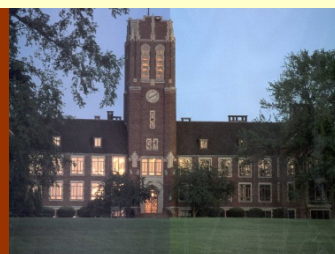




GROVE CITY COLLEGE  
CHEMISTRY  
eNEWSLETTER  
REVIEW OF 2021/2022



## Departmental News

From Dr. Joe Augspurger, Chair

May 14 was a beautiful, warm sunny day that was perfect for graduation. We started the day with our annual breakfast with the graduates and their families. I was privileged to hand out certificates to six grads who earned ACS Certified degrees, the largest number earned in a single year. We've now had 32 earn ACS Certified degrees in the 8 years we've been approved to offer them. A total of 18 graduated which you can read more about later.

I do want to share some bad news with our alumni or 30 years or more. Mrs. Sara Naegele, professor from 1966 to 1990, fell at her home in March and is temporarily still residing in Orchard Manor (the nursing home across Madison Avenue from the college). If you would like to send her a card, you can address it to Sara Naegele, 20 Orchard Drive, Room #511, Grove City, PA 16127.

I am also sad to report that Dr. Holly Guevara will not be returning to GCC next year. She, her husband Paul and their two sons, Tim and Caleb, will be moving to Long Island where Paul will be joining his father and brother in the family business. Holly has been a tremendous teacher, researcher, and colleague with us for five years. She has directed a dozen students doing various organic synthesis projects in just the last two years. We anticipate a search for a new faculty member next year.

We eagerly look forward to launching our new concentration in forensic chemistry next year. Dr. Wong will be offering Introduction to Forensic chemistry next Fall and Forensic Chemistry in the Spring, and we will be seeing the Forensic Concentration being earned for the first time by some of next year's graduates.

Dr. Falcetta will be taking a sabbatical leave in Spring, 2023, to focus on his computational research into temporary anions, the second Chemistry faculty to do so. He will be working to extend some of his

methodologies in ways that he has not been able to do on top of carrying his normal teaching load.

The fact that I could go several paragraphs before mentioning COVID shows that God has blessed us this year by preventing the effects of the pandemic from affecting us as much in the classroom this year. While there were a significant number of on-campus exposures during September and October, the number of exposures decreased significantly. It did still affect Gen Chem labs, where we broke each lab section into two groups, with half coming in person and half doing an online lab simulation one week, and then they would switch the following week. But the Spring semester has gone with very little impact, for which we are very grateful.

For those of you who have been reading our newsletters since they started in 2010, you will know that the original plan when STEM was designed was to build Phase I, move out of Rockwell, tear it down, and then finish construction of Phase II. That plan will not be completed, but plans are being developed to completely renovate Rockwell and permanently attach it to STEM. This is prospectively planned to begin in May, 2023, and be completed by August 2024. We are in the initial steps of planning how to move out of our labs in Rockwell and to teach those labs in STEM for the 23-24 academic year. It will be a big challenge, but Philippians teaches us that we can "do all things, through Christ who strengthens us."

Dr. Augspurger



## Congratulations, Class of 2022 Graduates!

On Saturday, May 14<sup>th</sup> we said congratulations and goodbye to an amazing group of people! Prior to the graduation ceremony, the graduates and their families gathered in STEM to fellowship together. We celebrated their achievements, reminisced about times in lab, and expressed excitement for the next steps on the students' journeys. Several students are attending graduate schools such as University of Chicago, University of Pittsburgh, and Penn State. Others are pursuing more specialized degrees at UPMC Cytotechnology programs and PA school at Chatham. One student is doing a Fellow's program before graduate school, and several are taking a gap year before applying to various medical schools. A few students are looking for or have found jobs in industry or research labs around the country.

