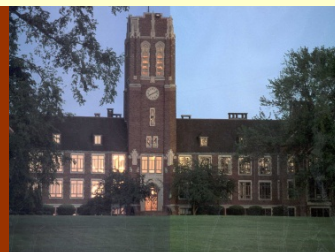




GROVE CITY COLLEGE  
CHEMISTRY  
eNEWSLETTER  
REVIEW OF 2022/2023



## Departmental News

From Dr. Joe Augspurger, Chair

The academic year 2022-23 was another year of change and transition, with lots of beginnings and endings. What has not changed is the steady flow of excellent young women and men who graduate each year, heading out to new careers. One of the best endings was the impact of COVID, which was very minimal in the Fall and nearly non-existent in the Spring.

The biggest new beginning involves Rockwell Hall of Science. On May 19, the day before graduation, Grove City College launched its largest capital campaign "[Impact 150 – The Anniversary Campaign for Grove City College](#)", with an overall goal of \$185 million. A \$48 million upgrade of Rockwell and connecting it to STEM is one of the key elements of the campaign's goal to upgrade campus infrastructure. This renovation will create a combination of new interdisciplinary spaces in the new connector between the two buildings and a complete rearrangement of the space usage.

We have been working all Spring to meet the goal of moving out our current lab supplies and equipment by early June. The plan is for the renovation to start in June and be completed in time for the 2025-26 academic year. When we move back into Rockwell in Fall 2025, we will move into new, state-of-the-art Inorganic-Advanced Synthesis and Analytical-Instrumental labs on the Harker end of the second floor.

It was a demanding year as we coped with the end of Dr. Holly Guevara's time in our department. We were greatly helped by Dr. Abigail Wolfe. Dr. Wolfe earned her PhD in biological chemistry from the university of Michigan and is the wife of Dr. Britton Wolfe, one of our CompSci colleagues. Abby helped cover some of the General Chemistry labs Dr. Guevara would've taught. Dr. Kriley '88 and I taught the General Chemistry lectures in the Fall on top of our normal courses.

We began a search to replace Dr. Guevara early in the Fall, and I am pleased to announce that Dr. Peter Foster, a 2013 Chemistry major, will be joining us as our

new faculty member in the Fall. We will have a full introduction of Dr. Foster in a future eNewsletter, but I will briefly say that he completed his PhD in physical chemistry from Colorado in 2019 and has been teaching for the past four years.

Dr. Falcetta was the second Chemistry faculty to take a well-deserved sabbatical in Spring 2023. He used the time to implement a method to computationally study short-lived anions. Dr. Kriley will be on Sabbatical leave in the Fall 2023, to prepare for publication the results of his students' research work from the past few years.

The celebration of graduation is always bittersweet, as these great students' time with us on campus comes to an end. We graduated 10 students this year, and while the class was one of our smaller ones, they were freshmen who had to adapt to distance learning halfway through the Spring semester of their freshman year. Two of the graduates were the first to earn our new Forensic Chemistry concentration.

We sent two students to the National ACS meeting in March. Naomi Conger '24 has been researching possible effects of mouthwash leaching material from fillings under Dr. Wong's direction. She presented her work at the 7<sup>th</sup> International Conference on Dentistry and Oral Health.

And we added a new GC/MS this year to our list of instruments!

The many challenges of this year proved to be opportunities to see God graciously provide and meet all our needs.

Dr. Augspurger

## Congratulations, Class of 2023 Graduates!

On Saturday, May 20<sup>th</sup>, the Chemistry Department Class of 2023 took our annual picture on the central stairs in STEM after our Graduates & Families Breakfast.



Top Row (left): Emily Bauer Husovich, Elias Griffin, and John Watson  
Middle Row (left): Sylvia Klein and Jamin Smith  
Bottom Row (left): Mason Herzig and Daniel Edwards  
Not pictured: Nikki Krahulik, Nate Sponsel, and Hannah Thompson

Our two chemistry majors will start PhD programs at the University of Pittsburgh and West Virginia University. Two of our biochemistry majors will begin DO programs at Lake Erie College of Osteopathic Medicine. Three more biochemistry majors are taking gap years to work as EMTs in preparation for applying to MD programs. Two are going to industry with Abound Bio (develops innovative immunotherapies for cancer and infective diseases) and SAI MedPartners (a global consulting company serving pharmaceutical companies).

