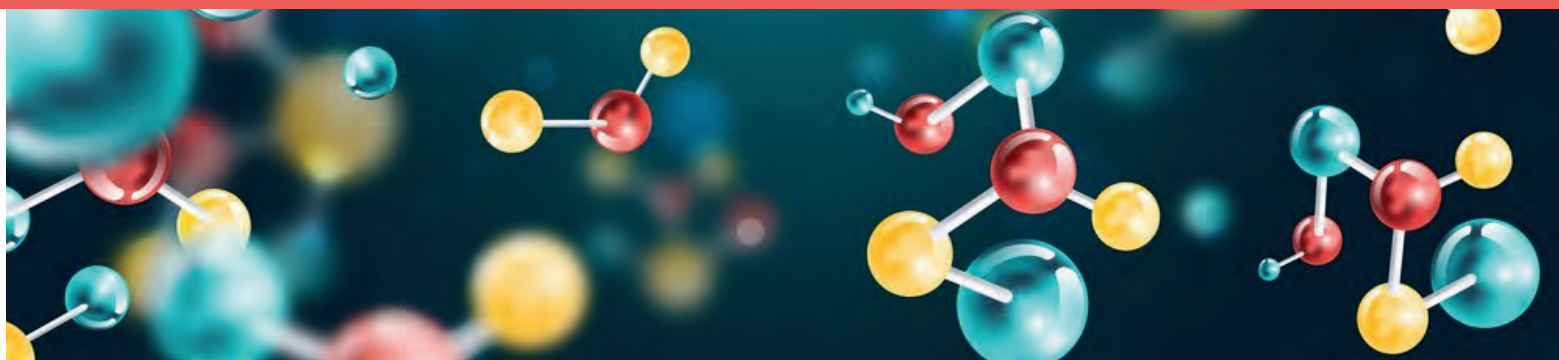




CHEMISTRY DEPARTMENT NEWSLETTER

DECEMBER 2023
ISSUE NO. 37



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**Editor:
David Leonard**

A Word From The Chair

By Dr. Deborah Herrington

Though I am finishing up my time as Chemistry Department Chair, with this being my last year, the Chemistry Department is planning for the future as part of the College of Liberal Arts and Sciences (CLAS) Voyage. Through the Voyage, the College commits to an empowered educational experience where all students in all programs engage in high-impact practices and experiential learning as a foundation of their educational journey. While the Chemistry Department has always valued and encouraged our majors to engage in transformative learning opportunities like internships, study abroad, and undergraduate research, for a variety of different reasons, not all our majors have been able to participate in these valuable learning experiences. The key to the Voyage will be that all students will be participating in two high-impact educational experiences as an unavoidable part of their major. Though we will not launch the Voyage officially until 2025, CLAS departments are already brainstorming and creating their own vision of how we will meet this bold and ambitious commitment to our students.

Fortunately, because of its long history of experiential learning, the GVSU Chemistry Department has a head start on this challenge. Biochemistry and Chemistry, with their laboratories, instrumentation, and hands-on skills, have always been something students learn by doing, not simply by listening. In preparing for the Voyage process, we have a deep-rooted set of high-impact practices to build on. Here we share an array of such opportunities:

Developing young scientists through faculty-mentored research

For over 40 years, students have been engaging in exciting Chemistry and Biochemistry research in the labs of Padnos Hall and the Cook-DeVos Center for Health Sciences. Sponsored by a GVSU Chemistry faculty mentor, students work on projects in the Fall and Winter semesters, as well as in the summer months when more extensive time blocks are available. Undergraduate researchers might get credit through CHM 499 (Investigations in Chemistry) or CHM 399 (Readings in Chemistry), or they might just do it for fun. Support for supplies and equipment is provided by the John W. Weldon Research Endowment Fund, or from grants awarded to

