

Chemistry

A portrait of Sue Lunte, an older woman with short, wavy white hair and glasses, smiling warmly. She is wearing a dark blue cardigan over a bright blue t-shirt. The background is a blurred outdoor scene with trees and buildings.

Sue Lunte

KU Chemistry Globetrotter

KU THE UNIVERSITY OF
KANSAS



MESSAGE FROM THE CHAIR

Dr. Tim Jackson

Welcome to the 2025 KU Chemistry Alumni Magazine. This past year has been one of excitement and challenges. Our department added new faculty and a large and talented class of first-year graduate students. Faculty traveled the US and abroad to build collaborations and share our accomplishments. Assistant Professor Aaron Teator became the latest KU Chemistry faculty member to receive a prestigious NSF CAREER award, which will support his research in polymer chemistry. Three members of our faculty were named fellows of the American Association of the Advancement of Science, and one (Distinguished Professor Steve Soper) was named a fellow of the National Academy of Inventors. Associate Professor James Blakemore was named the latest Keith Wilner Chair in Chemistry. To top it all off, Distinguished Professor Kristin Bowman-James celebrated 50 years of being a KU Chemistry faculty member this past August. What a year!



One of my highlights as Department Chair has been to learn and share stories about how KU Chemistry has influenced people's lives. These stories come from both our current faculty and students and from former Jayhawks and friends of the Department. This year, I had the opportunity to attend a social event celebrating a new strategic partnership agreement between KU and the University of Regensburg in Germany. At the event, I spoke with the current University of Regensburg President Udo J. Hebel. When President Hebel learned I was in the Chemistry Department, he beamed and mentioned how my Department had been a starting point for this partnership decades ago. In these moments, I feel proud and grateful at past Chemistry faculty and students who decided to do something extra, something above and beyond the normal expectation of teaching and research.

This magazine highlights the achievements of current and past KU chemists who continue to go above and beyond. We share stories from alumni who have reached the top of their field and discuss how their experience at KU helped lay a strong foundation. We catch up with Sue Lunte (aka the globe-trotting Jayhawk!), who traveled to Germany and Sri Lanka to strengthen historic connections and establish new ties. We also use these pages to introduce two new faculty to the KU chemistry community: Kendrick Smith, Assistant Professor in organic chemistry, and Dingran Chang, Assistant Professor in analytical chemistry.

Rock Chalk Jayhawk!

Timothy A. Jackson
Professor & Chair

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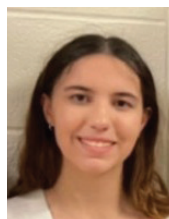
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2025 BY THE NUMBERS

\$9,609,342

in research expenditures

71

papers published

29

B.S. & B.A. degrees
conferred

106

graduate students

2

M.S. degrees conferred

#39

chemistry graduate
program among public
universities



14

Ph.D. degrees conferred

24,789

student credit hours taught

\$508,421

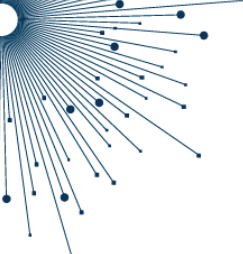
in scholarships distributed

Opportunities for Giving to Chemistry

The department is thankful for its many donors who support our faculty, students, and staff. Many of the goals of the department would be out of reach without the generous financial support of alumni and friends. Gifts to the department support graduate and undergraduate student travel to conferences to share their research, provide scholarships to outstanding students, and allow us to support and retain our outstanding faculty. If you are interested in exploring opportunities to support our department, general information on giving can be found at chem.ku.edu/giving. You can also scan the QR code on this page or read about other ways to give on the back of this magazine.

Scan to view
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TOWERING TOWARDS THE BLUE



Left to Right: Manar Shoshani and Aaron Teator

Faculty Awards & Achievements

Aaron Teator & Manar Shoshani

NSF CAREER Award

Lisa Sharpe Elles

2025 KU Libraries Textbook Hero

Brian Laird

2025 American Physical Society (APS) Fellow

Marco Caricato

Teress Award

Steven A. Soper

2025 National Academy of Inventors (NAI) Fellow

Ward Thompson, Jon Tunge, & Tim Jackson

American Association for the Advancement of Science (AAAS) Fellowship

Student Awards & Achievements

Lily Tackett

Goldwater Scholarship Nominee

Thomas Loub

2025 University Scholar

Cecilia Paranjothi

NSF Graduate Research Fellowship
Class of 1912 Award

Aadhya Bhatia & Helinna Bontrager

2025 Millennium Fellow

Kasun Wekasinghe

Poly General Papers Award at ACS

2025 DEGREE RECIPIENTS

Undergraduate Degree

Jackson Blanco, B.S.
Mikayla Bridgewater, B.A.
Hannah Chern, B.A.
Chase Courbot, B.S.
Winston Davis, B.A.
Olivia Havens, B.S.
Chase Innes, B.S.
Stanslaus Kariuki, B.S.
Celine Khalife, B.A.
Hera Kim, B.A.
Kyra Koester, B.A.
Cristina Koester, B.A.
Harrison Le, B.S.
Judson Miller, B.A.
Trisha Nair, B.S.
Lightness Doreen Ndalima, B.S.

Jacob Nelson, B.A.
Brandon Nguyen, B.S.
Ruoting Niu, B.A.
Cecilia Paranjothi, B.S.
Abhishekram Raja, B.S.
Audrey Rips-Goodwin, B.S.
Calen Shuckman, B.A.
Layla Smith, B.S.
Joshua Spencer, B.S.
Ruby Taylor, B.A.
Coleen Thach, B.S.
Ainsley Wolford, B.A.

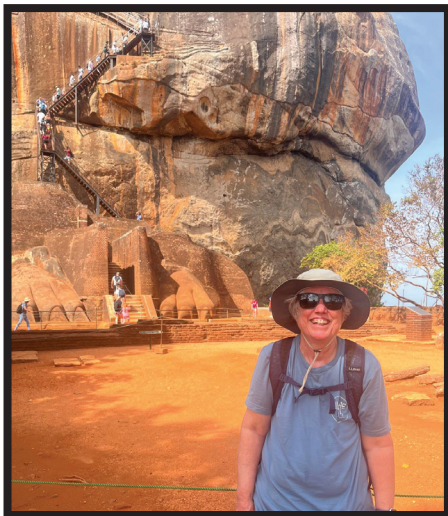
M.S. in Chemistry

Mattalyn Gordon
Hasini Siyambalangamuwe

Ph.D. in Chemistry

Khurshed Akabirov
Samuel Brunclik
Indu Chandrasoma
Rafael Diaz Hernandez
Gaurav Garg
Sahan Godahewa
Jinyan He
Esther Holt
Madeline Isom
Hanna Nguyen
Nishama Mohotti
Sayuri Niyangoda
Prabhavie Opallage
Jacob Thiesmann
Viena Thomas
Chien-Wei Wang

THERE AND BACK AGAIN



This summer, Distinguished Prof. Sue Lunte travelled to Sri Lanka to visit several Universities. The KU Chemistry Department has a long tradition of connections with Sri Lankan Universities, and our graduate program remains a popular one for Sri Lankan students. Sue's trip aimed to reinforce these ties, building on an effort that started over 35 years ago.

The Chemistry Interview Project was originally created in 1988 by Distinguished Professor Emeritus George Wilson. This program was designed to build connections and develop a bridge between international Universities and KU in the days before the Internet. Prof. Craig Lunte embarked on the first iteration of the project, to great success. Although the original Chemistry Interview Project spanned multiple Southeast Asian Countries, Sue's recent trip focused exclusively on Sri Lanka. Sue visited some of the largest universities with long-standing ties to KU Chemistry. From late July to early August 2025, Dr. Sue Lunte visited four universities, the University of Colombo, the University of Peradeniya, the University of Kelaniya, and Uva Wellassa University. The four universities were chosen thanks to KU Chemistry Graduate Alumni Drs. Binodh DeSilva and Gamini Dharmasena, alumni of the University

of Colombo and the University of Peradeniya, respectively. The University of Kelaniya and Uva Wellassa University were chosen thanks to connections with other former graduate students and university deans.

While this trip was focused on reconnecting and reestablishing communication, Sue served more as an ambassador than a recruiter. In past visits, faculty and staff from the Chemistry Department would bring back "hundreds of forms with each person's grades and what their English level was" and although Sue did interview some students, that was not the purpose of this outing. The primary focus of this trip was to encourage further collaboration and interdisciplinary interaction between Sri Lanka's universities and to promote KU Chemistry's impressive research activities. During her time at the four universities, Sue presented seminars on her research and innovations and held workshops on applying to graduate school in the US. Sue helped teach students how to write personal statements, refine their interest in chemistry, and navigate research specializations and concentrations for graduate programs in the US.

