



6

CCarbon
12.011

2

HeHelium
4.0026

10

NeNeon
20.180

74

WTungsten
183.84

16

SSulfur
32.06

VOLUME 6

ISSUE 1

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**Looking Ahead
Presidents' Note**

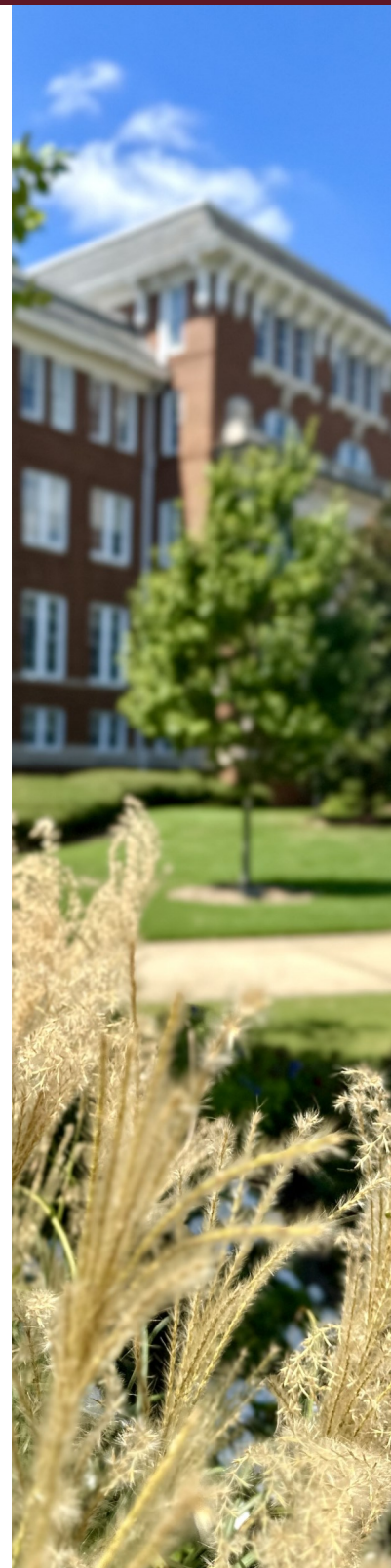
Hello everyone! My name is **Catherine Boltz** (left), and I am one of your AICHe Co-Presidents for this upcoming school year. I am finishing up an internship with Kimberly-Clark Global Nonwovens in Corinth, MS and will be a 5th year senior this year. I am excited to serve as Co-President alongside Victoria!

My name is **Victoria Taylor** (right), and I am serving as one of your AICHe Co-Presidents for the upcoming school year and am beyond excited to serve alongside Catherine! I am a 5th year senior from Gautier, MS. I am currently working on my 3rd co-op rotation at the International Paper Newport Mill in Cayuga, IN as a process engineer.

This year, we hope we can continue our usual events, as well as bring back events such as plant tours, Engineering Bowl, and participation in the ChemE Car

competition. Our passion for AICHe blossomed as we became heavily involved in K-12 STEM Outreach, and we would love those efforts to continue to grow and extend their reach across Starkville. We also look forward to a new student lounge and will work with Dr. Elmore to help maintain a clean study area for students through Swalm clean-ups. In addition, we plan on collaborating with other engineering organizations such as TAPPI and NOBCCHE. Providing students with fun activities is also on the agenda, through kickball, a crawfish boil, study parties, and more.

We encourage students to get involved through leadership as it is a great way to grow your skills and give back to an organization that provides so much. Join us at our **first General Body Meeting on August 27th** for more details. We're looking forward to this school year and welcome any feedback or ideas. You can reach us at aiche.msstate@gmail.com.



“Cum Laude” | *Stellar Students*

Courtney Cochran, a presidential scholar from Tupelo, MS, is moving to Washington, D.C. in September to work in federal environmental policy before attending law school. On May 4, she was honored for her completion of the *Cursus Honorum* through the Shackouls Honors College. Here, Cochran offers her experiences with the program and College more broadly.

“*Cursus Honorum* is Latin for, ‘path of honors.’ The requirements include Quest I and II, covering important works of literature, philosophy, and art; six hours of seminar classes; discipline-specific honors classes; a study abroad experience; and an undergraduate honors thesis. I took the honors sections of Physics I, Technical Writing, and Engineering & Public Policy to complete the discipline-specific requirement (so no extra classes).

The Honors College has many opportunities and resources for all students, including the Office of Undergraduate Research & Creative Discovery, which offers funding for study abroad and undergraduate research experiences. The Honors Council organizes free social events for students, such as ‘Spill the Teal’ featuring Coffee Depot pastries and drinks. Honors Theatrics is an opportunity for all students to participate in theater; I was in the Edgar Allen Poe radio play my freshman spring. The Honors College also invites speakers for free-to-attend lectures and houses the Office of Prestigious External Scholarships.

