familia Feliz in Bolivia

matter of a few days. This was just another lesson in the harsh world of parenting. I hadn't realized how quickly I would bond with those kids or how devastating it would be when that bond was torn apart. Even though I had been a house dad for only a little over a month at that point, my heart went out to

my three troublemakers and was promptly broken as they packed their bags with tear-stained faces.

The love I developed for my boys has given me a new perspective on the love that God has for us. His love is beyond our comprehension, but just as it was for me and my boys,

our relationship with God has been torn apart by the sin that plagues the world. Thankfully, God had a plan to deal with sin. Jesus would be sent to receive our punishment: death—even though He didn't do anything wrong. God truly is a heavenly Father who suffers on our behalf.

By Mason Clark

December 2019 Chemistry Graduates and Their Plans for the Future



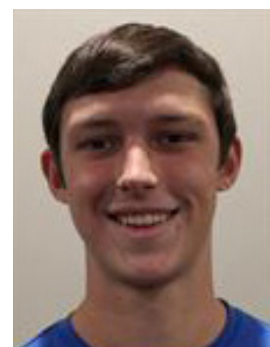
Jared Chung
BA Chemistry
1 year of student missions
Attend medical school



Edward Choi
BA Chemistry
Attend dental school



Leonel Espinoza
BA Chemistry
Attend dental school



Adam Fisher
BA Chemistry
Attend medical school



Christina Leibold
BS Biochemistry
Attend pharmacy school



Hyunji Park
BA Chemistry
Loma Linda University
School of Dentistry

Chemistry Club Officers Fall 2019

President - Alex Bahn
Vice President - Jason Chung
Secretary - Nicole Onciulescu
Treasurer - Tyler Bell
Pastor - Sydney Blackburn
Sergeant at Arms - Elodie Manalo
Public Relations - Elaina Bergondo



Power for Mind & Soul

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Rhonda Scott, PhD

Tamie Suzuki, PhD

Dennisse R. Blood, Office Mgr.

Top Achievers and Outstanding Seniors



These students each received \$500 scholarships as Top Achievers in the Chemistry Department during the annual Awards Convocation on April 25, 2019. Pictured from left to right are Jason Chung, Daniel Lee, Giana Muchiutti, and Kayley Alonso.



For the first time, the Chemistry Department recognized three students as Outstanding Seniors at the annual Senior Recognition Banquet on April 7, 2019. On the left are Kyle Shaw and Marissa Chang, the Outstanding Seniors in Biochemistry, and on the right is Megan Schlinsog, the Outstanding Senior in Chemistry.