

# Periodic Times

Wittenberg University Department of Chemistry  
*Catalyzing Student Success*

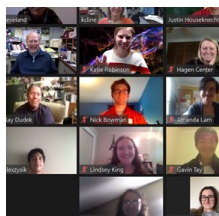
VOL. 13

ACADEMIC YEAR 2019-2020

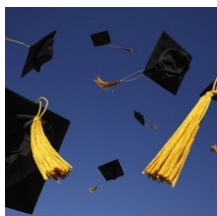
## Top stories in this newsletter



Dr. Anderson Retires



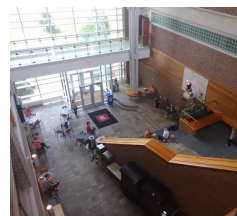
Department moves to remote teaching



Virtual Commencement for six Chem and BMB graduates (p.8)



Gift and endowment funds benefit students (p.2)



Summer Research continues in 2020 (p.6)

---

## Dr. Anderson Retires after 31 Years at Wittenberg

Dr. Amil Anderson was granted Emeritus status by the Board of Directors in May 2020. He is retiring after 31 years of teaching at Wittenberg. Dr. Anderson was the first biochemist hired to teach at Wittenberg. He helped create the Biochemistry/Molecular Biology (BMB) program and brought computational chemistry research to Wittenberg, securing >\$60K in NSF funding for creating our computational chemistry lab. Since then he has contributed significantly to maintaining the building's computational infrastructure and has mentored more than thirty research students, taking most of them to the annual MERCURY conference to present results. He has served on numerous campus committees, including the science building renovation committee (and then serving as a building “shepherd” during construction of the new wing). The department hosted an outdoor retirement party this summer for faculty and staff. Dr. Anderson participated in the summer research program, mentoring one last student before moving to Northfield, MN.

---

## Department Transitions to Remote Teaching after Spring Break

Wittenberg University transitioned to online teaching and learning in response to the COVID-19 pandemic, taking the week after spring break to prepare for this new mode. Students returned to campus only briefly to collect their belongings. Wittenberg Chemistry faculty took a variety of approaches to teaching their classes. Kristin Cline and Amil Anderson taught synchronously from their offices, using a platform similar to Zoom, allowing for virtual lectures and placing students into “breakout rooms” where they could work together on problems. Others videorecorded lectures for students to watch later. Labs were a challenge; in most cases, students were provided with sample data to analyze, and professors made a few videos of the experiments to watch. Some already familiar technology was helpful for remote learning, such as online homework, tutorials and quizzes. Though not ideal, the dedication of the students and professors through this challenging time allowed for learning chemistry in addition to improving our technology skills. Given that one of our stated learning goals for students is the improvement of scientific communication, we were particularly pleased with our students' ability to present their junior seminars over Zoom—a definite bright spot in the latter half of the semester!

## Gifts and Endowment Funds Benefit Students



Gift account money was used this year to purchase new pH meters (photo at left) and visible spectrometers (photo below) for our teaching labs. The analytical class was the first to get to use these. Given how common pH meters and spectrometers are in many lab settings, it is helpful that our students receive this hands-on use of these newer models. Additionally, the department has been blessed with ample endowment earnings from the Franta fund that are used for summer research and student

scholarships. This year, we were able to present need-based awards ("Virginia E. Franta Chemistry Awards" to current majors, and we are especially glad to have this funding available for students, given the economic hardships faced by many families at this time. We awarded \$20K of these Franta Awards to five students for the spring semester and \$38K to ten students for fall 2020.



