



# Periodic Times

Wittenberg University Department of Chemistry

## 2013-14 Highlights:

- Senior Nicki Perry named finalist for Fulbright Award
- Two seniors present at Dallas ACS Meeting
- Two students win Poster Awards at Dayton Section ACS meeting
- Gynnie Franta ('36) turned 100 in July
- Senior Ben Hagen awarded Woodrow Wilson Teaching Fellowship
- Department signs "Green Chemistry Commitment"
- Local ACS poster session hosted by department
- Dept. gifted with Klapproth Fund

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## Volume VIII

Summer 2014

## Department Signs Green Chemistry Commitment

In spring 2014, the Wittenberg chemistry department signed the Green Chemistry Commitment. This opportunity was made available by Beyond Benign, an organization dedicated to green chemistry education and sustainability. We are one of only 24 colleges and universities in the country who have joined this consortium to date. Joining the Commitment requires a demonstration that the program has already taken significant steps toward becoming green and indicates a commitment to future improvements. Steps taken at Wittenberg include modifying experiments to reduce use of hazardous chemicals and generate less waste. Principles of green chemistry are taught in courses, and several research projects have involved development of greener procedures. In Chem 321 (inorganic) lab, for example, students conducted a standard synthesis and then made improvements to it according to green chemistry principles.

Implementing green chemistry into the curriculum meshes well with our program's safety training emphasis. "What's safer for chemists in the lab also necessarily becomes safer for the environment," says Professor David Finster. At the ACS National Meeting in March 2014, Dr. Finster presented a talk "Green Chemistry is Safe Chemistry" to highlight this motivation for chemists and chemical educators to "think green" as they design procedures and experiments. Being part of the Green Chemistry Commitment will help us improve our program at Wittenberg as we share ideas with chemistry faculty around the country.



**The Green Chemistry Commitment**  
TRANSFORMING CHEMISTRY EDUCATION

## "Just-in Time" Teaching Proves Successful in Organic Chemistry

Dr. Justin Houseknecht implemented a new teaching approach in organic chemistry (Chem 201 and 302) this past year. In place of lecturing during class time, he brought iPads into the classroom and his students, working in small groups, used these to upload their solutions to the class web site (see photos on page 7). Students prepared for class by following detailed reading guides and watching online mini-lectures for the more difficult material. This "flipped classroom" approach proved very successful. Exam scores increased by 5-7% and the percentage of D's F's and withdrawals decreased from a five-year average of 26% to 6%. The iPads were provided by an Innovations in Teaching grant through Wittenberg's Academic Computing Committee.

This summer, Justin presented his successful model at the Biennial Conference on Chemical Education. Thanks to the generous gifts from alumni and friends, the department will be able to continue this pedagogy in the coming years and extend it to other courses.

# Summer 2014 Research



Back row, l to r: Austin Holmes, Leo Vo, Kelley McCloy, Bryanna Jay, Travis Green; Middle: Rebecca Shreffler, Chelsea Horvath, Chi Nguyen; front: Garrhett Via, Harrison Wood.

Name (class year)	Hometown	Major	Summer Project
Travis Green ('15)	Radnor, OH	Chemistry	Computational Investigation of the Nucleophilic Acyl Substitution Reaction of <i>m</i> -Methyl and <i>m</i> -
Austin Holmes ('15)	Yellow Springs, OH	BMB	Performing Molecular Dynamics Simulations on Glucose/Galactose Binding Protein With Ligand Restraints
Chelsea Horvath ('16)	Olmsted Falls, OH	Chemistry	Cyclic Voltammetry of Modified Electrodes in KOH: Testing for Stability of Surface Modification
Bryanna Jay ('16)	Girard, OH	Biology	Measuring the $\Delta G$ of Binding of Glucose to Mutated Glucose/Galactose Binding Protein via Molecular Dynamics
Kelley McCloy ('16)	Chillicothe, OH	Biology	Effects of SMD and SM8 Solvation Models on the Nucleophilic Acyl Substitution Reactions of <i>m</i> -Methyl and <i>m</i> -Nitrophenol in Acetic Anhydride
Chi Nguyen ('16)	Hanoi, Vietnam	BMB	Behavior of calcium and magnesium ions in the Great Miami River, Ohio
Rebecca Shreffler ('16)	Versailles, OH	Chemistry	Synthesis and Analysis of Silver Colloid Nanoparticles and Quantum Dots
Garrhett Via ('15)	Geneva, OH	Chemistry	Applications of One-Step Solvent-free Synthesis and Grafting of Aryl Groups to Glassy Carbon Electrodes
Leo Vo ('17)	Ho Chi Minh City, Vietnam	BMB	Measuring Free Energy Change of Solvation of Glucose and Galactose
Harrison Wood ('16)	Mansfield, OH	Physics	Investigating the Nucleophilic Acyl Substitution Reaction Using the Polarizable Continuum Model