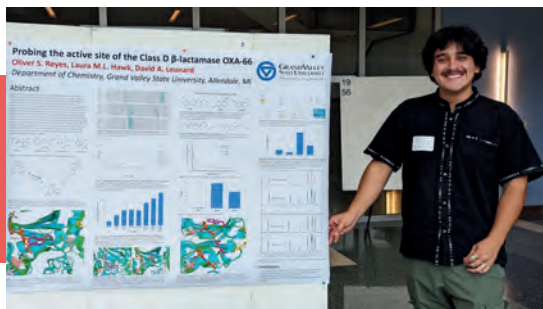


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A Word from the Chair (continued)

faculty from the NIH, NSF and other sources. Research topics cover all subdisciplines focusing on drug design, organic synthetic methods, electrochemistry, separations technology, organometallics, computational methods and research on the science of teaching and learning in the chemical sciences. To help students understand the importance of communicating results, research projects typically result in written reports, research posters or talks at regional or national meetings, and often co-authorship on published journal articles.

Helping CHM/BIC majors engage with the professional world through off-campus internships/REUs Many GVSU Chemistry and Biochemistry majors have taken the next step in research by seeking out opportunities off-campus. One example is engaging in science research for a summer at another University. Research Experience for Undergraduates (REU), funded by the National Science Foundation, or similar experiences offered by various National Laboratories pay a stipend and provide housing and travel to support students to spend the summer conducting research at another institution. Such programs are often housed at Ph.D. granting institutions and can serve as a bridge for students interested in graduate school. Another option is to engage in an industry internship at companies including Gentex, Empirical Biosciences, Bissell, or SealBond. Internships aren't limited to traditional chemical and biotech industries however-GVSU students have had summer stints in the Genetic Counseling department at Corewell Health, and worked in Forensics with the FBI.



Presenting posters and attending scientific meetings One of the most impactful experiences a student can have as an undergraduate is attending a scientific conference—particularly if they have the opportunity to present a poster or give a talk. Every year, GVSU faculty and their students attend major scientific conferences such as the National Meeting of the American Chemical Society, the Protein Society Annual Symposium, or the Biennial Conference on Chemical Education. For shorter trips, there is the Midwest Enzyme Chemistry Conference (Chicago area), the Midwest Undergraduate Computational Chemistry Conference, and Regional ACS meetings. As with an REU, these conferences allow students to meet with scientists who work in very different environments and to gain confidence sharing their own work.

Developing leaders in the Chemical Sciences through team-work in the Chemistry Stockroom If you don't think of working in a chemistry department stockroom as a high-impact experience, you

haven't worked for our very own Michelle DeWitt. There is so much more to stockroom work than just making solutions and washing dishes—so much so, that we felt it needed its own newsletter feature (see page 6-7).

Growing scientific communication and teaching skills through tutoring at the Chemistry Success Center There is an old saying that “the best way to learn something is to teach it” and many of our majors have come to understand this through extensive stints serving as tutors helping out their fellow Laker classmates. This may involve working in the Chemistry Success Center, where our own Prof. Sarah Clark oversees an army of faculty and students helping students work through homework, prepare lab reports, and study for exams right on the 3rd floor of Padnos Hall. Others work as appointment tutors in our brand new GVSU Tutoring and Reading Center in Henry Hall, right next to the Loutit atrium area, or serve as facilitators for sections of CHM 109, 115 or 231.



Enhancing critical thinking and scientific design-thinking through research-like course experiences Quality teaching has always been the core mission of the GVSU Chemistry Department, and that goal has led to many innovations in the classroom. For example, for many years, CHM and BIC majors in Principles of Organic Chemistry II Lab (CHM 248) have finished out the semester with a multi-week synthetic project that they design and execute themselves. Likewise, the Biochemistry Techniques lab class (CHM 462) centers on a semester long project to purify and characterize clinically interesting β -lactamase variant enzymes. Students learn foundational techniques while moving their projects ahead, ultimately presenting their results to faculty in poster format.

