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the Periodical – Departmental Newsletter

Chemistry Department

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Winter 2014

# the Periodical Winter 2014

Southern Adventist University

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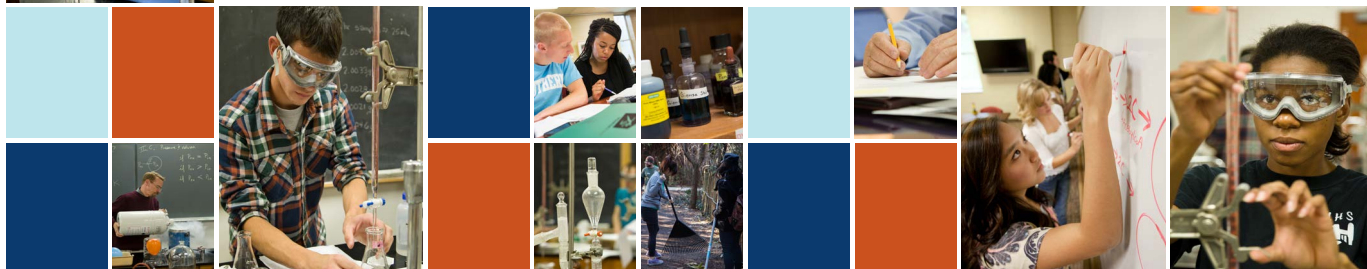
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# the Periodical

**Southern Adventist University Chemistry Department**



## Department Chair News

### Highlights of Scott's term as Chair of the Department

Rhonda Scott, Ph.D. is stepping down as chair of the Chemistry Department this spring, after having served in that position since her arrival at Southern Adventist University in 1997. The past 17 years have been a period of growth and change for the department.

In 1999, the Chemistry Department had 24 majors. This fall, we began with 81 majors (down slightly from a high of 93 majors in 2012). The establishment of the biochemistry emphasis degree option has been a major factor in this growth, and it continues to be our most popular degree.

In the 2012-2013 school year, the chemistry department produced a record number of graduates (20).

During this time, the faculty has grown from three to seven full-time faculty and now has members with expertise in all of the major areas of chemistry (analytical, inorganic, organic, physical, and biochemistry).

The Chemistry of Everyday Life course developed by Scott

continues to be a popular general education option for non-science majors, using a variety of methods and activities to engage students in learning chemistry.

Students in medical and dental school frequently praise Scott's biochemistry courses as being excellent preparation for the biochemistry courses they take as part of their professional training.

Many chemistry alumni have fond memories of Friday night Chemistry Club suppers and vespers at her home, among other Chemistry Club functions. Her willingness to open her home to students has played a key role in fostering the close sense of community among Southern's chemistry majors.

And while guiding the department through this period, she also managed to find the time to co-author a textbook, mother two sons who graduated from Southern themselves, and take up running (for which she has won several awards and trophies).

She leaves an extensive legacy of accomplishment as she steps down from her position as chair;

we expect that she has a number of additional accomplishments ahead as she continues to teach and mentor her students and colleagues at Southern.

*By Brent Hamstra*



Power for Mind & Soul

# Faculty News

## Chemistry Faculty



Back Row (Left to Right) Mitch Menzmer, Loren Barnhurst, Brent Hamstra, Bruce Schilling, Herman Odens  
Front Row (Left to Right) Jan Cathey, Rhonda Scott

**Jan Cathey** completed her undergraduate degree with a B.S. double major in chemistry and biology at Middle Tennessee State University and was awarded as Outstanding Senior Chemistry Student. She worked several years as an environmental chemist before going back to school and graduating from MTSU with a Master of Science in Teaching in Chemistry. She taught 17 years at the high school level teaching AP Chemistry, AP Physics and Honors Physics. She was awarded Tennessee Physics Teacher of the Year in 1999 and one of MTSU's Master Teacher Fellowships in 2008. In 2009 she began to pursue a Ph.D. in math and science education with an emphasis in chemistry and plans to complete the degree by 2015. She joined the chemistry faculty at Southern Adventist University in 2010. Jan met her husband, Ricky, in graduate school where they both were assigned as teaching assistants in side-by-side chemistry labs. They enjoy studying Bible prophecy and finding restaurants that serve vegan options. They have two children, Brandon and Erica, both recently graduated with physics degrees. They have two cats and a dog.