## Alumni Notes

Lauren Baxter ('09) is a Research Chemist with Ben Venue Laboratories—Boehringer Ingelheim, and was on the Alumni Career Panel held on October 11, 2013.

Lynn Carlton ('64) visited Wittenberg and the chemistry department on April 11. He lives in Missouri, where he is a practicing radiologist with no plans to retire, and continues to support the Chemistry Department.

Melissa Cederqvist ('10) spent the spring of 2013 in Nairobi, Kenya working with the Centers for Disease Control and Prevention (CDC) and Kenya Ministry of Health on coordinating an enhanced surveillance project for Dengue Fever (DENV), as well as volunteering with Kibera Agenda, a microfinance organization in the Kibera slum of Nairobi. As of October 2013, Melissa was a post-graduate student, pursuing a Master of Medical Science in International Health at Uppsala University in Uppsala, Sweden.

Michael Crotty ('02) is an internal medicine physician in Ohio. He visited the chemistry department in February.

Brian DiGiacinto ('08) is a medical student at the Edward Via College of Osteopathic Medicine - Carolinas Campus (VCOM-CC).

Suresh Ebenezer ('96) is the Manufacturing Engineering Manager at Mast Global Technical Services in Reynoldsburg, Ohio.

Virginia Franta ('36) celebrated her 100th birthday in July.

Gregg Guzley ('75) is an oncology physician at Cancer Care Centers of South Texas in San Antonio, TX. He visited the chemistry department in May.

Miranda Hayman-Guenther ('04) is a science teacher at Crossroads in Santa Monica, CA. She visited the chemistry department in April.

Brent L. Kleintop, Ph.D ('88) has worked for 20 years in the pharmaceutical industry, the past 17 years at Bristol-Myers Squibb in New Brunswick, New Jersey, and is now a Director in the Analytical Research & Development department.

Josh McCoy ('03) graduated from the University of Maine School of Law in May, 2013, and is currently working as a patent attorney in the biotech practice group at Sterne, Kessler, Goldstein & Fox in Washington, DC.

Zach Miller ('10) is a Ph.D. candidate at the University of Michigan in the lab of John Montgomery, studying organometallic chemistry with a focus on regioselective coupling processes. His paper, titled *Regioselective Allene Hydrosilylation Catalyzed by N-Heterocyclic Carbene Complexes of Nickel and Palladium*, was published in *JACS* in October 2013.

Nicholas Pierson ('08), post-doctorate student at Indiana University, and his wife, Elizabeth, graduate student at Indiana University, presented at the chemistry department's October 29, 2013 seminar.

Jenna (Wilen) Rosenstein ('04) is currently working at AkzoNobel, and has applied to the MS program at Cleveland State, after already having completed half of the program.

Jeremy Toffle ('06) is a pediatrician in Nebraska.

Laken Warner ('09) is a scientist with Boehringer Ingelheim Roxane, Inc., and was on the Alumni Careers Panel held on October 11, 2013.

Anya Weaver ('13) is a volunteer with Health Partners Free Clinic. She visited the chemistry department in March.

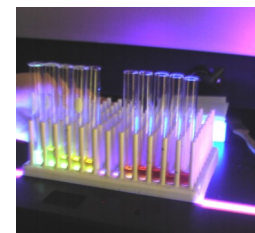
Emily Daniels Weiss ('09) is a Ph.D candidate at Carnegie Mellon University in the Department of Chemistry's Kowalewski and McCullough Labs. She visited the chemistry department in November, 2013.

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send to  
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Above: Garrhett Via ('15)  
at the Dayton section ACS  
poster session.

Below: CdSe quantum dots  
synthesized by Rebecca  
Shreffler ('16).



