



# Department of Chemical and Biological Engineering

NEWSLETTER

Fall 2022



## Inside

Undergraduate News

Graduate Program Updates

Honors and Awards

Research Highlights

Student Spotlights

Alumni News

Contact and Support

## Welcome

*Dear Alumni and Friends,*

*Over the past year, we have ramped up our in-person interactions, and it has been exciting to finally see student faces again! I think students and faculty both agree that face-to-face learning and hands-on teaching labs are hard to replicate online, but we have a much deeper appreciation for it now than we did prior to the pandemic.*

*Beyond the classroom, we have been able to provide an extensive suite of hands-on learning activities over the past summer. You will be hard-pressed to find a more active chemical engineering program in the country! This includes two major NSF-REU programs for undergraduate researchers, an international NSF-IRES research program in Spain, a local research program for students and teachers at Stillman College, Shelton State Community College, and Paul W. Bryant and Central High Schools, and of course, our unit operations lab in Denmark! There is always a tremendous amount of activity on our campus (even over the summer), and I hope you enjoy reading more about the latest news from our department.*



*Prof. C. Heath Turner  
Department Head*

THE UNIVERSITY OF  
**ALABAMA**<sup>®</sup>

College of  
**Engineering**  
Chemical and Biological Engineering



# Undergraduate News

We are always working to continuously improve the undergraduate educational experience in our department. To be more effective, we formed an inaugural *ChBE Undergraduate Student Council* to provide direct feedback to our faculty about department-level challenges, proposed changes, and ideas for improvement. The discussions have been insightful and very beneficial!

*Prof. Y. John Kim, Undergraduate Program Coordinator*



## ChBE Undergraduate Student Council

Our student council is composed of a cross-section of two students from each year in our program, and we meet twice a semester. So far, discussion topics have included student design projects, ways of integrating more computer software and programming into the curriculum, effective departmental communication mechanisms, and others. As part of these discussions, there have been several tangible outcomes, such as transitioning our design software from CHEMCAD to Aspen Plus®.

## International Programs

### *Unit Operations Lab in Denmark*

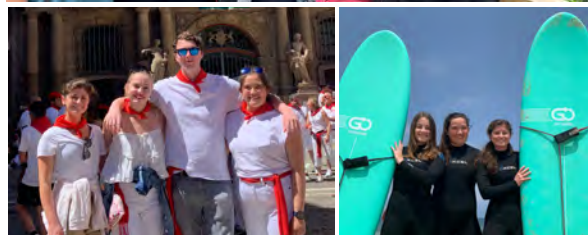
After a long hiatus, we returned to the Technical University of Denmark (DTU) with a group of 30 students. The first weekend was spent exploring cultural sites, followed by four weeks of labs. The facilities and technical staff at DTU are exceptional, and their suite of pilot-scale experiments is one of the largest in the world. Best of all, daily temperatures rarely exceed 80 °F in July!

### *IMPRESS Summer Research Experience in Spain*

Due to a recent international research grant from the NSF (only the second of its kind in the history of UA), we were able to send a select group of students to work at a premiere polymer research institute (POLYMAT) in San Sebastián, Spain. Students were paired directly with faculty members at the institute and were exposed to a wide range of cutting-edge experimental techniques involving polymer synthesis and characterization.



Exploring Copenhagen and running experiments at DTU



Lots of outdoor weekend activities in Spain



# Graduate Program Updates

Our graduate program has become one of the most vibrant aspects of our department. As our Ph.D. enrollment continues to accelerate, we have simultaneously elevated the graduate student culture. Two major highlights from the past year were the initiation of a *Graduate Research Symposium* and an *International Food Festival*!

*Prof. Yuping Bao, Graduate Program Coordinator*



## A Period of Unprecedented Research Growth

Each year that passes sets a new high-water mark for our research success. During the last fiscal year, the department secured over \$6.6 million in external research funding, which represents an order-of-magnitude increase of where we were just a few years ago. Due to our funding success, our reputation as a major research hub is rapidly spreading, and we are attracting a lot of national attention!

This year, our Graduate Student Committee served our department in numerous ways, ranging from their help with prospective graduate student visits to arranging snacks for our invited speaker seminars. Two major events that they coordinated were the Graduate Research Symposium and the International Food Festival. Both were fantastic! The officers this past year were Madee Fisher (president), Alex Avera (vice president), and Colton Duprey, Sandhiya Thiagarajan, and Joseph Danner.