This is yet another group of people who are very accomplished scientists, kind friends, and generous spirits. We will miss them dearly but look forward to hearing what they are up to in their respective journeys. Best of luck to you, graduates!



Top Row (left): Nathan Gramm, Price Seymour, Evan Dearie, Calvin Raab, Chad Grundy

Middle Row (left): David Mortimer, Thomas Wilkie, Sam Jacobs, Will Adams

Middle Row (left): Lydia Murphy, Amanda Schmidt, Grace Scofield

Bottom Row (left): Jensin Bendig, Zoe Goncz, Stephany Webb, Erin Lechner

Not pictured: Jed Speers, Jennifer Martin



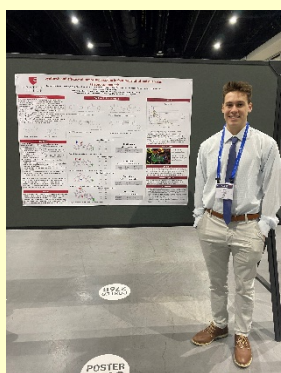
## ACS Meeting, San Diego

Several of our students were able to present their research at the National Meeting of the American Chemical Society in San Diego, CA, in March 2022. The students all participated in the Undergraduate Poster Session at the conference and were able to share their work with students and professionals in the field. They also were able to attend several talks relating to their individual interests. Dr. Kriley and Dr. Guevara supervised the students in their research projects and took the students on the trip.

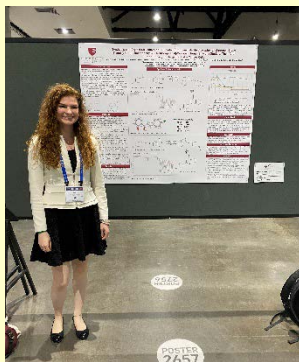
Though the conference was much smaller than usual, it was an in-person event and provided students and faculty opportunity meet and network with colleagues and professionals around the country. We are grateful for the support from the College and the opportunity to attend.



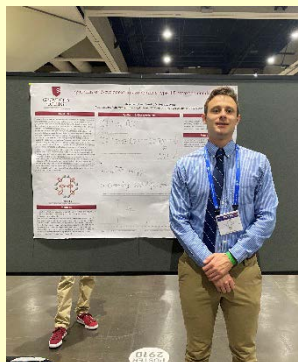
## Student Projects



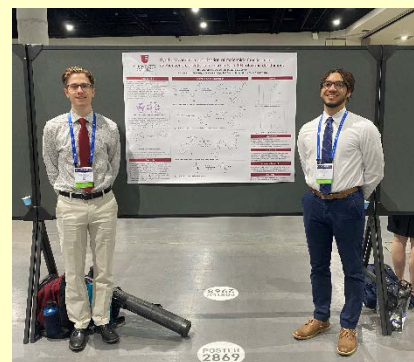
Jed Speers presented his work on the synthesis of fluorine-based resveratrol derivatives.



Lydia Murphy presented her work on the synthesis of chlorine-based resveratrol derivatives.



Calvin Raab presented his work on the synthesis of cyclodextrin derivatives for rotaxane dendrimers.



Sam Jacobs and David Mortimer presented their work on the synthesis of maleimide based derivatives of azobenzene for rotaxane dendrimers.



## Student Research Experiences

Many of our Chemistry and Biochemistry majors worked on research projects during the school year with various faculty members. Their projects are outlined below.

### Kriley

Jed Speers ('22) – synthesis of fluorinated resveratrol derivatives

Lydia Murphy ('22) – synthesis of chlorinated resveratrol derivatives

Zoe Goncz ('22) – synthesis of nickel phosphine catalysts

Daniel Edwards ('23) – synthesis of brominated resveratrol derivatives

John Watson ('23) – synthesis of MOF's and nickel chloro-phosphine and Grignard reactions

Lauren Ordinario ('24) – synthesis of resveratrol derivatives

Megan Mathes ('24) – synthesis of resveratrol derivatives

### Shaw/Homan

Grace Scofield ('22) – identification of inhibitors of  $\beta$ -galactosidase enzyme by computational screening, and synthesis of a potential small molecule inhibitor.

