CHEMISTRY DEPARTMENT NEWSLETTER

NOVEMBER 2022
ISSUE NO. 36

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A Word From The Chair

Dr. Deborah Herrington

As I write this, the GVSU campus is buzzing with activity and Padnos Hall is filled with students making their way to lectures and labs. More than two years after life at the university—like the rest of the world—was turned upside down by a pandemic, we are so happy to see our students' smiling faces again and are experiencing a semester start that feels...almost normal. Though eager to move forward, we also look back with a sense of relief and pride that we were able to adapt, innovate, and scramble our way through what is surely one of the strangest set of challenges that educational institutions have ever faced.

It is cliché to say it, but it is fundamentally true that the pandemic has changed higher education—for better and worse, and probably forever. Virtual office hours, innovative ways to deliver content, and the ease of bringing in alumni speakers by Zoom are just some of the changes that were adopted under the stress of "must do" but have been retained as they work better. That said, some parts of post-pandemic life in higher ed are more challenging, and less rosy. Enrollment trends in Michigan and across the country are trending down, and though GVSU continues to do better than most in this area, we are all swimming against the current. Most of the first-year students arriving this Fall were high school juniors when COVID-19 first emerged. Because of this, they experienced a fractured education, particularly in subjects that are as hands-on as Chemistry. If you get a chance to visit campus you will see that our students are bringing energy and optimism to the coming year; however, too many are also struggling to engage with their classwork and are facing serious disruptions in their personal lives.

So how do we approach the post-pandemic landscape? By a renewed focus on our mission, and a doubling-down on efforts to adapt to the changing needs of our students. The Chemistry Department has always been a leader in student-focused lectures, labs, and research, but the College of Liberal Arts and Sciences is embarking on a three-year journey to transform our approach to student success. Traditionally, colleges and universities have focused on recruiting "college-ready" students and lamented the lack of preparation of many incoming learners. The new focus asks how GVSU can be a "student-ready" college. This transformation of approach involves a look at how we can meet all students where they are, and make sure that everyone has a path toward achieving their goals.

(Continued on next page.)

A Word from the Chair (continued)

What will this look like? Fortunately, the Chemistry Department has already made strides in this area. Ten years ago, we established the Chemistry Success Center, a drop-in tutoring center located right here on the 3rd floor of Padnos. This facility is staffed by both student tutors as well as Chemistry faculty who hold their office hours there. For more information on the purpose and success of this endeavor, please see our conversation with CSC director Sarah Clark on page 3. Our department has also developed a Chemistry prep course (CHM 100) and a General Chemistry "parachute" option. It is sometimes the case that students in our CHM 115 course, through no fault of their own, struggle with the high school content which we presume as a pre-requisite for the course. This program allows these students who find themselves struggling to seamlessly transfer to CHM 100 where they are provided with a narrower focus and more math support before re-entering the main track the following semester. We are also seven years into our Advising Highlights program, in which we ask our lecture instructors to spotlight a different helpful resource each week. With first-generation college students making up over 40% of this year's first-year class, these efforts to help with college-level study skills, explain what a career fair is, or how to find the counseling center are crucial. And of course, we are still committed to providing quality undergraduate research experiences for students; a high impact practice that has been shown to support student retention and success.

Our faculty are also active supporting students outside of GVSU. On page 9 you will see our feature on Dr. Brittland DeKorver's "Strategies for Teaching Chemistry" Facebook page. This effort, which grew out the need to share approaches to teaching online during the pandemic, has transformed into a community of over 5000 educators looking for innovative and inclusive ways to teach chemical topics. Professors Julie Henderleiter, Stephanie Schaertel, Mary Karpen and Sarah Clark have participated in tutoring outreach programs with high school students in Battle Creek and Grand Rapids who we hope will be future Lakers.

Looking forward, we are excited to build on our most successful approaches. We plan to make high-impact practices such as a mentored research or internships an "unavoidable" part of the GVSU experience of all CHM and BIC majors. Change is inevitable, and as you can see, we have decided to avoid pining for "the way things used to be". Instead, we choose to view our new world as an opportunity to transform college Chemistry education into a more effective and inclusive endeavor.

Deborah Herrington

"With first-generation college students making up over 40% of this year's first-year class, these efforts to help with college-level study skills, explain what a career fair is, or how to find the counseling center are crucial.

There are multiple ways that you can help continue your support of the GVSU Chemistry Department. The following is a list of funds that directly support GVSU chemistry students and the Department. To provide support for any of these programs go to **www.gvsu.edu/give**, choose Other Fund and search for the program name.

