

August 2025

UtahStateUniversity.

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The official newsletter of
Chemistry and Biochemistry

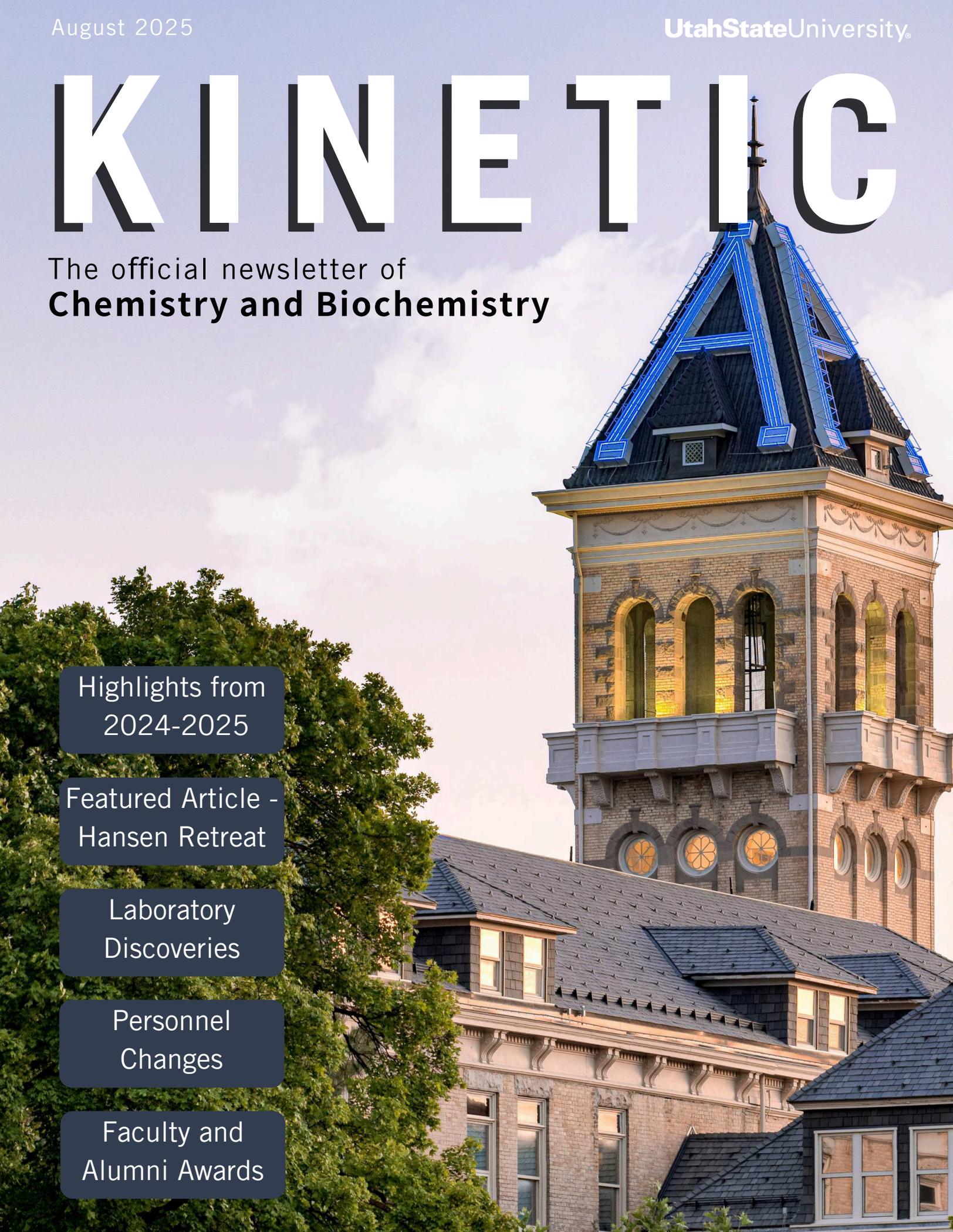
Highlights from
2024-2025

Featured Article -
Hansen Retreat

Laboratory
Discoveries

Personnel
Changes

Faculty and
Alumni Awards



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Letter from the Department Head



Welcome to the annual newsletter for the Chemistry and Biochemistry Department at USU. It has been another eventful and productive year for our department. As you'll see from the stories that follow, we continue to advance our mission to push the boundaries of research in chemistry and biochemistry, to provide exceptional training for students across the university, and to serve our fields at the state, national, and global levels.

In research, our faculty have continued to secure funding from federal and state agencies, as well as industry partners. These grants not only advance the frontiers of science but also play a vital role in training both undergraduate and graduate students. These students gain valuable technical and critical thinking skills that prepare them for careers in industry, national labs, professional schools, education, and beyond. Our faculty and students have published extensively across a range of scientific journals, reports, and books, reinforcing the department's reputation for research excellence.

In our classrooms and teaching laboratories, we remain committed to instructional innovation. Our faculty teach across the breadth of chemistry and biochemistry, reaching thousands of students from many disciplines across the university. We take great pride in the quality of our teaching, and our faculty are recognized for their leadership in best practices for chemistry education.

This year, we celebrate the long and distinguished careers of four colleagues, who are retiring after decades of leadership in research, teaching, and service. We also congratulate our colleague, Dr. Joanie Hevel, on her promotion to the rank of Professor.

Finally, we are embracing an exciting transition for our department. The long-standing College of Science, which housed our department, has merged with the former College of Arts and the College of Humanities and Social Sciences to form a new College of Arts and Sciences. We look forward to the many opportunities for collaboration and learning that this new structure will enable across disciplines.

