



MISSISSIPPI STATE UNIVERSITY
JAMES WORTH
BAGLEY
COLLEGE OF ENGINEERING

DAVE C. SWALM
SCHOOL OF CHEMICAL
ENGINEERING

carbon	helium
6	2
C	He
12.011	4.0026

neon	tungsten	sulfur
10	74	16
Ne	W	S
20.180	183.84	32.065

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A Note from the President

My name is Jolee Rushing, and I am your 2022-2023 AIChE president for our MSU chapter.

This summer, I am working my 4th rotation at International Paper in Columbus, MS. I am from Fulton, MS, and this is my 5th and final year at MSU. I am super excited to be able to work with y'all this year and see what amazing things we can accomplish. For me, volunteering is extremely important. I aim for our organization to do even more to give back to our community, such as helping at the humane society, providing support for Habitat for Humanity, and more. Along with

that, our K-12 outreach is vital. Showing the younger generations that anyone can be an engineer is the key to a successful future. Along with the usual K-12 events such as Girl Scouts Day and helping at Heritage Academy, I would like to do more to influence this next generation of engineers. I also plan to work with other organizations (OXE, SWE, ESC, etc.) both to give back to the community and to plan social events. I promise to make kickball with OXE happen this year! As for conference details for this year, the national conference is November 11-14 in Phoenix, AZ, and the regional conference will be

in March at the University of Florida. I want to make AIChE something that y'all want to be a part of, so I welcome any and all feedback! Email me at: aiche.msstate@gmail.com.



AIChE Competition Team Highlight

By: Maggie Britton

There are many ways to be involved in AIChE at MSU! One exciting opportunity is being on one of the AIChE competition teams. Having an AIChE competition team on your resume and being able to talk about the skills you have developed through the AIChE competition team are great ways to stand out during Career Expo or a job interview. AIChE has both ChemE Car and ChemE Jeopardy teams, which compete at AIChE regional conferences against other schools.

The ChemE Car team designs and builds a car that is powered by a

chemical energy source and travels a randomly specified distance and time. Participating in ChemE Car provides experience working in a technical team. The ChemE Jeopardy team trains to compete in an event similar to the TV show Jeopardy. The competition is full of general trivia, as well as CHE-specific

questions. We are looking for a Jeopardy captain, so if you are interested, email us: aiche.msstate@gmail.com.

Be on the lookout at the beginning of the semester for information about how to get involved with these fun AIChE competition teams!



Undergraduate Research Highlight

By: Arigaa Zolboot

Chemical engineering is a versatile major. While specifying one's interest in the field is challenging, the faculty at MSU do a phenomenal job of providing experimental learning opportunities. Undergraduate research is an example where students can explore their interests and enhance their problem-solving, critical thinking, and communication skills. Previously, I took two elective courses: Air Pollution Control Design, and Independent Study focusing on the transition to sustainable energy sources. These courses expanded my knowledge about clean energy sources and their environmental aspects. My interest in the energy field led me to connect with Dr. Heejin Cho, Mechanical Engineering Professor and Associate Director of Institute of Clean

Energy Technology (ICET). MSU ICET is an engineering measurement and instrumentation research facility that supports the U.S. Department of Energy and develops a Nuclear Quality Assurance Program (NQA-1) to meet the needs of the nuclear power industry. As a fulltime Undergraduate Research Assistant, I worked with Dr. Cho and his research group on developing test plans to meet various standards for High Efficiency Particulate Air (HEPA) filters, trained on parts of NQA-1 program to learn about the practice standards for any nuclear power plant facility, and developed methods to characterize the aerosol using several instruments. The most exciting parts of this experience were applying what I learned in Air Pollution Control Design class to understand how



various instruments count the aerosol particles and determine their sizes and recognizing the wide applications of chemical engineering and how it overlaps with mechanical engineering. This summer research experience was a great opportunity for me to develop my adaptive learning skills and improve my communication skills. I would encourage students to explore their interests in the field through any experimental learning opportunities available at MSU.

