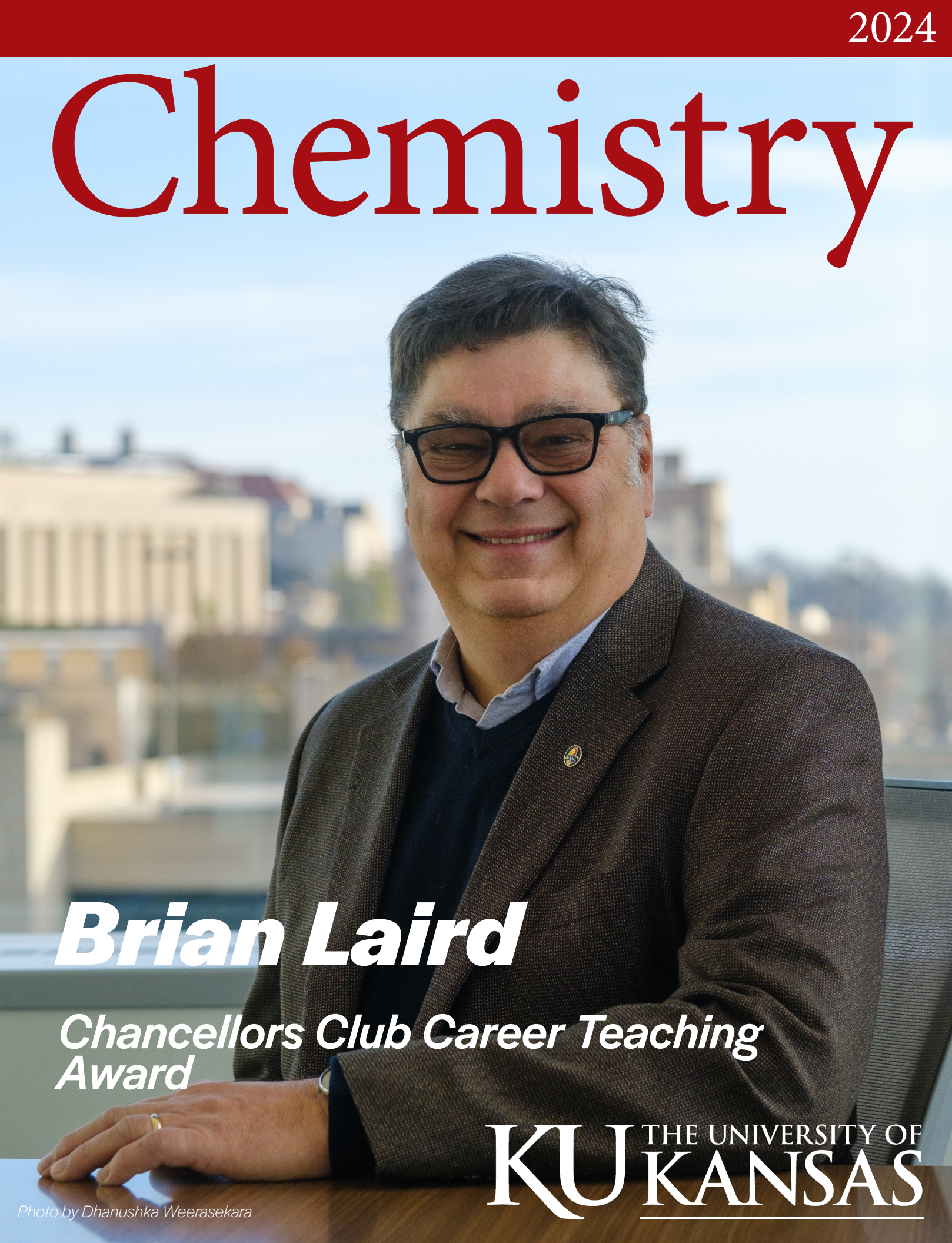
2024

Chemistry



Brian Laird

Chancellors Club Career Teaching Award

THE UNIVERSITY OF KANSAS

Photo by Dhanushka Weerasekara

MESSAGE FROM THE CHAIR

Dr. Tim Jackson

Welcome to the 2024 edition of KU Chemistry's Alumni Magazine. For those paying close attention, you might note that in past years this publication was the Alumni Newsletter. After our colleagues at KU Endowment saw our 2023 Alumni "Newsletter," they told us that we had been selling our work short by calling this a Newsletter. How very midwestern of us to be too modest! Although the name change from "Newsletter" to "Magazine" is minor, it is also emblematic of one of our major initiatives as a Department – to more broadly share and recognize the wonderful accomplishments of our students, faculty, and staff. This initiative includes sharing the work of our alumni, and I'm excited that this magazine includes profiles of three alumni at different career stages.

Several years ago, our Department formed an awards committee tasked with nominating faculty and students for awards at KU and beyond. That decision continues to pay dividends. Just this year, we had the achievements of over twenty faculty and students recognized in various ways. Undergraduates were recognized as Goldwater (Cecilia Paranjothi) and Astronaut (Audrey Rips-Goodwin) Scholars; graduate students received Graduate Self Fellowships (Alexis Redwine and Fernando Gonzalez); Heather Desaire was named a University Distinguished Professor; Ward Thompson was named the second Rich Givens Chair in Chemistry; and Brian Laird received the Chancellors Club Career Teaching Award. What an exciting year!

This year we also welcomed a new Assistant Professor in inorganic chemistry (Manar Shoshani). Manar came to KU from the University of Texas Rio Grande Valley and has already received a prestigious CAREER award from the National Science Foundation. We also welcomed Jo Sabus as a new administrative assistant to the Center of BioModular Multi-Scale Systems for Precision Medicine, and we were thrilled to welcome (back!) Liz Coleman as Program Manager of a National Institutes of Health CoBRE project for Big Data / Women's Health.

In this year's magazine, you'll read about the remarkable achievements of faculty and students over the past year and hear how current and former members of our Department continue to educate students and make important discoveries.

Rock Chalk Jayhawk!

Timothy A. Jackson
Professor & Chair

INSIDE THIS ISSUE

4 2024 By the Numbers
5 Our Chant Rises
6 Alumni Profile: UmaShanker Sampath
7 Summer Scholars
8 Opportunities for Giving
9 Chemistry REU Program
10 Graduating Senior Profile: Jiani Osborn
11 New Faculty Profile: Manar Shoshani
12 Sabbatical Synopsis: Brian Laird
13 Alumni Profile: Alexander Grenning
14 An Interview with Heather Desaire
15 GSO Update
16 Student Awards Banquet & Graduation Recognition Ceremony
18 2024 Degree Recipients
19 CBM² Workshop
20 Cross Professional Service Award Highlights
21 Carnival of Chemistry
22 Sutton Family Research Impact Award Highlights
23 SCGSR Fellowship Update: Davis Curry

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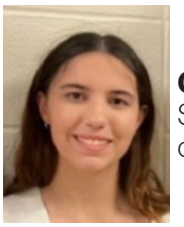

Cassidy Green
Student Assistant
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2024 BY THE NUMBERS