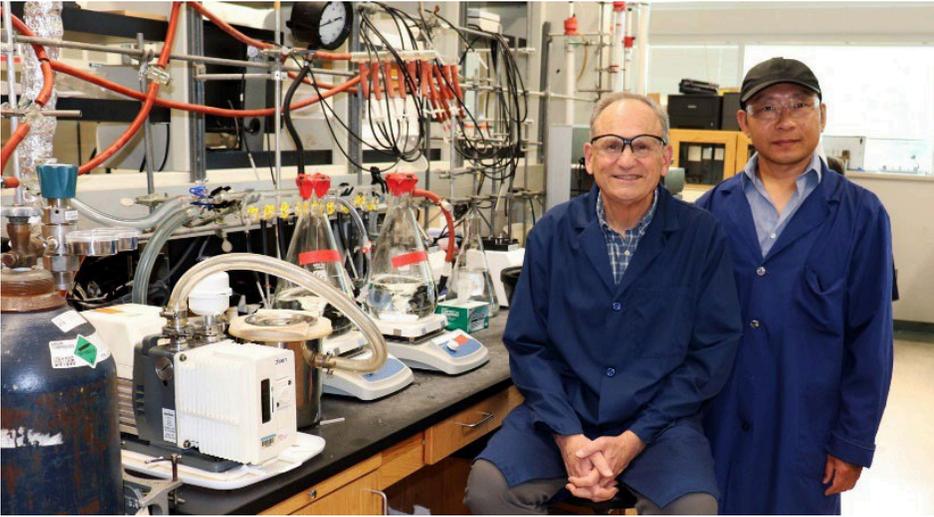
Thank you for your ongoing support and interest in the department's mission and accomplishments.

With best wishes,

Lance Seefeldt



Down to Seven: USU Biochemists Report Breakthrough Research Toward Global Food Challenge



USU biochemists Lance Seefeldt, left, and Zhi-Yong Yang are among an international, Gates Foundation-funded collaboration reporting new knowledge in the Nov. 6, 2024, issue of PNAS that could simplify genetic transfer of nitrogen fixation to food crops. (Photo Credit: USU/M. Muffoletto)

Food productivity is dependent on the availability of fertilizer, says Utah State University biochemist Lance Seefeldt.

“We need nitrogen to survive, but we can’t take it in from the air,” says Seefeldt, professor and head of USU’s Department of Chemistry and Biochemistry. “We get nitrogen from the protein in our food.”

Little over a century ago, the Haber-Bosch process revolutionized how atmospheric nitrogen could be converted to a form to allow for industrial-scale production of fertilizer. The discovery led to a huge increase in global food production and a massive population boom. Still, certain areas of the globe, including Sub-Saharan Africa, lack the infrastructure to allow import and distribution of fertilizer, much less the capacity to produce the nutrient-essential product close to home.

Since 2019, Seefeldt and USU Senior Scientist Zhi-Yong Yang have collaborated on a project with colleagues in Spain and the United States, funded by the Bill & Melinda Gates Foundation, to re-engineer the biology of cereal crops, such as corn and rice, to achieve nitrogen fixation on their own, from sunlight, without applying fertilizer.

In a new study, the team reports a new simpler pathway involving only seven bacterial genes that allow the plant cell to make the enzyme that can convert N₂ gas from the air to fertilizer. Their findings appear in the Nov. 6, 2024, issue of the *Proceedings of the National Academy of Sciences (PNAS)*.

“The possibility of freeing cereal crops from the need for added fertilizer is significant, Seefeldt says. The newly discovered minimum genes could help to alleviate hunger in less-developed, less-accessible

parts of the world, as well as areas increasingly plagued by climate-driven drought.

The knowledge also advances research focused on food production beyond Earth. Seefeldt and USU colleague Bruce Bugbee have collaborated on NASA-funded efforts investigating how to sustain human life on long-duration space missions, including trips to Mars.

“Piece by piece, we’re learning what genes and what combination of genes are needed to achieve nitrogen fixation in different cells,” Seefeldt says. “Instead of just one horn playing, we’re trying to get the whole orchestra to play together.”

*Written by Mary-Ann Muffoletto
Adapted by Lance Seefeldt*

Research Coalescence: USU Scholars Share Ideas, Camaraderie at Life Sciences Gathering



USU student and faculty life sciences researchers from multiple departments gathered Oct. 25-26 for the 14th annual Hansen Life Sciences Retreat. The day-and-a-half meeting, which honors the legacy of Utah State Great R. Gaurth Hansen, 1920-2002, fosters collaborations across disciplines. (Photo Credit: USU/M. Muffoletto)

With each passing year, Utah State University's Hansen Life Sciences Retreat grows in participants but, in its 14th year, the annual gathering, Oct. 25-26, has some regulars.

"I really like the atmosphere," said USU biology doctoral student Max McDermott, who has attended the retreat for several years and, at the 2024 gathering, presented research he conducts on opioid receptors in the brain in faculty mentor Erin Bobeck's lab.

"Each time I attend the Hansen retreat, I make new contacts with researchers studying topics applicable to my research—in neighboring campus labs—that I knew nothing about.

It's very valuable and inspiring to share ideas across disciplines," McDermott said. Justin Jones, director of USU's synthetic spider silk lab, encourages his students to attend the retreat and to present a poster or a talk.

"This is a cutting-edge yet low-pressure, friendly environment for students to share their ideas," says Jones, assistant professor in USU's Department of Biology. "It's a great place for students to gain experience and confidence with their presentations."

Jones says the retreat is also a place to foster partnerships.

"The retreat offers an easy way to build local collaborations, which is a tremendous boost," he says. "Every single time I've attended the retreat, I've become acquainted with other researchers from whom our lab has benefited. They're just a stone's throw away, yet we don't always get to know each other without gatherings like the Hansen Retreat."

USU's Department of Chemistry and Biochemistry initiated and coordinates the autumn gathering. The event is named for renowned biochemist, professor and USU administrator R. Gaurth Hansen (1920-2002), whose 26-year tenure with Utah State greatly advanced the university and its research efforts.

"My family's roots run deep in Cache Valley," he said. "Both my father, R. Gaurth Hansen, and mother, Anna Lou Rees Hansen, were deeply committed to Utah State University. My father, who served Utah State as a biochemist, researcher and provost, understood the importance of nurturing and encouraging young scholars."

Department of Chemistry and Biochemistry staff assistant Anna Petersen, composed and performed on piano "Birthday Suite," a collection of the familiar *Happy Birthday to You* melody in multiple genres, in honor of Lars Peter Hansen, who celebrated his birthday during the retreat.