Earlier this summer, I studied abroad at the University of Oxford through the Honors College, completing a seminar on J. R. R. Tolkien and a one-on-one tutorial with an Oxford faculty member. Each week, my tutor assigned me topical readings and an extensive essay.

It was a really enriching experience, expanding my knowledge of the subject and growing my writing and argumentation skills.

Some of my favorite classes at MSU have been ones I have taken for the *Cursus Honorum*. In an Art, Power, & Law Seminar, I got to defend Duchamp’s ‘Fountain’ as a true work of art. In Public Service & Civic Engagement Seminar, we could discuss with public servants, such as Mayor Lynn Spruill, and write our U.S. senators about a close-to-heart issue; it culminated with a garden build at the J. L. King Center.

Completion of the *Cursus Honorum* is really beneficial regardless of major because the curriculum focuses on thinking critically and formulating and defending an argument. It strengthens one’s written and oral communication skills—vital in any field, including chemical engineering. In making students more well-rounded and better communicators, they become more effective leaders.”

For more Honors College information, see www.honors.msstate.edu.

Cochran in Oxford



Advisor Brings Home Gold | *Faculty*

In April, **Dr. Julie Jessop** was honored with the 2024 Irvin Atly Jefcoat Excellence in Advising Faculty Award, which recognizes exemplary commitment to student success and impactful advising practices. Selection focuses on demonstration of interpersonal skills with and care for advisees, familiarity with institutional policy, and advisee outcomes.

Notably, her achievement continues a tradition of excellence in Hunter Henry Chair advising at MSU. Dr. Atly Jefcoat, a previous Henry Chair, established the award; Dr. Bill Elmore, current Director of the School of Chemical Engineering and former Henry Chair, received the same accolade in 2014. As part of the award, the University will nominate Jessop for the National Academic Advising Association’s Outstanding Advisor Awards.

Dr. Jessop expresses her gratitude: “I am humbled and honored to receive this prestigious award. It truly is my pleasure and privilege to help our Swalm students achieve their goals.”

Corny Corner

What do you call a tooth floating in a glass of water?
See page 5.

School Prepared Me for Work... Kind of | *Co-Op Highlight*



Nathan Keen

“Is this on the test?”

I remember hearing this question in almost every class since high school. As the stacks of material we students were responsible for grew larger and more challenging, that question became more frequent. But maybe there is a better question: “Is this on the job?”

I had the privilege of taking part in the day-to-day operations at Dow’s site in Freeport, TX, this past spring, and to answer that *better* question: “Yes, it’s on the job.” Here are a few ways that our courses at MSU equipped me for my role at work.

Basic knowledge of reactor engineering

helped me to be successful, even as a co-op in a small (one batch reactor) plant. Dow’s reaction kinetics expertise and modeling software were essential, but my optimization efforts were made more efficient by what I had learned about good experimental design and the relationships among process variables. This synergy allowed us to fine-tune the feed profile, shaving off about ten percent of the required feed time.

Also, there were not many directions I could turn in the plant where I didn’t see fluids flowing, heat transferring, or a system designed to keep the process safe. Sure, some of the concepts taught in the ChE courses just alluded to might be used more in a plant’s design phase.

However, the best engineers recall the theory behind those calculations to explain why the process is functioning properly (or improperly) at any given moment and to solve problems quickly. To be frank, I wish I had kept some of those skills sharper than I have.

Maybe a lecture on standard deviation seems useless or irrelevant at the time. What if that understanding of statistics could be applied to streamline process sampling and to reclaim four days of reactor time each year? I am thankful that I was prepared for this opportunity during my co-op term.

Obviously, there are many valuable learnings that can only be gained in the workplace. There is no Turnarounds 101 to provide a taste of the pressure of delivering maintenance and improvement projects on a tight schedule. Company-specific safety regulations and imperfections in each process are also significant. My company’s ample on-the-job training and helpful team members allowed me to learn what I needed, though.

I am grateful for a program that values both education and real-world experience, and I encourage all of us to continue growing in these areas.

That is how we’ll pass the test.

A Green German Summer | *Study Abroad*

By Lauren Varner

Aeronautical engineer and astronaut Frank Borman proclaimed, “Exploration is really the essence of the human spirit.” MSU boasts an abundance of study-abroad programs to encourage students to expand their borders and act on the desires of their “human spirit.” Of many choices, I was fortunate to participate in Intro to Sustainability led by Drs. Kundu and Rai of the School of Chemical

Engineering. The nearly 5-week program offered an immersive experience of Germany’s sustainable practices in one of its most populated cities, Munich. When not in class or taking in the beautiful scenery of Munich, we discovered that the best friendships form when our phones are stuck in airplane mode.