$8,645,242
in research expenditures

73
papers published

22
B.S. & B.A. degrees conferred

100
graduate students

7
M.S. degrees conferred

#36
chemistry graduate program among public universities

21
Ph.D. degrees conferred

15,217
student credit hours taught

$511,772
in scholarships distributed

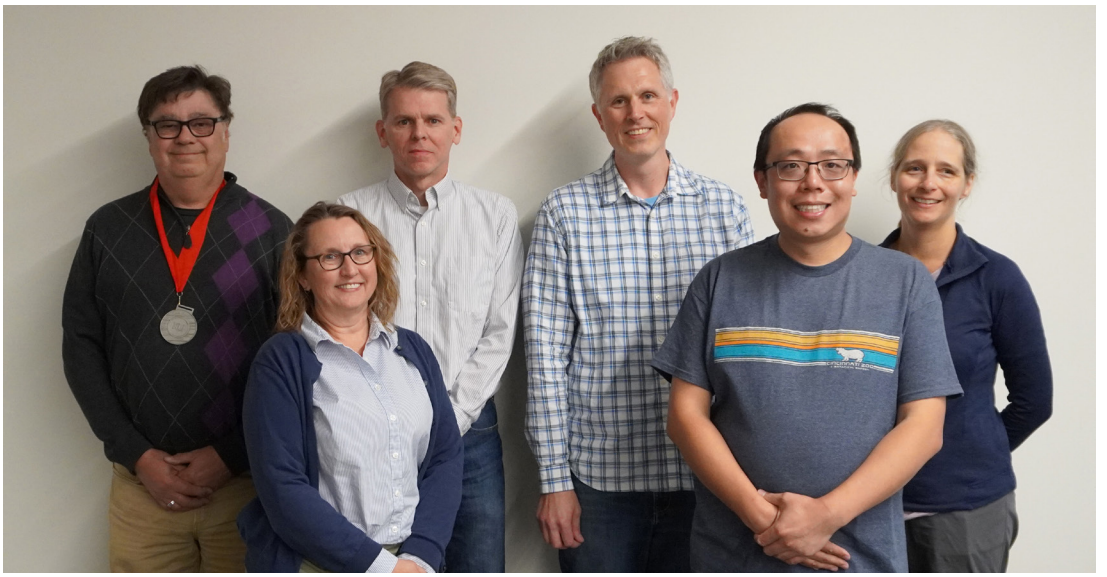
ON THE COVER

Photo by Dhanushka Weerasekara

Dr. Brian Laird

In a ceremony on October 8th at the Jayhawk Welcome Center, Brian Laird received the 2024 Chancellors Club Career Teaching Award. The award was given by the University Chancellor Doug Girod. The Chancellors Club Career Teaching Award is given annually to a KU professor who has demonstrated a longstanding career of outstanding teaching. Put simply, this award is among the highest honors bestowed on an educator at KU and recognizes those whose teaching had a profound influence on KU students. For Brian, this award is a capstone on a 30-year career at KU. During this time, Brian has taught many undergraduate and graduate courses. Often these courses have been in Brian's specialty of physical chemistry and statistical thermodynamics. Brian was also among those instrumental in developing the Department's Honors General Chemistry course. As part of these efforts, Brian wrote a textbook in 2009, University Chemistry, which has seen much use in KU's Honors General Chemistry course. Brian joins two other Chemistry Department faculty, Jack Landgrebe (1999) and Early Huyser (1993), who have also received this award.

OUR CHANT RISES



Left to right: *Brian Laird, Cindy Berrie, Ward Thompson, Tim Jackson, Shuai Sun, and Heather Desaire*

Faculty Awards & Achievements

Cindy Berrie
K. Barbara Schowen Undergraduate Research Mentor Award

Kristin Bowman-James
Joseph G. Danek Award
AAAS Fellow

Heather Desaire
Promotion to University Distinguished Professor

Tim Jackson
William T. Kemper Fellowship for Teaching Excellence

Brian Laird
Chancellors Club Career Teaching Award

Sue Lunte
2025 Reilley Award

Manar Shoshani
Thieme Chemistry Journal Award

Shuai Sun
Named 2024 Textbook Hero

Ward Thompson
Named the Richard S. Givens Chair

Student Awards & Achievements

Eleazar Abraham
Spring 2024 Undergraduate Research Award
Elected Member of Alpha Chapter Phi Beta Kappa

Fynn Cooper
SCI America Perkin Medal Scholar

Boluwatife Dosunmu
Best Poster Award for Analytical Division, NOBCChE

Raina Fair
Summer 2024 Undergraduate Research Award

Fernando Gonzalez
Self Graduate Fellow

Brandon Nguyen
Fall 2024 Undergraduate Research Award

Cecilia Paranjothi
Goldwater Scholar
Spring 2024 Undergraduate Research Award

Alexis Redwine
Self Graduate Fellow

Theresa Read
Fulbright Semifinalist

Audrey Rips-Goodwin
Astronaut Scholar

Colleen Thach
Fall 2024 Undergraduate Research Award

Chien-Wei Wang
Newmark Award

Kasun Wekasinghe
Poly General Papers Award at ACS

ALUMNI PROFILE

Dr. UmaShanker (Pop) Sampath | Class of 1991

Q: What is your current position?

A: I am a production and process development chemist.

Q: What skills or knowledge did you learn throughout the Ph.D. program that you found most useful in your career?

A: As a graduate student I was focused on the research and development of synthetic methodology. I learned a variety of chemical transformations including reactions under high pressure, gaseous phases, low and high temperatures, etc. while preparing numerous intermediates and starting materials that I used in my research projects.

I learned to thoroughly isolate and purify products by extraction, precipitation, crystallization or column chromatography and characterize them using a variety of analytical techniques such as multinuclear NMR, 2D-NMR homo and hetero correlations, IR, MS, X-ray diffraction, etc.

Q: What professors made the biggest impact on your experience in the Ph.D. program?

A: My doctoral advisor and mentor, Dr. Thomas A. Engler, was instrumental in my training as a synthetic organic chemist. The serendipitous existence of the Chemistry, Medicinal Chemistry and Pharmaceutical Chemistry departments under one roof in Malott Hall provided easy access to professors for guidance and discussion when needed. My earliest influences were from Professors Huyser, Burgstahler, Landgrebe, and B. Schowen during my role as a graduate teaching assistant, and later guided as a graduate researcher by Professors Givens, Carlson, Aubé, Georg, R. Schowen, and Vander Velde.

Q: You are the creator of our 1991-2023 ChemHawk. What motivated you to create your version of the ChemHawk?

A: I am a chemist by training but an artist by nature. While tackling chemistry challenges in the lab, I was expressing my creativity in the arts outside, and had won the KU School of Engineering seal design contest and a campus Amnesty International t-shirt design contest (with Dr. Romi Singh, my friend, KU classmate and alum - I still have the t-shirt 35 years later) and designed the cover for the abstracts of the MIKIW meetings organized by the KU Medicinal Chemistry department. Inspired by my success and the Jayhawk in the old KU School of Engineering seal, I thought it would be fun to transform our adorable Jayhawk into a chemist and thus the KU ChemHawk was born. I first created it by sketching it free hand and later updated it using Adobe Illustrator. I was delighted that it was used as the cover of the Abstracts of Midwest ACS meetings and the Chemistry Department newsletters and holiday card.

Scan for full story

To see more photos and read the full interview, please scan the QR code or visit https://chem.ku.edu/umashanker-sampath.

Teaching Assistant w/ Undergraduate Chemistry Lab Students

Front L to R : Keith Combrink, Sriram Naganathan, UmaShanker 'Pop' Sampath, Back L to R : James Ray, Thomas Engler, Wolfgang Falter

2024 SUMMER SCHOLARS

Back row, left to right: Shreyaa Brahmachari (Wilson Scholar), Joe Mandigo (Lee Scholar), Hirushan Hetti Arachchige (Berger Scholar), and Apurba Adhikary (Lee Scholar)

Front row, left to right: Hasini Siyambalangamuwe (Higuchi Scholar), Ruvini Oliviya Rodrigo (Lee Scholar), Markell Lomax (Marsi Scholar), Katie White (Landgrebe Scholar), Anna Marstall (Hall Scholar), and Colin Waller (Schowen Scholar)

Not pictured: Grant Arehart (Berger Scholar), Neiley Karns (Lee Scholar), and Matthew Zupan (Berger Scholar)

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 2024, we had 13 summer scholars, which brings our total number of summer scholars to 73. 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.

Safety Committee Hosts Tour of Gray-Little Penthouse

In March, the Chemistry and Gray-Little Hall Safety Committee organized a tour of the Gray-Little penthouse, led by Chris Haverkamp with Johnson Controls. We were able to see some of the behind-the-scenes work that happens to keep our building operating smoothly and safely. Our building supports important research and teaching in chemistry, medicinal chemistry, molecular biosciences, and physics and astronomy, and we are proud of it!

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 at the top of this page or read about other ways to give on the back of this magazine. In the following stories, we recognize two funds, named after former chemistry faculty, and describe how the gifts to these funds have supported our students and faculty.

Scan to view giving options

The George & Beverley Wilson International Student Support Fund

The George and Beverley Wilson International Graduate Student Support Fund has provided financial support for dozens of international graduate students since its inception in 2010. This fund honors the commitment of Emeritus Distinguished Professor George Wilson and Beverley Wilson to support the international graduate students that make KU Chemistry a wonderful and diverse learning community.