Chemistry Support Funds

- Chemistry Instruments and Infrastructure Fund
- Chemistry Support Fund
- Weldon Memorial Chemistry Endowment

Chemistry Scholarships and Fellowships

- Aaron M. DesRocher Memorial Chemistry Endowment Fund
- Mark A. Warren Memorial Scholarship
- Ott-Stiner Fellowship in Chemistry and Natural Sciences Endowment
- Professor Charles Knop Chemistry Scholarship Endowment
- William Schroeder Undergrad Endowed Fellowship in Chemistry.
- Cheryl Barnhard First Generation Chemistry Endowed Scholarship

The Chemistry Success Center

A conversation with CSC Director Sarah Clark

Where is the Chemistry Success Center located and what services does it provide? The CSC is located in Padnos 399, at the top of the main stairway. We provide drop-in tutoring for 100- and 200- level chemistry classes. Students can come with questions large and small, or use the CSC as a place to study where help will be close at hand. Often, a question on a homework assignment or lab leads to a student's first visit. However, as students become repeat visitors they will often come to view the CSC as a study location where they are able to discuss course concepts with tutors and faculty. In addition to our in-person location, students can also connect with the CSC through Zoom.

How does the CSC fit in with the mission of the Chemistry Department (and GVSU)? The Chemistry Department is focused on excellence in teaching, and the CSC helps provide the support that students need to succeed and thrive in our courses. We train our tutors in effective teaching strategies - for example, tutors are taught to guide students through problem solving using effective questioning strategies rather than just showing students how to solve a problem. Additionally, while GVSU is a fairly large university, it provides students a "small-school experience." GVSU is committed to engaging students in high-impact opportunities and facilitating close connections between students and faculty. The CSC provides both of these things. Students visiting the CSC often connect directly with a chemistry faculty member, and many tutors working in the CSC find the experience impactful in shaping their understanding of chemistry, communication skills, approach to learning, and sometimes even their overall career path.

Who are the tutors and how are they recruited? Most student tutors working in the CSC are juniors or seniors. Tutors come from a variety of majors - recent tutors have had majors including Biochemistry, Chemistry, Biomedical Sciences, Biology, Integrated Science Education, Philosophy, and Classics. The career paths of tutors also vary - some are preparing for careers as high school educators, many are seeking teaching experience before heading to graduate school, and others are drawn to tutoring as a way to brush up on chemistry content before entrance exams for professional school. Tutors are recruited in a variety of ways. Chemistry faculty are an excellent source of recommendations and regularly suggest outstanding tutoring candidates from their courses. Chemistry faculty play a key role in the CSC - many faculty generously donate their time and hold anywhere from 1-3 office hours per week in the CSC. Faculty presence in the CSC is critical to its success. Tutors are able to consult with faculty when they have questions, and the CSC provides a space for tutors and students to engage with faculty in a setting that is less formal than the classroom. The relationships that are formed between faculty, tutors, and students in the CSC make it a vibrant learning space!

What is the most satisfying thing about your involvement with the CSC? The most satisfying things about my involvement with the CSC are forming connections with tutors and watching them grow over the course of their tutoring career. It is especially rewarding when I have the opportunity to work with a tutor who initially visited the CSC as a student in their early chemistry courses. The growth in these students is amazing, and nothing is more satisfying than watching a student I have known for several years emerge as a leader among the tutors by serving as a mentor, sharing valuable insights, and supporting the learning of the next cohort of students.

Why were you excited to be a part of building the CSC? When I first learned about the CSC, I was most excited about the department's investment in student success. It was clear that faculty and staff in the department were committed to the CSC and supporting students. On a personal level - prior to coming to GVSU, I had worked as a high school science teacher. My overarching area of interest is helping students successfully navigate the transition from high school to higher education. I was very excited to have the opportunity to help build the CSC because it aligns so well with that interest. Additionally, tutoring in a chemistry tutoring center as an undergraduate played a key role in the development of my career.

What do you see for the future of the CSC? After the disruptions of the past several years, students are arriving in our chemistry classes with a new set of strengths. While it is easy to focus on the "gaps" that students may have in their chemistry background, many students who navigated high school and/or early college courses in hybrid or online formats have developed an excellent toolbox of problem solving skills. For example, many excel at finding and utilizing resources. One of my primary goals for the CSC is figuring out how we can adjust our offerings to best support these students, who have developed an independence that sets them apart from previous cohorts. Additionally, I want to make sure the CSC is a place that honors all individuals and fosters inclusion. I hope the CSC is a place where students realize that they belong in chemistry and STEM through the meaningful connections they form with tutors, faculty, and other students. We want the CSC to be a comfortable place where students feel they can spend extended periods of time as they work on chemistry! So much of the CSC's success is due to the efforts of tutors, faculty, and students. I feel humbled to work in such a supportive community - thank you to all who have played a role in making the CSC the place that it is today!

