



VOLUME 7

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Carbon
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Helium
4.0026

10

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Neon
20.180

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W

Tungsten
183.84

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S

Sulfur
32.06

ISSUE 2

DECEMBER 2025

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Skate Odyssey Outreach

By Taylor Nix

MSU AICHe hosted a successful and community-engaging outreach event at Skate Odyssey. During the event, students partnered with the staff from the after-school program Skate Odyssey to bring hands-on science to elementary-aged students. The event saw a strong turnout, with the AICHe executive staff playing a major role in ensuring everything ran smoothly. External Vice President **Rayne Rutherford** and Co-President **Katie Evans** led the event's operations, coordinating activities and guiding volunteers throughout the afternoon.

A dedicated team of AICHe members created, prepared, and packaged all the experiments, helping to ensure the demonstrations ran efficiently. Once completed, AICHe offered a set of three experiments that were not only fun for the children but also ensured a safe and helpful learning environment for the children.



Fizzy Ghosts: Students created moldable "ghosts" from baking soda dough and added vinegar, watching them fizz, melt, and release carbon dioxide.

DIY Lava Lamps: Using oil, water, and Alka-Seltzer tablets, children explored the principles of density and chemical reactions.



Edible Gummy Worms: In groups, students made edible gummy worms by combining a sodium alginate and pink lemonade solution with calcium carbonate, simplifying the process of polymer crosslinking while observing it in real time.

The room was filled with excitement, creativity, and curiosity as students interacted with ChE concepts in a fun and accessible way. AICHe looks forward to continuing its outreach efforts. Thanks to all who helped! Next outreach: Girl Scouts Day 2026!



Pursuit of Professionalism | *Stellar Students*

Anyah Hardy, a chemical engineering major and MSU NOBCCChE student chapter president, was recently selected for a \$5,000 [NCEES Professional Licensure Scholarship](#). As part of the award, she also traveled to San Diego for the ACEC Scholarship Conference, held October 5–8. Hardy reflects:

“Attending the Conference in California this year was a meaningful experience that highlighted the importance of professional licensure in engineering. I was selected for this opportunity after submitting a 500-word essay explaining why I aspire to become a licensed professional engineer. In my application, I focused on my desire to serve the public responsibly, uphold high ethical standards, and contribute to projects that create long-term value for communities. Being chosen affirmed my commitment to the profession and encour-

aged me to continue pursuing excellence in my field.

“During the conference, I met industry professionals, attended technical sessions, and learned more about the responsibilities and career pathways associated with licensure. Hearing from experienced engineers reinforced why obtaining a PE license matters and how it empowers engineers to take leadership roles and make impactful decisions. This experience expanded my understanding of the profession and further motivated me to become a licensed engineer.”

Congratulations, Anyah!

Corny Corner

How can you tell a plumber from a chemist?

A ChE's Genomic Journey *Undergraduate Research*

Rayne Rutherford

One of my favorite parts of chemical engineering is its versatility. The discipline provides a foundation in problem-solving, systems thinking, and quantitative analysis. The same principles used to model reactors or design processes readily apply to biological systems. My problem-solving foundation in chemical engineering has allowed me to transition seamlessly into research at the interface of computation and biology.

At the HudsonAlpha Institute for Biotechnology, I work in the Cochran Lab studying neurodegenerative diseases. My current project uses ScE2G, a machine-learning framework that predicts enhancer-gene connections at sin-

gle-cell resolution. The goal is to understand how noncoding genomic regions influence gene expression and contribute to disorders like Alzheimer's. I test the model's accuracy by comparing predicted enhancer-gene pairs to experimentally verified datasets such as GWAS and luciferase assays. Most analyses are run in R and Python on HudsonAlpha's supercomputing cluster using tools like GenomicRanges and Precision Recall Analysis.

My chemical engineering coursework has taught me to consider complex systems, identify relationships, and find patterns within big datasets—skills that now help me interpret massive genomic datasets. Chemical engineering's

emphasis on modeling, optimization, and data analysis has been directly transferable to genomic research.