The Department recently launched a fundraising campaign for the Wilson International Graduate Student Support Fund in partnership with KU Endowment, George Wilson, and alumni of the Wilson Lab Binodh DeSilva (Ph.D. '94) and Kamal Egodage (Ph.D. '95). The goal of this campaign is to double the amount of yearly financial support provided by this fund. To date, these funds have provided a yearly financial award to an outstanding international graduate student and have provided emergency funds to allow some students to travel back home. This past year, the fund grew sufficiently to support the first Wilson Summer Scholar, Shreyaa Brahmachari. By increasing this fund, the Department will support more scholarships and award prizes for international graduate students; increase the number of international students receiving summer and/or semester support; and provide funds for travel to professional meetings, short courses, or visits to a collaborator's lab.

The importance of support for international graduate students has been underscored in recent years by a significant increase in the international graduate student population in the KU Chemistry Department. At present, international students account for more than 50% of our graduate student population. Currently enrolled international graduate students come from 13 different countries. While these international graduate students can be supported by graduate teaching and research assistantships, these students are ineligible for many funded fellowships (such as National Institutes of Health Traineeships and National Science Foundation Graduate Research Fellowships). In addition, international graduate students pay additional fees upon arrival to campus, and travel back home is often exceedingly expensive.

The KU Chemistry Department is committed to being a welcoming and supportive community for all graduate students. This commitment requires that we recognize unique challenges that international graduate students might face. This past year, Prof. Aaron Teator and Prof. Rachael Farber organized the Department's first International Graduate Recruiting Weekend. This online event was attended by 18 students from 6 countries. Fourteen of the attendees decided to come to KU for graduate school! This fall, the Department started an international graduate student mentoring program. First-year international graduate students were paired with a current student to learn about the Department and life in Lawrence. If you are interested in giving to this fund, please visit **bit.ly/WilsonFundSupport** (case sensitive) or scan the QR code below.

Give to the Wilson Fund

The Richard S. Givens Chair in Chemistry Fund

In 2020, the Chemistry Department announced fundraising for The Richard S. Givens Chair in Chemistry. This three-year rotating Chair honors Emeritus Professor Rich Givens, who was a member of the faculty from 1967 to 2010. In addition to his world-renowned research program aimed at understanding the mechanisms of photochemical reactions of organic molecules,

Rich provided outstanding leadership to the Department and University, serving as Department Chair from 1988 – 1995. The Richard S. Givens Chair in Chemistry honors Rich's legacy by recognizing a faculty member who excels in research, teaching, and service. Thanks to the generosity of our alumni, the Department announced Prof. Jon Tunge as the first Givens Chair, serving a three-year term from 2021 – 2024. The Givens Chair receives $15,000 in research support per year and Jon has used these funds to bolster his research program aimed at leveraging decarboxylative coupling and photocatalytic reactions to functionalize organic molecules.

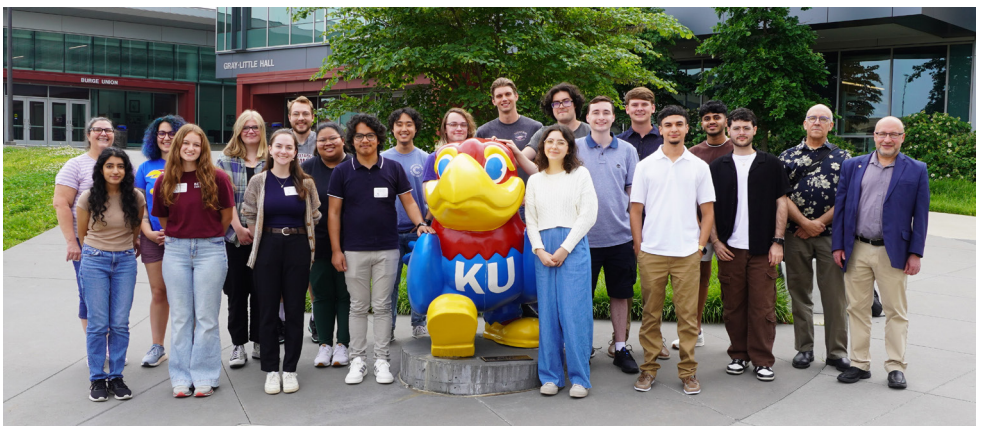
In the spring of 2024, the Department announced Prof. Ward Thompson as the second Givens Chair in Chemistry. The announcement was made by none other than Rich Givens at a Department faculty meeting! Ward has been at KU since 2001. Since that time, he has established himself as a world leader in developing theoretical methods for understanding and modeling chemical dynamics and spectroscopy in condensed phases. Ward has also been honored for his excellence in teaching, having received the William T. Kemper Fellowship for Teaching Excellence in 2008. In short, Ward excels in research and teaching and has provided outstanding leadership that has helped shape the Department – all qualities that make him an excellent choice as the Givens Chair. Ward plans to use some of the Givens Chair funds to provide travel funds for a graduate student to visit a collaborator's lab at the École Normale Supérieure in Paris, France.

If you are interested in giving to this fund, please visit **bit.ly/GivensFundSupport** (case sensitive) or scan the QR code below.

Give to the Givens Chair Fund

CHEMISTRY REU UPDATE

The Chemistry REU Program welcomed its 36th cohort to campus in May for ten weeks of full-time chemistry research, professional development activities, and educational programming. 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.



GRADUATING SENIOR PROFILE
Jiani Osborn | Class of 2024

Q: You just graduated in the spring. What have you been up to since then?

A: I spent a relaxing summer both traveling and hanging out with my family and my dogs. It was important I gave myself this mental break because I started dental school at UMKC this fall, which is both super exciting and a little scary. It is always a mix of emotions when I embark on a new experience that means a lot to me. So far, it has been a great experience, and I look forward to the next 4 years.

Q: What skills or knowledge did you learn throughout the chemistry undergraduate program that you have found most useful?

A: The most valuable skill I learned was time management. With all the lectures and rigorous labs, the only way to still be successful was to make use of every minute I had each day. I would make a detailed planner composed of what I needed to accomplish, which really worked well for me. Another valuable skill I learned was how to collaborate and communicate with peers and professors. Before joining the chemistry program, I almost never asked teachers for help because I thought I would look less intelligent. The chemistry professors were so welcoming and excited to see students in their office hours that I never felt embarrassed when asking questions. Lastly, I improved upon my ability to persevere and problem-solve. The chemistry program is composed of some difficult classes, all of which require critical thinking skills. Sometimes, I would get stumped on a problem or concept for more than an hour, which really forced me to persevere, be patient, and look at the issue from multiple perspectives.

Q: What professors made the most impact on your experience in the program?

A: Dr. Caricato made a large impact on my experience in the program. He was an amazing mentor to me and taught me some valuable life lessons. The most important being that you should never settle or stay in your comfort zone. He always pushed us to work harder and most importantly, to believe in ourselves. I will miss his guidance, and I truly appreciate everything he did for me. Some other notable professors were Dr. Blakemore, Dr. Farber, Dr. Elles, and Dr. Benson. Thank you all for taking the time to answer my questions and for seeing me in your office hours. It means a lot to me.

Q: You received the Alpha Chi Sigma award, one of the top overall awards given to a graduating senior, at our annual awards banquet last May. What did that mean to you?

A: Receiving the Alpha Chi Sigma award meant the world to me. It represented a culmination of all the hours and hard work I put in throughout my undergraduate years. I feel like I never got to step back and be proud of all the effort I put in to perform well in my academics, but at that moment, I got to. It was an honor to be chosen for the award, and I don't take it lightly. I will continue to illustrate to the faculty that they made the right choice, and I hope I can continue to make the KU Chemistry Department proud now and in all my future endeavors.

Scan for full story

To see more photos and read the full interview, please scan the QR code or visit https://chem.ku.edu/jiani-osborn.

Welcome (back), Liz Coleman

In May 2024, Liz Coleman returned to support KU Chemistry as the new Program Manager for KU's newest NIH-sponsored Center of Biomedical Research Excellence (CoBRE) on Leveraging Big Data to Improve Women's Health (BD-WH) led by Center Director, Distinguished Professor Heather Desaire. The Center focuses on advancing women's health utilizing large biomedical data sets, which has brought together researchers in laboratory sciences as well as behavioral and social sciences. Having an educational background in psychology, a 20-year administrative career, and a special interest in women's health, the Program Manager role was a natural fit for Liz.