### Wong

Amanda Schmidt ('22) and Jennifer Martin ('22) – investigating active ingredients of cosmetics

Naomi Conder ('24) – dental research project

### Falcetta

Calvin Raab ('22) – exploring the interaction of low energy electrons with benzene as the molecular geometry distorts

### Guevara

Nikki Krahulik ('23) – synthesis of maleimide precursors for azobenzene derivatives

Renee Wright ('24) - synthesis of maleimide precursors for azobenzene derivatives

Daniel Mathes ('24) – synthesis of cyclodextrin derivatives for rotaxane dendrimers

Sabrina Bergey ('24) – synthesis of maleimide derivatives of azobenzene

Anne Leaman ('24) -synthesis of cyclodextrin and azobenzene derivatives

Sam Jacobs ('22) – synthesis of maleimide derivatives of azobenzene

David Mortimer ('22) – synthesis of maleimide derivatives of azobenzene and thiol-maleimide coupling reactions



## Summer Research Experiences

Several students have opportunities during the summer of 2022 to do internships or work at labs all over the country. Their plans are outlined below. We are excited to hear about their experiences when they return!

Nikki Krahulik (CHEM, '23) – REU program at Cincinnati

Renee Wright (CHEM, '24) – REU program at the University of Akron doing polymer chemistry

Anne Leaman (BIOC, '24) – working at Eurofins laboratory

John Watson (CHEM, '23) – working at LabCorp

Nathan Sponsel (BIOC, '23) – computational biology project on heat shock proteins at Sam Houston State University

Lexi Zook (CHEM, '25) – working at Rockland Immunochemicals fine tuning raw materials into antibodies

Jamin Smith (BIOC, '23) – consultant at SAI medical partners

Naomi Conder (BIOL, '24) – dental research with Dr. Wong at GCC

We are thankful for alumni relationships at some of these companies and are grateful that our current students have such meaningful opportunities to broaden their research and work experiences during the summer.

## Update on Research Scholars Fund

### *Herbert W. and Cora (Milliron) Green Research Scholars Fund*

Last year, Sara Naegele started a Research Scholars Fund to help our chemistry majors with a newly implemented research fee at the College. The fund is in honor of her grandparents who helped raise her. Sara has been extremely generous towards our department, and we are truly grateful for her efforts to both remember her grandparents and to encourage our students to take part in independent research opportunities for credit. Rising junior students will be eligible for aid to support independent research during their fall semester.

We would like to thank everyone for their generous support of this scholarship. We are currently less than \$5,000 from this scholarship being fully funded. Any additional donations would be greatly appreciated and help support the good work that students do during the school year!

If you would like to contribute to this fund, please make your checks to Grove City College with Herbert W. and Cora (Milliron) Green Research Scholars Fund in the memo line. Or to give online, click [here](#), choose the amount of your gift, choose “Click to see more giving opportunities”, scroll to the bottom, choose other, and click on “Continue”. Under where it says “Please type where you would like to direct the gift” type in Herbert W. and Cora (Milliron) Green Research Scholars Fund, and then fill in the rest of the required information.



## Alumni Spotlight

Richard (Rocky) Stone, Class of 1961  
BS Chemistry

The following outlines the story of the education and career of Richard (Rocky) Stone, an incredibly accomplished alumni of the Chemistry department. We are delighted to share his journey with you!

### Impactful Education

Rocky started in college knowing that he wanted to study Chemistry, largely because of the Chemistry teacher he had in the 10th grade in Mt. Lebanon High School in 1955. Rocky says that “he instilled in me the love and mystery for chemistry.” Once Rocky arrived at Grove City College, his intentions were to study hard and graduate in Chemistry. Rocky’s dad also thought this would be a good idea!