USU alum, Nobel Laureate and University of Chicago professor Lars Peter Hansen was honored for his birthday during the 2024 Hansen Life Sciences Retreat, with a piano performance of 'Birthday Suite,' composed and performed by USU Chem/Biochem staff assistant Anna Petersen. Hansen, his wife Grace Tsiang, UChicago professor emerita, and son, Peter Hansen, faculty member at Purdue University, support the annual retreat, which honors their father and grandfather, R. Gaurth Hansen.

Hansen's son, USU alum and Nobel Laureate Lars Peter Hansen, BS'74, along with his wife, Grace Tsiang, and son, Peter Hansen — all of whom were in attendance at the 2024 retreat — provide financial support for the annual assembly.

In a statement of welcome at the opening of the retreat, Hansen, a leading expert in economic dynamics and David Rockefeller Distinguished Service Professor at the University of Chicago, said it was a "great privilege" to attend the retreat and represent his family's legacy.

More than 100 undergraduates, graduate students, faculty and staff from throughout USU attended the day-and-a half gathering, which featured four oral research presentations, all by graduate students, and 24 poster presentations by graduate and undergraduate students. The retreat also featured lightning pitch presentations, where student poster presenters each gave a two-minute talk about their research project. University of Utah biochemist and data visualization expert Janet Iwasa delivered the Friday evening keynote address, "Animating Molecular Machines."

Featured graduate student presenters were Mark Gold, biochemistry, Johnson Lab; Sam Barker, biochemistry, Dickinson Lab; Max McDermott, biology, Bobeck Lab; and Kristin Durrant, biology, Jones Lab.

Students recognized for outstanding lightning pitches were Edna Armah, Hannah Feinsilber, Vincent Rossi, and Dillon Weatherston, with Weatherston receiving the Lightning Talk traveling trophy lamp.

Students receiving awards for outstanding poster

presentations were Dillon Weatherston, Kadin Crosby and Makenzie Reed.

“The retreat is designed to honor R. Gaurth Hansen’s legacy, and I’m proud we’re doing this,” said Lance Seefeldt, professor and head of USU’s Department of Chemistry and Biochemistry. “He was passionate about biochemistry and the life sciences and about educating young scientists. The retreat feels both uplifting and professional, with a good balance of presentations. It is authentic.”

Written by Mary-Ann Muffoletto



Outstanding lightning pitches recognition (l. to r.) Hannah Feinsilber, Edna Armah, Dillon Weatherston, and Vincent Rossi. Weatherston is shown with the Lightning Talk traveling trophy lamp.

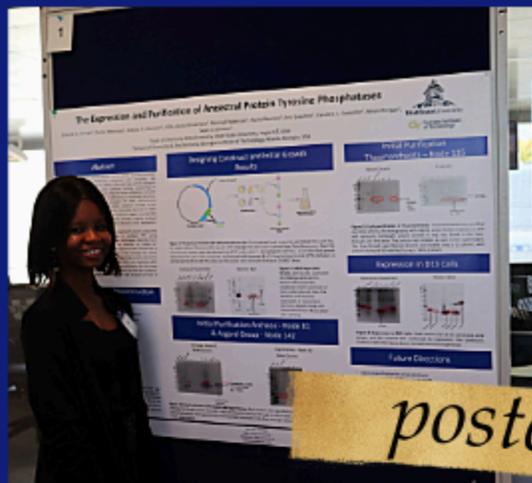
Outstanding poster presentations (l. to r.) Dillon Weatherston, Kadin Crosby, and Makenzie Reed.



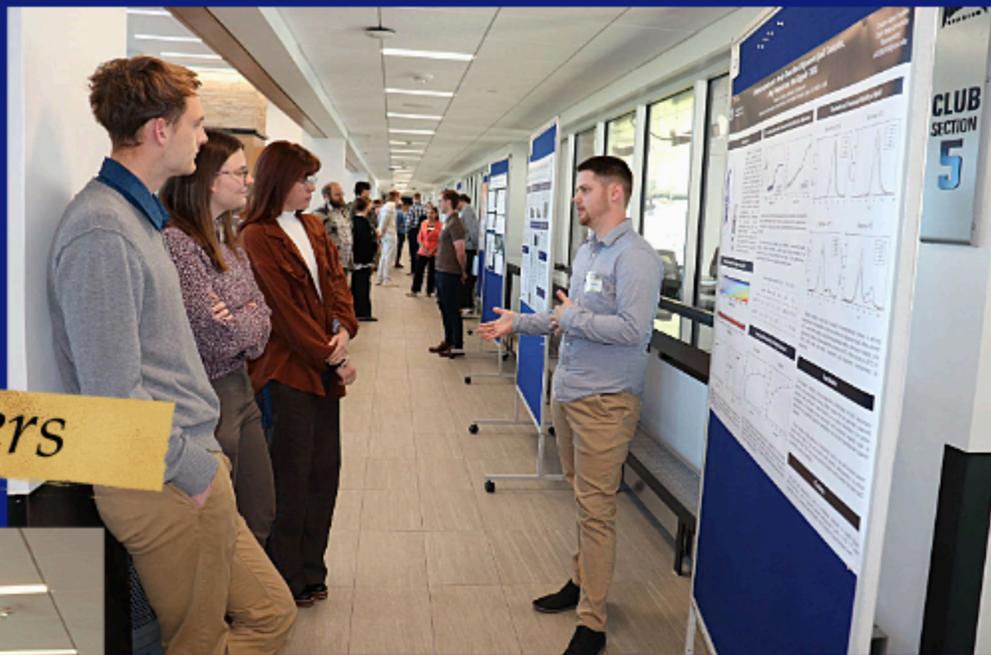
Graduate student presenters Mark Gold (shown above) and Sam Barker (depicted on the right).