CSC Director Sarah Clark

A CSC tutor works with a student

ALUMNI SPOTLIGHT

Ryan Flaherty '11

B.S., Chemistry

Patent Agent, Price Heneveld LLP Intellectual Property Attorneys

Why did you choose GVSU and what year did you graduate? I was impressed by the facilities that GVSU had to offer, I liked the setting of the main campus (not in a large city), and I heard good things about the university from my older sister who also went to GVSU. From the research I did, it looked like GVSU had a respectable program for chemistry, which I knew would be my major. Another aspect of my decision was that GVSU was far enough away from home that I felt like I would have a chance to see how well I could stand on my own two feet, while being close enough that I could visit with family on a weekend.

What are you doing today, and how did your education at GVSU help prepare you for your current work? I am a patent agent at Price Heneveld LLP in Grand Rapids, MI. I have been with Price Heneveld since I graduated from the University of Notre Dame with a Master of Science in Patent Law and a PhD in Chemistry in 2016. In short, I help inventors get patents on their inventions, but do not handle anything that requires a legal opinion. I use some of the academic skills I learned at GVSU in the work I do today. However, what I use most from what I learned/developed at GVSU are the interpersonal skills I learned as a Resident Assistant, the verbal communication skills instilled in the seminar courses we took, and the technical writing skills obtained from all of the lab reports we wrote.

What was the biggest surprise for you in the path you have chosen? Frankly, how much more straightforward patent law is than chemistry. Sure, there are challenges in what I currently do; however, when those challenges arise in patent law, the possible paths forward seem more apparent than they were when I was doing graduate-level research. Additionally, I was surprised by how readily I have transitioned into patent law – I feel like my aptitude in patent law exceeds my aptitude in chemistry.

What is the most exciting (or gratifying) part of your current work? One of the most gratifying parts of working in patent law is when you are going back-and-forth with a Patent Examiner at the USPTO and it seems like your chances of obtaining a patent for your client are dwindling but then you have a breakthrough. That breakthrough can come in a number of different forms, but when it happens, that small light of hope at the end of the tunnel seems to race toward you – expanding all the while and you are suddenly in a much stronger position than you thought just moments before. One of the most exciting parts of working in patent law is when you are working with smaller clients and you help them obtain patent protection on their product. For a large corporate client, that next patent might be one of hundreds or thousands they receive that year. For the smaller client, that patent might be their first patent for their company. That patent protection can give them a more firm foothold in the marketplace and is usually a cause for much celebration. The excitement and gratitude that those smaller clients convey can be infectious.

What advice do you have for GVSU Chemistry students who wish to pursue the same path as you have? First, I would say you have to be ok with a lot of reading and writing. You also need to have what I call academic agility – the ability to pick up something new to you and grasp the important aspects quickly. With regard to entering the field, there are positions called patent engineers, technical specialists, or some derivative of those in patent law. Those positions do not require a law degree and do not require you to pass the patent bar. Those could be good entry-level positions. To be a patent agent, you need to pass the patent bar. The patent bar is a difficult test and I would recommend a preparation course if you were going to take the exam. For some reason, it seems that people with a science background have a harder time getting that first position in patent law if they do not have a graduate degree of some kind – such as a master's degree, a doctorate degree, or a law degree. So, keep that in mind as you are considering the patent law path. A question I often ask people who are considering the transition is are you running from what you are currently doing or are you running toward patent law? It may seem like semantics, but the answer can be helpful in their determination of whether patent law is right for them.

What do you like to do with your time outside of work? I have a wife and two – soon to be three – kids. Outside of work, I love spending time with them and our extended family. We all really enjoy spending time outside – especially by the water. In the summer months, cookouts, bonfires, and golfing are also favorite past times.

Any other comments? You are totally replaceable at work. You are not replaceable at home. Home is your real life. Keep that perspective – always.

get connected

WWW.GVSU.EDU/CHEM

Alumni Portal - We Need You!

Our students — those with us now, and those who were here in times past — have always been the heart and soul of the GVSU Chemistry Department. In recent years we have made it a goal to find ways to stay connected with our alumni to highlight the exciting things they are doing, and to better integrate Laker chemists from different eras. To do this, we have initiated a new alumni portal — a one-stop place where you will find a variety of different ways you might reestablish a connection to the GVSU Chemistry family.

Please visit www.gvsu.edu/chem and look for the portal pictured below!

Help promote opportunities for GVSU students

Does your company have an internship program? Are you looking to recruit students to your graduate program? Do you know of other opportunities that we can share? The new portal gives you a place to let us know!

Highlighting alumni success

If you have not done so already, check out the Alumni-in-action section on our website. Here you can learn about some of the great things our alumni are doing. Would you like to see your story there, or to nominate someone for this feature? We would love to hear from you, and there is a spot to let us know on the portal above. By the way, the connections we make through telling these stories have been known to lead to more extensive alumni spotlight features in the newsletter.