Rocky’s favorite Chemistry class was the first class he took in college – it was a General Chemistry course. He thought the labs were fun and gave the first real impression of what he was getting into. Other chemistry courses were increasingly difficult, but Rocky was determined to make the grade. It took a lot of hard work, hours of study and an end goal not to fail or give up. While at GCC, Rocky was a member of the Rifle Team and Swimming Team, both of which took considerable time. His studies and sports took most of his time and would not let him think of what he would do if he could not excel in Chemistry.

### A Storied Career

After graduating from Grove City College, Rocky had his first job working at the United States’ first nuclear power station (Shippingport Atomic Power Station) located 40 miles from Pittsburgh, PA. In his job as a nuclear chemist he worked various shifts in both the “cold” and “hot” labs making sure the chemistry of the nuclear generating system was under control and within operating limits.

After two years in the labs, Rocky was recommended to start training for a position in power station operations. This station was a joint project between the local power company and the Naval Reactors Branch of the Atomic Energy Commission headed by Admiral Hymen Rickover. After two years of intense training, Rocky was stationed in the Control Room of the Station. This was the most important part of his career. He left this electric power company after 10 years to look for another job that would not include shift work (which his wife also thought this was a good idea!).

Rocky then accepted a job as Engineer with an engineering company (Black & Veatch) in Kansas City, MO. He worked there for nearly three years, assigned as a consultant for some 20 electric generating power companies located primarily in the middle US. As a consultant, he would review the power plant’s chemistry operations and make recommendations as needed. He was also involved in design work (chemical facilities) for various power stations being designed and constructed in the US.





Rocky was contacted by a chemical company to see if he would talk to them about a position in sales. He did not know if he had what it took to be in sales, but decided to interview and accepted a position as Sales Engineer in Pittsburgh, PA to represent Betz Laboratories in the steel industry. This was a real challenge since Rocky was never exposed to the steel industry even though he was born and raised in Pittsburgh. This job was a vast change from the previous positions, and he was ready to learn a new industry. The job involved selling chemicals to steel mills for their various water and waste systems. The potential for chemical sales to the large steel mills was enormous. After two years in Pittsburgh, Rocky was promoted to District Manager in Chicago for Betz Laboratories where he developed a large district of sales personnel for sales and service to the steel industry in Chicago. Rocky soon learned that more steel was produced in Chicago steel mills than anywhere else in the United States. This Chicago District became one of the largest in terms of sales for the company. He stayed with Betz Laboratories for over 10 years.

Once again, Rocky was contacted by another large chemical company, Petrolite Corporation, to join their company to represent them in the steel and oil industries. Initially he was their District Manager in Chicago. Rocky stayed in Chicago for 2 years and was relocated to St. Louis, MO as a Regional Manager. In this position, he traveled extensively throughout the Eastern US, Canada, and the Caribbean concentrating mainly on chemical sales to oil refineries and had responsibility for a large sales force probably 200 or more people.

Rocky worked for Petrolite Corporation for 14 years and accepted a generous “early out” retirement. Since he was only 55 years of age at the time, Rocky decided to look for another job, since he then had children in college. It was then that he was contacted by one of his management associates from Petrolite to see if they could put together an offer to buy a St. Louis based chemical company. They purchased Navy Brand, a 1907 company involved in chemical sales to a variety of businesses. They had over 400 products and a sizeable sales force. The new business manufactured mostly chemicals and sold them for general cleaning and general maintenance purposes in many businesses in the Mid-Atlantic US. Rocky managed and trained the sales group as the Vice President.