Each week, Drs. Kundu and Rai organized a group trip to one of many tourist

continued on final page



Kathleen Ash ('06) | Alumna Highlight

By Josh Bowman

In the story of oil and gas, Mrs. Kathleen Ash of Olive Branch, MS exemplifies the opportunities available to MSU ChEs. This summer, we spoke about her journey and advice for prospective chemical engineers.



Prompted by her enjoyment of Mr. Joseph Boswell's HS chemistry class, Ash originally considered teaching. But she found ChE additionally suited her love of math, a decision bolstered by faculty like Drs. R. Toghiani, Jefcoat, and Elmore. About class, she explains, "There's a lot to gain: work ethic, technical competency, study habits, and teamwork, but many skills come from outside class; public speaking, resiliency, connections, and industrial perspective come from self-initiative, whether clubs, sports, or work—mine, at the MSU Refuge." Once a first-generation college student with no personal engineering

connections, she credits a co-op at Dow in Baton Rouge for her initial knowledge and interest. When they visited campus, she found a niche at ExxonMobil in the commercial space of global natural gas and power.

Ash has navigated roles across ExxonMobil operations. As a financial analyst for regional African LNG projects, she learned project economics and awareness to complex tax regimes; market perspective gained amid the Shale Boom opened doors in negotiation. Managing at SeaRiver Maritime, a transportation affiliate, she became familiar with acronyms and product lines. She even "got to ride a tugboat down the MS River to the Baton Rouge refinery, pretty amazing for a Mississippi girl." As Operations Management & Emergency Response Manager for ExxonMobil Development Co. out of Houston, she ran safety operations and emergency response, growing an appreciation for the complexity of safety procedures.

Later, Ash moved her family of four to Singapore, handling multi-billion-dollar government deals as LNG marketing manager for Asia Pacific, her dream job. She recounts, "I'd never flown before college, and I noticed that my kids seeing the world built confidence; now, they'll try anything, anywhere. Career-wise, I learned that deals in Japan and India are completely different; understanding the complexity of cultures and

working with national oil entities were key experiences in my executive development. Leadership takes on different meanings worldwide, and travel brings self-awareness and confidence."

Domestically, Ash has led upstream financial planning and cites COVID-19 challenges as formative leadership experiences. Following her role in its 2023 acquisition, she was named the President and CEO of Denbury Inc. where she stays conscious of the energy transition. The company uses recycled CO₂ to extract petroleum from previously exploited sites.

Regarding motivation, Ash states, "Opportunities at Exxon Mobil are almost endless: from logistics, trading, finance, to commercial; it's unbeatable from a career development standpoint. Politics and world events always bring fascinating and complex challenges to the industry." For 13 years, she has served on the Swalm School Advisory Board and looks forward to more involvement on the PTE side and the Dean's Advisory Council; the Kathleen & John Ash Excellence Endowment supports student development in the industry. To students, she emphasizes the need to discover and apply your life's purpose and desires, also articulating, "Never lose your curiosity and open-mindedness in temporary intensity."

Thank you, Mrs. Ash, for representing the School well in all your endeavors!

Alumni Engagement Opportunities

The Swalm School is proud of its graduates! You are inspirations to current students, and there are opportunities to continue engagement.

Keep us abreast of your latest accom-

plishments for the newsletter, website, and social media.

Volunteer to give a professional development seminar for CHE 3331. Recent presentations include Networking, Lifelong Learning, ChE Career Path Flexibility, Bringing Your Full Self to Work, Sustainability, Recovering from

Failure, and Budgeting & Investing.

Participate in the Swalm alumni mentoring program. Mentors contribute to the professional preparation of their mentees by interactively sharing their knowledge, experience, and counsel.

Those interested can email Dr. Julie Jessop at jessop@che.msstate.edu.



Paul's Project | *Undergraduate Research*

understand the formation mechanisms and properties of materials that have the potential to be used in solar cells and other photovoltaic devices. When I first started, I struggled to understand the dense literature and had countless questions for my lab mates. I felt discouraged but persevered by reading topical textbooks and continuously asking questions. Over time, my grasp on the material got better, and eventually I felt confident enough to lead literature discussions. Being a part of the lab has given me the opportunity to grow more than anywhere else on campus.

One of my favorite aspects of research is attending research conferences. These events, where many people present their research, are especially enjoyable and rewarding for the curious and passionate. This past year, I had the honor of participating in the Southeast Undergraduate Research Conference and the AIChE Student Conference. Presenting has improved my technical communication skills and made me more comfortable interacting with strangers.