Staying connected through social media

If you are looking for a low-key way to stay connected, we maintain a presence on two social media platforms. The departmental LinkedIn site is a spot for professional connections, job opportunities and news about Laker Chemistry accomplishments. The Chemistry Stockroom maintains a Facebook page for social connections with everyone in the GVSU Chemistry family, and fun news about what is going on in the department. Connect with these sites at **GVSU Chemistry and Biochemistry** on LinkedIn and **GVSU Chemistry Stockroom** on Facebook.

Impact students with your experience

Many schools have informal networks for alumni to serve as a resource to current students. Are you interested in talking to a Chemistry or Biochemistry major who is applying to the graduate school you attended or the company you work for? Are you using your degree in a non-traditional field, and feel that you could speak to students who might be interested in that area? We need your wisdom!

We Say Goodbye

Recent Retirements

LAURIE WITUCKI

When Laurie Witucki joined the GVSU Chemistry Department in 2000, she was fresh out of graduate school at Princeton and had just completed rehabilitation from the Princeton Neck and Back Institute for a serious cycling injury. “I was making adjustments to my career and research goals, and I really wanted to work with undergraduates.” She says she was thrilled with her GVSU interview, noting how the interview questions were very focused on her approach to teaching and her motivation to work with undergraduates. She was not only impressed by the faculty and facilities, but by the friendly, warm and curious nature of the students. All of her initial impressions of GVSU proved true, from the collaborative faculty who were always interested in discussing teaching, to the students who were respectful of faculty and curious about chemistry.

As a member of the Organic Chemistry subgroup for over 20 years, Laurie taught Organic I and II (241/242), Intro to Organic Chemistry (231) and a number of classes for majors such as Advanced Organic, Spectroscopy, and even a special topics class on Bioorganic Chemistry of Drug Discovery. She was known for her efforts to make Organic Chemistry more approachable by wearing T-shirts featuring weird chemical molecules and making puns with chemistry terms. As a first-generation college student, she often saw flashbacks of her younger self in the GVSU undergraduates. “I knew nothing of doing research, or how graduate school might work when I entered my undergraduate program as an undeclared major. I certainly never dreamed I would one day be a professor myself”. Laurie received a number of awards for her instructional efforts including the 2004 University Outstanding Teaching Award and the 2012 Professor of the Year sponsored by the Educational Support Program. She was also involved in several notable service efforts, including acting as the founding director of the Women in Science and Engineering (WISE) Living Center. “It was very rewarding from the first move-in days to the field trips on the Annis Research vessels and other science related events”, she notes. Her leadership in that position and her extensive volunteering in Science Olympiad and other outreach events (Light! Polar Year! Girl Scouts!) earned her the 2016 CLAS Faculty Lifetime Service Award.

Laurie’s research program spanned a variety of topics including peptide synthesis, kinase enzyme structure/function, and in later years, essential oil analysis. She was especially appreciative of several early research students such as David Kuiper, Jaime Curtis and Lauren Sanford, who helped her set up her lab. Many students who followed learned synthetic organic skills, solid phase peptide synthesis, combinatorial library synthesis and screening, and the development of bioassays using ELISA or radioisotopes. “From them I learned the broad variety of their backgrounds, families, hopes and goals.” she says. She was grateful for other research students who kept her program moving forward while she was on sabbatical or teaching an especially heavy load: Tony Pedley (TPed), Greg Patton, Kirk Wyatt, Jenny Jess, Emily Ingalls to name a few. Laurie is known for her love of dogs, and her long-term participation in scentwork events led to her interest in GC-MS analysis of essential oils that are used in that canine sport. She gives a special shoutout to Delaney Johnson, who worked on the essential oils project and her service dog Artie: “I will never forget Artie's doggles, booties and wagging tail”.

Laurie leaves GVSU with many great memories including tie-dying in the organic majors labs, organizing senior banquets and coming up with silly awards for all the graduating seniors with Sherril Soman, getting roped into being a “Ball Spotter” at a freezing cold spring golf championship by Dave Tanis, working with Karen Matchett on anything to do with organic lab, and bringing her first golden retriever Lucky into Padnos dressed up as a lab safety inspector dog for Halloween. She makes a special mention of her “ladies of the hallway”—Mary, Dalila, Shannon and Stephanie —who kept her sane and happy with words of wisdom, jokes, chocolate, Nerds candy and support. She gives a heartfelt thanks to the Department chairs who served during her time: Harvey Nikkel, Todd Carlson, George McBane and Debbie Herrington, and also those she had close and productive research collaborations with: Bob Smart, William Schroeder, Felix Ngassa, David Leonard, Randy Winchester and Shannon Biros. “Last but not least, my Mentor-for-life Bob Smart—you were a big reason why I took the job at GVSU and you mentored me all through my career; I cannot thank you enough.” She also appreciates the support received from the GVSU LGBT Faculty and Staff association and will never forget when GVSU first offered partner benefits and how life-changing that was for so many.