**Rhonda Scott** is completing her 17th year at Southern Adventist University serving as department chair and will return to full-time teaching next year. Scott completed her B.S. in chemistry in 1979 at Union College and her Ph.D. in biochemistry in 1983 at the University of California, Riverside. Prior to coming to Southern Adventist University, she taught at La Sierra University and the University of Wisconsin, River Falls. Both of her sons are now out on their own. Michael has recently relocated to San Jose, Calif., where he is a software engineer at Google. Chris graduated this past December and is currently working at Glacier View Ranch in Colorado doing whatever needs to be done (as well as enjoying all of the snow!).

**Mitch Menzmer** completed a B.S. in chemistry at Pacific Union College (Angwin, Calif.) in 1985 followed by a Ph.D. in analytical chemistry from Clarkson University (Potsdam, N.Y.) in 1989. After graduate school, he taught at Grand Valley State University (Grand Rapids, Mich.) for one year and then accepted a teaching position at Pacific Union College, where he taught for 10 years. From 2000 to 2007 Menzmer taught at Southwestern Adventist University in Keene, Texas, including serving in 2006-2007 as chair of the Department of Mathematics and Physical Sciences. In 2007 he and his family relocated to Collegedale, where Menzmer currently teaches chemistry at Southern Adventist University. His research interests



include mechanisms of formation of methyl-substituted cycloalkenyl cations and philosophical aspects of origins issues. He says, "My passion is helping students understand science from a Christian perspective." Menzmer and his wife, Susan, have two children: Austin, who is a sophomore biology major at Southern, and Alison, who is currently being schooled at home. In addition to relaxing with friends and family, Menzmer enjoys classical music, occasionally becoming preoccupied with attempts at piano or violin.

**Loren Barnhurst** obtained his B.S. in chemistry from Andrews University in 1996 and his Ph.D. in synthetic organic chemistry from the University of Denver in 2002. He is in his 12th year of teaching at Southern. Mirroring the tremendous growth in the department over that time span, his second-year organic sequence has increased from about 40 students his first year to more than 100 students this year. As a result, the course has been split into two lecture sections, offered now at 8 and 11 a.m., addressing one of the most commonly voiced complaints on course evaluations of years past. He also developed an online Survey of Chemistry II (Organic and Biochem) course targeted toward Nursing's online B.S. degree completion program. On a personal note, his daughter just turned 5 and her joyful spirit makes going home after a day at work that much more enjoyable. One of her favorite conversation starters is "Dad, I know you teach chemistry, so could you explain..." In addition to raising their daughter, his wife Becca continues to work for Adventist Medical Evangelism Network (AMEN) as their event planner and quarterly journal copy editor. If you have not already, please connect with Barnhurst via Facebook or LinkedIn.

**Brent Hamstra** has been asked to serve as chair of the department beginning June 1, 2014. Hamstra received his B.S. in chemistry from Andrews University in 1992 and his Ph.D. in inorganic chemistry from the University of Michigan in 1998. He joined the Southern Adventist University faculty in 1999 following a year of post-doctoral research at the University of Notre Dame. He has taught a variety of courses during his time at Southern and currently teaches General Chemistry and Inorganic Chemistry. He lives in Ooltewah, Tenn. with his wife, Emily (who graduated with a chemistry degree from Southern and has taught in the department as an adjunct instructor), and their son and daughter.