The 2025 Hansen Retreat will be on October 25. Registration is available at <https://artsci.usu.edu/chem-biochem/hansen-life-sciences-retreat>



posters



seminars

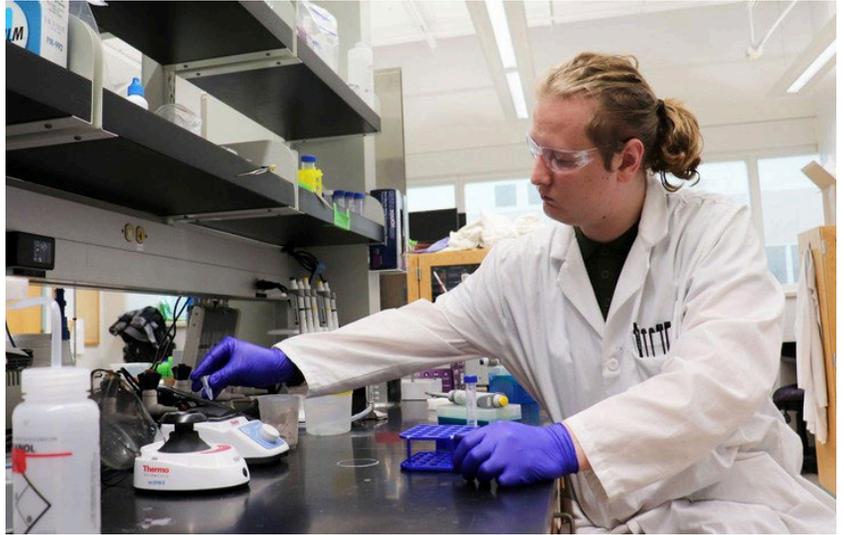


Bacteria Get Sick, Too, Says Utah State University Undergraduate Researcher

Like other living things, bacteria get sick, too, says Utah State University biochemist Brendon Guinn.

The single-celled organisms are vulnerable to viruses, which depend on bacteria to replicate.

"Viruses can't reproduce on their own, so they attach to bacterial cells, injecting their DNA into the cells, which often damages or kills the host cell and allows new viruses to colonize additional cells," says Guinn, an undergraduate researcher in the lab of USU Chemistry and Biochemistry faculty member Ryan Jackson.



But bacteria aren't entirely defenseless, he says.

"Many bacteria develop an immune system, known as CRISPR, to defend themselves against invading viruses called phages," says Guinn, who was selected as a USU Peak Summer Undergraduate Research Fellow for summer 2024.

CRISPR, Guinn says, is an acronym for "clustered regularly interspaced short palindromic repeats." CRISPR systems are simple yet powerful genome editors capable of cutting up the DNA of threatening phages.

"A lot of people know about CRISPR-Cas9, which has been used in breakthrough treatment of sickle cell anemia," Guinn says. "We're just beginning to learn about Type IV systems, including CRISPR-Cas12a2, which, unlike CRISPR-Cas9, completely destroys the DNA in an infected cell."

Jackson, the R. Gaurth Hansen Professor at USU, assigned Guinn to his lab, beginning with basic tasks.

"At first I volunteered once a week, washing up lab equipment," Guinn says. "Gradually, I learned more and more about the lab and learned basic lab techniques and procedures."

The undergrad biochemistry major spent more and more hours in the lab.

USU undergrad biochemist Brendon Guinn is studying a lesser known CRISPR system in the lab of faculty mentor Ryan Jackson, R. Gaurth Hansen Professor in USU's Department of Chemistry and Biochemistry. Guinn is among about 30 Aggie scholars who presented their research to state legislators during the 25th Anniversary Research on Utah's Capitol Hill event Thursday, Feb. 20, 2025, in Salt Lake City. (Photo Credit: USU/M. Muffoletto)

Those long hours and late nights prepared him to apply for the USU funding opportunities that, he hopes, will propel him to graduate studies in biochemistry following graduation this spring.

"The Peak Fellowship, along with the URCO and mini grant, enabled me to focus solely on research this past summer," he says. "I'd never done such mentally intensive work full-time. It was difficult, but it taught me I could push through challenges."

"Pursuing research is achievable, but you have to decide you really want it and commit to it." "You have to take the initiative and chase down opportunities with professors. Don't be afraid to take the first step yourself."

*Written by Mary-Ann Muffoletto
Adapted by Samantha Christenson*

Wash Your Hands: USU Biochemist Studies the Molecular Mechanisms of Food-Borne Illness



*In the USU Chemistry and Biochemistry's Dickenson Lab, recent doctoral graduate Sam Barker studies the structure and function of the *Shigella* bacterium. The pathogen causes diarrheal illness and is responsible for nearly 600,000 deaths around the world each year. Better understanding of the increasingly antibiotic-resistant bacterium could aid efforts to develop a vaccine and treatment.*

Utah State University biochemist and doctoral graduate Sam Barker reports diarrheal diseases are a leading cause of death, hitting children, the elderly and those with compromised immune systems particularly hard.

In the lab of faculty mentor Nick Dickenson, Barker, studies a genus of bacteria, known as *Shigella*. The bacterium causes a nasty gut bug and diarrhea in humans called shigellosis.

"In developed countries, shigellosis is not fatal," he says. "But the illness is responsible for more than 100 million cases worldwide and nearly 600,000 deaths annually."

In poverty-stricken communities short on water and sanitation, shigellosis outbreaks can be hard-hitting. While most people recover on their own without antibiotics, certain strains of the bacteria cause more serious illness and are becoming increasingly antibiotic-resistant.

"The World Health Organization promoted *Shigella* from a medium to a Priority-2-High pathogen due to its rising resistance and the burden it places on communities," Barker says. "The race is on to develop new antibiotics to combat infection as well as a vaccine to prevent infection."

Both of those aims require a better understanding of the bacterium. The rod-shaped *Shigella flexneri* wields a needle-like Type Three secretion system (T3SS) apparatus. It uses this apparatus to inject protein effectors, carried in contaminated food, into the small intestine.

"Along this route, the bacteria are exposed to the bile acid deoxycholate or 'DOC,' which allows shigella to begin their invasion cells," Barker says. "Immune cells called macrophages resist the bacteria, which fight back with their sword-like T3SS apparatuses and the battle is on. If the *Shigella* bacteria can successfully pierce and invade cells, a disease state results."

Using advanced crystallography and microscopy techniques, Barker further characterized DOC effects on T3SS needle tip construction.

"What I found was the bacteria's exposure to the bile acid led to maturation of the formidable needle-tip with a rare secondary protein structure called a 'pi helix,'" he says. "This structure prevents the bacterium from releasing its protein too soon and missing the target. The pi helix, we discovered, is the critical element in allowing the bacterium to successfully infect a healthy cell." This knowledge, Barker says, could aid the development of new vaccines and treatment strategies to combat shigella.