## Thank you to our Recent Donors

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

*Sartoris Fund:* Dr. William H. Bunnelle & Ms. Leslie V. Evans  
AbbVie Foundation  
Mr. Douglas S. Arbuckle Mrs. Sandra J. Arbuckle  
Schwab Charitable Fund  
Dr. Steven E. Cook & Ms. Stacey K. Marden  
AstraZeneca Pharmaceuticals

*Glasoe Fund:* Dr. Timothy K. Knilans & Mrs. Teri M. Knilans

*Franta Fund:* Dr. Lydia M. Kisley  
Dr. Scott E. Morris & Mrs. Anna M. Morris  
Dr. Brianna R. Watson

### *Chemistry Department Gift Account:*

Mr. Rusmir Niksic & Mrs. Aida Niksic  
Dr. Jessica S. Hoane & Mr. Anthony Holman  
Dr. Christa M. Snyder  
Mrs. Margaret Gold Hanes  
Mr. Robert J. Hrebek  
Dr. Lynn N. Carlton & Mrs. Betty Lou Carlton  
Ms. Diana Rischling  
Dr. Thomas A. Gallo  
Ms. Linda J. Crosby  
Dr. Vincent J. Davisson & Mrs. Antoinette Davisson  
Ms. Linda J. Crosby & Mr. Bradley L. Crosby  
Mrs. Lois Stover  
Ms. Linda D. Thomas & Mr. Albert J. Thomas, III

To contribute to the chemistry department and/or the Wittenberg Fund, [click here](#):

Or mail donations to:  
Wittenberg Fund  
Wittenberg University  
PO Box 720  
Springfield, OH 45504

## Faculty Highlights and Department Publications & Presentations

Dr. Ray Dudek took a sabbatical leave and was promoted to Professor in Spring 2020.



### Department Publications

"Measuring Lead in Eggs and Eggshells: An Analytical Chemistry Experiment or Service Project"; M. Freeman, E. Armitage, R. Boyette, and R. Dudek, *Journal of Chemical Education* – Submitted

"Mock Grant Proposal: An Advanced Science Writing Assignment"; F. M. Rossi, and R. Dudek, *Prompt: A Journal of Academic Writing Assignments* – Submitted

*Active Learning in Organic Chemistry: Implementation and Analysis*; Houseknecht, J. B.,\* Leontyev, A., Maloney, V. M., Welder, C. O., Eds.; ACS Symposium Series; American Chemical Society: Washington, DC, 2019.

Houseknecht, J. B.,\* Leontyev, A., Maloney, V. M., Welder, C. O. Introduction to Active Learning in Organic Chemistry and Essential Terms. In *Active Learning in Organic Chemistry: Implementation and Analysis*; Houseknecht, J. B., Leontyev, A., Maloney, V. M., Welder, C. O., Eds.; ACS Symposium Series; American Chemical Society: Washington, DC, 2019, Vol. 1336, 1-17.

Leontyev, A.; Houseknecht, J. B.; Maloney, V. M.; Muzyka, J. L.; Rossi, R.; Welder, C. O.; Winfield, L. OrganicERs: Building a Community of Practice of Organic Chemistry Instructors through Workshops and Web-based Resources. *J. Chem. Educ.*, 2019, DOI: 10.1021/acs.jchemed.9b00104.

Houseknecht, J. B.; Bachinski, G. J.; Miller, M. H.; White, S. A.; Andrews, D. M. Effectiveness of the Active Learning in Organic Chemistry Faculty Development Workshops, *Chem. Educ. Res. Pract.*, 2020, 21, 387-398.

Sinner, E.K., Lichstrahl, M.S., Li, R.F., Marous, D.R., and Townsend, C.A. Methylations in complex carbapenem biosynthesis are catalyzed by a single cobalamin-dependent radical S-adenosylmethionine enzyme. *Chem. Commun.* **2019**, 55, 14934-14937.

### Presentations

*Investigating the Attachment of Nitroaniline to Grafted and Nongrafted Glassy Carbon Electrodes*, Caroline E. Barth, Kristin K. Cline, Chicago, IL, March 4, 2020, poster.

*Preliminary Survey of Microplastics in Surface Water from Springfield, Ohio*, Laura E. Stauffer, Kristin K. Cline, Chicago, IL, March 4, 2020, poster.



Pittcon poster session

*A grading strategy to encourage better note-taking in the lab*, Kristin K. Cline, Midwestern Universities Analytical Chemistry Conference, Indianapolis, IN, November 7, 2019, oral.