Rocky stayed with Navy Brand for three years and decided to leave when he was offered a job with the University of Missouri, St. Louis. The position with the University of Missouri was Engineering Consultant and involved selling contracts to a variety of manufacturing companies throughout the State of Missouri. This was an interesting job, since he dealt primarily with Owners, Presidents and CEO’s of over 2000 companies. The offerings involved contacts to help companies improve their methods of operation, facilitate various training programs, and eventually improve their “bottom line” and other areas of manufacturing to make sure their company would grow and prosper.

Rocky stayed with the University of Missouri for 11 years and finally retired for good at age 70. What a career! Lots of moves, many houses, loads of experience, thousands of air miles, and a gratitude for having the valued education and memories from Grove City College. Rocky describes his journey as – “What A Trip!”

### **Firm Foundations**

Rocky’s training and education in chemistry was elementary in providing basic chemical knowledge in all the variety of jobs that he had. Remember, he had six different jobs throughout his career and the vast experience that was gained would be hard to measure. Developing the skills needed for handling sales personnel, customers, company executives and many others were built on the foundation that goes back to his days in college and the desire to do a “good job” whatever that might be. After having been exposed to many different types of industries he sees two keys to success were having a basic understanding of their needs (chemical in most cases) and relating his training from college days. Rocky is proud of the fact that he was able to train many people that he managed so that they too could be successful and proud of their careers, as he is.

It can be seen that Rocky’s start as a chemist in a Nuclear Power Station and ending as a consultant for a major university involved many changes and moves. He would have to say that most of his career was involved in sales,



sales management, and sales training - all with a basic background in chemistry. It's hard to imagine how one's career will evolve, but it all starts with a good education from a quality college – all Rocky can really say is “Thank You, Grove City College”.

#### **A New Journey**

Now that Rocky has been retired for 12 years, he enjoys his family of 8 children and 17 grandchildren. His favorite things involve golf, traveling and working on his home and yard. Rocky also spends considerable time managing a traveling golf group of 40 senior men with an average age of 78. He has spent many years at his church as a council member and leader of the social activities group.



## Update on Dr. Conder Inorganic Scholarship Fund

### *Dr. Harold L. Conder Memorial Scholarship Endowment*

Thank you! The generous gifts that you, our alumni, have provided over the past three years and additional matching funds have combined to fully vest the Memorial Scholarship in honor of Dr. Conder's teaching inorganic chemistry at Grove City College for 43 years. This endowment will be used in the future to provide a scholarship to a student or students who demonstrate both excellence in and a commitment to pursue the study of inorganic chemistry. This will provide great assistance in continuing to attract the high caliber of students that we have enjoyed.



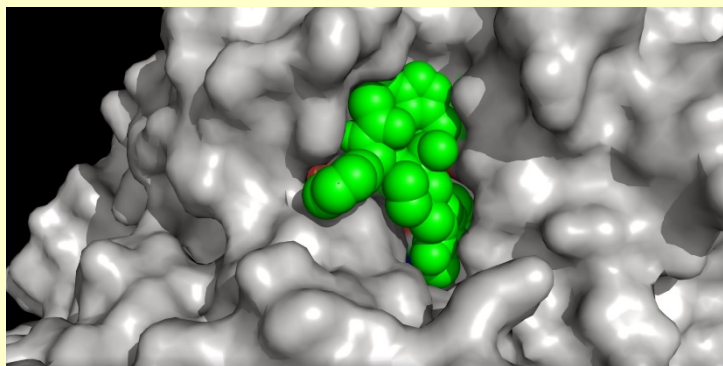
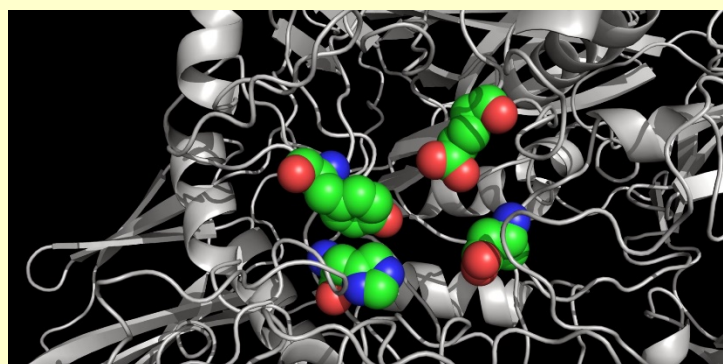
## Faculty Spotlight