In retirement, Laurie looks forward to traveling with her wife of 20 years Star Swift, also a retired GVSU professor. She plans to continue pursuing her passion for dog sports, and is currently giving her new golden retriever puppy Buzz training in scentwork. She is also excited to get back into art again, noting “I hope to have time to rediscover how to paint again, as well as make cement and tile artwork”. “What won’t I miss? Fighting with the Scantron machine, finding a typo in the final exam just as it comes back from the copy center, grading lab abstracts and the occasional long meeting on a warm, sunny fall day”. She starts her new life with “deepest thanks and wishes for success and happiness to the GVSU Chemistry community, past, present and future.”

Laurie Witucki & Bill Schroeder

BILL SCHROEDER

The GVSU Chemistry Department also notes the retirement from active service of Bill Schroeder, a long-time supporter and participant in department activities. Bill was the founder of Trace Analytical, an environmental testing company in Muskegon. He began research work with Prof. Bob Smart in 1998, and actively mentored over 30 students. He brought organic chemistry expertise to projects involving the synthesis of antibiotics and anti-tumorigenic compounds. Bill was co-author on four papers, two provisional patents, two funded grant proposals and over 25 posters presentations with GVSU student collaborators. Smart noted: "Bill is an amazing chemist and dear friend of our Chemistry Department. He has a love for organic synthesis and mentoring students. All of Bill's students including myself learned a great deal from Bill about following your passions and loving your work."

And We Say Hello

Recent Hires

STEPHANIE BILINOVICH

Chemistry Instrumentation Specialist

Started: April 2021

Where did you obtain your training and degrees?

I received my Bachelor's in Chemistry from Walsh University and my Ph.D. in chemistry with a focus on Biochemistry and protein structure at the University of Akron. I also received postdoctoral training in Biophysics at the University of North Carolina Chapel Hill. Before I joined GVSU, I was a postdoctoral researcher in molecular genetics at Michigan State University in the Department of Pediatrics.

What attracted you to the position at GVSU?

During my training as a biochemist, I used a wide variety of instruments. I was always involved with general maintenance and wrote general operating protocols for the the instruments in the laboratories where I worked, and briefly worked in an NMR facility as a graduate student doing maintenance on the NMR spectrometers. I always like this part of my training, so I was attracted to the position at GVSU when it was advertised.

What are your general responsibilities?

I perform the maintenance on the instruments in the Chemistry Department. I also work to help faculty and students to use the equipment.

NICK OLLE

Organic Chemistry Lab Coordinator

Started: September 2021

Where did you obtain your training and degrees?

My position is the Organic Laboratory Coordinator for CHM 231, 231 and 242. I started a year ago. I obtained my Bachelor's degree from Grand Valley in 2012. Before Grand Valley, I worked as a paramedic, adjunct teaching here at GVSU and nonprofit work with children and adults with developmental disabilities.

What attracted you to the position at GVSU?

I really enjoy the culture here and working with college students. This position allows me to teach but to also help with many other facets of the lab environment.

What are your general responsibilities?

Coordination and development of the CHM 231, 241 and 242 labs. Troubleshooting experiments, instruments and developing new labs. While teaching, my hope is to give students a lab experience that is enjoyable and allows them to think critically.

Anything else we should know about you?

My wife and I have a 3-year-old son, named Brooks. He started preschool this Fall!

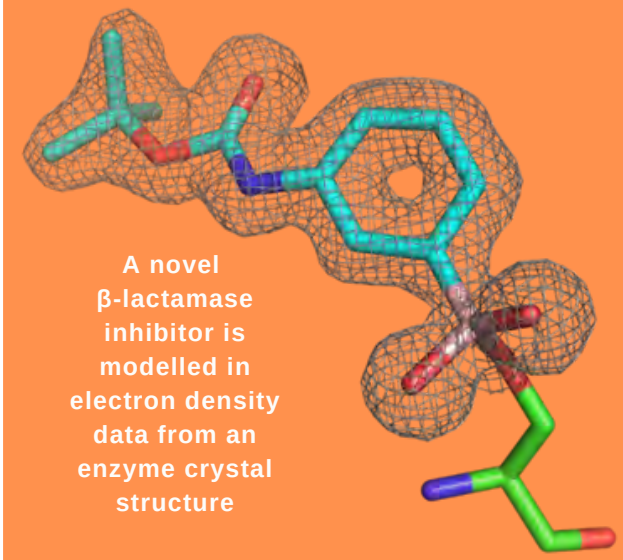
GRANT SPOTLIGHT

Chemistry faculty members Rachel Powers, Brad Wallar and Dave Leonard have been working together for over 15 years on the problem of antibiotic resistance in bacteria. For the last 3 years, the group has been aided in these efforts by funding from an NIH R01 grant titled **Understanding β-lactam resistance in *Acinetobacter baumannii***.