**Bruce Schilling** joined the faculty of Southern Adventist University in the summer of 1996. He completed a B.S. in chemistry from Andrews University in 1981 and his Ph.D. in physical chemistry from Caltech in 1987. He then worked for several years as an analytical mass spectrometrists for Amoco Corp. and Argonne National Lab before coming to Southern. He teaches mainly General Chemistry and the two-semester Analytical Chemistry sequence (Quantitative Analysis and Instrumental Analysis). His wife, Nancy, works as a dentist for the Hamilton County Health Department in Ooltewah, Tenn. Sons Jonathan and David have graduated from Southern and were both married to nurses in 2013. Jonathan has finished medical school and is going into emergency medicine, while David completed police academy and is looking to work in law enforcement.

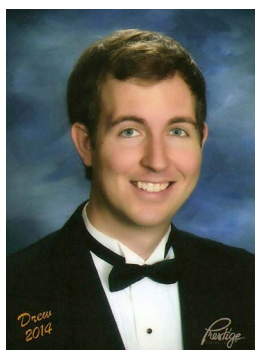
**Herman H. Odens** obtained his B.S. in chemistry from the University of South Alabama in 1992, his M.S. in organic chemistry from West Virginia University in 1997, and his Ph.D. in organic chemistry from the University of Florida in 2001, where he specialized in the syntheses of heterocyclic compounds. After finishing graduate school, he worked for eight years in the Northeast (Delaware and New Jersey) in the pharmaceutical industry and returned to academia to work as an Instructor of Medicinal and Organic Chemistry in the Biochemistry Department at Wake Forest School of Medicine in Winston-Salem, N.C. from 2009-2012. At Wake Forest, his promising work in the design and development of a drug to treat breast and prostate cancer by inhibiting thioesterase (one of the seven domains of fatty acid synthase enzyme, FASN) resulted in a patent. His medicinal chemistry interests include target compounds synthesis of drugs in the areas of cancer, cardiovascular diseases, central nervous system diseases, and anti-infective therapeutics. He joined the chemistry faculty at Southern in 2012. Odens and his wife, Noemi, have three sons: Herman Jr. and identical twins Jake and Jeremy. The Odens enjoy spending time with nature and staying away from the couch. Their favorite activities are running, hiking, swimming, traveling, exercising, and most importantly, playing soccer.

# Chemistry Graduates 2013-2014

## and Their Plans for the Future



**Alia Adams**  
B.A. Chemistry  
Graduate School



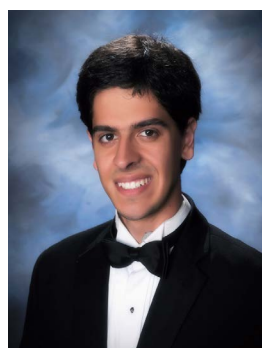
**Andrew Forsey**  
B.A. Chemistry  
Pharmacy Technician  
Pharmacy School



**Christopher Lopes**  
B.S. Chemistry,  
Biochemistry Emphasis  
LLU, School of Dentistry



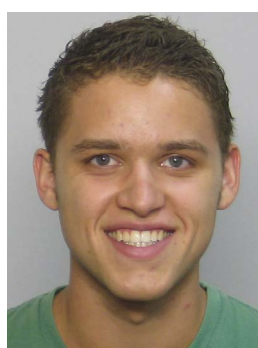
**Dalton Vaughn**  
B.A. Chemistry  
LLU, School of Dentistry