Emily Husovich and Hannah Thompson are the first two graduates to earn our new concentration in Forensic Chemistry.

Congratulations, Graduates!

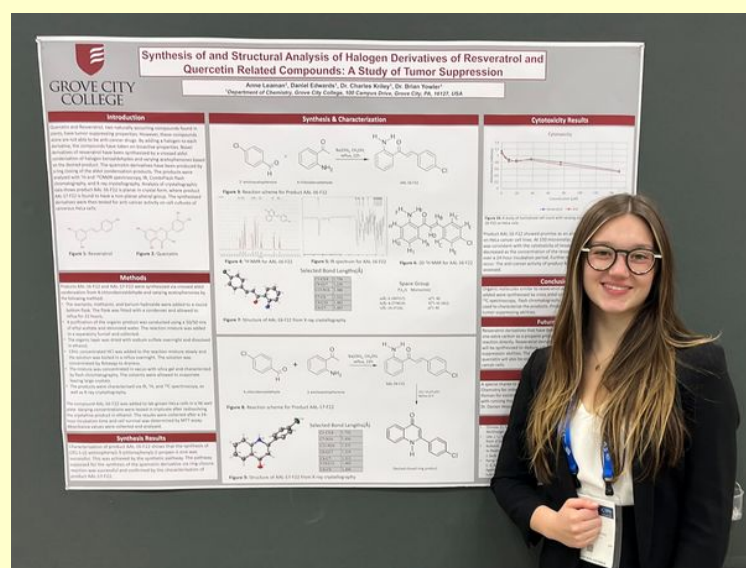
## ACS Meeting, Indianapolis

Dr. Kriley accompanied two of our student researchers, Renee Wright (CHEM, '24) and Anne Leaman (BIOC, '24), to the spring National ACS meeting at Indianapolis, Indiana.



Renee presented results of work she started during her Summer REU at the University of Akron in summer 2022 and then continued at GCC this year to develop lithium-ion batteries using solid polymer electrolytes. Renee's research work was chosen as this year's winner of the Swezey-Janicki research competition for GCC students.

Anne presented her work synthesizing halogenated derivatives of quercetin and resveratrol, compounds known to have anti-cancer activity, determining the structure of her new compounds, and testing their cytotoxicity.



## 7<sup>th</sup> International Conference on Dentistry and Oral Health

Naomi Conger (BIOL, '24) has long planned to become an oral surgeon. To increase her qualifications to enter this field, she has been doing research under the direction of Dr. Wong. Her research has involved studying the potential ability of different kinds of mouthwash to cause material in fillings to leach out. She and Dr. Wong attended the 7<sup>th</sup> International Conference on Dentistry and Oral Health in Florida to present her research. She intended to make a poster presentation, as most undergraduates do. But this was a small conference of 200 practicing dentists and oral surgeons, and after Naomi and Dr. Wong arrived, they asked Naomi to make a short oral presentation.

Fortunately, Naomi had also competed in the Swezey-Janicki GCC research competition, which required her to make a 20 minute oral presentation and answer questions afterwards. Her presentation was well received by the professionals in attendance.



## Instrumental Upgrade

In the Fall of 2022, our 20-year-old GC/MS stopped working and given its advanced age, further repair seemed to not be a wise decision. Thankfully, gifts from many alumni like you to the Chemistry Department restricted fund allowed us to purchase a new Agilent 8860 gas chromatograph with auto sampler with a 5977C mass spectrometer (pictured at right). This new instrument, along with the HPLC and UV-Vis spectrometer (with the ability to analyze solid samples) we purchased in the last two years, will form the core of our analytical instrumentation for the next decade.