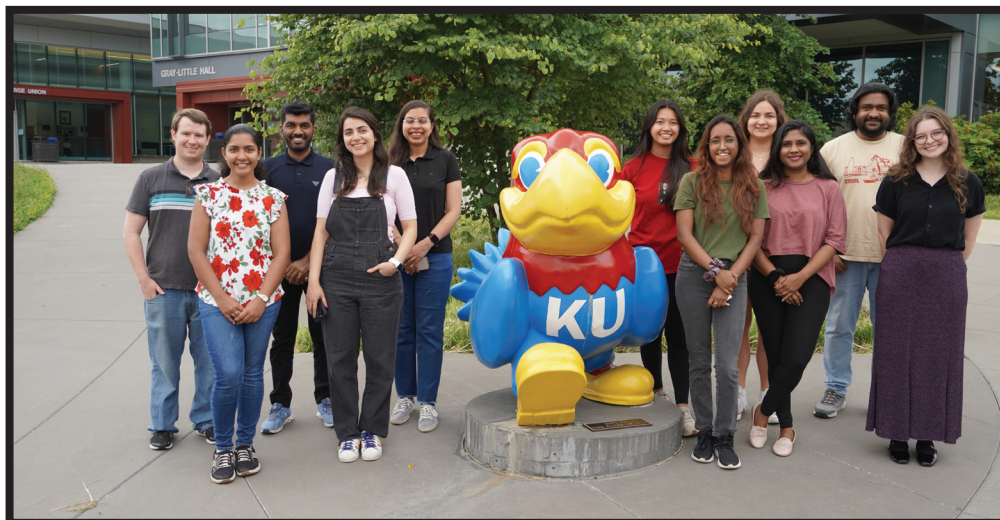
When it came to speaking about KU, Sue highlighted Lawrence's strong community of Sri Lankans, including a long list of all current and former Sri Lankan chemistry students and their impressive research and impact on the Department of Chemistry at KU. This established alumni network and potential mentorship program showcases how the two countries are intertwined in academics and culture. Additionally, cultural exchange programs and joint speaking events were also proposed at numerous panel dialogues and Q&A sessions. This strong connection between Sri Lanka and Lawrence is one of the fruits of the relationships that began 37 years ago through the work of Craig Lunte and George Wilson.

On her trip, Sue also had the opportunity to explore the country of Sri Lanka and immerse herself in its rich and vibrant culture. Led by University of Peradeniya Senior Lecturer Dr. Manjula Wijesinghe and KU Alumnus Dr. Dulan Gunasekera, Sue visited Sigiriya, or the Lion Rock Fortress, a UNESCO Heritage Site and one of the claimed Eight Wonders of the World. Additionally, she had a front row seat to the Festival of the Tooth, an annual religious procession held in the city of Kandy. Sue was delighted by the trip and left with "a better appreciation and understanding of the culture of our Sri Lankan students."

In Sue's experience as an ambassador in the renewed Chemistry Interview Project, she saw the Lawrence-Sri Lanka connection firsthand and continued the legacy of KU Chemistry trips to South Asia. In a report and reflection document, the Kansan and Sri Lankan organizers of the trip were incredibly satisfied by the "strengthened existing ties... that paved the way for future collaboration."



2025 SUMMER SCHOLARS



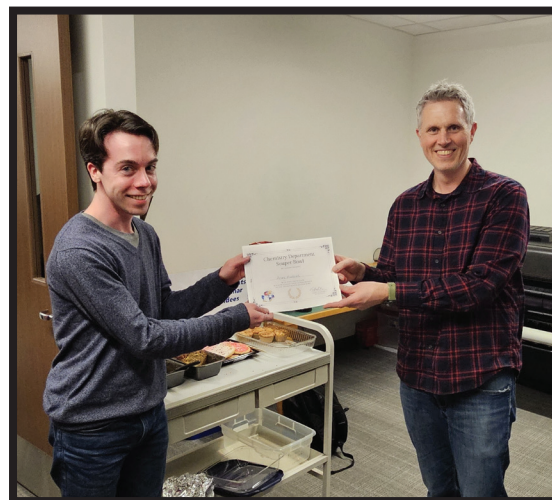
Left Group (from left to right): Colin Waller (Schowen), Dineesha Chandrasiri (Hall), Pranay Bonagiri (Wilson), Zahra Aghaei (Wilson), Sunidhi Arora (Landgrebe),

Right Group: Stephanie Pham (Marsi), Anubhuti Srivastava (Lee), Julia Abdoullaeva (Berger), Nimodi Uduwela (Marsi), Hirushan Hetti Arachchige (Cross), and Abigail Kerr (Lee). **Not pictured:** Neiley Karns (Berger), Jack Petersen (Lee), Kezia Jacob (Schowen).

Since 2021, the Department has used several KU Endowment funds to provide stipends and tuition and fee support to some of our outstanding graduate students as research assistants during the summer term. In 2025, we had 14 summer scholars, which brings our total number of summer scholars to 87. The summer term is a unique time for graduate students to make exciting discoveries in their research projects, and this program enables students to focus their work efforts exclusively on research. Our ability to maintain our Summer Scholars program directly reflects the generosity of our alumni and friends. We thank all our donors, as their generous support makes a real difference for our students.

1ST ANNUAL CHEMISTRY "SOUPER" BOWL

Although the Kansas City Chiefs were not victorious in Super Bowl LIX, several members of the Chemistry Department reigned supreme in the Department's first annual Souper Bowl competition. Chemistry staff and faculty brought homemade chili and soup to the Chemistry office the week before the Super Bowl. All members of the Department were invited to sample the different offerings and vote on their favorites. Former Office Manager Angie Erdley won in the category of best chili, and our Graduate Program Coordinator Ross Perryman won in the category of best soup. Each received a Souper Bowl certificate from the Department Chair.



WELCOME, LAUREN BIAS Office Manager



Lauren joined the Department of Chemistry as the Office Manager in January 2026. She earned a bachelor's degree in Social Work from the University of Toledo and spent ten years supporting clients with psychiatric and addiction-related needs. Lauren shifted her career to higher education and joined the University of Kansas in 2014, supporting academic units in a variety of administrative roles. Her experience includes undergraduate and graduate student support across multiple units, course & room scheduling, and most recently coordinating university fellowships and awards for the KU Office of Graduate and Postdoctoral Affairs.

In her role with Chemistry, Lauren looks forward to working alongside faculty, staff, and students to support the daily operations of the department and help cultivate a collaborative, well-organized, and welcoming environment. She values the behind the scenes work that helps academic communities thrive.

Outside of work, Lauren enjoys traveling, woodworking and home-improvement projects, and getting lost in a good sci-fi series – often in the company of her husband and their three cats. She is excited

to join the Chemistry community!

HAPPY QUIZ DAY

To most students, the idea of weekly quizzes is unpleasant, but with the right professor, that can change. This was the case for Peace Adelowokan and several of his classmates who took Professor Jon Tunge's CHEM 740/840 courses in the 2024-2025 school year. CHEM 740 is a class for first-year graduate students, and Professor Tunge began the year by introducing weekly quizzes to this fresh batch of students that kept them on their toes.

The life of a graduate student is not easy. Between research, coursework, and teaching responsibilities, there is no shortage of commitments. Professor Tunge's weekly quizzes brought challenges that inspired the students to ask questions (and make some mistakes along the way), but this structure led to a deeper understanding of organic chemistry. After consecutive Fridays of Professor Tunge entering the room announcing, "Happy Quiz Day!" the mindset began to shift. Students began to look forward to the end of the week. As student Peace Adelowokan said, "We were excited to see what the next quiz would throw at us. We wanted to flex our mental muscles."

Peace credits Professor Tunge's outstanding mentorship and teaching for shifting the students' mindset and getting them excited about a challenge. This attitude will serve them well during the ups and downs of their graduate research program. At the end of the spring 2025 semester, the CHEM 840 students celebrated their last day of class in style... and fashion. The cohort of students created "Happy Quiz Day" shirts and

wore them to class as a friendly surprise for Professor Tunge. What started as a daunting weekly challenge slowly transformed into an exciting new tradition.



Photo Credit to graduate student Peace Adelowokan

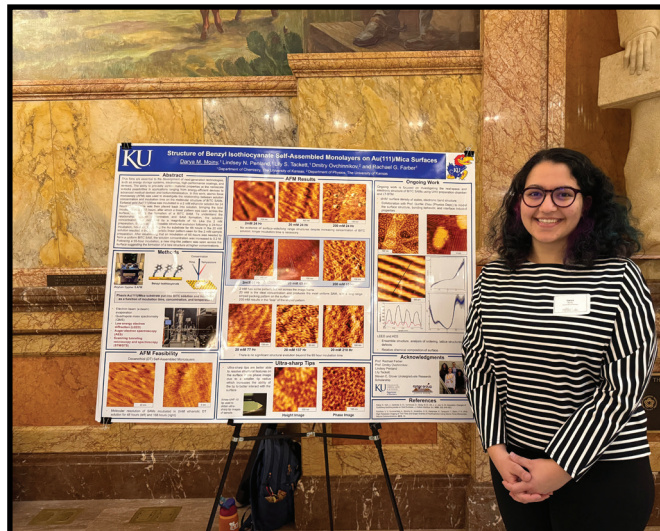
RESEARCH DAY AT THE STATE CAPITOL

One of the most satisfying parts of conducting research is the conclusion – presenting the new knowledge for the world to see and appreciate. The Annual Kansas Undergraduate Research Day at the Capitol is a special event allowing students from universities around the state of Kansas to share their new knowledge with the public. The 2025 event was held on February 26, 2025 and included a representative from KU Chemistry, Darya Moiny.