Co-op Highlight

By: Lucie Leblanc

Like many others within an engineering curriculum, I have accepted a co-op, and I have signed with the Dow Chemical Company for three terms. Currently, I am on my first term in Houston, Texas, with the Contract Labor Strategy team.

So far, co-oping has allowed me to develop personal relationships that will benefit my career. I have been exposed to different work cultures and new technical skills I have not seen in school. I have built independence and have made important decisions for myself in a new city with new people.

Through my co-op, I met Lisa Williams. She is my supervisor this summer. I was working on a global, cross-functional team that had absolutely *nothing* to do with ChE. I worked with the operating model of third-party vendors and overseeing how sites operate and control contractors, but I did

not touch technical operations. Lisa has shown me the diverse opportunities that a ChE degree creates. Through this project, I have decided to continue my education and earn a master's degree in data analytics and supply chain. I learned key skills about how to effectively organize and conduct massive projects, which is a skill I had from MSU. My next rotation I will work in a technical, traditional process role and have a totally different experience. Maybe after my time with Dow, I will try consulting. Why not? The possibilities are endless.

Co-ops and internships give the necessary learning curve for ChE and assist you to solidify your values and lifestyle for your future career. It is nearly *impossible* to receive competitive ChE positions without this experience. You can cultivate your future in any region, company, and position as a student and be mentored by some of the most strategic minds that will guide you to build your career. Throughout

this year, there will be numerous events AICHE will be hosting to prepare you for a co-op/internship such as resume reviews, how to use LinkedIn, interview prep, and workshops with established companies. You must prepare for the 2022 Fall Career Expo. When interacting with companies, connect a face to a resume and a smile to the facts.

Finally, my Dow role has greatly influenced me, and I urge all students to take this opportunity. Connect with older students, including myself; my email is always open: lil15@msstate.edu. My co-op has greatly influenced my life and provided a clear path of my expectations for my future. Hail State!



Study Abroad Highlight

By: Will Laird

St. Augustine once said, “The world is a book, and those who do not travel read only one page.” Mississippi State has several study abroad opportunities that range from only one week to a full semester. I was fortunate enough to participate in one led by Drs. Todd and Deb Mlsna of MSU’s Chemistry Department. The program lasted about 3 weeks and featured incredible sights throughout Iceland, Norway, Denmark, and Sweden. The purpose of the program was to study Alternative Energy solutions in places that have already mastered sustainable energy sources. Along the way, I experienced new cultures and forged lasting friendships.

One highlight of the trip was climbing to the top of a wind turbine in Copenhagen. The wind turbine we toured was over the water, so we had to travel there via boat. From the top,

there was an incredible view over the Copenhagen skyline.

Another highlight was a greenhouse tour in Iceland. The greenhouse covered several thousand square feet and produced tomatoes. The greenhouse maintained a comfortable growing temperature year-round by piping warm water from underground through heat exchangers. Electric UV light, called grow lights, supplement the sun for the plants. Nearly all of Iceland’s electricity production comes from geothermal power plants and hydroelectric dams, making the grow lights a sustainable way of speeding up tomato production. Carbon dioxide levels were maintained at over double normal atmospheric levels by bleeding in CO₂ from a nearby wellhead, which also increased crop yield. These may

seem like unconventional solutions to a farmer 100 years ago but are now becoming a reality. As chemical engineers, we have a responsibility to learn about advances in science and apply them to our surroundings. Several challenges await us after graduation like feeding an extra few billion people and expanding energy production in an environmentally conscious manner.

Studying abroad is a phenomenal way of getting out of your comfort zone while learning about topics that aren’t covered in the classroom. MSU’s College of Engineering also offers multiple study abroad opportunities that provide credit for your ChE degree in amazing places, such as Munich and Rome. Check out the Study Abroad website and get your passport ready: <https://www.bagley.msstate.edu/programs/study-abroad/>!



Thank you to everyone who took the time to contribute to making our Summer 2022 newsletter a success! Keep your eyes peeled for our Fall 2022 issue. — Maggie Britton, AIChE Newsletter Editor