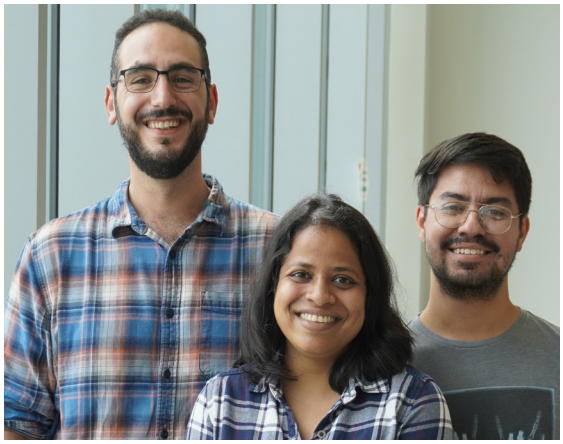
Liz is delighted to be working again with long-time colleagues and friends. She has spent most of her professional career supporting KU Chemistry in various administrative roles. As an alumna of KU and a full-time employee since 2007, she is a lifelong Jayhawk.

In her spare time, Liz enjoys spending time with her family and their three dogs on their 5-acre homestead. With a pond, garden, and 9-hole disc golf course, there is never a shortage of outdoor activities and chores to tackle (although weed-eating is her least favorite part of caring for their property). She also loves reading, yoga, traveling, cooking, and visiting family and friends.

WELCOME, MANAR SHOSHANI

Manar Shoshani joined the KU Chemistry Department in August of 2024 as an Assistant Professor in the area of Inorganic Chemistry. Manar was previously an Assistant Professor at the University of Texas Rio Grande Valley, where he was remarkably successful at building his lab and obtaining funding for his research.

Manar is a second-generation Chaldean-Canadian who was born and raised in southwestern Ontario, Canada. Manar attended the University of Windsor and completed his undergraduate and graduate degree under the supervision and training of Prof. Samuel A. Johnson. There, Manar conducted his research on the stoichiometric and catalytic reactivity with novel and electron-rich multimetallic Ni clusters.



The Shoshani Group (September 2024)
Prof. Manar Shoshani, postdoctoral researcher Riddhi Golwankar and graduate student Fernando Gonzalez.

Following his doctoral studies, Manar accepted a Natural Sciences and Engineering Research Council of Canada (NSERC) post-doctoral fellowship and attended the California Institute of Technology working in the laboratory of Prof. Theodor Agapie. There he worked on several projects ranging from the identification of ligand scaffolds to support novel multimetallic complexes, to the design of catalysts for the copolymerization of polar and non-polar olefins.

In 2021, Manar moved to the University of Texas Rio Grande Valley as an Assistant Professor in the Department of Chemistry. There, the Shoshani Group built a research program focused on the development of well-defined multimetallic scaffolds to facilitate novel pathways in cooperative bond activation.

The primary goal of the Shoshani Group is to identify pathways to utilize Earth-abundant metals to facilitate the catalytic conversion of cheap and abundant resources to value-added products. Research from the Shoshani Group has earned them funding through a UT-STAR grant, an NSF-LEAPS grant, an ACS-PRF grant, and very recently, an NSF-CAREER award.

Manar has been recognized as a Thieme Chemistry Journal Awardee and was selected for the "Dalton Transactions New Talents: The Americas" series. In his free time, Manar enjoys playing basketball, exploring new and diverse cuisines, and watching horror movies. He is excited to begin his new journey at KU and further develop his research program focused on the science of sustainability.

A Sabbatical Trip to Poland

During the Fall of 2024 Professor Krzysztof Kuczera visited Poland for his sabbatical where he worked on developing and applying Machine Learning (ML) approaches to molecular modeling and drug design. While in Poland, Prof. Kuczera visited four research centers from mid-October to early December.

In collaboration with Professor Maria Ekiel-Jeżewska and Dr. Agnieszka Słowicka, Prof. Kuczera researched the role of solvent in protein dynamics at the Institute for Fundamental Technological Research of the Polish Academy of Sciences.

At the Department of Chemistry of Warsaw University, he worked with Prof. Robert Szoszkiewicz on nanomechanical modeling of peptides.

At the Department of Physics of Warsaw University, Prof. Kuczera worked with Prof. Bogdan Lesyng and Prof. Krystiana Krzaśko on ML applications in biology.

Lastly, Prof. Kuczera visited the Department of Physics of Nicolaus Copernicus University in Toruń to collaborate with Prof. Wiesław Nowak and his group on applications of ML to simulations of protein structure and dynamics, and protein-drug interactions.

A SABBATICAL SYNOPSIS
By Brian Laird

In the Fall of 2023, Prof. Brian Laird spent a sabbatical semester exploring the fundamental nature of solid-liquid interfaces. Solid-liquid interfaces are ubiquitous in nature, but because the interface is sandwiched between two dense and often opaque phases, the interface is very difficult to study experimentally. Because of this difficulty, much of what we know about solid-liquid interfaces from a molecular perspective comes from theoretical and computational studies. One recent focus of the Laird Group is an examination of how the curvature of a solid-liquid interface contributes to its thermodynamic properties – mainly through calculations of the solid-liquid interfacial (or surface) free energy, γ, defined as the work required to reversibly create a unit area of surface between a solid and a liquid. The curvature dependence of γ is crucial in understanding a number of phenomena including growth, morphology and nucleation of nanocrystals and surface wetting. This work took him to two historic and leading academic institutions in Germany – the Universities of Freiburg and Tübingen. It is hard to imagine two more beautiful cities to stimulate scientific advances through good food and stunning local scenery. There was also a plan to visit a close collaborator, Prof. Yang Yang, in China during the sabbatical, but the logistics post-Covid were still not optimal for a physical visit; however, the collaboration did move forward remotely during the semester generating several recent publications on solid-liquid and liquid-liquid metal-metal interfaces including one in the prestigious journal *Physical Review Letters*.

The first leg of the sabbatical started with two weeks at the Freiburg Institute for Advanced Studies (FRIAS). Because Brian is a former External Senior Fellow of the Institute (during his 2016 sabbatical), he was able to return as part of the FRIAS Alumni Return Program. This stay was useful because of the recent addition of Prof. Tanja Schilling and her group to the Department of Physics. Brian's time at FRIAS was primarily spent interacting with her and her group and discussing areas of possible collaboration.

After two weeks in Freiburg, Brian spent six weeks at the Institute for Theoretical Physics in at the University of Tübingen in the group of Prof. Roland Roth. The Laird Group has been collaborating with the Roth Group for several years. Prof. Roth is an expert in classical Density Functional Theory (cDFT), which is a method to predict theoretically the structure and thermodynamics of inhomogeneous fluids – exactly the properties that the Laird Group measures via molecular simulation. This collaboration has recently been focused on understanding the dependence of the surface free energy γ on surface curvature and to testing out a mathematical theory of surface thermodynamics known as Morphometric Thermodynamics (MT), which predicts that γ can be predicted for arbitrary surface shapes using only a small number of geometric properties. So far, the two groups have validated MT for a number of model systems, except at very high densities near the freezing density, where the assumptions of MT seem to break down. The efforts in molecular simulation from the Laird Group and the cDFT expertise of Prof. Roth has proven to be a powerful combination to explore the fundamental molecular-level properties of solid-liquid interfaces.

Welcome, Jo Sabus

Jo Sabus is an alum of KU's College of Liberal Arts & Sciences, where they received a B.A. in both Creative Writing and Film History & Culture. Since graduating in 2020, Jo has continued to pursue their passion for writing, publishing cultural coverage at *The Pitch*, and serving on film panels at the Emily Taylor Center's Annual Feminist Fright Fest. Jo has also had professional experience in outreach and social media communication, which they hope to utilize and build upon in their new position with the Center of BioModular Multi-Scale Systems for Precision Medicine (CBM²). As Administrative Assistant, Jo is proud to work alongside innovative researchers at the Center and looks forward to producing material which effectively communicates the scope and importance of the group's work. When they aren't at work, Jo likes to spend time at home with a good book, on Mass Street taking photos with their old Pentax, or in whichever theater currently has reruns of classic movies.

ALUMNI PROFILE
Dr. Alexander Grenning | Class of 2012

Q: What is your current position?

A: Associate Professor of Chemistry at the University of Minnesota.

Q: What attracted you to KU's chemistry Ph.D. program?