**Daniel Salazar**  
B.A. Chemistry  
B.A. International Studies,  
Spanish  
Dental School



**David Chang**  
B.S. Chemistry,  
Biochemistry Emphasis  
LLU, School of Medicine



**David Weber**  
B.A. Chemistry  
LLU, School of Dentistry



**Holly Huang**  
B.S. Chemistry,  
Biochemistry Emphasis  
Medical School



**Jeena Foronda**  
B.A. Chemistry  
B.A. International Studies,  
Spanish  
Medical School



**Jeffrey Futchter**  
B.S. Chemistry  
Graduate School



**Jerdie Alé-Salvo**  
B.S. Chemistry,  
Biochemistry Emphasis  
Student Missionary then  
Dental School



**Leanne Minimo**  
B.A. Chemistry  
Shadowing Pharmacists, and  
Studying for PCAT



**Natalie Dickerhoff**  
B.A. Chemistry  
B.A. International Studies,  
Spanish  
LLU, School of Pharmacy



**Trevor Silva**  
B.S. Chemistry,  
Biochemistry Emphasis  
Medical School

# Alumni Spotlight

## Norman McNulty, M.D.

**Q:** When did you graduate from Southern Adventist University?

**A:** I graduated from Southern in 2000 with a B.S. in chemistry, biochemistry emphasis. I was the first graduate from this major.

**Q:** Where did you go to school after Southern?

**A:** I went to Loma Linda University, School of Medicine.

**Q:** Why did you choose to go there, and when did you graduate?

**A:** I went to Loma Linda because I wanted a Christian medical education. I graduated in 2004.

**Q:** Tell us about your residency.

**A:** I stayed at Loma Linda, where I completed a neurology residency in 2008 and a clinical neurophysiology fellowship in 2009. I have been board certified in neurology since 2008.

**Q:** What are some challenges?

**A:** Medical school certainly requires a lot of discipline to stay focused on your studies. It is another four years of hard work after the rigors of undergraduate science study. Probably the greatest challenge for me was going to Trinidad for two years to do mission service

at the Adventist Hospital there. The resources and available treatments are not the same as in the United States, and I also had to deal with some significant political challenges where I was working.

**Q:** What are some rewards?

**A:** The reward of learning so that you can help others is really worth it. In the mission field I learned a lot about what we as Americans take for granted, and I also was able to develop other ministry skills. Since that time I have done a lot of preaching on weekends around the United States and internationally.

**Q:** What are you doing today?

**A:** I am practicing neurology at Crockett Hospital in Lawrenceburg, Tenn.

**Q:** Tell us about your family.

**A:** I am married to Joelle, and we have two daughters: Saralyn (3) and Anneke (6 months).

**Q:** Anything else you would like to share?

**A:** I look back very fondly on my time at Southern and the friendships I made with the chemistry professors Dr. Scott, Dr. Schilling, and Dr. Hamstra. All of them encouraged me in the development of a strong work ethic and were genuinely concerned about my spiritual and educational well-being.

*Interview by Dennisse R. Blood*



*Norman McNulty, Southern biochemistry emphasis graduate, 2000, enjoys time with his wife, Joelle, and their daughters Saralyn and Anneke.*

*We want to hear what you have been up to since you graduated. If you or someone you know would like to be in the Alumni Spotlight, please email us at:*

[chemistry@southern.edu](mailto:chemistry@southern.edu)



# Department Happenings

## Chemistry Club News

Chemistry Club has been a fairly involved club at Southern Adventist University. The current president, David Chang, along with the other officers and sponsors, has worked very hard to plan memorable and engaging events for its members. The club is open to everyone and it is not solely limited to chemistry majors. Some of the members come from other majors such as history, theology, biology, physics, and nursing. With such a diversity of students, this provides unique insight to everyday conversation.

The club has hosted several events this year. Our first event was a welcome vespers for which supper was provided, and a worship service followed. This was a great opportunity for students to get to know their fellow colleagues, professors, and the Chemistry Club officers. Our next major event was a Saturday night gathering to carve pumpkins. Professors and students gathered to carve various designs on pumpkins, and these were left on display for several days.



Our last event of first semester was the Hickman Science Center Christmas party co-hosted with physics, biology, and computer science clubs. Chemistry Club has typically had a good student turnout with positive feedback about the events.

In addition to planning social events for its members, the Chemistry Club also focuses on serving the community. It hosted two community service events, both times helping the Samaritan Center organize their materials. Our third community service project was a campus-wide event in which many student clubs went into the Chattanooga area to serve at multiple locations.