*Two Techniques for Improving Student Writing*, Ray Dudek, Biennial Conference on Chemical Education, July 2020, Oregon State University, Corvallis, OR, oral, canceled due to Covid-19.

*Challenges in Implementing a Non-traditional Exam in Quantum Chemistry*, Ray Dudek, National American Chemical Society Meeting, March 2020, Philadelphia, PA, oral, canceled due to Covid-19.

*Concentration of Oleuropein in White Fringe Tree Samples*, Abbi Vina and Ray Dudek, National American Chemical Society Meeting, March 2020, Philadelphia, PA, poster, canceled due to Covid-19.

*Strontium Concentration in Avian Eggshells and Egg Contents*, Rachel Boyette and Ray Dudek, Kentucky Academy of Science, Nov. 2019, Berea College, KY, poster.

*Nucleophilic Acyl Substitution Reactions of Acetyl Cyanide in Aqueous Conditions*, Rachel D. Massey and Justin Houseknecht, 18th MERCURY Conference on Computational Chemistry, Greenville, South Carolina, July 2019.

*Analyzing Transition States in Gas Phase Nucleophilic Acyl Substitution Self-Displacement Reactions*, Kayla Cull and Justin Houseknecht, 18th MERCURY Conference on Computational Chemistry, Greenville, South Carolina, July 2019.

*Active learning in organic chemistry: Backward design*. Justin Houseknecht, 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Canceled due to COVID-19.

## Presentations, continued.

*An Investigation of the Antimicrobial Resistance Patterns of E. coli to Essential Oils*, Lindsey King and Daniel Marous. Poster, Kentucky Academy of Science Annual Meeting, Berea College, Berea, KY (November, 2019)

*Investigation of Antibiotic Resistance Patterns and Mechanisms in Escherichia Coli*, Amor Niksic and Daniel Marous. Poster, Kentucky Academy of Science Annual Meeting, Berea College, Berea, KY (November, 2019)

*Bacterial Resistance: Are We Returning to a 'Pre-Antibiotic' Era?*, Daniel Marous. Oral, American Lutheran College Faculty Conference, Wittenberg University, Springfield, OH (October, 2019)

*Exploring the Antimicrobial Potential of Essential Oils*, Lindsey King and Daniel Marous. Oral, American Lutheran College Faculty Conference, Wittenberg University, Springfield, OH (October, 2019)

*Evolutionary Patterns of Bacterial Resistance*, Amor Niksic and Daniel Marous. Oral, American Lutheran College Faculty Conference, Wittenberg University, Springfield, OH (October, 2019)

---

## Alumni Updates

The 2019 alumni panel at Homecoming included: Kevin To, Jack Snider, Emily Daniels Weiss, Ryan Weiss, Sarah Watson, and Lydia Kisley.

Kevin Bond ('14) defended his PhD dissertation over Zoom! He has been a research scientist at Baxter International Inc. since September 2019.

Emily Duderstad ('16) is finishing her 4th year towards a PhD in biochemistry and molecular genetics. Her research focus is on the genetic factors and molecular mechanisms behind breast cancer susceptibility

Andrew Franjesevic ('14) is a Senior Chemist at DayGlo Color Corporation in Cleveland, Ohio.

Rebecca Holmes ('16) has a new position as Clinical Research Coordinator at The Ohio State University Wexner Medical Center.

Lydia Kisley ('10) received a Young Alumni award from Wittenberg at Homecoming 2019.

Greg Luerman ('04) is Director of Strategic Alliances for ChemPartner, a contract research organization specializing in preclinical discovery and development services.

Madelyn Miller ('16) is completing her 4th year of PhD studies in Biomedical Sciences with a focus on immunology. Her work was published last year in the Journal of Leukocyte Biology.

Brandon Miner ('17) is working as a Production manager at Puritix.

Nick Rigel ('18) is a graduate student at The Ohio State University, pursuing metabolomics research on unknown metabolite elucidation with NMR spectroscopy.