A: The people and the place. The People: Having visited a few other schools for "recruiting weekends," KU was a standout. I thought I wanted to do total synthesis and I really liked Prof. Paul Hanson's research program. Paul's unrelenting enthusiasm was ultimately key for me committing to KU. He phoned me several times asking If I would be joining the program. I liked this feeling a lot. In general, all the people doing organic chemistry research, which was what I had my sights set on, seemed not only knowledgeable, but very talented and personable professors. The Place: my beloved Lawrence, KS had me hook, line, and sinker. I could tell it was such a cool college town. I am a big music nerd. The live music scene being "walking distance" away was an important draw for me and I went to many concerts while pursuing my Ph.D.

Q: What was your favorite chemistry class?

A: Physical Organic Chemistry taught by Jon Tunge. I loved learning from him. His encyclopedic knowledge of the subject and careful delivery of material made for a great classroom atmosphere. I later learned that the organic chemistry community also respects Jon for his insights, humor, and personality. I have an even greater respect for him now than I already had as a student. I would be remiss not to point out that my classmates at this time also were so smart and driven, especially Laura Peterson. She always got better grades, but I always had to try and beat her! A bit of healthy competition can take you even further on your journey.

Q: You were part of the Tunge Group during your time in the program. Can you share a favorite memory from your time there?

A: I'd love to and I have so many! (1) Listening to the Hold Steady and Interpol and other aughts indie rock loudly in the lab with Jimmie Weaver and Tony Recio. I should also take this opportunity to publicly apologize to Prof. Ward Thompson for the noise violations. Retrospectively, we were sonically flying too close to the sun! (2) "Molecule of the Semester (MOS)" meetings. It was a super fun and useful creative thinking exercise. At a MOS meeting, we had to devise retrosyntheses of bioactive molecules and develop new reactivity concepts simultaneously. Paul Hanson would try to impress on us the importance of "NIH funding standards" that we needed to adhere to while working on a MOS project. It was a really important exercise to my development as an organic chemist. (3) I have no problem throwing myself under the bus. An embarrassing favorite memory of mine is when I somehow got a drop of butyric acid (rancid butter smell) on my shoe. My olfactory senses were already saturated from this mistake. Thus, unbeknownst to me, I trekked this unpleasantness to the bar and cleared it out! I finished my PBR in solitude.

Scan for full story

To see more photos and read the full interview, please scan the QR code or visit https://chem.ku.edu/alexander-j-grenning.

Each year the department hosts a gathering at Maceli's Banquet Hall before the holidays to thank the faculty, emeritus faculty, staff, and graduate students for their continued involvement in the life of this department. The party was held on December 13th, which also happened to be Stop Day. It is a wonderful opportunity to get together before the busy holiday season and recognize our team's accomplishments from the past year.

AN INTERVIEW WITH HEATHER DESAIRE

Q: You serve as Director of KU's brand new Center of Biomedical Research Excellence (CoBRE). Can you talk about your role with this Center and the research being done there?

A: The most important role I have is to identify and support excellent research connected to the Center's theme, which is "Leveraging Big Data to Improve Women's Health." KU faculty are bursting with talent and good ideas, and the hardest part so far has been the fact that we can't support all of the deserving projects. We have several chemists involved in the Center. They are taking on important studies related to developing better tests for ovarian cancer (Rebecca Whelan) and understanding the mechanisms that underpin neurodegeneration in multiple sclerosis (Meredith Hartley). Since this is a university-wide center, we also support research that has nothing to do with chemistry, like studying the barriers women face in adhering to a gluten-free diet when they are diagnosed with celiac disease, and testing whether women who exercise more experience fewer menopausal symptoms, like sleep disruption and brain fog.

Left to right: Rebecca Whelan, Meredith Hartley and Heather Desaire
Photo by Dhanushka Weerasekara

Q: How do you hope this Center will impact KU and the field of women's health?

A: The biggest way it impacts KU, in the short term, is by supplying much-needed research funding. These grants provide about $7.5 million in funding directly for research and some additional resources to support KU's research infrastructure. These funds pay graduate students and give faculty the resources and time they need to advance these studies I mentioned. We have also been able to leverage some of these resources to hire new faculty. In times of tight budgets, which we are certainly facing right now, it's really difficult to hire new talent. But that is essential to do if we want KU to survive and thrive in the future.

In terms of the women's health impacts, those will come, for sure, but it's important to remember that a good research project necessarily has unknowns associated with it. Because of that, it's hard to predict where the quick successes will be. But we are investing in areas that are often overlooked, like the celiac disease project I mentioned. And often it's in those areas that haven't been receiving their due attention where it's possible to make some real headway in a relatively short timeframe.

Q: This Center brings amazing opportunities to this growing field of data science. Where do you see this area of interest heading toward in the future?

A: I think data science is going to become much more integrated into our daily lives and research activities. For example, these algorithms will be able to assist us in finding new connections between the lifestyle choices people make and their long-term health and lifespan. That's an important application of these tools, because you can't get that information very easily in other ways. Data science will also be instrumental to understanding how genetics and environment act together to modulate someone's propensity for different diseases.

Q: You've had a big year, establishing the Center and also earning the rank of University Distinguished Professor. How does it feel to achieve these great accomplishments?

A: It's embarrassing. There are lots of really talented people at KU, and I don't see myself as deserving any special attention. Aside from that, I am certainly happy about being able to facilitate women's health research here at KU. It's a research area that has been historically underappreciated, and KU has a lot of talented faculty that can really make an impact.

CHEMISTRY GSO UPDATE

As we embark on a new year, we are excited to share updates and activities from the Chemistry Graduate Student Organization (ChemGSO) in 2024. Since our new administration assumed office in February 2024, our focus has been on strengthening social connections, facilitating communication within the department, and enhancing professional development opportunities for all chemistry graduate students.

Highlights from recent activities

GraduateResearchOpportunitiesWeekend(GROW): During GROW in March, organized by the department for prospective incoming graduate students, ChemGSO actively participated, and GSO event coordinator Alexis Redwine played a role in planning and executing GROW.

Fundraising Initiatives: In May, the GSO had a successful fundraising event for both professional development and social activities via a baked goods fundraiser.

Engaging with Alumni: In April, we met with alumni board members to share our accomplishments and discuss challenges, strengthening our connections with those who have paved the way for us.

Summer Events: We hosted picnics in June and August to welcome the REU cohort and our new graduate students. Additionally, a basketball tournament brought our community together for some friendly competition.

Networking Opportunities: In September, ChemGSO organized an informal poster session, allowing research groups to showcase their work to incoming graduate and interested undergraduate students.

This fall, the GSO had another bake sale to raise funds for the organization for upcoming events. To keep track of the

mission of the organization, the GSO organized the inaugural 3-Minute Thesis (3MT) contest within the Department of Chemistry. This event provides a unique platform for our graduate students to present their research succinctly. We also had a Halloween party, a cricket tournament, a ChemGSO public forum, and assisted with a science fair for middle and high school students.

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

KU'S NEW NOBCCHE CHAPTER

The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) formally recognized the KU student chapter (KU-NOBCChE) during its 51st annual conference, Sept. 30–Oct. 3 in Orlando. Members from KU were present at the meeting to accept the certificate of charter and present their current research.

Maximillian Chibuike, graduate research assistant with the Soper Group, organized KU-NOBCChE with fellow graduate students and postdoctoral researchers. The chapter was established in February 2024 after meeting necessary requirements before its formal recognition at the national conference.

Boluwatife Dosunmu (pictured far right) was selected at the NOBCChE meeting as Pfizer's choice for best graduate student research and recognized at an award ceremony.






STUDENT AWARDS BANQUET & GRADUATION RECOGNITION CEREMONY

KU Chemistry Honors Two Alumni with Distinguished Alumni Award

Keith Wilner
B.A. 1978
Executive Director, Pfizer

Nancy Winchester
B.S. 1990, Ph.D. 1994
Director of R&D, SI Group

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. Drs. Wilner and Winchester were honored at the annual awards banquet and graduation ceremony.