Moiny, from Stilwell, Kansas, originally began at KU as a biology major, but her time in CHEM 130 with Professor Lisa Sharpe Elles inspired her to change her major to chemistry, setting her on the track that she continues today. Moiny joined Professor Rachael Farber's group in the spring semester of her freshman year and instantly benefitted from the mentorship and guidance of Professor Farber. She developed important problem-solving and critical thinking skills that propelled her understanding of the discipline. Additionally, she credits her time spent in CHEM 535 as playing a major role in reshaping her knowledge from General Chemistry II and applying it to her role in the Farber Group.

Moiny began her research in the summer of 2024, when she was supported by the Stephen C. Glover Summer Undergraduate Research Scholarship. She worked in collaboration with the Ovchinnikov Group from the Physics & Astronomy Department to observe the self-assembled structure of the naturally occurring compound benzyl isothiocyanate, or BITC, and how it forms a monolayer on Au(111)/Mica surfaces. Moiny's research is at the forefront of this previously unknown topic, demonstrating her aptitude in the field of chemistry.

Moiny emphasized her gratitude for the opportunity to present at the State Capitol building, and details how she introduces her novel research, "To convince an audience that your research is important... bridge the gap between what they know and what they don't know." In the context of Kansas, Moiny connected her findings with the new Panasonic lithium-ion battery plant in De Soto, Kansas, and the rising need for thin films for storage and quality-of-life products for use in enhancing battery components. Research into these thin films needs to be advanced, and the outcomes of this work will be felt on a global scale.



CHEMISTRY REU



The Chemistry REU Program welcomed its 37th cohort to campus on May 27th for ten weeks of full-time chemistry research, professional development activities, and educational programming. These activities ranged between LinkedIn Workshops to a tour of the KU Nanofabrication Facility. Each REU participant was placed in a research lab on campus to conduct their own unique research, which they presented in a poster session in July, before the conclusion of the program on August 1st.

(left to right) are 1st Row: Daisy Orozco, Aubrey Brown, Autumn Harris, Lily Tackett. 2nd Row: Karissa Wilson, Raina Fair, Spencer Moffitt, Austin Groth. 3rd Row: Ashleigh Caldwell, Jamie Neumann, Landon Scott, Jeremiah Polk. 4th Row: Ellison Gee, Keimarya Rivera, Patryk Hupert, William Viator.

WELCOME, KENDRICK SMITH

KU Chemistry welcomed a new organic chemist to the faculty this fall - Assistant Professor Kendrick Smith. His research is broadly in the area of biocatalysis – the use of enzymes as catalysts for new chemical transformations. His program will involve both the direct application of enzymes from biosynthetic pathways to streamline natural product total synthesis, and also the reprogramming of enzymes to carry out new transformations. Kendrick has high hopes for his research and teaching, specifically in his goal to inspire the next generation of scientists and contribute to the knowledge of the broader scientific community.

Kendrick was born and raised in Petersburg, VA. He attended the University of Virginia as an undergraduate, where he was drawn to the field of chemistry due to his success in the field and the numerous research experiences that he had. Thanks in part to encouragement and mentorship by his undergraduate research advisor Prof. Jason Chroma, he graduated with a B.Sc. chemistry in 2013. Kendrick next pursued his Ph.D. degree at the University of North Carolina-Chapel Hill (UNC). At UNC, Kendrick worked in the research group of KU Chemistry alumnus Prof. Jeff Johnson. During his time in Jeff's lab, Kendrick developed his research identity in asymmetric dearomatization methodology and its application in molecular synthesis and catalytic multi-component reactions. After graduating from UNC,



Kendrick expanded his research skills by joining Prof. Alison Narayan's lab in the Life Sciences Institute at the University of Michigan-Ann Arbor as a post-doctoral researcher in 2020. Kendrick pursued research in the field of chemo-mimetic biocatalysis, with a focus on new enzymatic reactions of pyridoxal-5'-phosphate (PLP) dependent enzymes. Kendrick attributes the diverse personalities and creative thinkers surrounding him in Michigan as an influence to think boldly and outside the box, a key skill that he seeks to take advantage of when developing his own lab.

Kendrick was drawn to KU thanks to the diverse and vibrant research portfolio in the Department of Chemistry, something he described as "directly reflecting the collegiality amongst the faculty". Additionally, Kendrick is excited to join the department due to a strong sense of community on campus and in Lawrence.

In his free time, Kendrick enjoys traveling, learning new languages, and listening to and performing jazz music. You can occasionally find him at local music venues in and around Lawrence. He attributes his ability to learn and adapt in the classroom to his musical talent and the art of improvising. "Although we invest a lot of time in providing structured learning experiences through lecture and course design, there is still so much fluidity in approaches in chemical education... and serving the students is a crucial skill".

SUPER (TEXTBOOK) HERO



To most people, finding, purchasing, and returning a textbook is a repetitive chore that must be done each and every semester. Textbook Heroes, such as Associate Teaching Professor Lisa Sharpe Elles, challenge this status quo. The Textbook Hero award, presented by KU Libraries every spring semester, recognizes a member of the KU Community who has successfully increased affordability and access to materials for a course.

For Sharpe Elles, problems appeared in her large introductory chemistry class CHEM 110, when students reported issues in accessing the required textbooks. These problems ranged from delays in delivery to affordability. Luckily, Sharpe Elles had a few ideas for streamlining this process, and her role as an editor of the online homework-building tool, LibreTexts ADAPT, gave her numerous opportunities for reshaping her class. As of fall 2024, LibreTexts is now a free tool utilized by CHEM 130/135 as well as CHEM 110, opening accessibility to students and reducing costly and time-consuming alternatives.

Sharpe Elles' utilization of open educational resources (OER) ultimately earned her this prestigious award, and she estimates that it culminated in a total of \$25,000 in saved costs to KU students in the 2024-2025 school year! Lisa Sharpe Elles attests, "I really want to have that small class feel in that big room, and so I'm always trying my best to make sure they're engaged." The students have expressed their gratitude as well, praising the lessened burden of the costs of course materials and welcoming the positive change implemented by Professor Sharpe Elles.

WELCOME, DINGRAN CHANG

Dr. Dingran Chang is one of the newest faculty members in the KU Department of Chemistry. He joined the department in August 2025 as an Assistant Professor in Analytical Chemistry. Before coming to KU, he was a Research Assistant Professor at Northwestern University in Evanston, Illinois. His research focuses on developing analytical methods for health monitoring and disease diagnosis.

Growing up in Shanxi, China, Dingran often dreamed of traveling the world, connecting with people from different cultures, and making discoveries that could help improve people's lives. After earning his undergraduate degree from China Pharmaceutical University, he moved to Canada to pursue graduate studies. At McMaster University in Hamilton, Ontario, under the mentorship of Prof. Yingfu Li, he completed his Ph.D. in Biochemistry, focusing on DNAzyme-based biosensors for bacterial pathogen detection.

In 2019, Dingran joined Prof. Shana Kelley's group at the University of Toronto as a postdoctoral fellow, where he developed high-dimensional aptamer selection technologies. In 2023, when Prof. Kelley's lab relocated to

Northwestern University, Dingran moved to the United States and was appointed as a Research Assistant Professor, continuing his work on aptamer engineering and biosensor development.



Dingran was drawn to KU Chemistry by its collaborative, supportive environment and strong interdisciplinary research culture. At KU, his research lies at the intersection of chemistry, biology, and engineering, focusing on functional nucleic acid-based biosensors. He also works on integrating artificial intelligence into aptamer screening and sensor design. His goal is to develop sensing platforms capable of simultaneously capturing spatial, temporal, and molecular information from the human body, providing a comprehensive, real-time molecular view of human health to enable earlier diagnosis and prevention of disease.

Outside the lab, Dingran enjoys running, exploring nature, watching anime, and spending time with his family. He looks forward to mentoring KU students, fostering their creativity, and sharing the excitement of scientific discovery.

CHEMISTRY CLUB ANNUAL UPDATE

Chem Club has been in full swing this year!

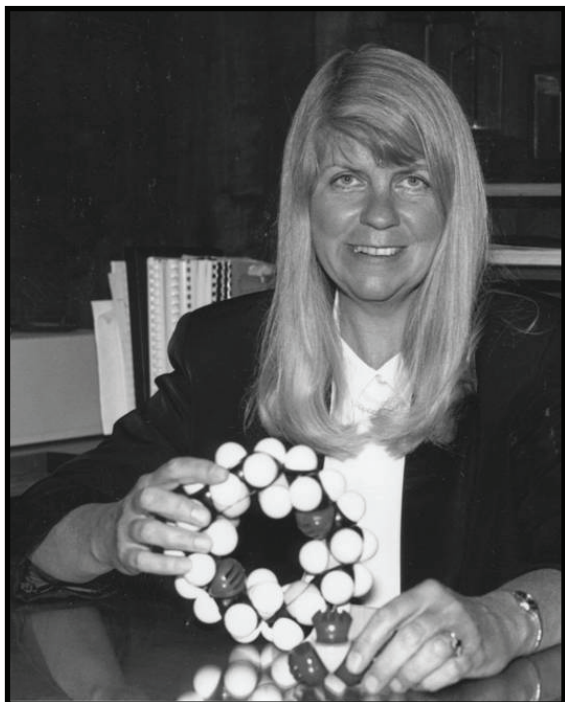
One initiative launched by our executive board this past year was to extend our reach beyond chemistry demos and outreach events. We began to focus on hosting events that promoted undergraduate involvement in research within the department, as well as promoting what being a chemist looks like on a day-to-day basis in an academic setting. Through these efforts, we were able to connect research mentors and students to foster collaboration and support our undergraduates in their studies.