If you want to grow as a student and are interested in undergraduate research, I strongly recommend pursuing it. The best way to get involved is to talk to professors you like about opportunities. You can also explore faculty websites and research pages, then reach out via email to introduce yourself. I typically spent 10-16 hours in the lab each week and attended two weekly meetings to discuss research progress and new literature. Professors understand that undergraduates have coursework to manage and are usually flexible in working with students' schedules. The most important thing is to make progress and learn. It will significantly broaden your perspective and skillset.

Thank you to the Creutz Lab for this incredible experience! For more information about the research there, visit creutzlab.chemistry.msstate.edu.

Hello, my name is **Paul Gramel-spacher**, and for the past two semesters, I have conducted research in the Chemistry department under Dr. Sidney Creutz and graduate student Vaishali Kshirsagar. Engaging in undergraduate research has been an incredible opportunity for my growth and learning.

My research deals with the creation of nanocrystalline semiconductors through colloidal synthesis. The goal is to better

Corny Corner
A 1 molar solution!



Niki Ye is a fifth-year senior working towards a career in art conservation. This summer, she studied at the Getty Villa under the UCLA/Getty program's Andrew W. Mellon Opportuni-

Chemical Conservator | *Stellar Students*

ty for Diversity in Conservation. Below, she shares her experience.

"The summer workshop consisted of an intensive introductory course into conservation technical skills like varnish removal and inpainting of paintings and paper mending, as well as operating conservation lab tools like polarized light microscopes and X-ray fluorescence spectroscopy. One of the biggest highlights of this opportunity is that it exposed me to various concentrations and media within conservation. Not only did this shape me as a well-rounded student, but it allowed me to find the work that I found the

most fulfilling while giving me the connections necessary to pursue it. The Mellon Opportunity was a fantastic experience that validated my desire to pursue other careers outside of traditional chemical engineering. If you have a drive for art and art history, I highly recommend researching art conservation as a career path."

Those with more questions about the program can reach Niki at ncy15@msstate.edu.

UCLA | Getty

destinations in Munich and surrounding areas. From exploring expansive gardens to paying our respects at a concentration camp memorial site, the trip boasted countless memorable experiences. The elaborate Nymphenburg and Linderhof Palaces were fantastic, but better still was the highly regaled Neuschwanstein (New Swan Stone) Castle, commonly known as the Disney Castle. After scaling a very steep hill and taking pictures from a bridge a little too high up for my taste, we toured the palace, taking in ornate ceilings, glittering chandeliers, an-



Group in Linderhof Palace Park, ChEs including Logan Gaillard, Veer Vanmali, Lauren Varner

tique vases, and, of course, the many swans in tapestries and wallpaper. The worst part was our inability to take pictures inside the castle; trust that it was extraordinary.

The class focused on sustainable practices in Germany and how they differ from similar practices in the US. Throughout the course, we studied the impact of various materials on the environment and how to conduct life cycle analyses considering the environmental, social, and economic influences of green products and practices. Sustainability, while important for Americans, is a fully integrated part of life in Germany. Initially unfamiliar, we gradually learned base-level green behaviors, such as returning empty bottles to the Pfand deposit machine, carrying around reusable shopping bags, taking public transport, and sorting recycling into six different waste bins organized by color. Learning about Germany's green methods in class proved beneficial, but genuine understanding came from practicing them first-hand.

For anyone interested in sustainable practices and exploring the stunning German landscape, the Intro to Sustain-



ChemEs in History

Margaret Hutchinson Rousseau was an American ChE who designed the first commercial penicillin production plant. A graduate of Rice Institute and MIT, she was the first woman to receive a ChE doctorate in the US and the first female member of AIChE.

ability program is the one for you. Drs. Kundu and Rai ensure that the trip is equally educational and fun for students. The Bagley College of Engineering also offers programs in other fields, ranging in length from one week to a complete semester. Though it may seem daunting to travel, especially if it is your first time leaving the country, I highly recommend studying abroad. The lasting friendships and once-in-a-lifetime experiences are too amazing to pass up, and many courses offer credits toward your ChE degree. There are many scholarships to help with travel fees, and the application process is simple to navigate. Dust off your passport and find the right program for you: <https://www.bagley.msstate.edu/programs/study-abroad/>.

Congratulations to our Summer 2024 ChE Graduates!

Lauren Baker

Clayton McCarter (AIChE, ΩXE)

Thanks to everyone who contributed to making this issue a success! Look for the next issue this fall.

Josh Bowman, Newsletter Editor

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The Global Home of Chemical Engineers

Corny Corner Suggestions?
We'd love to hear them. Email
Dr. Bill Elmore at
elmore@che.msstate.edu.



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