Emily Rudolph ('18) is a PhD candidate in Biochemistry the University of Bath in England.

Rachel Saylor ('10) is in a tenure-track position teaching analytical chemistry at Oberlin College.

Boeing Smith ('16) gave a seminar for the department in November 2019 on his Welding Engineering Ph.D. research at the Ohio State University.

### Alumni notes continued..

Garrhett Via ('15) obtained his MD in 2019 from the Ohio State University and did an orthopaedic surgery residency through the Wright State University Boonshoft School of Medicine.

Katherine Winner ('19) conducted research as a Fulbright student in the Czech Republic and plans to matriculate into a Microbiology Ph.D. program in the fall.

Travis Green ('15) accepted a faculty position in Chemistry at North Central State College.

Iris Qiu ('15) is first author on a paper in *Drug Metabolism and Disposition*, "Quantification of Neonatal Fc Receptor (FcRn) and Beta-2 Microglobulin ( $\beta$ 2M) in Human Liver Tissues by UPLC-MRM-Based Targeted Quantitative Proteomics for Applications in Biotherapeutic PBPK Models". She is a PhD candidate at Kansas University.

### *We asked alumni to share their work related to the COVID-19 pandemic and received this information:*

Kia Armstrong Bryant ('05) works for the CDC, and during COVID-19 response, served as Co-Lead for the Data Management Team in the Case-based Surveillance Section. This team is responsible for creating and cleaning the case-level dataset for all confirmed COVID-19 cases.

Sarah White ('18) is a Research Associate within the Health Policy and Management Department at the Johns Hopkins Bloomberg School of Public Health and is also working part-time for LUMA Health Consulting to help the Maryland Howard County Health Department complete an in-action review plan of their pandemic response to help improve their response for the "second" wave Maryland is expecting. She obtained her Masters of Science in Public Health (MSPH) in May of 2020.

Justin Unternaher ('19) ended his Peace Corps service early due to COVID-19 and is now a Contact Tracer for the Licking County Health Department, Newark Ohio.

---

## Internship through an Alumni Connection

Rusmir Niksic ('96), now a Wittenberg parent as well as an alum, visited with the department about two years ago and expressed a desire to help his alma mater. Conversations over a few months resulted in setting up an internship opportunity for one of our students (Claire DeWeese, class of 2022) at Clariant in Houston, Texas. The internship involved working in a corrosion lab performing tests to mimic oilfield conditions. Claire had just completed her sophomore year at Wittenberg and is majoring in Chemistry and Biology.





## Summer 2020 Research

Nationwide, many chemistry summer research programs and internships were canceled or moved to an online experience. We were fortunate to be able to accommodate a full summer in-person research program with 5 faculty and 13 students. Changes were implemented to increase safety of staff and students: masks were worn, researchers were spread out more than usual, daily temperature and health screenings were conducted. Pizza lunch was held in the atrium to allow for distancing. Three other chemistry majors completed research and internships off-site this summer.



Summer researchers, top row, l-to-r: Lucy Bates, Caroline Barth, Rachel Kaiser; middle row: Laura Stauffer, Meseker Tefera, Jack Chambers, Jillian Poska, Christine Davis; bottom row: Ethan Belknap, Emma Scritchfield, Rachel Boyette, Michael Bates.