### Chemistry and BMB Majors Receive Department and University Awards

*Sartoris Award for the Outstanding Senior Chemistry Major:* Andrew Franjesevic

*Outstanding Senior BMB Major:* Jessica Coggins

*Patterson Award for Outstanding Junior:* Garrhett Via

*James T. Gregory Award:* Nicole Perry

*Organic Award:* Allison Dunn

*General Chemistry Award:* Kaitlin LaPlant and Phuc "Leo" Vo

*Department and University Honors:* Andrew Franjesevic

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## Thanks to these recent chemistry department contributors

The department received generous gifts the past year from the following:

*Franta Fund:* Mrs. Virginia Franta

*Glasoe Fund:* Dr. & Mrs. Timothy Knilans

*Sartoris Fund:* Drs. Cynthia & Paul Loeffler,  
Dr. William Bunnelle & Ms. Leslie Evans, Abbvie Foundation

*Klapproth Fund:* A bequest from the estate of Mrs. Mildred Klapproth ('42).  
Mrs. Klapproth passed away in October, 2013.

*Chemistry Department Gift Account:*

Dr. & Mrs. Lynn Carlton  
Ms. Mary Ann Felker  
Mr. Robert Hrebek  
Ms. Lydia Kisley  
Mr. Stephen Klingner  
Dr. Robert Kohut  
Mrs. Laura Merchak  
Ms. Martha Minich  
Mrs. Despina Paulson

Ms. Nicole Perry  
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Ms. Diana Rischling  
Mr. and Mrs. Francis Roller  
Dr. and Mrs. Richard Sorenson  
Dr. Kimberly Walker & Mr. Paul Banta  
Ms. Brianna Watson  
Mr. and Mrs. Ryan Weiss  
Mr. Erik Werstler

## Department Papers and Conference Presentations 2013-14



### Ray Dudek

*Synthesis of Cadmium Selenide Quantum Dot Nanoparticles*, Kevin M. Bond and Raymond Dudek, Dayton Section of the American Chemical Society Poster Session, Springfield, OH, April 1, 2014.

*Quantitative Raman Enhancement of Copper Chlorophyllin by Silver Colloids*, MacKenzie Boeing Smith and Raymond Dudek, Dayton Section of the American Chemical Society Poster Session, Springfield, OH, April 1, 2014.



### Pete Hanson

*Testing Phosphate Levels Within Late Prehistoric Features: Preliminary Results*, Peter E. Hanson, Sloan H. Galbraith, Lynn M. Hanson, Midwest Archaeological Conference, Columbus, Ohio, October 25, 2013.



### Dave Finster

*Academic leaders create strong safety cultures in colleges and universities*, Robert H. Hill Jr., David C. Finster, *Journal of Chemical Health and Safety*, Volume 20, Issue 5, September–October 2013, Pages 27–34.

*Inherently Safer Chemistry for Accident Prevention*, (web article on [acs.org](http://acs.org))  
Contributed by Shelly Bradley, Campus Chemical Compliance Director, Hendrix College; Dr. David C. Finster, Professor of Chemistry, Wittenberg University; and Dr. Tom Goodwin, Elbert L. Fausett Professor of Chemistry, Hendrix College.



## Department Papers and Conference Presentations, 2013-14

*Green Chemistry is Safe Chemistry*, David C. Finster, National Meeting of the American Chemical Society, Dallas, TX, March 2014.

### Kristin Cline

*One-Step Solvent-Free Synthesis and Grafting of Diazonium Ions onto Electrode Surfaces*, Garrhett G. Via, Benjamin P. Hagen, Kristin K. Cline, Pittcon, Chicago, IL, March 3, 2014.

*Using clinical chemistry topics to make real life connections in the quantitative analysis course*, Kristin K. Cline, Midwestern Universities Analytical Chemistry Conference, South Bend, IN, October 11, 2013.

### Justin Houseknecht

*A Year of Organic Chemistry Group Work with iPads*, Justin Houseknecht, 2014, Spring ConfChem: Flipped Classroom, electronic.

*The Effects of Topic Sequence Upon Pedagogy in Ten Top-Selling Organic Chemistry Textbooks*, Kevin Bond, Justin Houseknecht, oral presentation, National Meeting of the American Chemical Society, Dallas, TX, March 2014.