With all of this to build on, it should be easy for our department to mold these experiences to the goals of the Voyage—making sure all students who pass through our programs experience these opportunities. Another aspect of the new program is to make sure that we reach all of our majors with these impactful experiences. This is one area that we have some room to improve: our curriculum lumps CHM and BIC majors in with every other science major in CHM 115, and we don't always get to know our own students as majors until their sophomore year. The Voyage program will include an Embarking Experience—are you picking up on the nautical theme Lakers?—to help us connect with these first-year students in a meaningful way. We are just beginning to envision how that will look, so stay tuned!



ALUMNI SPOTLIGHT

Michael DeLaMarre '09
B.S., Chemistry

Associate Director of
Analytical Development



Why did you choose GVSU and what year did you graduate? When I began my college search, I knew I wanted to stay in-state. The idea of paying out-of-state tuition didn't make financial sense to me. Grand Valley State had promising metrics for earning potential post-graduation and offered competitive tuition fees. It was also close to home, so I was planning on commuting from home to save money. However, after touring the GVSU campus, I liked it so much I chose to live on campus to enjoy the full university experience. I graduated in December of 2009. I would say deciding to go to GVSU was an excellent decision.

What are you doing today, and how did your education at GVSU help prepare you for your current work? After completing my bachelor's degree in Chemistry at GVSU, I pursued graduate school at the University of Illinois at Chicago. Eventually, I landed in the Boston/Cambridge biotech industry. Currently, I am an Associate Director of Analytical Development at a biotech startup (Kisbee Therapeutics). My role involves developing analytical techniques for assessing quality of biopharmaceutical products. I also frequently get involved with troubleshooting when problems arise in the manufacturing process.

Two specific experiences at GVSU significantly contributed to my preparation for my current work. Firstly, conducting independent research under Dr. Andrew Lantz and Dr. Mary Karpen helped me cultivate critical thinking skills essential for solving challenging scientific problems. This early opportunity gave me a considerable advantage during graduate school and continues to benefit me professionally. Secondly, the supplemental writing skills requirements at GVSU strengthened my communication skills, which are vital in my current role. I can't overstate how important it was to develop these skills early in my college experience.

What was the biggest surprise for you in the path you have chosen? During school, my focus was primarily on acquiring scientific skills. However, in recent years, the importance of business and interpersonal skills in

my professional development has surprised me. After transitioning into a management role leading a small team of five scientists, I found my daily challenges shifting from scientific ones to logistics, organization, strategy, and people management. Having taken no business courses in school, I'm learning these skills on the job and have been enjoying the challenge.

What is the most exciting (or gratifying) part of your current work? Mentoring people is extremely rewarding. It's a privilege to help individuals at the early stages of their careers to learn, grow, and succeed. Many managers, teachers, and mentors invested in my development throughout my academic and professional journey. It's gratifying to have the opportunity to pass it forward.

What advice do you have for GVSU Chemistry students who wish to pursue the same path as you have? First, only pursue a field if you genuinely enjoy it. Achieving success often means investing many long hours for years, and the only way to sustain this is if you love the work. Early in your career, prioritize gaining relevant experiences over other factors. This might mean initially accepting a lower-paying job or moving to a different part of the country. Surround yourself with like-minded individuals who share your goals and have a drive for success. You'd be surprised at the impact your surroundings can have on your pursuit of success.

What do you like to do with your time outside of work? Recently, I've developed an interest in real estate investing. My wife and I purchased our first rental property in 2020. The following year, we bought a "fixer-upper" and managed a complete renovation of the property (think full HGTV makeover). The project was a major success, and we had a blast doing it. We plan to buy and renovate several more properties in the coming years.

Any other comments? I welcome any current GVSU students who have questions about graduate school or a career in the industry to reach out to me on LinkedIn. I'm more than happy to share any insights or advice I can offer.

GRANT SPOTLIGHT



Professor Shannon Biros was awarded a 3-year Research in Undergraduate Institutions (RUI) grant from the National Science Foundation. We asked Shannon to share some details about the goals of this project and how it affects GVSU students.

What are the scientific goals of this grant?