### Dr. Kevin Shaw works on computational biology projects

Dr Shaw, our resident biochemist, has been working on a computational biology project investigating drug discovery methods along with 2022 graduate Grace Scofield. The project began when Dr. Shaw and Grace started screening small organic compounds that may act as competitive inhibitors of the enzyme  $\beta$ -galactosidase by binding to the active site of the enzyme. Several hundred thousand compounds were screened computationally. There were several promising compounds identified. One compound was commercially available at a reasonable cost and tested for binding in an assay the lab with inconclusive results. Grace then proceeded to rerun a series of computations to come up with similar compounds with potential inhibition activity and came up with ten potential hits. One candidate was chosen as a synthetic target with the potential for additional structural modifications to improve activity. This project is considered ongoing; if new synthetic targets can be made, they can be tested in the  $\beta$ -galactosidase activity assay for potential bioactivity. Dr. Homan assisted Grace with the synthetic side of the project.

As a result of the initial screen which yielded several promising inhibitors, Dr. Shaw began an even larger computational screening project looking for more inhibitors. He has screened 1.6 million out of 5.8 million commercially available organic compounds so far. Any potential inhibitors can be either purchased or synthesized and evaluated via the biological assay.

Dr. Shaw is also interested in taking some of the results of his new screen to use in his Biochemistry lab course in the fall (*Chem 351*) so students can try out the assay with some of these potential inhibitors. This is a great example of how ideas born out of a research project can make a lab activity better. Students really enjoy taking on lab projects or activities that are associated with a research question and making advances to solve the proposed research problem creatively. This project Dr. Shaw is working on is also fascinating because it could be considered interdisciplinary; computational biochemistry, synthetic organic chemistry, and biological assays (and the skills needed to investigate these problems) are all involved in this particular research question. This project also facilitates the collaboration of faculty and students of various specialties.



**The active site of beta-galactosidase (top) in ribbon form, and active site bound by a potential inhibitor (bottom).**



## Farewell to Dr. Guevara

Dr. Holly Guevara joined the Chemistry Department faculty in the Fall of 2017, having earned her PhD in Organic Chemistry from the University of New Hampshire. She has been an outstanding member of the department in many ways over the last five years.

Holly developed an active research program centered on developing methods to synthesize “molecular machines” using rotaxanes, directing 14 students. You have already read how this past March she and Dr. Kriley chaperoned five senior research students to the ACS National Meeting in San Diego so they could experience sharing their research results with the scientific community.

Holly has taken on the huge task of handling most for the load for General Chemistry I each Fall. As Grove City has sought to develop online offerings, she has also offered the lecture of Gen Chem I the past two Spring semesters online to dual enrollment students. Her Organic training has been applied in teaching our Advanced Spectroscopy and Advanced Synthesis elective courses.

Having two children since she arrived has been another significant task, but she has in both cases prepared well for the time she had to miss for their births and after. She always came back sooner than we asked her to, more evidence of how she always goes the extra mile.

She has more than carried her load of service to the college, having served on faculty search committees for other departments and other committees, including a subcommittee of our current General Education Curriculum review. Her alma mater, Eastern Nazarene College asked to serve as an alumni representative on their Board of Trustees.

Beyond all that she does, Holly has become an amazing colleague and a great friend.

Holly, her husband Paul, and their sons Tim and Caleb will be moving to Long Island, where Paul grew up. Paul will be joining his father and brother in their business.

Thank you, Holly, for all you’ve done for the Chemistry Department!



Tim, Holly, Caleb, and Paul