"Preventing infection or stopping it in its tracks could have a big impact in curbing dangerous disease outbreaks — especially in areas where water supplies are compromised by natural disaster or war," he says.

In the meantime, if you have access to clean water, be grateful, Barker says. "Remember to wash your hands with soap and water before preparing or eating food," he says. "It's a privilege and a simple, easy precaution against illness."

*Written by Mary-Ann Muffoletto
Adapted by Terryll Liguori*

Alumni Achievement Award



In the photograph, we see Lance Seefeldt, Brad Wampler, and Scott Ensign positioned from left to right, as Brad is honored with the prestigious Chemistry and Biochemistry Alumni Achievement Award. This accolade was bestowed upon him during his visit back to Utah State University, where he delivered an engaging seminar titled, "If You Follow My Path - You Will Get Lost."

Corpus Christi and one high school junior – both are athlete throwers of shot put and discus.

After earning his paramedic certification in 1992, David Wampler, PhD, LP, FAEMS, started his career as a firefighter/paramedic with the City of Kerrville Fire Department. During his 10 years there, he also served as an instructor in the paramedic program with UT Health San Antonio and earned his BS in Biochemistry at Schreiner University.

Following his time in Kerrville he attended Utah State University where he studied under Professor Scott Ensign and was awarded a PhD in Biochemistry. Dr. Wampler then returned to Texas, doing a 2-year research Fellowship at UTSA studying bioinorganic enzymology.

He now serves as a tenured full Professor in the Department of Emergency Health Sciences at UT Health Science Center at San Antonio. His primary role is Director of Clinical Research for the Office of the EMS Medical Director and as Clinical Training Officer for the San Antonio Fire Department.

Wampler is an internationally recognized researcher, author, editor and speaker. He is also the father of two athletes - one at Texas A&M

Dr. Wampler was welcomed back to USU to share insights about his career journey. His talk, titled "If You Follow My Path - You Will Get Lost," deviated from the conventional format. He offered a fresh perspective to both students and faculty present at the event. During this occasion, he was also honored with the prestigious Alumni Chemistry and Biochemistry Award in recognition of his achievements in the field.

*Bio Written by David Wampler
Adapted by Terryll Liguori*



New Graduate Students



ISAAC NIU

I am Isaac Niu, and I'm from Arizona. I received a Bachelor of Science Degree in Biochemistry from USU in 2024. I am now a student in Sean Johnson's lab, where we research protein complexes that mediate RNA surveillance in the eukaryotic nucleus. I'm very excited to contribute to the scientific understanding of cell functioning. In my personal time I enjoy practicing judo, spending time with my wife, and playing Rocket League because I am a big fan. Whenever there's time, I also like to read books and learn about history.



NATE HANSEN

My name is Nate Hansen. I completed my undergraduate education at Utah State University and returned last year to begin a graduate program in the Biochemistry department. I just finished my first year of research with Nick Dickenson. I like hiking, playing sports, and spending time with my family.



WYATT TAYLOR

My name is Wyatt Taylor, and I am an organic chemistry PhD student in the Berreau lab. My favorite part of lab is synthesizing novel molecules that have potential biological applications. My favorite synthetic method is the Algar-Flynn-Oyamada reaction, which I use to synthesize diverse flavonol derivatives. When not in the lab, you can catch me outside swimming in a body of water, playing card games, and being jolly.



MEL KING

My name is Mel King, and I grew up in Denver, Colorado. I received my Bachelor of Science in Biochemistry from BYU before working as a research assistant in Salt Lake City for a short time. I'm now studying CRISPR systems in Dr. Jackson's lab. In my spare time, I enjoy weightlifting as well as reading high fantasy and non-fiction works.



JOEY WAITE

I am Joey Waite; I grew up in Utah and graduated with my Bachelor of Science from Weber State University in Spring 2024 before starting at Utah State in Fall of 2025. I am a first year PhD candidate in the Seefeldt lab where I currently spend my time characterizing biohybrid systems on Nitrogenase and CdS quantum dots. I spend my time out of the lab cooking really good food (I work hard to look like this), studying religious and historical texts, and hanging with friends in-person or online.



BEN ASHBY

I am Ben Ashby, and I grew up in northern Texas. I completed a BS degree in Biochemistry at USU in 2024. I am currently working in Dr. Seefeldt's lab studying Nitrogenase. In my free time, I enjoy reading about, observing, and growing native or unusual plant species. I'm also fond of fantasy and science fiction novels, as well as DIY projects.

Graduate Student Council



The Graduate Student Council has been actively engaged this year in assisting all Chemistry and Biochemistry graduate students. Recognizing that many students have varied schedules, the Council has partnered with the USU Student Nutrition Access Center (SNAC) to ensure they receive the nutrition they need. This collaboration keeps our breakroom stocked with quick and convenient meals and snacks, allowing graduate students to focus on their research without needing to step away from the lab for unexpected meals or quick nutritious boosts.

In addition to nutritional support, the Council has organized several fundraisers. They sold Aggie Scientist T-shirts and polos, and hosted a fun Pie-A-TA event. The proceeds from these activities were greatly appreciated by ten graduate students who received USU campus gym memberships for the summer.

To enhance educational experiences, a series of specialized training sessions were arranged for graduate students. Dr. David Laviska from ACS delivered a seminar on Green Chemistry, providing valuable insights on methodologies to reduce environmental impact. Additionally, a Summer Course on The Fundamentals of Python was coordinated and taught by Andrew Egan, with weekly classes drawing regular attendance from over half of the graduate students.

The Graduate Council organized numerous social events that were well-attended by graduate students. They enjoyed a delightful Friendsgiving in November and Waffle Wednesdays throughout the summer. The Grad Council has exciting plans for the upcoming year to continue supporting graduate students in achieving their goals and enhancing their experience in the USU Chemistry and Biochemistry Department.



Undergraduate Student Association



The Chemistry and Biochemistry Undergraduate Student Association (CABUSA) had a fantastic 2024-2025 year. Continuing with its mission to enhance the student experience for chemistry and biochemistry students at USU, CABUSA participated in dozens of school and community outreach events, seminars, and field trips throughout the year.