We also organized a panel discussion with current KU Chemistry graduate students that allowed undergraduates to ask questions about how to apply to graduate school, what research at the graduate level looks like, and more.

One of the other new things we did this year was to begin incorporating the sale of lab coats at our back-to-school goggle sale. Our president, Jonah Ludiker, came up with the idea to create a "buy-back" system where Chem Club could buy back lab coats at the end of the year after students had completed their organic chemistry labs. Then, after sending out the lab coats for cleaning, Chem Club could sell these lab coats to the incoming organic chemistry students at a lower price. This initiative was well-received by the students and was quite a success. We were able to sell approximately 130 lab coats. We are quite excited that our green chemistry lab coat initiative was a success, and we hope to grow this effort in the following years!

50 YEARS AND COUNTING...

A Reflection by Dr. Kristin Bowman-James



Q. Your career at KU has spanned 50 years, an incredibly impressive accomplishment. What were the biggest lessons you've learned in your time at KU?

A. The biggest lesson I have learned is that chemistry can take you down multiple roads. New challenges can arrive when least expected. When they arise, you should definitely take the challenge. I began my career as an inorganic chemist studying coordination chemistry with transition metal ions, especially using macrocyclic ligands that could completely surround the metal ions. Macrocycles were the focus of my postdoctoral mentor Prof. Daryle Busch (at The Ohio State University). I started out interested in the subfield of bioinorganic chemistry, especially in biological mimics for heme iron proteins that bind oxygen molecules, like hemoglobin and myoglobin.

My first sabbatical leave was in 1983, and I chose to work with Nobel Laureate Jean-Marie Lehn at the Université Louis Pasteur in Strasbourg. Jean-Marie had coined the term supramolecular coordination chemistry in 1978. This new field examined molecules that associate, not by covalent bonds, but by weaker, intermolecular interactions, such as hydrogen bonds or pi - pi interactions. Jean-Marie was using macrocycle chemistry, but his applications were more in the field of bioorganic chemistry. During this time in Strasbourg, my late husband Matt Mertes and I studied the interactions of macrocycles with biologically relevant anions such as

adenosine triphosphate, often referred to as the energy currency of cells. These type of macrocycle-anion interactions can be described as anion coordination, a sub-category of the supramolecular realm. Anions are especially important since most are very complex due to the nature of their charge and difficult for chemists to selectively target, as in extractions and sensing. Since that time, anion coordination has developed and expanded into its own field and includes many researchers.

Q. You were the first woman to serve as Chair of the KU Chemistry Department, from 1995 – 2001, what did this accomplishment mean to you?

A. Even now I don't think of it in those terms, but I am most proud of what we (the Department) accomplished during those years. We were at a very opportune time, with several faculty retirements that led to the opportunity to make multiple hires. As a result, we were able to hire four women faculty members, three of whom are still here, Cindy Berrie, Helena Malinakova, and Heather Desaire. I think this success was in part due to having a woman as Chair and also having two other women faculty members, Cindy Larive and Barbara Schowen. My suspicion is that our department appealed to more women applicants. Of course, the hiring decisions were up to the Department faculty, who made great choices.

We were also able to get incredible retention packages for two faculty members being lured away, Cindy Larive and Bob Dunn. These included a 600 MHz NMR for Cindy and early promotion with tenure for Bob. Both stayed at KU for some time, but a number of years later Cindy left for UC Riverside and is now Chancellor at UC Santa Cruz. Of course, Bob is still here and just a few years ago stepped down from chairing the department for four years.





Q. What inspired you to pursue Chemistry in the first place and set you on this incredibly timeless and impressive path?

A. I was always interested in science as far back as I can remember. When I was 12 years old, I started watching the series “Man and the Challenge,” a TV series about a scientist physician and woman cohort who worked for a government agency. They had all sorts of adventures solving scientific crises. I decided then to become a scientist and do exciting things. In high school it became clear that chemistry was my forte. I had this incredible teacher, William Torop, at Upper Darby High School. We kept in touch, and he was so proud. He eventually went to graduate school and earned his PhD. So that was how it began, and I have never regretted it.

Q. Throughout your storied career, you have received countless awards and published many publications, do you have a favorite year of your career?

A. Naturally I cherish every award and honor I ever received, and I’ve had many memorable years, but 2021 was a particularly fantastic year. That year, I received the ACS Award in Inorganic Chemistry. That just blew me away, since my research nowadays is mostly on

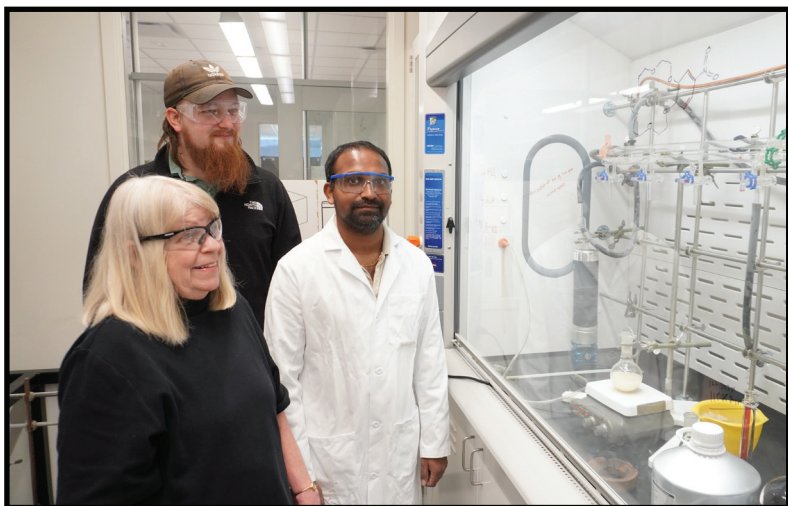
organic systems. However, the award was for transition metal coordination chemistry perspectives for my anion research. My most cherished honor is induction into the American Academy of Arts and Sciences, also in 2021 – definitely a banner year. I had no clue I had even been nominated!

Q. Outside of Chemistry, you have been reported to love drag racing, what other extracurricular activities have you enjoyed outside of KU?

A. I always loved cars and driving. I got my learners permit as soon as I could. My first car was a stick shift 1966 Volvo S122. It wasn’t sporty, but I loved it. After I married my first husband, Matt Mertes, a medicinal chemistry professor, we purchased an orange corvette (his favorite color – not mine). After Matt’s untimely death, my mechanic suggested that drag races would be a breath of fresh air after working with all those “stuffy academics” – his words not mine. He was the one who encouraged me to buy



my rear engine dragster and try my hand at racing. That was how I met Gary, my second husband, who basically trained me in drag racing, and we became a family. I also enjoy music and started piano lessons at age 5. Mostly I love playing classical music, such as Mozart, Chopin, and Rachmaninoff. From grade school through high school, I played in the orchestra and accompanied the choir. Now I just play for my own pleasure.



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CHEMISTRY GSO UPDATE

Over the past year, the Graduate Student Organization (GSO) has worked diligently to enhance the academic, professional, and social experience of graduate students by organizing a wide variety of events and initiatives. The GSO initiatives reflect a commitment to encouraging personal and professional growth and ensuring that graduate students have access to meaningful opportunities.

In October 2024, the GSO hosted the Inaugural Three Minute Thesis (3MT) competition, an event that challenges participants to communicate their research in a concise format to a broad audience. This competition not only sharpened communication skills but also celebrated the diversity of research within the chemistry graduate community. In November, the GSO celebrated their annual Halloween event, offering students a much-needed opportunity to relax, showcase creativity, and enjoy a festive atmosphere. December concluded the semester with a Silent Auction, which combined fundraising with community engagement and successfully generated support for future student-led activities.

In the spring semester, the GSO organized a fundraiser in April 2025 that drew strong participation from faculty, staff, and students alike, highlighting the spirit of collective generosity within the department. May 2025 marked the Graduate Student Open House, an event designed to engage directly with students by gathering their feedback, learning about their interests, and exploring how the GSO can better serve their needs moving forward. In June, the GSO assisted in hosting a picnic for the Research Experiences for Undergraduates (REU) students, creating an inclusive space for graduate students to connect with visiting undergraduates and serve as mentors while also enjoying the relaxed environment of a summer social event.



The summer months were especially active, with recreational programming designed to encourage balance and wellness. July featured both pickleball and basketball events, which provided students with opportunities to engage in friendly competition, develop teamwork, and unwind outside of their academic responsibilities. In August, the Graduate Student Picnic once again brought the community together, serving both as a celebration of the summer and as an important opportunity for new students to engage with faculty and peers across the department.

September 2025 was a particularly vibrant month, featuring multiple events that addressed professional, social, and financial dimensions of graduate life. A Graduate Student Happy Hour offered a casual environment for students to reconnect, while a fall fundraiser once again demonstrated the generosity and support of the community. A fund-workshop was organized to inform graduate students about the variety of funding opportunities available, providing guidance on applications for different external funds. Recognizing the importance of professional development, the GSO also organized a Professional Headshot Session, equipping students with updated photographs for academic profiles, conference materials, and professional networking platforms.