*Gas Phase Acylation of Substituted Phenols: The Borderline Between  $B_{AC2}$  and Concerted Nucleophilic Acyl Substitution*, Andrew Franjesevic, Justin Houseknecht, National Meeting of the American Chemical Society, Dallas, TX, March 2014.

### Amil Anderson

*Performing Molecular Dynamics Simulations on Glucose/Galactose Binding Protein With Ligand Restraints*, Austin Holmes; *Measuring the  $\Delta G$  of Binding of Glucose to Mutated Glucose/Galactose Binding Protein via Molecular Dynamics*, Bryanna Jay; and *Measuring Free Energy Change of Solvation of Glucose and Galactose*, and Amil Anderson, Poster presentations, 13<sup>th</sup> MERCURY Conference on Computational Chemistry, Bucknell University, Lewisburg, Pennsylvania, July 24-26, 2014.



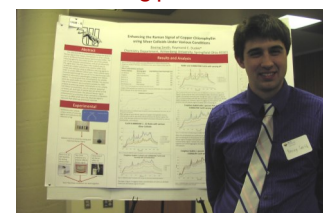
## Department Hosts Dayton Section ACS Poster Session

Wittenberg hosted the annual Dayton Section of the American Chemical Society (ACS) Poster Session and Awards Ceremony this year. On April 1, posters from around the region were displayed in the Shouplin Center and attendees enjoyed pizza and dessert—including ACS cookies.

Our students have won “best poster” awards every year since 2009, so the pressure was on as we hosted this year’s meeting. Our department had a strong presence at the poster session, with six student posters and two faculty posters. Dave Finster served as a judge for the graduate posters. Two students came through with “best poster” awards—Garrhett Via ('15) for his poster on his research with Dr. Cline, and Boeing Smith ('16) for his work with Dr. Dudek. At this event, Garrhett Via was also presented with a Patterson Award for Outstanding Junior Chemistry major at Wittenberg.



Below: Boeing Smith ('16) with winning poster.





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## 2014 Chemistry Graduates

**Kevin Bond** will attend Indiana University to pursue a PhD in chemistry.

**Andrew Franjesevic** will pursue a PhD in chemistry at The Ohio State University.

**Benjamin Hagen** received a Woodrow Wilson Teaching Scholarship to work towards a Masters in Education at The Ohio State University.

**Nicole Perry** will attend Vanderbilt University's Interdisciplinary Graduate Program in the Biomedical and Biological Sciences. She was named a finalist for a Fulbright Award. She was recently selected for one of only eight national fellowships from the Mortar Board National Foundation.



Chemistry majors, left to right: Kevin Bond, Andrew Franjesevic, Ben Hagen, Nicki Perry



BMB majors, left to right: Biniyam Melesse, Jess Coggins, Khoa Dao

## 2014 Biochemistry/Molecular Biology Graduates

**Biniyam Melesse** was accepted to the Graduate Public Service Internship at the University of Illinois at Springfield, working toward a degree in MPH-Environmental Health Science.

**Jessica Coggins** was accepted to the Pharmacy program at The Ohio State University.

**Khoa Dao** has returned to Korea, and is taking some time to decide what he wishes to do next.

## Wittenberg in Wittenberg Study Abroad Program

**Dr. Margaret A. Goodman**, Professor of Biology and Director of the BMB Program, was appointed Director of the Wittenberg in Wittenberg Study Abroad Program for the 2014 Spring Semester.

While directing the program in Germany, Dr. Goodman taught Biology 124: Biomedicine, Germ Theory and Health Care Systems. This course concluded with the students' "consideration of the health care systems in the US and Germany, building from our emphasis on physiology and cultural influences on both how medicine is practiced and how different cultures define wellness and disease".

Three BMB majors, Waverly Hebert ('16), Sean Murphy ('15), and Kyra Peczkowski ('16), attended the program. (See photo on page 7.)





Students working with Ipads in Dr. Houseknecht's CHEM 201 class, Fall 2014.



Chemistry Club Ice Cream Making event, held September 18, 2014.

BMB majors in Germany with the Witt in Witt Study Abroad Program, Spring 2014, left to right: Sean Murphy, Waverly Hebert, and Kyra Peczkowski.