The club's leadership was comprised of Madelyn Peel (President), Natalie Yoho (Vice President), Myriam Whiting (Secretary), Tessa Conrad (Treasurer), Hope Foote (Fundraising Chair), Brian Riding (Academic Chair), April Buys (Service Chair), and Sofiiia Hakh (Public Relations Chair). These students worked hard in organizing events throughout the year including daily National Chemistry Week activities, our fall and spring socials, and a trivia night. A highlight of this year was a field trip to the Logan City Wastewater Treatment Plant, where participants explored the chemistry involved in making our water clean and safe to drink and use.



As the Utah State University American Chemical Society (ACS) Student Chapter, CABUSA was awarded the 2024 Commendable Student Chapter Award from the ACS, noting their outstanding community outreach efforts. This award was received just one year after the club was reinstated following a prolonged period of inactivity. We are so proud of the work these students have done to make CABUSA an incredible aspect of student life for our department's students at USU.

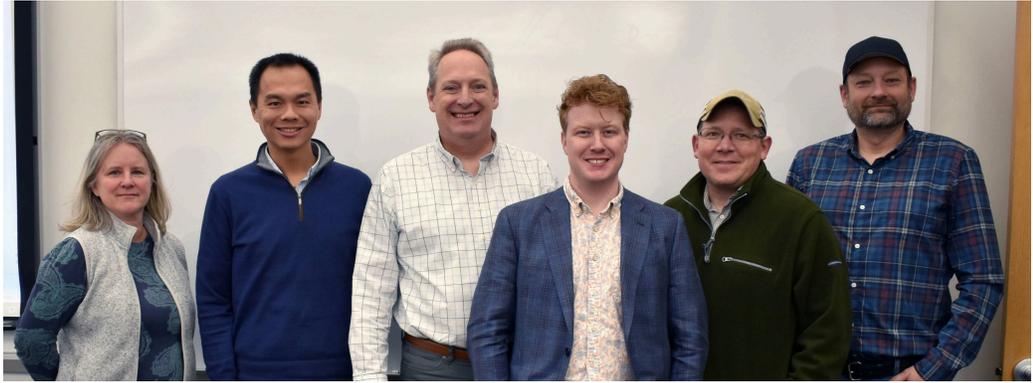


Graduate Degrees

Josh Denson | PhD

Major Professor: *Sean Johnson*

Committee Members: Joanie Hevel, Peter Shen, Ryan Jackson, Nick Dickenson



Thom Hallmark | PhD

Major Professor: *Ryan Jackson*

Committee Members: Sean Johnson, Lance Seefeldt, Nick Dickenson, Chase Beisel (not pictured)



Jeffrey Perala-Dewey | PhD

Major Professor: *Kimberly Hageman*

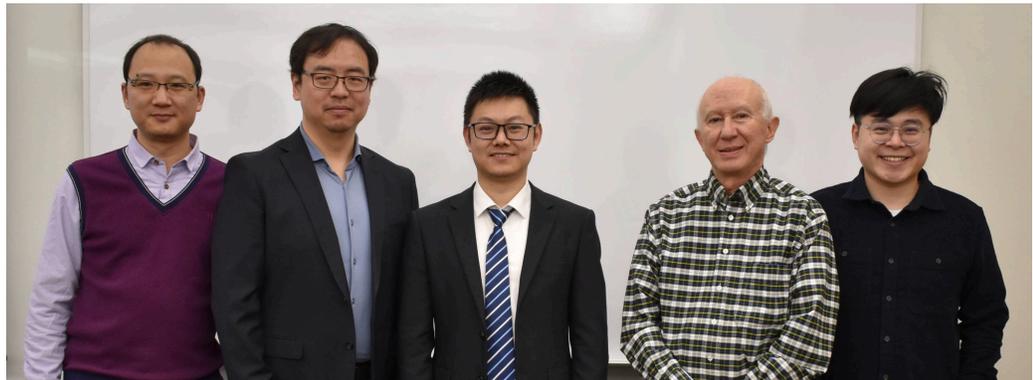
Committee Members: Nick Dickenson, Alvan Hengge, Bob Brown (not pictured), Yu-Ping Chin (not pictured)



Liming Tan | PhD

Major Professor: *Gang Li*

Committee Members: Xiongyi Huang, Alvan Hengge, Yunfan Qiu, Bradley Davidson (not pictured)

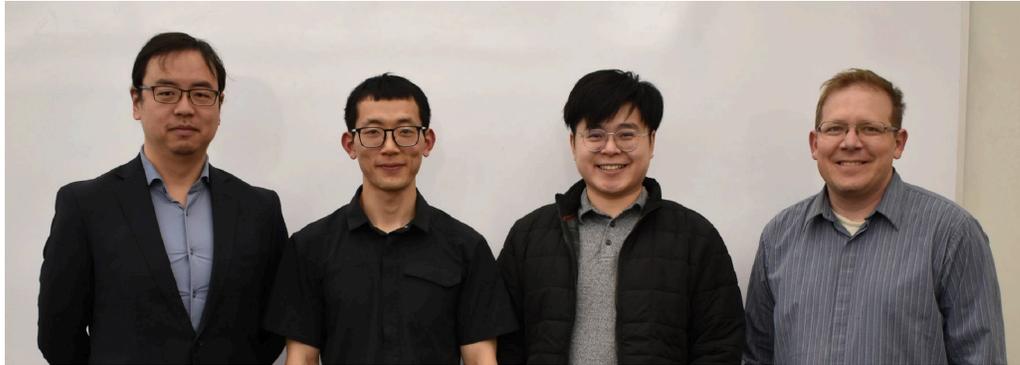




Sam Barker | PhD

Major Professor: *Nick Dickenson*

Committee Members: Sean Johnson, Joanie Hevel, Lance Seefeldt, Greg Podgorski



Qianshun Wei | PhD

Major Professor: *Gang Li*

Committee Members: Yunfan Qiu, Ryan Jackson, Bradley Davidson (not pictured), Haoran Wang (not pictured)



Taylor Sledge Dederich | PhD

Major Professor: *Lisa Berreau*

Committee Members: Alvan Hengge, Nick Dickenson, Abby Benninghoff, Tom Chang (not pictured)