Application in modern technologies including electric car batteries, medical diagnostic agents, and advanced optical materials has increased the need for more efficient acquisition of rare earth elements from both raw sources and as recycled metals from consumer products. This project seeks to develop improved metal separations and extraction methods while adding to our fundamental knowledge of f-element chemistry and extraction agent design.

What are the approaches and strategies that you use?

Our research groups use organic and inorganic synthesis techniques to prepare the extraction agents and their metal complexes. To characterize the ligands and the complexes we use X-Ray crystallography, IR and NMR spectroscopy. We study the structure of certain complexes in solution using luminescence techniques, by measuring quantum yields and luminescence lifetimes. Lastly we use ICP to determine the ability of each ligand to extract metals from acidic, aqueous solutions.

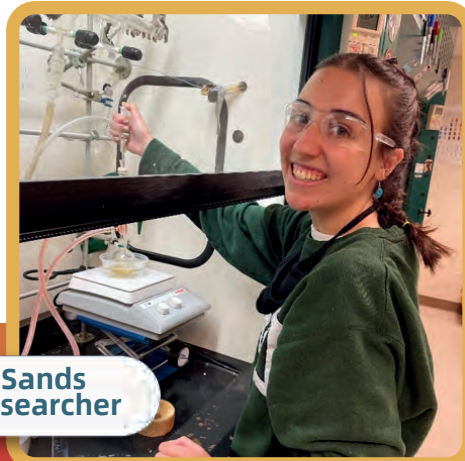
In what way is the collaborative nature of this grant important?

This grant was funded as a Collaborative RUI award with Prof. Eric Werner (The University of Tampa) as the other PI. Since his training was in the area of f-element coordination chemistry, and mine was in the area of organic synthesis our areas of expertise complement each other well. Our plan at the beginning of our collaboration (nearly 15 years ago) was that my group at GVSU would carry out most of the organic synthesis work while Prof. Werner's group would carry out most of the inorganic chemistry experiments. However, as our groups have worked together the expertise has been shared between us and now students in both of our groups work on all aspects of the project.

One unique thing about our arrangement is that students in both groups carry out the extraction experiments, and then we compare their results to validate the final extraction efficiency numbers. Prof. Werner and I have found that this is a nice way to ensure we are publishing accurate data, and also to demonstrate to the students the value in working with other scientists in a collaborative way. I have also found it to be a great way to show the students that - hey, you don't have to know everything about chemistry, you just have to be willing to learn from and work with others.

How does this grant affect students?

Over the course of this three-year project, 15 undergraduate students, including three community college students, will be trained in a broad range of areas including organic synthesis, inorganic coordination chemistry, luminescence, and analytical chemistry. The grant comes with funding for summer stipends and travel to conferences, as well as for chemicals and supplies.



Georgia Sands
Student Researcher



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!

The Chemistry Stockroom

HIGHLY IMPACTFUL



When you hear the phrase “Chemistry Department Stockroom”, what comes to mind? Perhaps wall after wall of cabinets full of mysterious chemicals? Or maybe an undergraduate tirelessly scrubbing out a sink full of glassware? There is no doubt some truth to these cliched ideas, but anyone who has spent time around the GVSU Chemistry Stockroom will tell you that there is a lot more going on. We asked Stockroom Manager Michelle DeWitt to share more about what makes her group’s work a central pillar to the function of the Chemistry Department.

It takes a big team to keep the stockroom humming—who works with you and what do they do?

During a typical semester, we have about 17 student workers, with 2–4 of those serving in the role of student manager. About 50% of our students come from the ranks of CHM and BIC majors, with BMS/pre-med students making up most of the rest. Our students are a loyal group, and they often end up working for 2–3 years—right through graduation. When I review applications, I am looking for people with good communication skills, basic safety understanding and (of course) solution-making skills.

While keeping the labs running is vital work, stockroom employees do so much more. They calibrate and fix equipment and help unpack the supplies that get shipped to GVSU. Anyone who regularly passes by the stockroom window knows that there is usually a friendly face there, ready to help researchers find chemicals and other supplies they need. Safety is another focus—workers regularly test the eyewash stations, refill first-aid kits, and occasionally, watch over a student who has fainted so their instructor can get back to teaching.