This past October, the GSO hosted their second iteration of the Three Minute Thesis (3MT) competition preparing participants for broader campus-wide and external competitions. As well as showcasing research within the department, this event has led to success for students in the campus-wide 3MT competition. This year, three chemistry graduate students were finalists in the KU 3MT competition: Shreyaa Brahmachari in the Caricato group, Anjali Radhakrishnan in the Thompson group, and Zahra Aghaei in the Jackson group.

In November, the GSO horizons expanded with an Industry Visit, offering graduate students valuable exposure to career pathways beyond academia and providing meaningful opportunities to network with professionals in diverse fields. To close the year, the GSO will organize another Silent Auction, reinforcing the importance of collective effort in sustaining the activities that benefit all graduate students.

Alongside these events, one of the most significant initiatives for 2025 was the launch of the GSO Newsletter. Published monthly, the newsletter serves as a cornerstone of communication, providing a consistent platform to share updates, highlight student achievements, promote upcoming events, and ensure that graduate students remain connected and informed. This initiative strengthens the graduate student community and provides a lasting record of the progress made together.



Taken together, the wide array of activities planned by the GSO reflects their ongoing mission to support professional development, personal well-being, and sense of community among graduate students. By fostering academic excellence through competitions, strengthening professional preparedness through industry engagement, building connections through social gatherings, and encouraging balance through recreational activities, the GSO will continue to create a vibrant, inclusive, and supportive environment for all graduate students. Looking ahead to 2026, the GSO aims to expand these efforts even further, introducing new initiatives that anticipate the evolving needs of graduate students and continue building a strong, engaged, and future-ready community.

Get Involved! GSO invites chemistry graduate students to support and participate in our events. For more information, please reach out to us at kuchemgso@gmail.com or visit our webpage: <https://chem.ku.edu/chemgso>



STUDENT AWARDS BANQUET & GRADUATION RECOGNITION CEREMONY

KU Chemistry Honors Alumni with Distinguished Alumni Award



John Nuss

B.A. 1980

Chief Scientific Officer, Ventyx



Sriram Naganathan

M.S. 1990

Vice President, Revolution Medicine, Inc



Julius Rebek Jr.

B.A. 1966

Director, Skaggs Institute of Chemical Biology at the Scripps Research Institute

New in 2023, the Distinguished Alumni Award is presented to a KU Chemistry alumnus/alumna who has distinguished themselves in their career and in their contributions to the University, state, or country. Dr. John Nuss was recognized at the ACS Annual Meeting, while Dr. Sriram Naganathan was honored at the Awards Banquet in May. Dr. Julius Rebek was also honored, but was unable to make it to the meeting.

UNDERGRADUATE STUDENTS

Owen W. Maloney Scholarship

Leah Messerly
Gracie Oppeau
An Tran

Bijan & Mary Taylor Amini Scholarship

Jonathan Winnerman

Frances Gayetta Hanna Lenser Scholarship

Aubrey Sanchez

Leonard V. Sorg Scholarship

Darya Moyny

Michelle & A.C. Buchanan Scholarship

Nina Chieu
Dakota Schrempp

Kenyon Latham Opportunity Award

Corbin Fairchild

James P. & Sharon A. Elrod Scholarship

Ethan Le

K. Barbara Schowen Scholarship

Andrew Farrar
Ben Winslow

Jacob Kleinberg Award

Ian Shire

Roger Munsinger Scholarship

Noah Tucker

John Shapley Award for Excellence in Research

Mike Kim

Leland & Jill Weigel Scholarship

Allison Babbitt
Raina Fair

Burton & Cheryle MacKenzie Scholarship

Patryk Hupert

Ralph E. & Esther Weik Badgley Award

Darya Moyny

Jo A. and Judith Beran Chemistry Scholarship

Meredith Goldstein

Steve & Susan Snyder Award

Colleen Thach

Walter Gubar Memorial Scholarship

Milo McKay
Jaden Riddle
Mei Ling Upp

Keith & Dona Darlington Scholarship

Lily Tackett

Floyd & Ruth Fassnacht Memorial Scholarship

Aubrey Sanchez

Emily V. Berger Award

Nicole Giam
Delara Mafi

Ted M. Gardiner Chemistry Award

Stanslaus Kariuki

Gini Adams Research Award in Analytical Chemistry

Stanslaus Kariuki

Franklin Strain Travel Award

Meredith Goldstein

Jack & Carolyn Landgrebe Summer Undergraduate Research Scholarship

Raina Fair

Stephen C. Glover Summer

Undergraduate Research Scholarship

Patryk Hupert
Lilly Tackett

Frank Newby Physical Science Award

Hannah Chern
Chase Courbot
Audrey Rips-Goodwin

Wakarusa Valley ACS Section Award

Celine Khalife

American Institute of Chemists Award

Trisha Nair

Richard J. Bearman Chemistry Award & ACS Undergraduate Award in Physical Chemistry

Cecilia Paranjothi

Alpha Chi Sigma Award

Brandon Nguyen

2024-25 Bricker ChemScholars

Corbin Banninger
Nina Chieu
Corbin Fairchild
Raina Fair
Stanslaus Kariuki
Audrey Rips-Goodwin
Aubrey Sanchez
Lilly Tackett

2024-25 Kansas ChemScholars

Trisha Nair
Brandon Nguyen
Cecilia Pranjothi

GRADUATE STUDENTS

Dains Memorial Scholarship

Ethan Gomez

H.P. Cady Award

Braysen Miller
Jack Petersen

Richard & Sue Givens Scholarship

Nimodi Uduwela

Ray Q. Brewster Award

Colin Waller

Elmer McCollum Research Scholarship

Natalie Lind

Cornelius McCollum Research Scholarship

Grant Arehart
Shreyaa Brahmachari
Alec Lininger
Thanuja Jayawardena
Caitlin McEntee

Ralph E. & Esther Weik Badgley Scholarship

Fernando Gonzalez

Burton & Cheryle MacKenzie Scholarship

Fynn Cooper
Zahra Aghaei

Cross Memorial Award

Alex Ervin
Lindsey Penland
Deshkanwar Brar

Drs. Bijan & Mary Taylor Amini Scholarship

Anagha Puthiyadath

Steve & Susan Snyder Chemistry Award

Stephanie Pham

Women in Chemistry Opportunity Award

Nishama Mohotti
Indu Chandrasoma

Charles & Beatrice Kulier Scholarship

Emmanuel Forson
Aleesa Chua
Elizabeth Bartlett

Glen & Karen Cox Chemistry Scholarship

Sayuri Niyangoda
Eliza Hanson

Tak & Aya Higuchi Scholarship in Physical Chemistry

Anjali Radhakrishnan

George & Beverley Wilson

International Student Support Award

Sayuri Niyangoda
Maximilian Chibuike

Ernest & Marvel Griswold Award in Inorganic Chemistry

Davis Curry

J.K. Lee Award in Analytical Chemistry

Chien-Wei Wang

Takeru Higuchi Doctoral Progress Award

Madeline Isom

Frank B. Dains Award in Organic Chemistry

James Martinez
Kasun Wekasinghe

ALUMNI PROFILE

Dr. Julius Rebek Jr. / Class of 1966



Q. Why did you decide to pursue chemistry? Any notable influences?

A. I took the usual premed courses and was good at math and science at KU. The professor of organic chemistry, Albert Burgstahler lectured to our class of about 200 students. It met 3 times a week, while a dozen lab sections met once a week, managed by teaching assistants. Burgstahler appeared in my lab section one day and changed my life. He came up to me, told me I had a talent for chemistry, and asked if I wanted to work for him that summer. The program was funded by the NSF and paid \$90/mo., about a third of what I made working for Dad painting houses in Topeka. Wow! Working in private, air-conditioned lab next to his office vs. scraping, sanding and painting in the hot and humid Kansas summer? It was an easy decision for me. And so, I became a chemist.

Q. Your research achievements, especially those on self-replication and self-assembly, have been very influential and have been discussed in popular books by Richard Dawkins

and Philip Ball. What led you to this field, and what work of yours are you most proud of?

A. I was working in molecular recognition, which is the result of weak intermolecular forces acting between compounds of complementary size, shape and chemical surface. The key to recognition – complementarity – suggested the next step: simply attach the two compounds covalently to provide a structure that is self-complementary. Any such combination of host and guest, donor and acceptor, concave and convex, acid and base, etc... shows this property (and can be a recipe for polymeric chains). But with proper attention to orientation and reactivity, a self-complementary structure can act as a template – a catalyst for its own formation, it can replicate. A number of these synthetic compounds were developed and showed replication: autocatalysis based on recognition. They complemented the self-replicating DNA systems of von Kiedrowski and the peptides devised at Scripps by Ghadiri. Self-replication provided me with another research identity, a dividend from the molecular recognition project.

I am most proud of having worked with the 200 or so former members of my research group. They are my real legacy. Some 50 of them are academics in North America, Europe and Asia.

Q. You have been a visiting professor at eight universities across North America, Europe, and Asia. What did you learn from your time spent in those environments?

A. I had research appointments at Fudan and Shanghai U. in China during the last decade of my career. From Hainan to Jilin, I traveled a lot. The actual travel was effortless, since the omnipresent escort dealt with the hassle of vehicles, airports, transfers, hotels. But the faculty – waiting anxiously with their laptops open to power point decks– induced stress. They needed to show me their best and latest. Even with appointments scheduled every half hour, I got the fully rehearsed, complete hour lecture; they simply talked faster. Never ask questions, it derails their train of memorized English. Their slides were overworked – every square cm covered with data and structures. I never knew where to look, confused by the lightning-fast, oscillating pointer or pointing finger. It was a relief when they literally read the words on the screen to me; I could then look into their eyes without making them blush. Six, seven such meetings a day. By the late afternoon – my turn to lecture – I was ready to hurt someone.