Taylor Dittmar | MS

Major Professor: *Lisa Berreau*

Committee Members: Abby Benninghoff, Alvan Hengge, Tom Chang

Bachelor of Science Degrees

Tyler Barry
Warren Bee
Katelynn Belliston
Kyle Bernstein
Abby Bienka
Mallory Bingham
Matthew Brothers
Ladd Christensen
Cade Crosby
Sage Crowther
Bella DeJesus

Abby Feragen
Hope Foote
Elisa George
Brendon Guinn
Parker Hicks
April Horrocks
Eric Jenkins
Tucker Jewkes
Calvin Judd
Caleb Kline
Hudson Larkin

Sophia Leavitt
Ali Lindberg
Josh Lowry
Van Malmquist
Sarah Moser
Ammon Newby
Gabe Parrish
Madelyn Peel
Shawn Price
Jake Sanders
Noah Schade

Tyler Seeley
Anika Shaw
Logan Stanley
Matt Staten
Keelee Storrud
Malia Taufu'i
Trey Taylor
Natalie Turcsanski
Kaylyn Wilhelmsen
Jonathan Wilson
Natalie Yoho

Graduation 2025

CONGRATULATIONS!
GRADUATES!



AGGIES



CELEBRATION!



Promotion



We proudly celebrate the success of Dr. Joanie Hevel on her well-earned promotion to the rank of Professor—the highest faculty distinction. Since joining our department as an Assistant Professor, Dr. Hevel has consistently demonstrated excellence in research, a deep commitment to teaching, and dedicated service to both the department and the university. Her advancement reflects years of outstanding contributions and leadership.

JOANIE HEVEL

NEW HIRES



JEREMIAH SCEPANIAK

Temporary Assistant Professor
NMR/Instrument Manager



TERRYLL LIGUORI

Staff Assistant II
Front Desk

Retirements



Bradley Davidson

We celebrate the long and successful career of our colleague, Dr. Brad Davidson, who retired on July 1, 2025. Brad's career included a successful research program in natural products, decades of teaching organic chemistry to thousands of students, and service across the university. We honored his achievements in May at the Logan Country Club.

Alvan Hengge

Dr. Alvan Hengge retired July 1, 2025, after decades of leadership in research, teaching, and service. Alvan was the Head of our department for 10 years, where he mentored and led the faculty, staff, and students. He will continue as an Emeritus Professor in the Department, actively researching the mechanism of phosphatases as a co-investigator on a recently funded grant.



Richard Logsdon

Richard has been at USU since November 2001 and retired in December 2023. He has contributed to the department with his skills of blowing glass, which he has done much of his adult life. His father was a glassblower and he was an apprentice under him. Richard also helped with the 1225 teaching lab preparations for a number of years along with his glassblowing duties. He has been a great asset to the department and to the campus at large.



Mark Noirot

Dr. Mark Noirot retired July 1, 2025 after 15 years as an Instructor at the Blanding statewide campus. Prior to joining Utah State University, Mark was employed in the chemical industry. We wish Mark all the best in retirement.



In This Together: Retired USU Administrator and Chemist Recognized for Medical Research, Advocacy



USU chemistry researchers Ned Weinshenker, right, and Ryan Jackson confer on CRISPR technology. Weinshenker, who retired from USU as Vice President for Strategic Ventures and Economic Development in 2012, was recognized as a 2024 MPN Hero by a national foundation dedicated to the research of rare blood cancers and its industry partners. (Photo Credit: Voices of MPN)

Cache Valley resident and longtime Utah State University supporter Ned Weinshenker developed a passion for chemistry by age 7, and his enthusiasm hasn't waned for more than seven decades.

"I'm passionate about bringing medical discoveries to the public," says Weinshenker, who served as vice president for strategic ventures and economic development at USU from 2006 to 2012. "I'm committed to taking complicated medical and scientific terms and explaining them in simple ways laypeople can understand."

Weinshenker, who earned a doctorate in organic chemistry from the Massachusetts Institute of Technology in 1968, completed a postdoctoral fellowship at Harvard University with Nobel Laureate E.J. Corey. He built a distinguished career in pharmaceuticals and medical device development and never dreamed he'd be the subject of a clinical trial, but that's where he found himself after being diagnosed with the MPN myelofibrosis in 2018.

The Brooklyn, New York native directed his energy toward research on his rare blood condition and found the Chicago-based MPN Research Foundation, which

funds and advances research aimed at treating blood cancers, including myelofibrosis, known collectively as myeloproliferative neoplasms or MPNs. It was from the foundation's website Weinshenker found the details of the clinical trial he eventually joined.

"During my career, I studied many clinical trials and protocols for other people," says Weinshenker, who is a member of the MPN Research Foundation's Patient Impact Council. "I never thought I would actually be a patient in a clinical trial. It's been sort of an out-of-body experience. I am my own scientific study."

In recognition of his commitment to MPN research, as well as raising awareness of MPNs, advocating for patients and generating research funding, Weinshenker was one of seven individuals and organizations honored as a 2024 MPN Hero. His efforts, along with the MPN Patient Council, were highlighted in a ceremony on December 6 in San Diego.

Weinshenker's video profile appears among the 2024 "Meet the Heroes" video gallery on the Voices of MPN website. (continued on next page)

At age 82, Weinshenker is a self-described “volunteer postdoc” in USU’s Department of Chemistry and Biochemistry. For the past three years, he’s assisted faculty members with various organic chemistry research projects and is currently working with Associate Professor Ryan Jackson investigating the potential CRISPR technology to treat various cancers. Together, they’ve assembled a collaborative team with the University of Utah and the Huntsman Cancer Institute.

“We’re seeking funding to advance Dr. Jackson’s CRISPR technology discoveries toward treatment of MPNs and other cancers,” Weinshenker says.

Weinshenker also serves as a member of the Patient Power Advisory Board and is a contributing author to its [website](#), an online collection of cancer research news, along with information about MPNs, tips for navigating cancer treatment, advocacy groups and events.

“I’ve been able to help start a support group to get as many patients as possible educated as to what they’re

dealing with, what they’re experiencing and to advocate for themselves,” he says.

Weinshenker’s current pursuits at Utah State extend beyond research. An adjunct faculty member in the Department of Chemistry and Biochemistry since 2008, he has been active in career counseling with students and seeking out summer internship opportunities for undergraduates. Weinshenker and his wife, Gail Bird Weinshenker, established USU scholarships in both the College of Science and in the Caine College of the Arts.