Naturally, a big part of what our students do revolves around prepping labs. That means making up solutions and chemicals for all experiments, but it also might involve trouble-shooting equipment and reagents that

(Continued on next page)



Michelle DeWitt



Stockroom (continued)

aren't working. The goal is to keep everything running smoothly so that when the instructor comes in, everything is ready to go. When the lab is over for the week, the workers pack up the old lab and bring in the new, a process that can take 1-2 hours. Of course, there is glassware to wash—lots of glassware!

You are known for building a tight community that works well together and has fun doing so. How do you make working in the stockroom so appealing?

We are definitely trying to build a strong sense of belonging, and to make it a fun experience. During Student Employee Appreciation week, we take part in a decorating contest. There is a different theme each year—we have won first prize once and come in second twice. The students enjoy that so much that we end up decorating at other times of the year such as Halloween. Students work 10-15 hours a week with each other, and it starts to feel like a big family—some of our students end up living together as roommates. During National Chemistry Week in October, our team does demos at the Mall—it's a great team-building exercise and a lot of fun.

It is clear that you see your team as more than just employees—what kind of growth do you hope your students will experience?

There is so much opportunity for personal growth and development when students work in the stockroom for several semesters. I like to get older students involved in training the rookies—this helps the newer students learn the details for a particular lab, and it also helps the older students develop mentoring skills. Experienced workers may have the chance to become student managers, which is of course great leadership training, and some students also get assigned to work on upper-level labs. That is a great opportunity for them to get to know faculty, to come to see them as real people, and get a peek at how curriculum is designed.

There is a real sense of accomplishment for the students—they know they are making a vital contribution to keeping our educational mission going. I have had the opportunity to nominate our students for the I Am Grand Valley recognition program, and two of our employees have been recognized as GVSU Student Employee of the Month.



Higher Education has seen a lot of change over the last couple of decades—what changes have you seen in your work?

The most obvious change over the years has been expansion—we have had to grow as GVSU enrollment went up over the last 25 years. Our labs were bursting at the seams 6-7 years ago, and we successfully lobbied to expand to the 2nd floor. That required a big expansion of the stockroom footprint, including an outpost on the second floor. Most courses have a dedicated room now, and that helps immensely with the weekly lab turnovers. Still, some of labs are among the most highly scheduled rooms on campus—full from 8:00 am until 9:00 pm.

With lots of potentially dangerous chemicals on hand, Chemistry Departments have become much more focused on security in recent years as well. We have had warnings from law enforcement about the importance of keeping track of our inventory and monitoring access to our spaces. A while back we switched from a key-based system to key-card access—this allows us to know who is coming and going at all times. Another big change is the increased use of computers and tablets in labs. This is so common now that the college hired an IT specialist (Zach Hancock) dedicated to keeping the hardware in shape and the software running. Lastly, social media is so important for any organization—and our group oversees a Facebook and LinkedIn account. This helps us keep in touch with alumni, and post fun things that we are doing.

Any final thoughts?

I am so proud of the students that come through the stockroom, and I love to see the great things that they do after they graduate.

Please connect with us on social media by scanning the QR code at right.