Looking ahead, I hope to expand this work to improve the understanding of regulatory mechanisms driving disease. For students interested in research, don't feel limited to one area; reach out to professors, explore campus opportunities, and remember that chemical engineering can take you anywhere you want to go!



Michael Faulkner ('89) | *Alumnus Highlight*

By Joshua Bowman

From a lawn-mowing business in Meridian to leading technology for Dow's global manufacturing network, Mr. Michael Faulkner has built a career driven by curiosity, mobility, and execution.

Strong in math and chemistry, he was already leaning toward engineering, but a retired, well-travelled chemical engineer who hired him as a teen instilled a vision: "I really thought, wow, I'd love to see the world." Though Faulkner originally considered law school post-graduation, a four-term co-op at Dow's Freeport, Texas site shifted plans. "Once I started co-oping, I decided, engineering is really, really for me." That hands-on exposure to large-scale chemical production gave him early confidence in both the technical and practical sides of the field.

Corny Corner

Ask them to say
unionized!

Faulkner joined Dow full-time in 1989 and moved to Midland, Michigan, working in manufacturing just as the company was expanding globally. "They were talking about how you could go start up one of these new chemical plants, and I was like, 'Sign me up!'" Despite never having traveled internationally, he soon helped start facilities in Maracaibo, Venezuela

and Map Ta Phut, Thailand. Those early assignments exposed him to opportunity-filled environments and taught him to learn, adapt, and make decisions in unfamiliar settings.

Later, Faulkner held plant management roles across manufacturing sites in Georgia, Texas, and Louisiana. What drew him to manufacturing, he says, was its honesty and accountability. "Every day, when you're the plant manager, you know whether you had a good day or not—instant feedback." He made safety, performance, and reliability central to his leadership style. Strengthening those tenets, he earned his Six Sigma Black Belt, applying data-driven process improvement across operations. He also credits Covey's *Speed of Trust* with shaping his people-focused leadership: "The ability to build trust quickly and operate from that foundation... it changes everything," emphasizing how trust improves communication, execution, and long-term performance.

In 2017, Faulkner transitioned into technology leadership and now serves as Senior Technology Director for Dow's coatings and monomers business, supporting 36 manufacturing facilities globally. "I've always stayed close to the plants," he says, noting that staying connected to the front line keeps decisions practical and grounded. Alongside his professional responsibilities, he has remained involved at MSU, serving on the ChE Advisory Board and the Dean's Advisory



Council. "The ability to help shape the curriculum... that's been a lot of fun," he puts, pointing to *Process Safety* and *Intro to Sustainability* as examples of how industry feedback directly benefits students.

Faulkner believes initiative and teamwork ultimately separate strong engineers from great ones. "The thing that sets people apart is initiative," he explains. "Who's willing to take on that project that nobody else wants to do?" But he also stresses that success is never just individual: "Did your manufacturing *team* win? Did your engineering *team* win?" Faulkner closes with encouragement to today's Bulldogs: "Your degree at Mississippi State is preparing you to take on the world."

Thank you, Mr. Faulkner, 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, Global Cultural Awareness, Handling Pivot Points in Your Career, Being the Ideal Team

Player, and Communication Skills.

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.

Accounts from the ASC | Conference Report

By Marilyn Bell

From October 31 to November 3, students from MSU's AIChE chapter, accompanied by Dr. Julie Jessop, traveled to Boston for the Annual Student Conference (ASC). Throughout the weekend, students attended panels, seminars, and a wide range of competitions.



MSU receives the Outstanding Student Chapter Award from AIChE President Joseph D. Smith.

On Friday night, chapter co-presidents **Katie Evans** and **Avery Byars** hosted a workshop titled *Beyond the Equations*, showcasing the impact and scope of MSU AIChE. They highlighted events including the annual crawfish boil, K-12

outreach, workdays, company information sessions, resume workshops, tailgating, Skate Odyssey outreach, banner competitions, and ChemE Ambassadors. These initiatives support students while introducing younger audiences to engineering principles. The presentation demonstrated how actively the chapter serves both MSU and the surrounding community by building professional connections and inspiring future engineers.