Events that Chemistry Club is planning for the remainder of the school year include vespers and the end-of-the-year convocation in which some of the members will present their research. As you can see, Chemistry Club is interested not only in planning great social events, but also in reaching out to the community and providing a spiritual atmosphere for its members.

*By David Chang and  
Daniel Salazar*

*2013 - 2014*

*Chemistry Club Officers:*

*President - David Chang*

*Vice President - Daniel Salazar*

*Secretary - Melissa You*

*Treasurer - Jeena Foronda*

*Pastor - Andrew Forsey*

*Sergeant at Arms - David Weber*

## Student Missionary at Maxwell Adventist Academy in Kenya

I never thought that I would find myself teaching high school, let alone loving it! I spent last year teaching freshman biology and health classes, an elementary recorder music class, senior chemistry lab, and tutoring in the library.

As a teaching assistant here at Southern, my favorite general chemistry labs to observe involved the element of surprise! First semester we explored the power of pressure by subjecting cans full of steam to ice-cold temperatures. This sudden difference in pressure between the outside and inside of the can causes it to violently collapse, startling even the most prepared students. I was so excited

to be able to recreate this lab for my senior chemistry students in Kenya. The looks on the students' faces when they turned their steaming can upside down into the ice bath were priceless! The rest of the lab period was spent collapsing aluminum cans and exploring the ideal gas law in a powerful way.

I taught both exciting and tedious classes last year, but through them all I learned so much about my passion for teaching science, and I gained a greater appreciation for my patient professors at Southern and the skills they have taught me. Thanks to the incredible opportunity of the student missions program, I learned so much about God's amazing

plans, my personal strengths, and how God is molding the two into something more exciting than I could imagine!