I learned to treat visitors to Scripps much more humanely: offer a restroom; let them enjoy the view of the golf course and the Pacific from my windows; make them a shot of espresso. Spending nearly half my life in the office, I had made it comfortable: a glass dining table for a desk and designer sofa for a nap; an area rug for warmth; an antique Scandinavian armoire for academic regalia. A Giacometti print shared the walls with a painting done by my daughter.

Q. Do you have any messages or advice for students studying Chemistry at KU?

A. In chemistry, there is a traditional injunction against continuing your graduate or post-doctoral work in your own academic career, so I suggest doing something different. Find and develop an independent research identity – something that can distinguish you in a unique way. Most of all, find something you like to do.



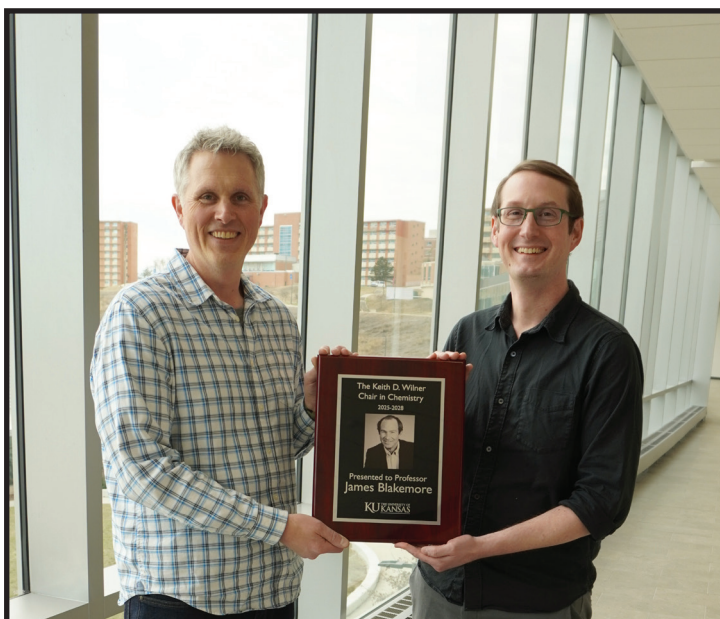
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2025-2028 KEITH D. WILNER CHAIR IN CHEMISTRY



In 2021, the Chemistry Department announced the Keith D. Wilner Chair in Chemistry. This three-year rotating Chair was made possible through the generous support of Dr. Keith Wilner, Executive Director at Pfizer and member of the KU Chemistry Alumni Advisory Board. Keith received his B.A. in chemistry at KU in 1978 and his Ph.D. in pharmacology from the University of Texas Health Science Center in Houston. He has been at Pfizer since 1986. Keith established the fund to “pay KU back for setting him on the path to a successful career.” The Wilner Chair receives financial support for research from the fund. Distinguished Prof. Heather Desaire was the first Wilner Chair from 2022 – 2025. At the Department’s annual Awards Banquet and Reception this spring, Department Chair Tim Jackson announced Associate Professor James Blakemore as the second Wilner Chair in Chemistry from 2025 to 2028.

James has been a member of the KU faculty since 2016. He has received many awards and honors, including a 2021 Early Career Award from the Department of Energy, the 2021 Barbara Schowen Undergraduate Research Mentor Award, and the 2023 Grant Goodman Undergraduate Mentor Award. Research in the Blakemore lab lies primarily in the field of inorganic and organometallic chemistry, and is motivated by overcoming challenges in the sustainable and efficient production of energy, fuels, and chemicals. His lab’s most recent efforts have focused on developing new strategies for controlling the chemistry of the f-elements (especially actinides like uranium, neptunium, and plutonium) with a goal of discovering new redox chemistry that could improve the processing of fuels for low-carbon nuclear power production.



In addition, his lab also examines the mechanisms of molecular transition-metal catalysts and electrocatalysts that could be used to generate fuels and chemicals. James’s lab has been supported by the U.S. National Science Foundation, U.S. Department of Energy, and the Chevron Phillips Chemical Company. In the spring of 2026, James will expand his research in f-element chemistry through an International Visiting Scholar Fellowship at the Karlsruhe Institute of Technology in Germany. Supporting by the fellowship, his group will be conducting advanced X-ray spectroscopic studies of the structural and electronic properties of new uranium complexes prepared at KU.



SAFETY FIRST, WITH LIVE DEMOS



Associate Professor Dr. James Blakemore and Laboratory Program Director Dr. Jill Headrick have recently teamed up to revolutionize the Chemistry Department's undergraduate and graduate safety courses (CHEM 201 and 701). While the benefits of a positive safety culture are myriad, safety meetings and courses often have a reputation for being a tad unengaging, to put it mildly. To address that deficiency, James and Jill teamed up starting in Fall 2024 and continuing into Fall 2025 to rework the content of the Department's safety courses and introduce a variety of chemistry demonstrations related to the course content. These demonstrations provide clear and memorable examples of chemical phenomena that should be considered in designing and implementing safe experiments in the lab.

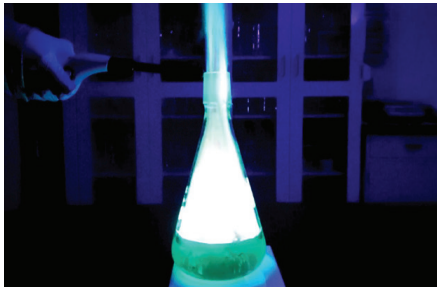
So far, more than 35 demonstrations and activities have been added to the CHEM 201 and 701 curricula. One example is the "Money to Burn" demo, which was used to emphasize the importance of the RAMP framework (Recognize hazards, Assess risks, Minimize risks, and Prepare for emergencies), demonstrate the extinguishing properties of water, and illustrate the importance of setting up a tidy work area, particularly when working with organic solvents and potential ignition sources/flames. In this demonstration, a dollar bill soaked in a solution of isopropyl alcohol and water is engulfed with flames upon ignition due to the presence of the flammable alcohol. When the alcohol burns off, the flames extinguish before the bill begins to burn as the water absorbs sufficient heat to keep the bill from reaching the flash point temperature. James added some "experimentation" to the demo this fall by first testing on a \$1 banknote and then moving to test the higher stakes of \$20 and \$100 (personal) banknotes. Another class favorite

was Jill's demo illustrating the stark differences in the combustion of bulk and dispersed corn starch, which was used to show the risk inherent to working with large quantities of combustible powder.

Student feedback on the new safety course content and demos has been excellent. One student stated: "The demos were very entertaining and useful to show the issues we could encounter in a lab." Another student mentioned: "The in-person demos were probably the aspect of the class that was most helpful to my learning; we got to see the actual dangers and how to avoid them first hand." Undergraduate Leah Rule mentioned to Prof. Blakemore that "the class [was] a highlight of my day and much improved from what it seemed like it was before."

One demonstration from the safety classes was also included in the most recent building-wide safety meeting for Gray-Little Hall, which was held on Halloween this year. Jill helped fifth-year graduate student Davis Curry carry out the "Redox Trio" demo in which hydrogen produced from aluminum corrosion in an acidic copper-containing solution is used to produce a beautiful blue-green flame. As you can probably tell, despite involving various chemicals, exothermic reactivity, and flames, all these demos can be carried out in a reliably safe manner with appropriate planning and execution.





As a supplement to these courses, the Department Safety Committee hosts monthly safety meetings and forums, where attendees enjoy free pizza while discussing a variety of different safety topics. Recent forums have included a fire safety presentation by Josh Zielke (Fire Inspector, KU Operations), a hands-on fire extinguisher training session led by the KU Department of Environment, Health and Safety, a lecture on lab and office ergonomics presented by Gary Downey (Master Ergonomist, NC State University), a discussion panel on chemical safety in industry featuring three distinguished KU Chemistry alumni (Dr. Nate Erickson - Aveda Cosmetics, Dr. Miyuru De Silva - Bristol Myers Squibb, Dr. Wade Henke - Procter & Gamble), and an emergency preparedness seminar led by John

Stipetich (Douglas County Deputy Director of Emergency Management).

Incorporating live demos in the undergraduate and graduate safety courses and in the annual, building-wide safety seminar has been a huge success and complements the Department's other safety-related endeavors, such as the monthly safety forums hosted by the Department Safety Committee. Collectively, these efforts speak to the Department's commitment to prioritizing safety and advancing safety culture. This project also led to the development of 40+ new lecture demonstrations, the creation of a digital safety resources archive that is accessible to faculty via the Chemistry Lecture Demonstration (CHEM DEMO) Canvas site, and the identification of 50+ demonstrations in the existing catalog that could be used to explain or highlight specific safety-relevant material. This year, the Department's CHEM DEMO program celebrates its 18th year of excellence (and explosions) and continues to be available to all instructors, enabling memorable classroom experiences on a wide variety of topics of interest to chemists and science enthusiasts.