Saturday began with a *Welcome Breakfast* where Victor Bonnard, CEO of AIChE, first spoke on the transformative impact of ChE and encouraged innovation and commitment to the field. This was followed by the keynote address, *ChE Reimagined: Innovations at the Intersection of Biology, Chemistry, and Technology*, delivered by Dr. Christine Santos, CTO at Manus. Dr. Santos emphasized the discipline's role in addressing global sustainability challenges. Avery reflected on "[Santos'] point that chemical engineering is not just about theory, but about integration—bringing together biology, chemistry, and technology to create solutions that are chemically identical to traditional products, yet more sustainable and often higher performing."



MSU delegation to the ASC (from left): Beau Barnette, Riley Jackson, Joshua Bowman, Hunter Chunn, Jacob Odom, Katelyn Wilson, James Caldwell, Dr. Julie Jessop, Paul Gramelspacher, Rayne Rutherford, Katie Evans, & Avery Byars



Joshua Bowman & Paul Gramelspacher determine their next step in the ChemE-Sports Competition.

Hunter Chunn and **Katelyn Wilson** attended Evonik's *Engineering a Unique Future: Non-Traditional Technical Career Paths*, which highlighted opportunities in process safety, automation, capital projects, mechanical integrity, cost control, and procurement. Speakers stressed that such roles are accessible to entry-level engineers. Students "left the session with a stronger appreciation for the breadth of technical career paths available and a clearer sense that [their] skills can be applied in many different ways to shape a safer, more efficient, and innovative future."

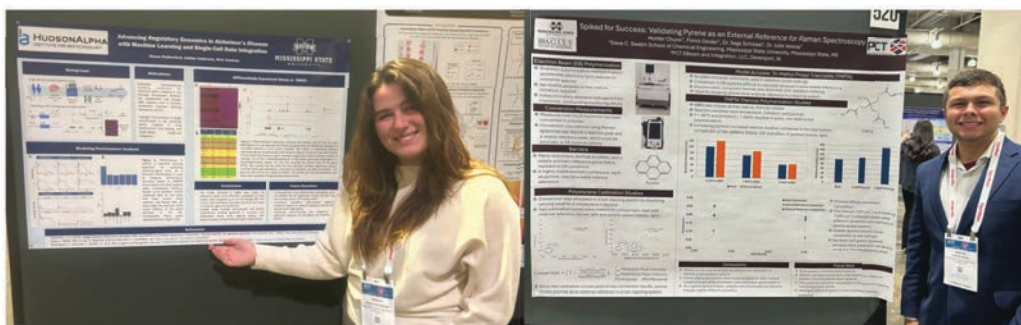
Avery Byars and **Katie Evans** also attended the *AIChE President's Meeting*. Avery described it as "an incredibly valuable experience that gave a broader perspective on leadership within our organization." Katie expressed excitement about being able to "include our sister chapters internationally and foster strong partnerships with nearby chapters to create a more unified organization." The

meeting allowed chapter leaders to exchange strategies for improving communication, participation, and support.

On Sunday, the *Chem-E-Car Competition* allowed teams to evaluate alternative approaches to a design challenge. MSU team captain **Jacob Odom** walked “through the poster sessions to ask questions about each team’s methodologies such as the chemical systems chosen, calibration strategies, and the key obstacles they encountered during development.” Plans for MSU’s latest design include an iodine clock reaction for the stopping mechanism.

In the *ChemE-Sports Competition*, teams operated a simulated production unit over four 15-minute rounds. This year’s objective involved controlling a distillation column while maintaining purity and safety standards. The MSU team included **Joshua Bowman**, **Hunter Chunn**, and **Paul Gramelspacher**. Achieving Finalist status, they applied knowledge from coursework and co-ops, gaining hands-on experience and a clearer visualization of process operations.