UNDERGRADUATE STUDENTS

Owen W. Maloney Scholarship
Raina Fair
Jackson Kleeman

Bijan & Mary Taylor Amini Scholarship
Thomas Loub
Ben Winslow

Frances Gayetta Hanna Lenser Scholarship
Aubrey Sanchez

Leonard V. Sorg Scholarship
Milo McKay

Michelle & A.C. Buchanan Scholarship
Jax Rosekrans

Kenyon Latham Oopportunity Award
Ethan Le

James P. & Sharon A. Elrod Scholarship
Corbin Fairchild

K. Barbara Schowen Scholarship
Lily Tackett

Jacob Kleinberg Award
Andrew Farrar

Roger Munsinger Scholarship
Noah Tucker

John Shapley Award for Excellence in Research
Stanslaus Kariuki

Leland & Jill Weigel Scholarship
Allison Babbit
Cecilia Paranjothi

Burton & Cheryle MacKenzie Scholarship
Celine Khalife

Ralph E. & Esther Weik Badgley Award
Darya Moiny

Jo A. and Judith Beran Chemistry Scholarship
Mike Kim

Kristina May Paquette Scholarship
Delara Mafi
Audrey Rips-Goodwin
Ben Mosier

Steve & Susan Snyder Award
Hannah Chern

Walter Gubar Memorial Scholarship
Colleen Thach
Marion Malone

Keith & Dona Darlington Scholarship
Trisha Nair

Floyd & Ruth Fassnacht Memorial Scholarship
Jonah Ludiker

Emily V. Berger Award
Harrison Le
Patryk Hupert
Chase Courbot

Ted M. Gardiner Chemistry Award
Brandon Nguyen

Gini Adams Research Award in Analytical Chemistry
Hannah Chern

Franklin Strain Travel Award
Meredith Goldstein

Jack & Carolyn Landgrebe Summer Undergraduate Research Scholarship
Mike Kim

Stephen C. Glover Summer Undergraduate Research Scholarship
Darya Moiny

Chemistry Department Summer Undergraduate Research Scholarship
Colleen Thach

Frank Newby Physical Science Award
Roy Manns
Theresa Read
Jenyn Pinkley

Wakarusa Valley ACS Section Award
Eden Brenneman

American Institute of Chemists Award
Eleazar Abraham

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

Alpha Chi Sigma Award
Jiani Osborn

2023-24 Bricker ChemScholars
Brian Faintich
Raina Fair
Trisha Nair
Brandon Nguyen
Aubrey Sanchez

2023-24 Kansas ChemScholars
Eden Brenneman
Roy Manns
Jiani Osborn

GRADUATE STUDENTS

Dains Memorial Scholarship
Pramodi Vithanage

H.P. Cady Award
Natalie Lind

Richard & Sue Givens Scholarship
Rafael Diaz Hernandez

Ray Q. Brewster Award
Caitlin McEntee

Elmer McCollum Researh Scholarship
Lindsey Penland

Cornelius McCollum Research Scholarship
Markell Lomax
Alec Lininger
Emmanuel Forson
Fynn Cooper
Deshkanwar Brar

Chemistry Department Graduate Scholarship
Katelynn White
Esther Holt
Elizabeth Bartlett
Disni Dedunipitiya
Aleesa Chua
James Martinez

Burton & Cheryle MacKenzie Scholarship
Shreyaa Brahmachari
Neiley Karns
Joe Mandigo
Chris Johnson
Alex Ervin

Cross Memorial Award
Davis Curry
Madeline Isom

Kristina May Paquette Scholarship
Chien-Wei Wang

Steve & Susan Snyder Chemistry Award
Nishama Mohotti

Women in Chemistry Opportunity Award
Emily Kurfman

Charles & Beatrice Kulier Scholarship
Shaun Kelsey
Sam Brunclik

Glen & Karen Cox Chemistry Scholarship
Sayuri Niyangoda
Eliza Hanson

George & Beverley Wilson International Student Support Award
Prabhavie Opallage

Ernest & Marvel Griswold Award in Inorganic Chemistry
Emily Mikesa

J.K. Lee Award in Analytical Chemistry
Naviya Schuster-Little

Takeru Higuchi Doctoral Progress Award
Miyuru De Silva

2024 DEGREE RECIPIENTS

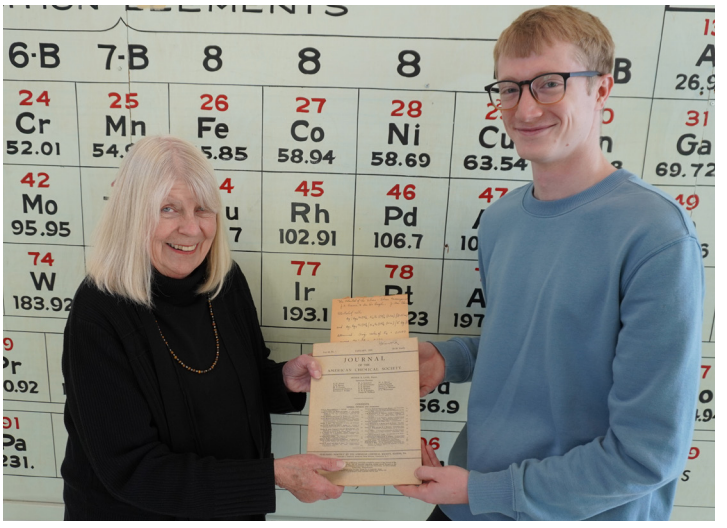
Undergraduate Degree
Joshua Abbey, B.S.
Eleazar Abraham, B.A.
Eden Brenneman, B.S.
Kelsey Butler, B.A.
Liam Donnelly, B.A.
Brian Faintich, B.S.
Matthew Garcia, B.A.
Anna Hahn, B.A.
Dakota Jesse, B.S.
Kyra Koester, B.A.
Caitlyn Korte, B.S.
Roy Manns, B.S.
Ryan Moore, B.A.
Sean Murphy, B.A.
Kate Neary, B.S.
Ly Nguyen, B.S.
Jiani Osborn, B.S.
Jenyn Pinkley, B.S.
Sophia Rard, B.A.
Theresa Read, B.A.
Marcus Stevenson, B.S.
Kaytlin Todd, B.A.
Elaine Vanderweide, B.S.
Cole VandeVelde, B.A.

M.S. in Chemistry
Boluwatife Dosunmu
Leander Fraley
Allyson Leicht
Ashley Litton
Patrick Murphy
Favour Nwachukwu
Sanjitha Dilan Rajapakshe

Ph.D. in Chemistry
Khurshed Akabirov
Ashley Borkowski
Patrick Connelly
Miyuru De Silva
Gaurav Garg
Riddhi Golwankar
Georgii Griaznov
Eliza Hanson
Ebbin Joseph
Joseph Karnes
Sachini Karunaratne
Shaun Kelsey
Emily Kurfman
Shrikant Londhe
Emily Mikeska
Hanna Nguyen
Joyce Nguyen
Christian Nilles
Naviya Schuster-Little
Priya Singh
Prasenjit Srivastava
Viena Thomas
Dimuthu Vithanage
Indika Warnakula
Michael Wrigley

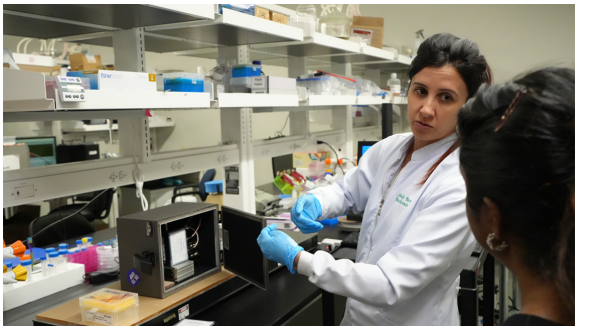
A Connection to Chemistry's Past

When the Chemistry Department moved into Gray-Little Hall in 2018, one of our goals was to retain connections with the wonderful history of our Department. For example, we moved a hand-painted periodic table (circa 1954) from a lecture hall in Malott to the atrium of Gray-Little Hall. A totally unexpected historical connection occurred in our CHEM 660: Inorganic Chemistry course in the Fall 2024 semester. This course was taught by Distinguished Professor Kristin Bowman-James. Little beknownst to her, one of the students, Joshua Spencer, was the great, great, grandson of our former inorganic faculty member, Ernest "Ernie" Griswold. Kristin had replaced Ernie when he retired (1975). This "news" came out after class in Kristin's office, where Joshua and a friend had come to discuss some homework. At the end of the discussion Joshua asked if Kristin had heard of his ancestor Professor Griswold. Kristin knew Ernie quite well, and was the recipient of the hundreds of journals he had accumulated over his career. A lengthy discussion ensued, sharing stories and showing Joshua old photos from Ernie's time in the Department. A highlight of the conversation was when Kristin found one of the *Journal of the American Chemical Society* issues from the 1930s that had Ernie's name on the cover and a handwritten piece of paper inserted in the journal with notes on an article he was reading. In addition to this unique connection between a current KU undergraduate and a former faculty member discovered this fall, we have a bookshelf display containing textbooks written by KU faculty over the past 100 years. Additionally, just outside our front office we have a display of the exciting major discovery of terrestrial helium in Kansas in 1905 by Hamilton Cady and David McFarland, who performed the key experiments in KU's Bailey Hall.