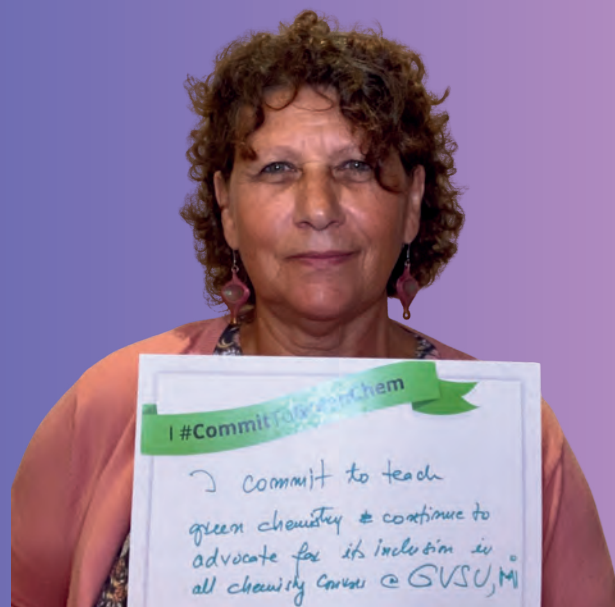


CHEMISTRY

happenings



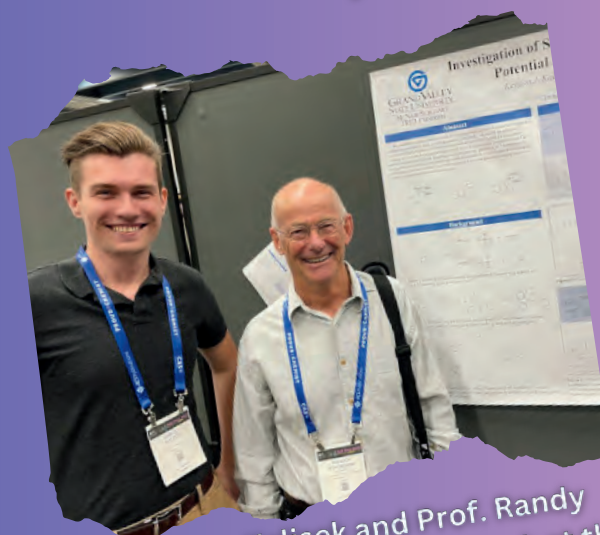
Sierra Hilditch and Jason Brooks
having fun working in the Chemistry
Success Center



Professor Dalila Kovacs and the Chemistry
Department celebrate 10 years of the
Green Chemistry Commitment



Biochemistry majors Mary Fergus and Leah
Pierce won the Best Poster award at the
Midwest Enzyme Chemistry Conference



Keegan Kalisek and Prof. Randy
Winchester present their work at the
ACS conference in San Francisco



The GVSU Chemistry Department participates in *Chemistry at the Mall* every year in celebration of National Chemistry Week

ALUMNI SPOTLIGHT

9

Emma Weiss '19

B.S., Biochemistry /Cell & Molecular Biology

Clinical Research Coordinator,  **CANCER & HEMATOLOGY**
CENTERS OF WESTERN MICHIGAN



Why did you choose GVSU and what year did you graduate?

I toured a few other colleges throughout my junior and senior year of high school but Grand Valley really stole my heart. My initial plan was to major in engineering and I knew of GVSU's reputation for their impeccable engineering program. After touring, I fell in love with the campus and felt so invited by everyone I met. The smaller class sizes also were ideal as I felt like I could connect to my other classmates and professors more easily than a larger college. GVSU was also the perfect distance from home and to Lake Michigan! After four amazing years, and a few changes in my major, I graduated in 2019 double majoring in Biochemistry and CMB.

What are you doing today, and how did your education at GVSU help prepare you for your current work?

Currently, I am a clinical research coordinator at The Cancer and Hematology Centers. Our practice has a few locations throughout West Michigan and we are a leading site for many world-renowned clinical trials. My education at GVSU prepared me for this career by providing me with the tools, resources, and confidence to successfully communicate about complex scientific and medical topics to patients and their families. I was able to become an expert in certain research topics during my time at GVSU and was taught how to effectively present them to any type of audience. Knowing the molecular processes and various drug/molecule interactions going on in the body has been crucial in explaining how new therapeutics are working for cancer patients. Being able to simplify these topics and help cancer patients understand potential clinical trial options has been important to success in my role. The many hours of lab bench work throughout my chemistry and biochemistry courses also helped me with the processing of clinical trial lab samples. Most importantly, my time at GVSU taught me how to connect with people and build relationships with my patients while walking alongside them during a complicated and stressful time in their life.