## Graduate Research Symposium



This was an opportunity for our Ph.D. students to share their research with other members of the department, as well as external visitors (prospective graduate students, Advisory Board members, etc.). The poster competition winners were Atta Ur Razzaq (1<sup>st</sup>), Alex Minne (2<sup>nd</sup>), and Medha Kasula and Sandhiya Thiagarajan (3<sup>rd</sup>, tie).

## International Food Festival

One of the most fun parts of graduate school is making friends with students from other countries and cultures. Regardless of our differences, food is a common language that we all speak! This summer, our international food festival was a great opportunity to connect with each other, share favorite recipes, and sample some new cuisine!

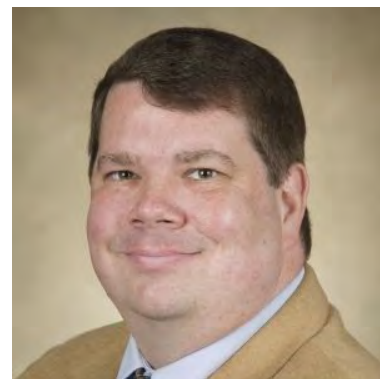




# Honors and Awards

The most recent national statistics indicate that we are the second-largest undergraduate chemical engineering program in the country. Not only are we large, but we also attract some of the brightest students from around the country! Below, we highlight some of the recent honors and awards over the last year. We are a prime breeding ground for future *UA Legends!*

*Prof. Christopher Brazel, Honors Program Coordinator*



## Annual Awards Ceremony

It was great to have an in-person awards ceremony this year! It was wonderful to see so many of our top students gathered together to celebrate their accomplishments, visit with their families, and shake the hands of all the awardees!

### Undergraduate Students

**American Institute of Chemists Senior Award:** Grace Thompson

**AIChE H.F. Johnston Jr. Memorial Senior Award:** Carson Burgin

**Central Alabama Section of AIChE Outstanding Senior (Chilton) Award:** Addie Thomsen

**Central Alabama Section of AIChE Outstanding Junior (Chilton) Award:** Lauren Birschbach

**AIChE Donald F. Othmer Sophomore Academic Excellence Award:** Lela Connors

**The Alexander Stanton Memorial Undergraduate Research Award:** Juliana Bates

**ChBE Outstanding Seniors:** Gabe Allen, Nick Belt, Jack Meyer, Nina Pearson, Thomas Schweiger, Elsie Spivey, Garrett Wolfe

**ChBE Outstanding Juniors:** Jaden Anderson, Courtney Calloway, Jarret Harrison, Paxson Heath, Kayla Lafferty, Connor Schleicher, Charlton Sullivan, Madison Wollenzler

**ChBE Outstanding Sophomores:** Jonathan Blanks, Ian Brown, Ellie Degroot, McKinley Hoffman, Reid Lunsford, Gina Lusvardi

**AIChE Outstanding Member:** Julia Coryea

**Omega Chi Epsilon Outstanding Member:** Rachel Warren

**Capstone Engineering Society Outstanding Senior:** Nick Scudder

**ECOB Outstanding Senior:** Tori Hargis

**Chemical and Biological Engineering Honors Graduates:**

Madison Cantrell, Kathryn Fasold, Ryan Kitchen, Gabi Piercy, Luke Rakers, Aramis Rickey, Addie Thomsen, Garrett Wolfe

### Graduate Students

**American Institute of Chemists Graduate Award:** Xiaoyang Liu

**Outstanding Graduate Student Teaching Assistants:** Ali Alshaikh, Lauren Ward

**Outstanding Graduate Student Service to the Department:** Madeline Fisher

**ECOB Outstanding Graduate Student:** Shuai Qian

### Faculty/Staff

**ChBE Outstanding Staff Member:** Genice Reedy

**Outstanding Research Impact Awards:** Chao Zhao, Shreyas Rao

**AIChE Outstanding Faculty Members:** Tibor Szilvási

**Omega Chi Epsilon Outstanding Faculty:** Steven Weinman



Two professors were recognized by UA for their outstanding research: **Tibor Szilvási** and **Jason Bara** received the President's Faculty Research Award in the Emerging and Mid-Career categories, respectively.



# Research Highlights



## Research Experience for Undergraduates (REU)

We are proud to have hosted the NSF-sponsored Research Experience for Undergraduates (REU) as a department since 2011. Many of our program alumni have gone on to win prestigious awards such as the Goldwater and NSF Graduate Fellowship, as a result of their research training with our faculty. This past summer, we had another fabulous group of students!