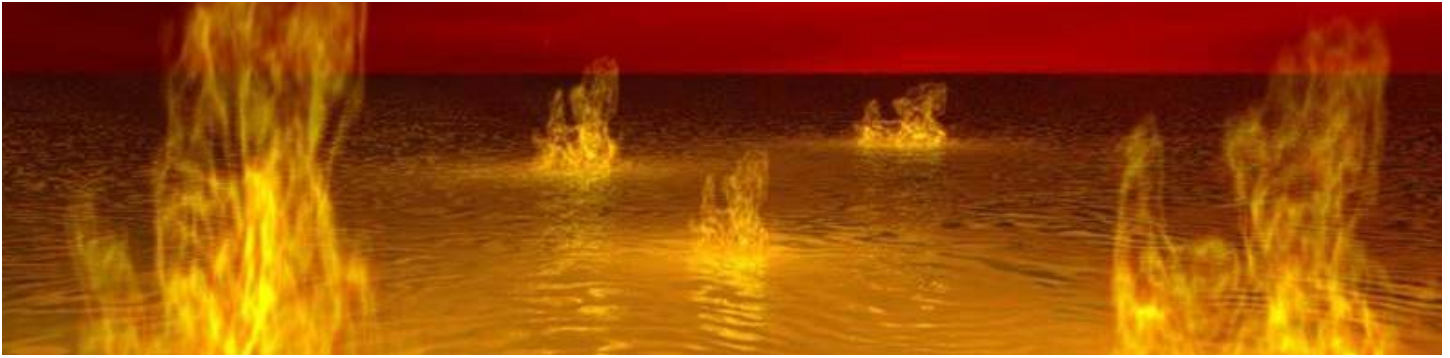
*By Emily Moses*



*Emily Moses with Gerry a graduating senior from her chemistry lab class.*

# Biblical Applications

## A Broken Molecular Model



Recently I heard a speaker talk about how the Earth must have been created by an Intelligent Being, and he laid out amazing evidences and irrefutable quotes from some of the most notable scientists that ever lived, such as Einstein and Newton. However, at the end of his presentation, he looked startled when he was asked to give the benediction to the audience. Instead of praying, he decided to read a quote from Psalms. It is not that his quoting of the Bible was inappropriate for the moment (after all, the Bible is a book and we could use it as a textbook to teach and to quote passages), but I left the building feeling spiritually deprived from the seminar. In my head, I kept on asking, "Why didn't this man have 30-60 seconds to honor God in public with his own words, moved by his own feelings, coming from his own heart?" If we only use the Bible to quote scriptures and do not ask the Holy Spirit to reveal the true meaning of the words written in it, we become simply Bible scholars, and we will miss the blessing that comes from seeking God's word. Jesus said: "I praise you, Father, Lord of heaven and earth, because you have hidden these things from the wise and learned, and revealed them to little children. Yes, Father, for this is what you were pleased to do" (Luke 10:21, NIV).

Even though it delights me to see an influx of highly educated scientists defend the creation model, does this constant argument with the agnostics take us anywhere or help us grow spiritually? Why do we bother trying to convince people that God made this already broken world? Why do we labor to persuade people that radiometric methods are a biased approach for calculating the actual age of rocks and that those rocks are not millions of years old, since Earth is much younger than that? If we keep trying to convince people that God made the Earth, without focusing on our task of spreading the gospel (Matt. 28:19-20) and the three angels' messages (Rev. 14:6-12), we are losing sight of putting our hearts into the New Earth - the one that does not need to be fixed (Rev. 21:1).

All of the elements of this current molecular world will be melted. "But the day of the Lord will come as a thief in the night; in the which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also

and the works that are therein shall be burned up" (2 Pet. 3:10, KJV). "The great day of the Lord is near, it is near, and hasteth greatly, even the voice of the day of the Lord: the mighty man shall cry there bitterly. ...Neither their silver nor their gold shall be able to deliver them in the day of the Lord's wrath; but the whole land shall be devoured by the fire of his jealousy..." (Zep. 1:14-18, KJV). Let us look forward to sharing the great news of salvation and our beliefs of the New Earth that will be reserved for those redeemed in Christ.

*By Herman H. Odens*







Power for Mind & Soul

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Brent Hamstra, Ph.D.  
Mitch Menzmer, Ph.D.  
Herman H. Odens, Ph.D.  
Bruce Schilling, Ph.D.  
Rhonda Scott, Ph.D.  
Dennisse R. Blood, Office Mgr.

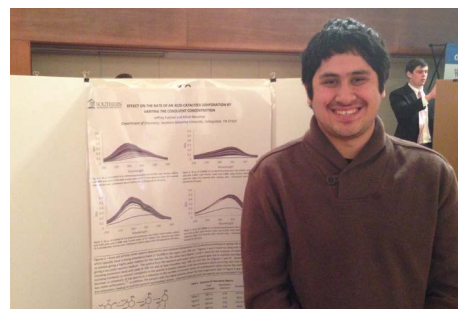
## Undergraduate Research

### All Charged Up for Carbocations

On January 31, Jeffrey Futcher (BS Chem, '14), Chris Lamarca (BS Chem, Biochem emphasis, '15), and Daniel Salazar (BA Chem, '14) presented research posters at the 46th annual Southeast Undergraduate Research Conference on the campus of the

University of Tennessee, Knoxville along with undergraduates from several area colleges and universities. Jeffrey's poster was titled "Effect on the Rate of an Acid-Catalyzed Dehydration by Varying the Cosolvent Concentration." Chris and Daniel presented jointly a poster titled "Formation of Cyclohexenyl Cation by Reaction of 3- and 4- Methylcyclohexene in Various Concentrations of Sulfuric Acid." All three students carried out their research under the direction of Mitch Menzmer, Ph.D., who attended the poster session with them.

*By Mitch Menzmer*



Jeffrey Futcher presented this research poster at the 46th annual Southeast Undergraduate Research Conference in January 2014.



*Chris Lamarca and Daniel Salazar presented their research poster at the 46th annual Southeast Undergraduate Research Conference.*

On March 19, 2014, Herman Odens, Ph.D. and Chemistry Major Candace Olusola presented their research poster at the 247th ACS National Meeting in Dallas, Texas.