What was the biggest surprise for you in the path you have chosen?

I never thought I would work in a health-care setting after being so involved in lab bench work and biochemistry research. I was very nervous that I would not be able to learn all of the medical terminology involved in oncology and clinical trials, but it was much easier than I anticipated. I was also surprised that I ended

up in a patient-facing setting, as I was heavily involved in individual lab bench research throughout my time at GVSU and post-graduation. I have thoroughly enjoyed the combination of research and working with patients in my current position.

What is the most exciting (or gratifying) part of your current work?

The most gratifying part of my work is giving patients hope and additional options of therapy with clinical trials that they may not be able to get anywhere else in the world. Watching new treatments (small drug molecules, new monoclonal antibodies/immunotherapies, etc.) work so well for patients is extremely rewarding. Seeing the results of years of research getting FDA approved has been a very exciting part of this job. It is also exciting to see the full picture of clinical trial research coming from classes in molecular modeling and research in protein structure to getting to see these drug molecules work in human subjects. The research and hope we provide patients has been very rewarding.

What advice do you have for GVSU Chemistry students who wish to pursue the same path as you have?

Never count yourself out for a job/career/opportunity even if it is not what you expect or anticipated. You may not realize what other options are out there in the healthcare field after being so involved in lab bench work. Take a variety of classes and keep your mind open. Always stay connected to your fellow classmates and professors for opportunities and advice down the road!

What do you like to do with your time outside of work?

In my free time I like to read, bike, and listen to true crime podcasts. I enjoy spending time with my family and friends as much as possible. My husband and I recently welcomed our first daughter in September of this year so much of our time is spent with her as we navigate the new world of parenthood. We also have two dogs who love to run around, play fetch, and keep us on our toes!

Any other comments? "Your work is going to fill a large part of your life, and the only way to be truly satisfied is to do what you believe is great work. And the only way to do great work is to love what you do." - Steve Jobs

Matt Hart University Outstanding Teacher Award

Prof. Matt Hart is the 2023 recipient of the GVSU Outstanding Teacher Award, the highest recognition that can be bestowed on a GVSU instructor. Recipients must use multiple approaches in classroom/laboratory instruction and evaluation, stimulate intellectual curiosity, demonstrate commitment to student learning, have consistently high standards and provide exemplary support so that all students can be successful. Dr. Hart has been a leader in the use of novel instructional technology, including the use of a light-board to create instructional videos, which have been uploaded to Youtube for student use. His videos have been recognized outside the GVSU community, with one tutorial on HNMR aromatic coupling receiving close to 50,000 views. He also has students participate in "recall journaling" through which they reflect on recent advances in their own understanding. Dr. Hart has also been instrumental in developing research-like multi-week synthetic exercises that have been implemented in the CHM/BIC major's organic chemistry laboratory course (CHM 248). Students and fellow faculty alike note that he is highly organized, calm and caring, and has a comfortable rapport with those he is teaching. His ease with technology was particularly helpful during the early days of the pandemic, and students commented on his willingness to go the extra mile to help them learn during that difficult time. One student noted, "Dr. Hart always encouraged and pushed me to become my best self and treated each student as very capable of achieving their dreams."



Paul Cook Pew Teaching Excellence Award

Professor Paul Cook was selected as a recipient of the Pew Teaching Excellence Award for 2023. The criteria for this award stresses the use of multiple approaches in instruction and evaluation, as well as the ability to stimulate intellectual curiosity in students. His students note his approachable demeanor as well as his commitment to rigorous standards. Dr. Cook is noted for his flexible approach to instruction, making use of skeletal notes, as well as video lessons interspersed with auto-graded "check-point" exercises that he has designed and implemented. He is a leader in the development of novel methods for teaching biochemistry including the production of 3D-printed models that allow students to explore protein structure concepts with their own hands. He has also built teaching modules that guide students in the use of research-grade software to explore computer generated images of proteins. His excellence in teaching extends beyond the classroom to his research lab where he has mentored dozens of young scientists in biochemical techniques. One former student notes about Cook: "His students (in the classroom and research lab alike) hold him in high regard, and many (including myself) can credit Dr. Cook for success in their post-GVSU endeavors."