What are the scientific goals of the grant? *Acinetobacter baumannii* is a Gram-negative pathogen that causes life-threatening infections, particularly among immune-compromised and hospital-bound patients. While still treatable, antibiotic-resistant strains of this species are emerging as a serious threat. Most notably, when *A. baumannii* starts to express Class C and Class D β-lactamase enzymes, it is no longer susceptible to penicillins, cephalosporins and their more powerful cousins, carbapenems. The goal of this research is to develop novel inhibitors against these enzymes with the hope that by blocking their action, it will be possible to restore the efficacy of these antibiotics. The strategy is to design drugs that bind very well to the active site of the enzyme, often by chemically mimicking the very tightly bound transition state of the normal antibiotic substrate.

Describe the collaborative nature of this work. Grand Valley biochemists have been working closely with Dr. Robert Bonomo, an infectious disease expert and microbiologist at Case Western Reserve University, since 2004. Bonomo and his colleagues identify problematic strains of *A. baumannii* and test their susceptibility to current treatment regimens. Medicinal chemists Fabio Prati, Emilia Caselli and Maria Luisa Introvigne from the University of Modena in Italy design and synthesize novel drug scaffolds. Back at GVSU, members of the Powers, Wallar and Leonard groups express and purify clinically important enzyme variants, and then use steady-state kinetic analysis to see how well the new drug candidates block those variants. To cap it all off, Dr. Powers' expertise in X-ray crystallography allows students to soak promising lead compounds into protein crystals and solve the structure of enzyme/drug complexes. The atomic level detail provided by these structures instructs the next round of design. According to Powers, the physical distance between the three lab groups has not been a problem, noting, "if there is one good thing that came from the pandemic, it is the way that Zoom allows for regular face-to-face meetings".

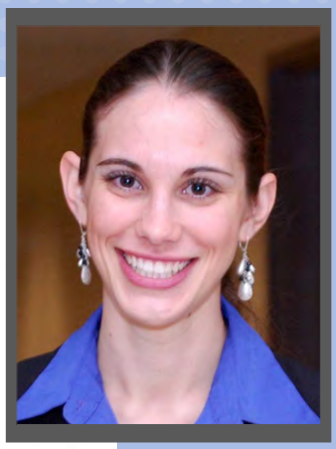
How does this grant affect students? The research plan was designed to provide GVSU CHM and BIC majors experience with cutting-edge research techniques that will position them well for both graduate school and industry career paths. More importantly, projects are set up so that students can see the full cycle of hypothesis-driven structure/activity drug design. "It is an amazing experience for students to work with other scientists from all over the world, and to realize that even as undergraduates, they can make major contributions toward progress in developing new treatments," says Wallar. Funding from the grant provides all needed equipment and reagents, full time summer stipend for students, and money for lab members to present at national meetings.



A novel β-lactamase inhibitor is modelled in electron density data from an enzyme crystal structure

Research technician Cindy June (standing) helps Biochemistry major Mary Fergus screen protein crystals

16 Strategies 9 For 52 Teaching 12 Chemistry



In March of 2020, as the world was coming to grips with the COVID-19 pandemic, Dr. Brittland DeKorver started a Facebook group to consider how Chemistry education could carry on. Within 10 weeks of creation, the group had 2,600 members—two years later it's at 8,300 and growing. We asked Brittland to share a bit about her experience as the lead of this enormous undertaking.

How did the Facebook project start, and how has its purpose evolved over the last few years? I spent Spring Break 2020 getting my courses ready to move online—I was convinced that even if Grand Valley stayed open, there would be significant disruptions in students' abilities to attend class due to the pandemic. My colleagues had similar concerns, and many asked me what kind of systems I was implementing. I wanted a place where we could have these discussions all together while capturing our ideas, so I started the page on March 10. The next day, GVSU announced we would go online until at least the end of March. I first called the group "Strategies for Teaching Chemistry Online", since its purpose was to help instructors make the emergency shift to remote teaching. After a year, the community had generally moved on from the "How do I do this online?" posts and was more generalized about teaching chemistry, so I changed the name to "Strategies for Teaching Chemistry". Most members are posting from the United States, but 28% of our members are international. In the last academic year, there were approximately 1,600 posts, with nearly 5,000 members active on those posts.