ALUMNI PROFILE

Dr. Rafael Diaz Hernandez / Class of 2025



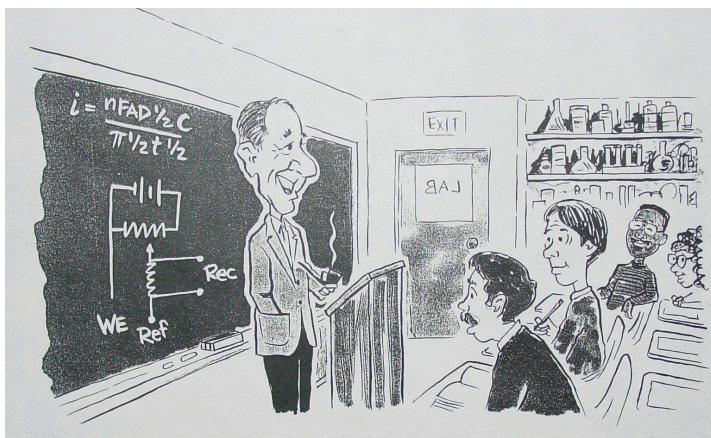
For Dr. Rafael "Rafa" Diaz Hernandez, the Department of Chemistry at KU was a beautiful place for learning, for making connections that could last a lifetime, and for propelling his career forward.

Rafa, now an Assistant Laboratory Professor at Middlebury College in Middlebury, Vermont, shared with us the effect that KU had on his career and education, "I learned how to think outside the box and how to conduct research at a high-impact level." Rafa grew up in Mexico and graduated from the Universidad Autónoma del Estado de México in Toluca, Mexico in 2016. He was attracted to KU Chemistry due to the research opportunities and impressive faculty. During his time at KU, Rafa had the opportunity to travel back to his alma mater as a Chemistry Ambassador. During the seminar he gave at his alma mater, he discussed his dissertation research, the infrastructure in the Chemistry Department, and life in Lawrence, Kansas. "It's always rewarding to return to your undergraduate institution, showing future students that our school prepares great people and scientists."

During his time at KU, Rafa was a member of Prof. Jon Tunge's group, where he specialized in green chemistry and developed new decarboxylative cross-coupling reactions. He spoke of Jon's mentorship highly, emphasizing the impact Jon left on his work ethic. "He always pushed me to my limits and never lost hope in my ideas." Rafa described it as a privilege to work in the Tunge group. Rafa was highly successful at KU. He received numerous awards, including the Richard and Sue Givens Scholarship that honors an outstanding international graduate student based on academic merit.

Rafa was inspired to pursue chemistry thanks to the natural and universal processes that happen around us. "We are all made of atoms, and by understanding them, you realize that we are all connected." Rafa greatly appreciated the opportunity to understand and learn more about chemistry from KU distinguished faculty, and some of his favorite memories were from his time in the lab with his coworkers, discussing chemistry and interacting with undergraduate students. Now he starts a new career where he gets to share his love of chemistry with others.

A TRIP DOWN MEMORY LANE



For members of the Department of Chemistry at KU, May is a month of celebration. Undergraduate and graduate students alike wrap up their finals, as staff and faculty wind down for the summer. May is also a month for reminiscing, and that is precisely what Dr. Don Leedy, of the Chemistry Alumni Advisory Board (CAAB), had in mind for a late afternoon presentation.

Don originally graduated with a B.S. in Chemistry at the University of California, Riverside, while working in future KU professor Ted Kuwana's research laboratory. It was Dr. Kuwana who proposed KU Chemistry for Don Leedy's graduate schooling, and specifically with chemistry legend Dr. Ralph N. "Buzz" Adams. Leedy joined KU Chemistry as a Ph.D. student under the supervi-

sion of Professor Adams, and got to know Buzz Adams, and his stories, very well. To celebrate these stories and honor his former mentor, Dr. Leedy put on a presentation open to all members of KU Chemistry, summarizing Dr. Adams' work and his legacy.

The presentation began with an overview of Dr. Adams' scientific journey that led him to KU. At Princeton University, Dr. Adams experienced some pushbacks to his ideas in electrochemistry and used it as the spark to establish his first laboratory at KU. Throughout the 60s, Dr. Adams and his students were responsible for some of the largest breakthroughs in the field of electrochemistry, eventually leading to the creation of the Electrochemistry portion of the Gordon Research Conferences, now held biannually in Santa Barbara, California, as Dr. Adams loved the beach. Over time, the focus of the laboratory shifted to neuroscience, specifically schizophrenia. Buzz Adams realized that the instruments and knowledge of this disease were not up to par and worked tirelessly to successfully increase the resources and understanding of this topic in neuroscience. As Ralph Adams' career in the laboratory started to wind down, he began to mix his knowledge of electrochemistry and neuroscience, and along with psychiatrists, psychologists, and lab rats, revolutionizing the field forever.

Dr. Leedy also regaled the audience with tales of Dr. Adams' quirks and jokes, including the invention of a new classroom sport: plunger archery. With a target circle drawn on the chalkboard, students would attempt to throw a plunger as close to the bullseye as possible. The fun ended when Buzz found a plunger-sized hole on the chalkboard one morning, but that didn't stop the proliferation of the sport. Don Leedy's insightful comments about Buzz Adams painted a picture of a grounded and pioneering man of science, who found lessons everywhere. As a former fighter pilot in WWII, Dr. Buzz Adams loved flying, as Dr. Leedy said, "The act of flying allows one to step back and look at a bigger picture." The 45-minute presentation, conducted by overhead projector, served as a testament to the effect Dr. Ralph Adams left on his students, and Dr. Don Leedy's ability to memorialize this legacy and continue it.





A TALE OF TWO CITIES



On November 4, 2025, KU Chancellor Douglas Girod signed a landmark strategic partnership agreement with the University of Regensburg (UR) in Germany. This agreement will facilitate collaboration, student and faculty exchanges, and collaborative online learning endeavors between these two institutions. The foundation for this new agreement was built in part by long-standing connections between the KU Chemistry Department and colleagues at UR. A major aspect of this connection was the Atlantis Program, which involved Prof. Jeff Aubé (formerly of the Department of Medicinal Chemistry at KU) and Profs. Sue and Craig Lunte. Prof. Jon Tunge also spent a portion of a sabbatical at UR. In the beginning of the summer, our KU Chemistry glo-

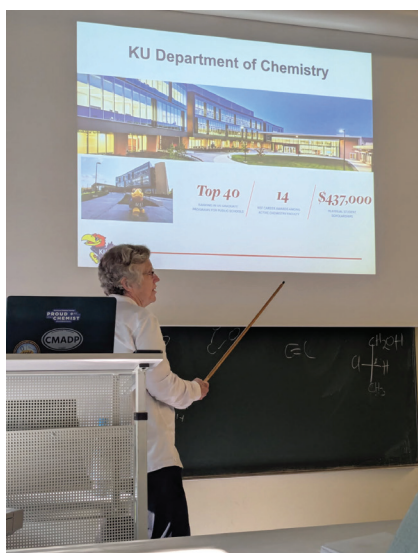
betrotter, Sue Lunte and Prof. Rachael Farber visited Regensburg, Germany. This historic medieval city, is comparable in size with Lawrence and nestled in the state of Bavaria on the banks of the Danube River. The main attraction of this trip was visiting UR, a public university with an urban campus. UR possesses an accomplished Chemistry and Physics department.

Unlike Sue's excursion to Sri Lanka, which was focused on maintaining an existing exchange program, the goals of the trip to UR were to initiate and build connections for the future with an impressive university overseas. KU's College of Liberal Arts and Sciences provided much of the financial support for the trip, as Executive Dean Mafi was eager to foster connections between the KU Chemistry Department and colleagues at UR. The KU representatives were shown UR and the city of Regensburg by their generous host Analytical Chemistry Professor Dr. Axel Dürkop. On campus, Sue and Rachael gave seminars and spoke with several faculty members in the Chemistry and Physics Departments, which are split into smaller institutes, ranging from Analytical, Theoretical, Organic Chemistry, and more. In the field of Surface Science, Rachael's specialty, UR gave several samples to her lab for measurements by Atomic Force Microscopy (AFM) to probe questions relating to electrode aging.



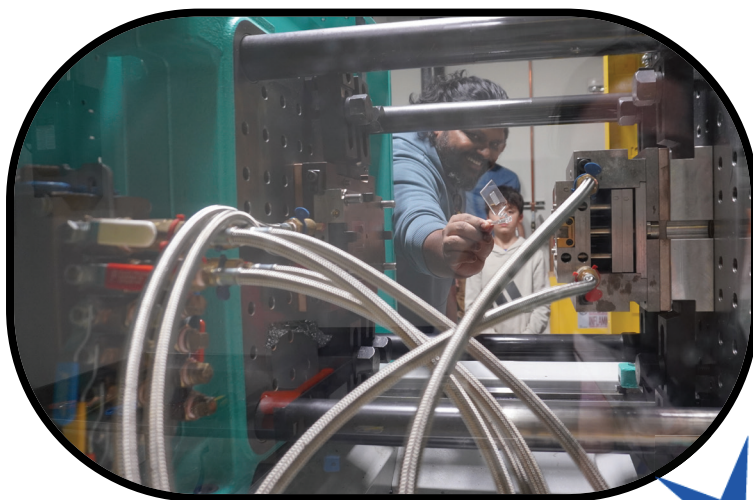
Outside of UR, Rachael was treated to a tour of the classical city. A boat ride down the Danube offered access to major Regensburg landmarks, including Walhalla, a monument to Germans with contributions to science and art, and St. Peter's Cathedral, which contains the world's largest hanging pipe organ. Our intrepid KU representatives also had the opportunity to visit Munich during its Birthday Festival in mid-June.