Richard Lord Distinguished Undergraduate Mentor Award

Professor Richard Lord is a 2023 recipient of the GVSU Distinguished Undergraduate Mentoring Award. Since arriving at GVSU in 2012, Richard has mentored over 25 undergraduates in his lab, publishing papers with 10 of those students. His students say that while he is patient with those new to research group, he also helps them go beyond their comfort zone. They also praise him for encouraging them to work together to help build their teamwork skills. He has consistently secured research funding that supports student stipends and travel and encourages them to present at local and national conferences. He is noted for his dedication to students, as well as the collaborative nature of his work that exposes them to scientists at research institutions across the country and even internationally. One of his first research students summed up her appreciation by saying: "Professor Lord has the perfect mixture of patience, dedication and compassion that is needed to run an exceptional research group and be an outstanding mentor."





ANNUAL STUDENT AWARDS

In April of 2023, the Chemistry Department honored many of its most outstanding students for the 2022-2023 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.

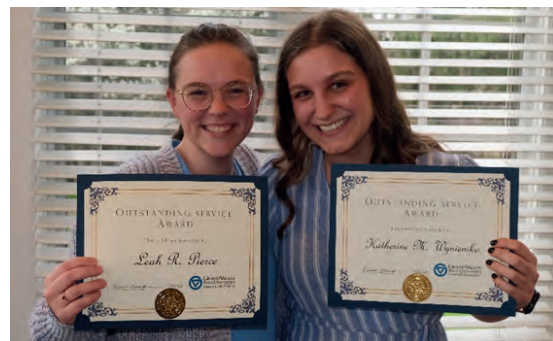
Pictured at left are award recipients **Georgia G. Sands** (Chemistry) and **Madison E. Smith** (Biochemistry).



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 **Leah R. Pierce** and **Katherine M. Wyniemko** (pictured below).



ACS ANALYTICAL CHEMISTRY DIVISION UNDERGRADUATE AWARD

Edison A. Browne 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 CHEMISTRY DIVISION UNDERGRADUATE AWARD

Travis J. Lubbers 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

Abigail R. Miller 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

Georgia G. Sands 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.

ORGANIC CHEMISTRY MAJORS UNDERGRADUATE AWARD

Patrick M. Mosier This award recognizes a student that excels in the majors organic chemistry sequence (CHM 245/246/247/248). The student must be a declared Chemistry or Biochemistry major and have completed the CHM 245-248 sequence by the end of the academic year. The student is selected by the instructors for these courses.

OUTSTANDING UNDERGRADUATE RESEARCH AWARD

Georgia G. Sands 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

Jason D. Dykstra 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

Kian H. Barnes This award is given to a declared Chemistry or Biochemistry major who has excelled in Biochemistry I /Biochemistry II/Biochemical Techniques.

SENIOR CHEMICAL EDUCATION AWARD

Megan E. Smith 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 **Faith Carlson** (Chemistry) and **Mary D. Fergus** (Biochemistry)

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. TOM GUARR WINTER 2023 LECTURE *(pictured at left)*

In April 2023, the Chemistry Department was pleased to welcome **Dr. Tom Guarr** to GVSU to give two lectures describing his research devoted to developing battery technology for the storage of renewable energy. Dr. Guarr serves as the Director of Research and Development at the Michigan State University Bioeconomy Institute in Holland, Michigan. On Thursday evening, April 13, Dr. Guarr presented a community talk entitled “Can Organic Batteries Power a Sustainable Electrical Grid?” at the Grand River Room on the Allendale campus. In this lecture, he described his long history involving synthesis of organic molecules for use in redox flow batteries. The next day, with the GVSU Chemistry community as an audience, he delved deeper into the chemical principles involved in this work in a talk entitled “Electrochemical Trickery: Turning Organic Macrocycles into Conductive Polymers and Supercapacitors”.