What is the breadth of the types of content that is shared? The content varies greatly from very chemistry specific (I ran this reaction and got these unexpected results, what might be up?) to teaching specific (What is your course policy for homework extensions?) to technology specific (How do I edit a screen recording on my iPad?) and then every intersection of these three topics. I was surprised that the posts that received the most interactions were not the "informative" posts, but the "social" posts: things that were only tangentially related to teaching chemistry and were more oriented toward humor or expressing emotions. This led Dr. Debbie Herrington and I to explore the group as a Community of Practice in a research project that will be included as a chapter in "Digital Learning and Teaching in Chemistry: An International and Inclusive Approach" (RSC, *in press*).

How has the posted content changed how you or others at GVSU teach Chemistry, and how have students benefited? As Debbie Herrington and I were conducting a content analysis of the posts for our first publication, it was apparent that group members had a LOT of thoughts and emotions about academic integrity. There were some VERY emotional posts about issues about cheating. So we wrote a follow-up paper about instructors' perceptions of assessment and academic integrity based on the comments that were being shared in the group (Journal of Chemical Education, *in press*). Spending so much time thinking about cheating, what students' cheating implied, and how to prevent cheating has led to some big changes in my classroom. First of all, I'm now strongly committed to standards-based grading, which removes the high-stakes tests that often leave students feeling like they "need" to cheat. I also have dealt with academic integrity infractions differently. Instead of reacting punitively, I've worked to find ways for the student to make reparations and restore their membership in class. This suits my teaching philosophy much better and leads to less frustration and angst when I do encounter these situations.

What has surprised you most about the experience of starting and maintaining this page? I'm surprised at how successful it has been, and how the original purpose has been subsumed by a more "all-purpose" community of chemistry instructors. I'm looking forward to seeing how it continues to evolve in the future.

FACULTY & STAFF AWARDS

Michelle DeWitt—Stockroom Manager of the Year

GVSU Chemistry Stockroom Manager Michelle DeWitt has been chosen as National Manager of the Year award at the annual meeting of the National Association of Scientific Materials Managers (NAOSMM). This award is the most prestigious honor a person in an academic lab management position can receive. Michelle has worked at Grand Valley State University for 14 years and has been an active member of NAOSMM for 13 years. She has also served the NAOSMM organization by serving in the key roles of co-coordinator of the NAOSMM Trade show and is currently a member of the Hospitality Committee. In addition, Michelle has demonstrated a commitment to science through the annual Region 12 Science Olympiad tournament and is an active member of the ACS supporting events in her community. She was instrumental in an ACS event "World's Largest Periodic Table" working tirelessly to coordinate volunteers throughout the state and in other countries. During the pandemic Michelle worked to donate more than 100,000 gloves from the Grand Valley State University chemistry department to local hospitals, physically helping to load trucks to transport the gloves. Michelle is a highly valued member of the Chemistry Department, overseeing more than 15 student workers prepping more than 250 lab sections each year. Congratulations Michelle!

Laura Hawk—Early Career Scholarship Award

Professor Laura Hawk was selected as a recipient of the CSCE Distinguished Early Career Scholar Award for 2022. Faculty awardees are recognized as having made major contributions to theory, research and creative practice, and have earned national recognition for their outstanding achievements. Laura was praised for successfully securing funding from the National Science Foundation for a HPLC-mass spectrometer as well as for her broad research program focusing on the use of ^{19}F NMR to study protein/peptide chemistry. She has established research collaborations with several GVSU colleagues, as well as chemists across the country. Noting this strength, one of her Chemistry Department colleagues said "It is a testament to Laura's abilities as a researcher that she has been asked to work with others and help them with aspects of their research programs".

Chris Lawrence—CLAS Annual Faculty Service Award

Professor Chris Lawrence was selected as a recipient of the 2022 College of Liberal Arts and Sciences Annual Faculty Service Award. This award recognizes outstanding unit, college, university, community, and/or professional service during the previous academic year. Chris has served for many years as Associate Chair of Staffing and Scheduling in the Chemistry Department. This position involves the formidable task of organizing over 60 instructors to teach more than 300 lectures and labs. According to Unit Head Debbie Herrington, he carries out this task "with such quiet efficiency and efficacy that his high level of service may go unnoticed, but I can think of nobody more deserving of this award". In addition to his departmental service work, Chris has served as a member and chair of the CLAS Personnel Committee. A fellow CPC member noted "Chris works incredibly hard, has a serious attention to detail and ensures that all faculty on the committee have a voice".

Rachel Powers— CLAS Lifetime Faculty Service Award

Professor Rachel Powers was selected to receive the College of Liberal Arts Lifetime Faculty Service Award for 2022. In receiving this award, Powers was recognized for a broad array of diverse service activities in her 15 years at GVSU. Notably, Rachel has focused her service efforts on committees that support and enhance undergraduate research and have a direct impact on the professional development of GVSU students. She was an active member of the University Undergraduate Research Council for 13 years, serving as chair for eight years. For many years, she has played a major role in reviewing applications for the Goldwater Scholarship, and she has been heavily involved with the McNair Scholars Program. One colleague stated that "in over twenty-five years at various institutions, I have not encountered a colleague who had such a profound impact on a student service unit".