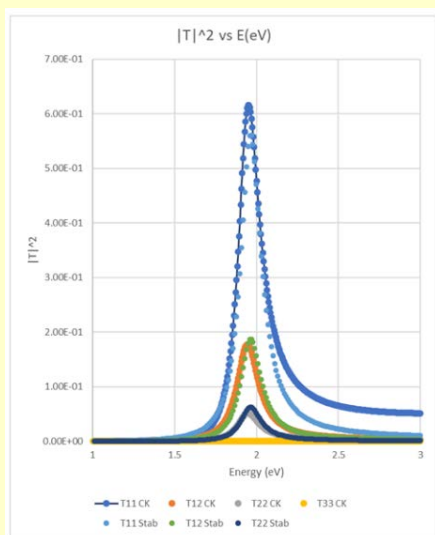


## Sabbatical

Dr. Mike Falcetta became the second member of the Chemistry department to take a sabbatical leave to move his research efforts forward. He has been studying short-lived anions using computational tools to characterize their properties since his arrival at GCC in 2003.



This spring semester he spent his sabbatical developing new computational methodologies. These short-lived anions play important roles in atmospheric chemistry, astrochemistry, biochemistry and several modern technologies. Building on previous work of student researchers and in collaboration with Dr. Fair '85, Professor of Physics and Mechanical Engineering at GCC, he completed a program to characterize short-lived anions that implemented the Complex Kohn Variation (CKV) method. This method is a complement to the method typically used at GCC (known as the stabilization method).



Using both methods, in collaboration with Professor Ken Jordan at the University of Pittsburgh and Professor Thomas Sommerfeld at Southeastern Louisiana University, Dr. Falcetta is preparing a manuscript for publication that uses four separate methods to treat short-lived anions of a simple system to determine how well each method can predict the angular distribution of electrons (with respect to the frame of the molecule) as they detach from the molecule. These angular distributions are important in analyzing experimental data from electron-molecule scattering experiments. The figure on the left shows how consistent the results for the two methods are for three different angular momentum states of a diatomic system. With the programs written this spring, there are several new projects students can work on in the future.

## Curriculum Update

We have had a concern in our Biochemistry major that the students don't have a Biochemistry class until their junior year, after they've taken Organic. When the Biology department removed Biology 102 as a prerequisite for taking Biology 233 (Genetics), we decided to replace the 4-credit Biology 102 with a new 2-credit Chemistry 141 Beginning Biology class. Dr. Shaw '95 is developing this class for freshmen to take in their Spring semester that will introduce the students to the questions addressed by biochemists and the methods used to find answers to those questions.

We are excited to offer this early introduction to our incoming Biochem majors.

## Rockwell Renovation



Here is a rendering from the architects of a view from the grassy area between Ketler dorm and Hoyt Hall of how Rockwell on the left will be connected to STEM Hall on the right. As you can see, the exterior of Rockwell will not be changed (except to restore).

When we moved into STEM 10 years ago, the General, Organic, Biochemistry, and Physical labs moved from Rockwell to STEM. The Analytical and Inorganic labs remained in Rockwell. During construction for the next two years, Analytical will share the Physical Chemistry lab in STEM and Inorganic/Advanced Synthesis will share STEM's Organic laboratory. There will be a lot of sharing of labs during this renovation. Physics will be teaching their Radiation Laboratory in the Physical Chemistry lab, while the Biochemistry lab in STEM will be used for labs for General Physics I & II, College Physics I & II, Cell Biology, and Microbiology.

As you can imagine, it was a big job to go through all our chemicals, equipment, and instruments that remained in Rockwell. We will be able to utilize some space in the Lincoln Avenue Center building off-campus to store excess supplies and equipment during construction. It also forced us to discard old chemicals and supplies that accumulated over the 92 years that Chemistry occupied Rockwell. Our science department chairs had to construct a schedule for next year where all the labs which had been taught in Rockwell would move to STEM, and we finally developed that schedule in time for registration for next year.

The plans call for some of Rockwell's interior walls to be rearranged to make new lab spaces for Chemistry, Biology, Physics, Exercise Science, and Engineering, along with spaces dedicated to interdisciplinary projects. The plans also include 22 offices. The faculty who currently have offices in Rockwell will occupy dormitory rooms in Alumni on the second floor which face MEP.

Construction is planned to begin in June. The next two years will be challenging, but we look forward to renovated Rockwell's interior looking as new as STEM's. The department owes a big thanks to Drs. Kriley and Wong who had the main responsibility of packing up their labs for the renovation.