Center of BioModular Multi-Scale Systems for Precision Medicine Hosts Annual Workshop

The Center of BioModular Multi-Scale Systems for Precision Medicine (CBM²) hosted the annual "How to Make It/How to Use It" Workshop at Gray-Little Hall August 7th–9th. Participants from Kansas, Missouri, Connecticut, Rhode Island, Virginia, and Brazil attended lectures and received hands-on laboratory experiences concerning the design, manufacturing, and applications of microfluidic devices.



Center director Dr. Steve Soper opened the first day of lectures on "How to Make It" with an introduction to microfluidics and nanofluidics, covering the types of experiments that can be conducted with both technologies and examining the advantages and disadvantages of each. This was followed by lectures from Dr. Matt Hupert, Prof. Sunggook Park, and Prof. Adam Hall. That afternoon, participants were given a tour of the Gray-Little Hall cleanroom, where various fabrication techniques discussed in the lectures were shown. Demonstrations included optical lithography, 3D printing, injection molding, and preparation of resin stamps.

The second day of lectures on "How to Use It" topics included presentations from Dr. Maggie Witek, Mr. Collin McKinney, Mr. Matt Verber, and researchers from the Soper Lab—Ms. Hanna Nguyen, Ms. Katie Childers, and Dr. Shakila Peli Thanthri. Following an afternoon of chip assembly demonstrations, guests gathered for a reception dinner at the Adams Alumni Center. That evening, Prof. Andy Godwin of the University of Kansas Medical Center gave a keynote address on the unique medical applications of fluidic devices—"Liquid Gold in Precision Medicine: Liquid-Based Biopsies for Cancer Detection and Monitoring."

On the final day of the workshop, participants were able to see the completed nanofluidic device in use as they ran assays to determine the presence of viruses or peptides in a sample. After this hands-on experience, Mr. Matt Verber discussed the results and methods for interpreting the data to conclude the workshop.

Recordings of presentations from the workshop can be found on the CBM² website: cbmm.ku.edu

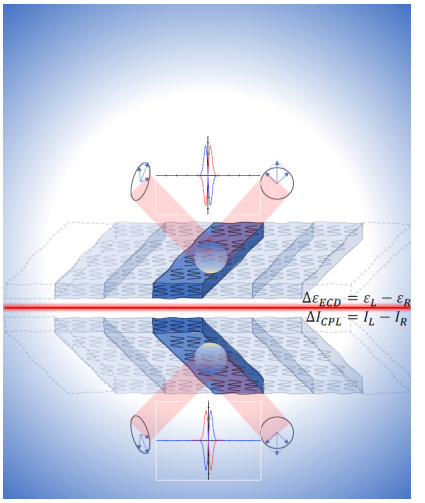
Chemistry Faculty and Students Join New KU Choir

We have a new faculty and staff choir on campus! Professor Michael Bauer of the KU School of Music started the Bales Choral Society in 2024. Professors Lisa Sharpe Elles and Rachael Farber (pictured below on the left with Prof. Bauer) and second-year graduate student Anna Marstall (pictured below on the right with Profs. Farber and Sharpe Elles) represent the Chemistry Department in the choir.

WALTER AND ROY CROSS PROFESSIONAL SERVICE 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 Walter and Roy Cross Professional Service Award receives a cash prize of $1,000 and is featured on the departmental website.

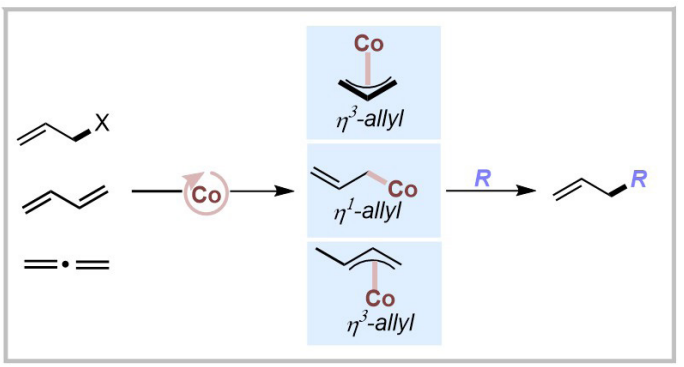
Marco Caricato, Professor - April 2024



Chiral materials have shown tremendous potential for many technological applications, such as optoelectronics, sensing, magnetism, information technology, and imaging. Characterization of these materials is mostly based on chiroptical spectroscopies, such as electronic circular dichroism (ECD) and circularly polarized luminescence (CPL). These experimental measurements would greatly benefit from theoretical simulations for interpretation of the spectra as well as predictions on new materials. While ECD and CPL simulations are well established for molecular systems, they are not for materials. In a recent Perspective in the *Journal of Physical Chemistry A*, the lab of Marco Caricato describes the theoretical quantities necessary to simulate ECD and CPL spectra in oriented systems. The article discusses the approximate strategies currently used to perform these calculations, what computational machinery is already available to develop more general approaches, and some of the open challenges for the simulation of ECD and CPL spectra in solid materials. When methods that are as reliable and computationally efficient as those for molecules are developed, these simulations will provide invaluable insight and guidance for the rational design of optically active materials.

Jon Tunge, Professor - August 2024

The rising demand and financial costs of noble transition metal catalysts have emphasized the need for sustainable catalytic approaches. Over the past few years, base-metal catalysts have emerged as ideal candidates to replace their noble-metal counterparts because of their abundance and ease of handling. Despite greater than 60 years of significant advancements in areas of allylic coupling using precious transition metals, earth-abundant cobalt catalysts have only recently been reported as alternatives for allylic substitution reactions. In a recent review article in *Chemistry – A European Journal*, the lab of Jon Tunge highlighted the state-of-the-art for allylic alkylations at sp^3-carbon centers mediated by cobalt. The design strategies for allylic coupling of C3+ units reveal classical approaches as well as modern photoredox methods. The current mechanistic understanding of these underdeveloped reactions was discussed, and outstanding questions regarding the mechanisms of these reactions were highlighted.



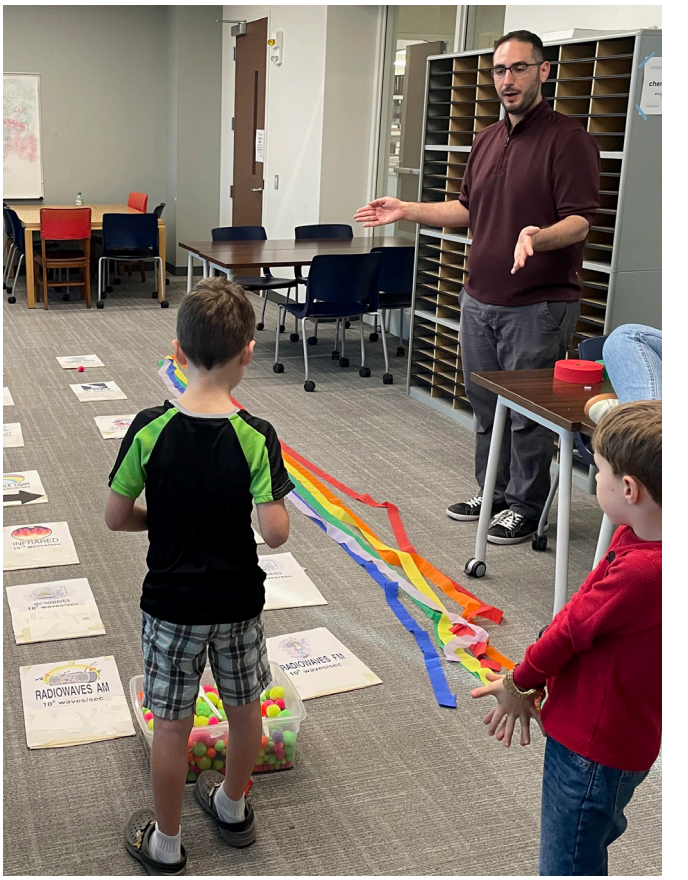
2024 CARNIVAL OF CHEMISTRY

On November 24th, the Chemistry Department hosted the annual Carnival of Chemistry, a free, family-friendly afternoon of science experiments and demonstrations for children of all ages. This annual tradition, which always takes place the Sunday before Thanksgiving, has brought in thousands of children throughout the years to introduce them to chemistry and related fields such as physics, biology, geology, and engineering.