ANNUAL STUDENT AWARDS

In April of 2022, the Chemistry Department honored many of its most outstanding students for the 2021-2022 academic year. The award winners in the different categories were as follows:

EXCELLENCE IN A DISCIPLINE AWARD

The top award for undergraduate Chemistry and Biochemistry majors. To be eligible, a senior, presenting in CHM 491 this academic year, must be a declared Chemistry or Biochemistry major and have an overall GPA of 3.5 or greater.

Pictured at left are the award recipients **Olivia S. Gordon** (Chemistry) and **Micah C. Fernando** (Biochemistry).

OUTSTANDING SERVICE AWARD

This award will be given to a declared Chemistry or Biochemistry major who has made significant contributions in service to the department.

This year's award was given to **Delaney A. Johnson** and **Matthew J. Ostoin** (pictured at right)

ACS ANALYTICAL CHEMISTRY DIVISION UNDERGRADUATE AWARD

Faith M. Carlson This award is given to a declared Chemistry or Biochemistry major who is outstanding in CHM 221 (Analytical Chemistry) and CHM 325 (Instrumental Analysis).

ACS INORGANIC DIVISION CHEMISTRY UNDERGRADUATE AWARD

Steven A. Birnie This award is given to a Chemistry or Biochemistry major that has excelled in the inorganic chemistry courses (Principles of Inorganic Chemistry/Advanced Inorganic Chemistry/Synthetic Inorganic Chemistry).

ACS PHYSICAL CHEMISTRY DIVISION UNDERGRADUATE AWARD

Esabella R. Powers This award recognizes a declared Chemistry or Biochemistry major that has excelled in the upper level physical chemistry sequence (CHM 356/358).

ACS OUTSTANDING ACHIEVEMENT IN ORGANIC CHEMISTRY AWARD

Olivia S. Gordon This award is given to a graduating Chemistry or Biochemistry major who has excelled in a combination of organic chemistry courses (Advanced Topics in Organic Chemistry/Synthetic Polymers/Organic Synthesis and Characterization) and research and has a desire to pursue a career in chemistry.

OUTSTANDING UNDERGRADUATE RESEARCH AWARD

Micah C. Fernando In order to be eligible for this award, a declared Chemistry or Biochemistry major must show outstanding skills, motivation, and progress in undergraduate research.

GREEN CHEMISTRY AWARD

Emma E. Tiongson This award is given to a declared Chemistry or Biochemistry major who has excelled in the Green Chemistry courses (Green Chemistry for Sustainable Environment/Green and Environmental Chemistry Laboratory).

BIOCHEMISTRY AWARD

Hunter J. Krzysik This award is given to a declared Chemistry or Biochemistry major who has excelled in the Biochemistry I /Biochemistry II/Biochemical Techniques sequence.

SENIOR CHEMICAL EDUCATION AWARD

Mitchell T. Krahulik This award is given to a Chemical Education major, typically a graduating senior or other student who has successfully completed Physical Chemistry in Secondary Education (SCI 440) and who has demonstrated professionalism as a preservice teacher.

AMERICAN INSTITUTE OF CHEMISTS AWARD

This award is given to a declared Chemistry or Biochemistry major who has made significant contributions in service to the department. This year, the winners were **Hunter J. Krzysik** (Chemistry) and **Olivia L. Maurer** (Biochemistry).

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THE ARNOLD C. OTT LECTURESHIP

The Arnold C. Ott Lectureship in Chemistry was created and endowed by a generous gift from Dr. Arnold C. Ott and Marion Ott. Dr. Ott received his Ph.D. in 1943 from Michigan State University in Chemistry/Physics/Bacteriology and is a leading chemist and entrepreneur in West Michigan.

DR. ANNE MCNEIL WINTER 2022 LECTURE

(pictured at feft)

In April 2022, the Chemistry Department was pleased to welcome Dr. Anne McNeil to GVSU to give two lectures covering her research on the chemistry of microplastics. Dr. McNeil is the Carol A. Fierke Collegiate Professor of Chemistry and Macromolecular Science and Engineering at the University of Michigan. On Thursday evening, April 14, Dr. McNeil presented a community talk entitled “Microplastics are Here, There and Everywhere” at the Grand River Room on the Allendale campus. In this lecture, she described the the ubiquity of plastic fibers in the environment, and the challenging nature of overcoming the challenges that these pollutants cause. The next day, with the GVSU Chemistry community as an audience, she explained a variety of different approaches that her lab is undertaking to recycle and remediate environmental plastic in a talk entitled “Synthetic Approaches to Sustainable Materials”.