Below: socially-distanced pizza lunch and research presentations



## Summer 2020 Research

Name (class year)	Hometown	Major(s)	Summer Project
Caroline Barth ('21)	Hicksville, OH	Chemistry	Investigating the Attachment of Aryl Amines to Gold Electrodes using Solvent-Free Grafting and Electrografting
Lucy Bates ('22)	Brownsburg, IN	BMB	A Study of Transition to Remote Learning and the Affects on Student Success in Organic Chemistry II
Michael Bates ('22)	Canal Winchester, Ohio	BMB	Antibiotic properties of essential oils
Ethan Belknap ('21)	Dover, OH	BMB	Computational Model of the Nucleophilic Acyl Substitution Pathway
Rachel Boyette ('22)	Lakewood, OH	Chemistry & Japanese	Antibiotic Resistance and Decay in <i>E. coli</i>
Jack Chambers ('22)	Mason, OH	Chemistry	Computational Analysis of Nucleophilic Acyl Substitution Reactions in the Gas Phase
Christine Davis ('22)	Fairfax, VA	BMB	Fringe Tree Oleuropein Production in Response to Injury
Rachel Kaiser ('22)	St. Paris, OH	Chemistry	Grafting of 5-Amino-8-Hydroxyquinoline to Carbon Electrodes for the Detection of Metal Ions
Emma Scritchfield ('22)	Newark, OH	BMB	Incorporation of a Two-Week Polymer Project in Organic II
Jillian Poska ('21)	Frederick, MD	BMB	Heavy Metals in Avian Eggshells and Yolks
Laura Stauffer ('22)	Upper Sandusky, OH	Chemistry	Creation of a Forensic Science Lab for Second Semester General Chemistry
Meseker Tefera ('21)	Addis Ababa, Ethiopia	BMB	Molecular dynamics analysis of hydrogen bonding between Glucose and the binding site of Glucose/Galactose binding protein (GGBP)
Abbi Vina ('21)	Columbus, OH	Chemistry	Modification of Lab Procedures for Wittenberg University's Inorganic Class

## Mary Kelly Takes on Department Assistant Role for Chemistry and BMB



Mary Kelly is the new department assistant for Chemistry and BMB, and continues to serve in this role for the Biology, Environmental Science and Geology programs. We are fortunate to have someone with Mary's experience helping us. Our former assistant, Erin Neely accepted a position as assistant for the Hagen Center. We will miss her, but know that her new position working with Wittenberg's community service work is a great match for her background and abilities.

## 2020 Student Award Winners

**Sartoris Award for Outstanding Senior Chemistry Major:** *Katherine Robinson*

**Outstanding Senior BMB Major:** *Lindsey King*

**Patterson Award for Outstanding Junior Chemistry Major:** *Nick Weissmann*

**James T. Gregory Award:** *Christina Thompson*

**Organic Award:** *Gavin Tay*

**General Chemistry Award:** *Nick Bowman, Maya Hagander, Alexander Zysik*

**Franta Chemistry Interest Scholarship:** *Mya Wolfe*



Award Ceremony 2020 (with some special guests in attendance)

---

## Virtual Graduation Ceremony includes Four Chemistry and Two BMB Graduates

Due to the COVID-19 pandemic, graduation ceremonies were conducted online. The class of 2020 includes four chemistry majors and two BMB majors. See photos, p. 9

### Post graduation plans for our Biochemistry/Molecular Biology majors:

Erin Armitage is working for AstraZeneca on their COVID-19 vaccine project with plans to apply to graduate school.

Lindsey King is attending Ohio University Heritage College of Osteopathic Medicine.

### Post graduation plans for our senior Chemistry majors:

Reyna Ayala accepted a QC chemist position at Procter and Gamble.

Taylor Bushman is working as a flavorist assistant for Givaudan.

Caitlyn Hum is working at Haugland Learning Center as a behavior technician. She is studying for the MCAT and applying to medical school next June.

Katie Robinson is a graduate student in the chemical physics Ph.D. program at The Ohio State University.





## Class of 2020

Top left: Reyna Ayala

top right: Lindsey King

left: Caitlyn Hum

Bottom left: Katie Robinson

Bottom right: Erin Armitage

Not pictured: Taylor Brown





Science Building  
donation of PPE  
to Clark County  
first responders,  
May 2020



Amil Anderson serves tea one last  
time to summer research students.

Wittenberg University Department of Chemistry

PO Box 720, Springfield, OH 45506  
(937) 327-6435

[www.wittenberg.edu/chemistry](http://www.wittenberg.edu/chemistry)



**Now on Instagram:**  
**WittChem**



**Still on Facebook: WittChemistry**



Photos from Amil Anderson's retirement party,  
July 2020