Beau Barnette, **Rayne Rutherford**, and **Riley Jackson** competed in the *K-12 STEM Outreach Competition*, which provided “an opportunity for kids to become interested and explore the various opportunities science offers.” They pre-



Rayne Rutherford & Hunter Chunn at the ASC Undergraduate Student Research Poster Competition

sented a heat-transfer slime module that changed color with temperature. The MSU team enjoyed engaging with the K-12 students’ curiosity and enthusiasm for chemical engineering.

Concluding the student conference, **Hunter Chunn**, **Paul Gramelspacher**, and **Rayne Rutherford** also participated in the *Undergraduate Student Research Poster Competition*. Hunter shared, “While scary at first, I think this is one of the best opportunities a student researcher can get to improve their presentation skills.” By summarizing complex research for diverse audiences, presenters strengthened

both their communication skills and understanding of their work.

Through workshops, competitions, networking events, and keynote sessions, attendees broadened their understanding of the profession while representing MSU with pride and professionalism. As students return to campus, they bring new insights, strengthened connections, and a renewed excitement for the future of ChE at MSU. Ask any previous attendees, and they’ll happily tell you all about it! Look for ways to get involved ahead of the Southern Student Regional Conference this spring!

AIChE’s Anniversary!

The MSU AIChE student chapter was chartered in 1957, and it’s received the Outstanding Student Chapter Award 23 times in the past 24 years. We’re planning a platinum celebration in 2027, so please send us your AIChE photos and memories: jessop@che.msstate.edu. Thank you your part in building its legacy!

2025 AIChE Award Winners



Mississippi State University Student Chapter

Outstanding Student Chapter Award

For an exceptional level of participation, enthusiasm, program quality, professionalism, and involvement in the university and community.



Joshua Bowman

Donald F. & Mildred Topp Othmer Scholarship Award

For academic achievement and involvement in student chapter activities.



Jonathan Gray

Donald F. Othmer Second Year Student Academic Excellence Award

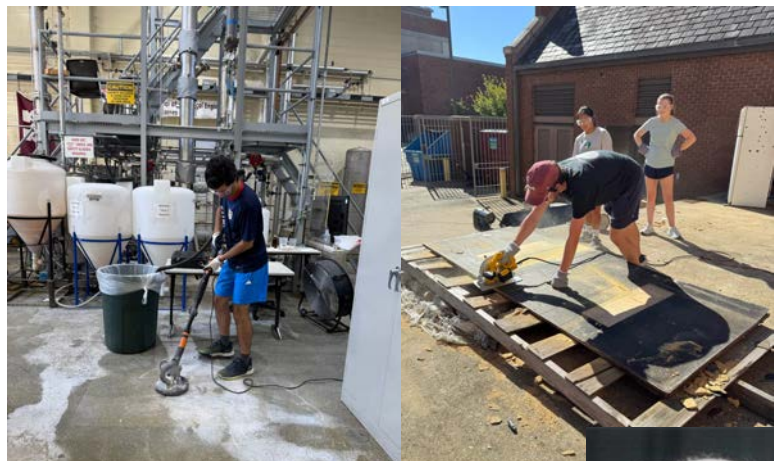
For attaining the highest scholastic grade-point average during their first and second years of undergraduate education.



James Caldwell

First Year Student Recognition Award

For the most involvement in student chapter activities during their freshman year.



**Left: October 4th
Swalm
Work Day**

**Right: Intramural
Flag Football
Avogadro's Army**



ChEs in History

Dermot Manning (1903–1984) was a British engineer whose high-pressure reactor designs enabled the first large-scale production of polyethylene, transforming an accidental lab discovery into a major industrial material. His innovations in extreme-pressure engineering helped establish polyethylene as one of the world's most important plastics.

Congratulations to our Fall 2025 ChE Graduates!

Brady Gill

William Goff

Rhett Reed

Samuel Shirk

AICHE

The Global Home of Chemical Engineers



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

Joshua Bowman, Newsletter Editor

Corny Corner Suggestions?

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

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