This year's Carnival offered many activities relating to chemistry, with a special focus on this year's theme: Picture Perfect Chemistry. Attendees enjoyed activities such as elephant toothpaste, science rocks, whoosh, UV bead bracelets, among many others. The department was happy to welcome more than 500 attendees into Gray-Little Hall for the event, which spanned three hours.

"The Carnival is one of our favorite annual traditions in the Chemistry Department. There are many families who attend this event every year, and we hope it sparks interest in chemistry for all who attend. The event is also a great way for KU graduate and undergraduate students to share their love of chemistry," said Tim Jackson, Chair of the Chemistry Department.

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.

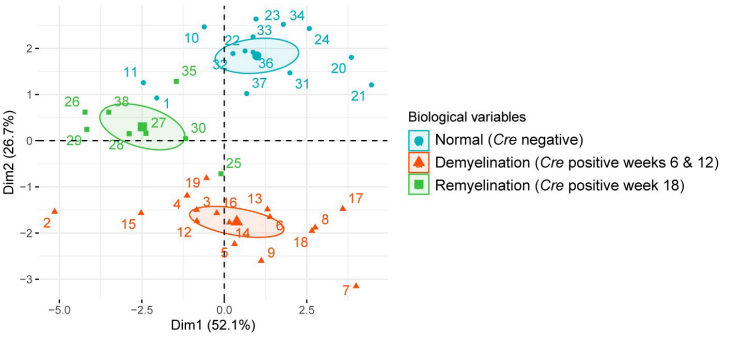


SUTTON FAMILY RESEARCH IMPACT AWARD HIGHLIGHTS

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.

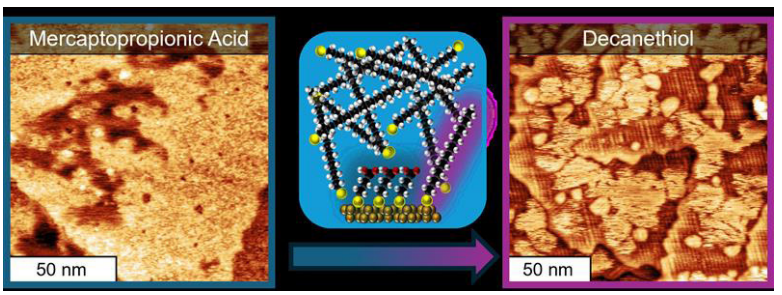
Meredith Hartley, Assistant Professor - January 2024

The destruction of myelin, an insulating sheet around nerves, is associated with a number of demyelinating diseases, including multiple sclerosis. It has been challenging to examine how demyelination affects the lipidome (collection of lipids) of the central nervous system (CNS) due to a lack of demyelination models with discrete stages of myelin damage and repair. In a recent publication in the *Journal of Proteome Research*, the lab of Meredith Hartley used a unique genetic mouse model of demyelination (Plp1-iCKO-Myrf), in which demyelination occurs in both the brain and the spinal cord simultaneously with distinct phases of damage and repair. This model enabled the Hartley lab to profile the lipidomic changes in multiple tissues (brain, spinal cord, and serum) in a longitudinal study (timepoints during both demyelination and remyelination). This approach has enabled several new insights into how lipids are dynamically affected by demyelination. For example, remyelination is impaired in the spinal cord relative to the brain, and these changes are reflected in chronic alterations to the spinal cord lipidome. The Hartley Group also identified a potential class of CNS lipid biomarkers (plasmalogens) that are elevated only during active demyelination.



Rachael Farber, Assistant Professor - November 2024

Self-assembled monolayers (SAMs) are widely used to tune interfacial properties of metal surfaces. Binary SAMs, which include two distinct molecules forming the monolayer, are used to enhance control over interfacial properties. While these SAMs are often formed by displacing one SAM molecule with another, the role that intermolecular interactions, especially, hydrogen bonding, plays on displacement rates is unclear. In a recent publication in the *Journal of Vacuum Science and Technology*, the lab of Rachael Farber investigated how monolayer order, defect density, and bilayer formation impact displacement behavior of 3-mercaptopropionic acid (MPA) by 1-decanethiol (DT). Ultra-high vacuum scanning tunneling microscopy analysis of pristine, moderately defected, and bilayer MPA SAMs confirmed that well-ordered, pristine MPA SAMs are displaced at slower rates than MPA SAMs with less long-range order and greater defect density. Interestingly, MPA samples containing regions of an MPA bilayer displayed the slowest rates of displacement with DT. For pristine MPA samples and MPA samples with regions of an MPA bilayer, displacement with DT resulted in the formation of the low density, lying down phase of DT. These results suggest that the presence of an MPA bilayer, which forms due to hydrogen bonding between carboxylic acid groups in MPA, significantly lowers the rate of total displacement of MPA by DT compared to moderately defected MPA SAMs. These results highlight the importance of structure, composition, and intermolecular forces, such as hydrogen bonding, when considering binary SAM formation via solution-phase displacement methods.



DAVIS CURRY

SCGSR Fellow

Argonne National Laboratory

Davis Curry is studying synthetic transuranium chemistry with the Heavy Element and Separation Science Group with Dr. Richard Wilson at Argonne National Lab (ANL) for a year-long SCGSR fellowship. Davis is a fourth-year graduate student mentored by Dr. James Blakemore in the Department of Chemistry at KU. He is working on a multifaceted project involving the observation of new modes of reactivity of plutonium ions. The research involves installation of plutonium into ligand frameworks tailored for influencing the chemical behavior of this most uncommon element; the ligands are designed for a variety of applications. Demonstration of new reactivity patterns involving plutonium achieved via redox-induced transformations are aimed to improve nuclear fuel (re)processing and fundamental understanding of actinide chemistry.

Davis works closely with Dr. Wilson in the laboratory and meets regularly with Dr. Blakemore to discuss his findings. The facility in which Davis conducts the research is a specialized radiological facility designed to keep workers safe and contamination-free (with regard to both radioactive isotopes and also nonradioactive reagents). Learning to work efficiently within the bounds of this facility is particularly exciting and useful for Davis since he is interested in pursuing actinide chemistry in his future career, and the work at ANL has inspired him to pursue that vision further.

Furthermore, according to Davis, “the insights and extra perspectives from a dual-mentorship approach to my doctoral work this year has accelerated my ability to carry out cutting-edge work, present my findings, think critically about challenges encountered during experiments, and motivate work with knowledge of real, unsolved technical problems."

Davis plans to present his research both internally at KU and at external conferences, as well as in scientific journals as research articles, one of which is in preparation now.

Professor Lisa Sharpe Elles Brings Chemistry Into the Kitchen

In her free time, Professor Lisa Sharpe Elles has shared her love of both chemistry and cooking with the Lawrence community. She has taught many workshops for young children and teens, and most recently, a group of KU Operations staff members. In November, Professor Sharpe Elles guided this group through preparing a simple and healthy meal from scratch. While preparing the meal, she explains the science behind cooking.

KU DEPARTMENT OF CHEMISTRY
College of Liberal Arts & Sciences

Department of Chemistry
University of Kansas
Room 1140, Gray-Little Hall
1567 Irving Hill Road
Lawrence, KS 66045

Please Support Chemistry at KU

KU's mission is to educate leaders, build healthy communities and make discoveries that change the world. KU Chemistry is meeting each of these goals through our exceptional community of scholars, but we need your support to help us rise to this challenge. Scholarship support helps make a KU degree possible for students from underrepresented minority populations. Support for research advances great ideas and helps find answers to complex questions. Faculty support provides a lift for those working hard to teach, mentor, and do research in an exceptionally difficult budget environment. We welcome your support of the department and appreciate your investment in KU Chemistry. The easiest way to make a gift is to go to chem.ku.edu/giving. If you'd like to know more about how you can make a difference in the lives of our students or faculty, contact Sheri Hamilton, Senior Development Director and Team Lead at KU Endowment (shamilton@kuendowment.org or 785.832.7454). Thank you for your support and Rock Chalk!

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