An accomplished photographer, Weinshenker served on the Nora Eccles Harrison Museum of Art board and the Caine College of the Arts Advancement Council, and currently serves as chair of the Cache Valley Center of the Arts Board of Trustees.

“I’m humbled by the recognition by the MPN Foundation,” Weinshenker says. “I’m passionate about medicine, research to advance treatments and cures, along with fostering the arts in our community.”

Written by Mary-Ann Muffoletto



Ned Weinshenker, third from right, is named an MPN Hero at an awards ceremony hosted by INCTYE Pharmaceuticals and CURE Magazine Dec. 6, 2024, in San Diego. Weinshenker is joined by, from left, MC Andrew Schorr; sons David and Daniel Weinshenker; keynote speaker Sanjay Gupta, neurosurgeon and medical reporter; and MC Ester Schorr. (Photo Credit: MJH Health Sciences.)

USU Researcher Seth Lyman Named to Utah Air Quality Board



VERNAL, Utah - Seth Lyman, director of the Bingham Research Center at Utah State University, has been named as the newest member of the Utah Air Quality Board.

Lyman, a research professor in the Department of Chemistry and Biochemistry at USU Uintah Basin, will serve on the board for four years. The appointment was made official on April 15 by members of the Utah Legislature.

“I’m honored to have been selected to serve on the Utah Air Quality Board,” Lyman said. “It’s a big responsibility. I love living in the state of Utah, and I’m grateful to be able to give back to the state by serving in this way.”

The Utah Air Quality Board enacts rules pertaining to Air Quality activities and develops State Implementation Plans to attain and maintain National Ambient Air Quality Standards. Because of this statutory authority, the Board is the primary air quality policymaker for Utah State.

Lyman has a doctoral degree in Environmental Science and Health from the University of Nevada, Reno, and his expertise is in atmospheric measurements, instrumentation, and analysis. Since joining the USU faculty, Lyman has worked tirelessly with community

and state leaders to understand and mitigate air pollution and improve air quality. His many accolades include being named the 2020 Clean Air Person of the Year by the Utah Clean Air Partnership.

Lyman’s research focuses on the environmental outcomes of energy production. He and his colleagues at the center have carried out projects to quantify emissions of organic compounds from various oil and gas sources, understand the conditions that lead to wintertime ozone production in the Rocky Mountain region, and develop computer models of atmospheric emissions and air quality.

Lyman is also an expert in atmospheric mercury. He has invented several novel methods to measure elemental and oxidized mercury in the atmosphere and calibration systems for those measurements.

Written by Marcus Jensen



Gaining the Upper Hand: USU Chemists Spark Campus-wide Disposable Glove Recycling Effort

“And we use a lot of them at Utah State,” says biochemist and doctoral student Hannah Feinsilber.

Luu has taught general chemistry classes for Chemistry and Biochemistry, which accommodate some 800 students per semester. “In the labs for these classes alone, the department is using about 1,000 pounds of one-time-use gloves per year,” Feinsilber says. “And that’s just one course. Gloves are used daily throughout the university.”



From left, Aggie scholars Hannah Feinsilber and Calvin Luu, both doctoral students in the Department of Chemistry and Biochemistry, toss used lab gloves into a pallet bag for recycling. The grad students are organizing a campus-wide recycling effort, and Feinsilber presented the project Tuesday, April 22, during USU's Earth Week observance. (Credit: M. Muffoletto/USU)

Beyond labs, she notes, USU Dining Services and USU Facilities also depend on gloves to complete essential tasks, while protecting workers and consumers.

The acronym PPE (personal protective equipment) became a household word during the COVID-19 pandemic. Many associate PPE with masks, but the term encompasses implements ranging from earplugs to Level A hazmat suits.

Utah State University scholars know long pants and closed-toed shoes are to be worn – a first line of defense – in campus labs. They dutifully don lab coats and button them up. Those smart, white jackets aren’t just for show; their fabric is flame retardant. Then come safety glasses and gloves. Always gloves.

“Glove protection is two-fold,” says chemist and doctoral student Calvin Luu. “The gloves protect you from exposure to potentially harmful substances, but, in our field, they also protect our experiments from contamination from germs we have on our hands.”

Laboratory gloves are usually made from plastics or a synthetic rubber called nitrile. These materials are resistant to oils, acids, abrasion, punctures and chemicals.

“All of these gloves generate a huge amount of waste, so Calvin and I set up a system, beginning with this spring semester, to collect and recycle the gloves used in general and organic chemistry labs,” Feinsilber says. “We got support from faculty members, placed designated containers in the labs and trained lab assistants and students on how to properly dispose of the gloves.”

The students established a process to retrieve those gloves and collect them in a zero-waste pallet bag purchased, with support from the Department of Chemistry and Biochemistry, from New Jersey-based recycling company Terracycle. The collapsible, polyethylene bag can hold several semesters’ worth of gloves, currently resides in the department’s loading dock on the first floor of the Eccles Science Learning Center.

“Our goal is to fill it up, send the contents off to Terracycle for recycling, and start again,” Feinsilber says.

*Written by Mary-Ann Muffoletto
Adapted by Cindy Weatbrook*

Year In Numbers

8,306

students served for a total of

22,675

student credit hours taught

\$2.6



million+
in research
expenditures

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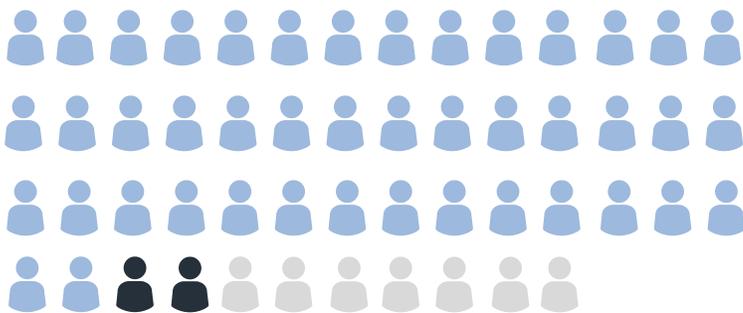
53

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94

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