Throughout this trip, the need for further collaboration was evident between the two schools, and Rachael and Sue spoke with the UR representatives about the possibility of degree and exchange programs. Rachael reflected, "It was nice to figure out the ways to explain our work to find commonalities for collaborations. I think it helped with getting more creative and finding the accessible systems for me." Research collaborations, cultural exchanges, and more could be in the future with Regensburg, now made easier due to the strategic partnership agreement between KU and UR.





CARNIVAL OF CHEMISTRY 2025





The annual Carnival of Chemistry, a free, family-friendly afternoon of science experiments and demonstrations for kids of all ages, was held by the Chemistry Department on Sunday, November 23. Over the years, thousands of kids have attended this yearly event, which is always held on the Sunday before Thanksgiving, to learn about chemistry and related subjects including physics, biology, geology, and engineering.

There were numerous chemistry-related activities at this year's Carnival, with a particular emphasis on the theme, The Hidden Life of Spices. Rainbow Slime, CO₂ Bubbles, an Elemental Scavenger Hunt, and many other activities were loved by attendees. Over 500 people attended the three-hour event, which the department was pleased to host at Gray-Little Hall.

The Carnival of Chemistry was made possible due to support provided from the KU Chemistry Department, KU Chem Club, the ACS Wakarusa Valley Local Section, and Eileen's Cookies.

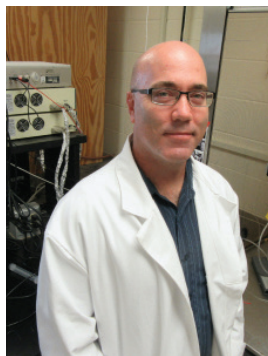




SUTTON FAMILY RESEARCH IMPACT AWARD HIGHLIGHTS

Every month the peer-reviewed papers published by chemistry faculty from the three previous months are reviewed by the Chemistry Department Chair and Associate Chairs and a winner is named. The monthly recipient of the Sutton Family Research Impact Award receives a cash prize of \$500 and is featured on the departmental website.

Michael Johnson, Associate Professor - July 2025



Parkinson's disease (PD) is a progressive central nervous system disorder characterized by motor and non-motor symptoms. The pathophysiology of PD involves the loss of neurons that release and take up dopamine, a chemical messenger. Interestingly, the release of zinc ions (Zn^{2+}) by neurons located adjacently to dopamine-releasing neurons exert control over this release and uptake process. In their paper, entitled "Zinc-dependent modulation of dopamine release and uptake is altered in Parkinson's disease model zebrafish" (Hettiarachchi et al. ACS Chem Neurosci. 2025, 16(10):1872-1882), the Johnson Research Group sought to identify differences in how Zn^{2+} regulates dopamine release and uptake in zebrafish that model PD versus controls. Dr. Piyanka Hettiarachchi, of the Johnson Group, combined an electrochemical technique called fast-scan cyclic voltammetry (FSCV) with the light-induced cleavage of zinc-bound photocages in freshly removed zebrafish whole brains. The zinc photocages were designed and synthesized by Dr. Shawn Burdette and team at Worcester Polytechnic Institute. This method allows the measurement of dopamine release and uptake, and the effects of Zn^{2+} photorelease on these parameters, with millisecond temporal precision. We found that when zebrafish were treated with rotenone to model PD, the ability of Zn^{2+} to inhibit dopamine reuptake was diminished. However, in PD model fish, but not controls, Zn^{2+} photorelease caused a decrease of dopamine release. Short term treatment of brains with TEMPOL, which scavenges superoxide, a potentially free radical, had no effect on uptake, but rescued release. These results suggest that, in PD model fish, the dopamine transporter undergoes permanent modification while the release mechanisms are only temporarily affected. This collaborative work represents the first study to examine sub-second timescale functional zinc signaling and how it is influenced by PD.

Aaron Teator, Assistant Professor - June 2025

Polyacrylamides are widely-used synthetic polymers found everywhere from biomedical materials to water treatment plants. Nevertheless, their chemical stability makes it difficult to modify their properties post-synthesis. Traditional methods for adding new functionality to these polymers require preparing the polymers using specialized building blocks or subsequent reactions involving harsh conditions, limiting their overall utility. In a recent publication in the Journal of the American Chemical Society, the lab of Aaron Teator developed a new post-polymerization modification platform that allows for the direct transformation of unactivated polyacrylamides into functional materials through an amide activation approach. Generation of keteniminium ion reactive intermediates was the key to modifying the properties of the polyacrylamides as it activates the typically inert pendant groups (i.e., dialkyl amides), rendering them highly electrophilic and amenable to quenching by a wide variety of nucleophiles.



By treating unactivated polydialkylacrylamides with trifluoromethanesulfonic anhydride in the presence of a non-nucleophilic pyridine base, a desired quantity of acrylamide repeat units could be converted to keteniminium ions. Subsequent addition of Grignard nucleophiles, followed by acidic hydrolysis, enabled the preparation of copolymers containing both dialkylamide and aryl ketone pendant groups. Moreover, this approach led to materials where the functional groups are randomly interspersed throughout the polymer chain (as opposed to large consecutive blocks of either one), which is not synthetically accessible using current state-of-the-art polymerization methods. In addition, the functionalized polymers were found to undergo UV-induced chain-cleavage precisely at the aryl ketone sites through a Norrish Type 2 fragmentation pathway. Thus, upon functionalization, the otherwise nondegradable starting polymers underwent controlled photodegradation when exposed to UV light, including Lawrence, KS sunlight, producing fragments with molecular weights roughly equivalent to the percent incorporation of aryl ketone units. This study not only provides a powerful new method for post-polymerization modification but also highlights how chemical activation strategies can be leveraged to generate new synthetic materials with emergent materials properties.

ALUMNI PROFILE

Dr. Dale Boger / Class of 1975



Q. You recently received the 2025 Chemical Pioneer Award from the American Institute of Chemists. What does it mean to you to receive this distinguished award?

A. It represents a culmination of a career's worth of work, many of it carried out with students that I've gotten the chance to work with, who eventually go on to do fabulous things. They don't always get the recognition they deserve while they're in graduate school, so it's a great honor to receive this award; it's for those students as well.

Q. In your time spent in chemistry, which chemical pioneers have you looked up to the most, and why?

A. That's a tough question, but I would say it would be two people: EJ Corey, who I had a chance to work with and was mentored by during my time in Harvard, and Albert Eschenmoser, who is a true gentleman and scholar in the field of organic

chemistry and organic synthesis for most of the last century. So two fabulous individuals who carried themselves in a way that would inspire younger scientists.

Q. Your research has focused on synthesis and redesign of natural products. If you were meeting with a group of freshman chemistry majors, how would you describe this research?

A. It's making molecules, but with a purpose. What we love working on is the actual technical molecules in the laboratory, but there's a reason why they're important. It's not the quest of the natural product, and it's not the highlight of a method as its driving force, although those things we also do. It's really the information that we gather and learn from the molecules once they're made, to eventually evaluate their functional properties. That process is magical in its own right, it's just amazing that one can design small molecules that would impact some feature of physiology or pharmacology.

Q. What do you hope will be the long-term effects of this research?

A. That's a great question. For starters, we ourselves have introduced some innovative concepts in medicinal chemistry, some inorganic synthesis methods and strategies for making molecules, but I would say that there is a chance that in the long-term, two or three of the areas have discoveries that could lead to new therapeutics. Even though we may not have made the molecule, we laid the groundwork and foundation for therapeutics to be developed from that science.

Another effect is the students that go off with that training that what they're able to accomplish in their own careers. Many students I worked with are at major pharmaceutical companies and in positions as a medicinal chemist working at the bench or another position that influences the directions of the company and the science that is undertaken. It's really the students that have the largest impact and their education.

Q. In what ways did your time as a KU chemistry undergraduate student shape you into becoming the chemical pioneer you are today?

A. It's responsible for me being a chemist at all. I grew up in a small town in Kansas with no chemical-based industries surrounding that community. I came to KU and believed that I would be a doctor, a physician, maybe an attorney. I was sort of all over the place, but within a couple of weeks of taking classes, I realized I was not going to be an attorney and I was not going to be a physician, but I didn't know what I was going to do.

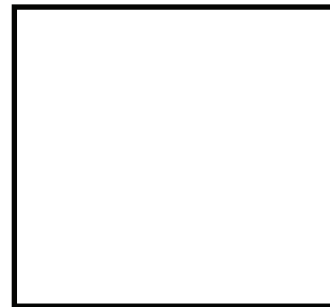
It was really in a general chemistry class lab, as a science requirement, where I remember telling the TA that I enjoyed chemistry and I was doing well and I raised the idea of being a high school chemistry teacher. The TA rolled his eyes and said, "There's so many things you could do in chemistry". That's when he put me in touch with Earl Huyser, who suggested I work with Al Burgstahler and his laboratory and explained some of the opportunities that were available and then followed my progression through my education. There are so many people at KU that have this technical ability, scholarship, and openness that presents unbelievable opportunities. So, in many ways, it was a perfect place to have my interests cultivated and ultimately shepherded along.



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