## Prof. Esfahani Brings North American Membrane Society (NAMS) Annual Meeting to UA

We were recently notified that we won the competition for hosting the 2023 NAMS Annual Meeting on our UA campus! NAMS is the only professional society in North America that promotes all aspects of membrane science and technology, ranging from fundamental studies of material science to process application and development. **Prof. Milad Esfahani** will serve as the meeting Chair.



## Prof. Kim Wins Fulbright Award



**Prof. Y. John Kim** recently won a highly-competitive Fulbright Award, which will allow him to visit the Instituto de Biologia Experimental e Tecnológica (iBET) in Lisbon, Portugal. He will collaborate with Prof. Paula Marques Alves, chief executive officer of iBET, on a joint project on advanced biomanufacturing of tumor organoids, which are miniaturized tissue-like three-dimensional structures that better recapitulate physiological features. Through their research, Profs. Kim and Alves hope these organoids can serve as an improved platform for precision medicine and personalized drug development for patients with tumors.

## Profs. Weinman and Manisali Lead Local Plastic Upcycling Research

Did you know that less than 10% of all plastics ever produced have been recycled? Our department is working to change that! This summer, **Profs. Weinman and Manisali** led an effort to engage local students and teachers (Stillman College, Shelton State, Paul W. Bryant and Central High Schools) in research projects aimed at reducing plastic waste. Projects included chemically converting PVC into insulating elastomers, developing environmentally-friendly solvents for plastics, transforming plastics into filters, as well as a river cleanup day!





# Student Spotlights

## Bates Wins Barry Goldwater Scholarship

**Jules Bates**, a chemical engineering junior from Pace, AL, was recently recognized with a prestigious Barry Goldwater Scholarship. She works with **Prof. Y. John Kim** to identify the best modes of neural stem cell therapy for treating neurological disorders such as epilepsy. Outside of research, Bates is a clarinetist in the UA Symphonic Band and a volunteer at the Wildlife Sanctuary of Northwest Florida. She plans to pursue a doctorate in biomedical engineering and research biomechanics, biomaterials and neural engineering with the goal of serving industries developing biomedical solutions for human needs.



## Maxson Wins DOE Computational Science Graduate Fellowship

Graduate student **Tristan Maxson** was recently recognized with a highly-competitive Computational Science Graduate Fellowship from the Department of Energy! Only 33 students received this award nationwide this year, and this is the first time ever that a UA graduate student or any graduate student from the State of Alabama has been awarded this fellowship. Tristan is performing his graduate research work in **Prof. Tibor Szilvási's** group, where he is studying chemical reactions on surfaces using high-powered computational methods and protocols to provide more accurate predictions for material design.



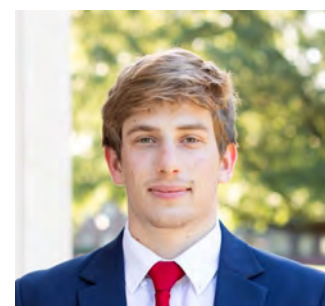
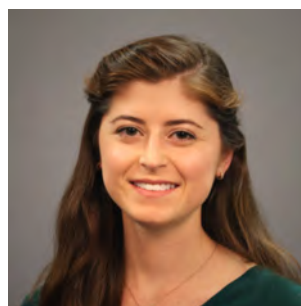
## Brown Wins Multiple Research and Presentation Awards

**Spenser Brown**, working in Prof. Kim's research group, racked up multiple research and presentation awards this year! She won the Women in Chemical Engineering (WIC) Travel Award from AIChE, the American Chemical Society's W.H. Peterson Award for best student oral presentation, and the People's Choice Award at the university-level Three Minute Thesis competition.



## Thompson and Scudder Win UA Randall Awards

Two chemical engineering students, **Grace Thompson** and **Nicholas Scudder**, were recently recognized with Randall Outstanding Undergraduate Research Awards. The honorees have all conducted significant scholarly research and were nominated by faculty mentors. A distinguished panel of UA research faculty and past recipients of the Burnum Distinguished Faculty Award selected the winners.





## Alumni News

### Four Alumni Recognized as Departmental Fellows

Department Fellow is the highest alumni recognition provided by our department. It is intended to recognize alumni who have provided substantial service to our department, achieved significant career success within their profession, and/or demonstrated exceptional leadership to further the mission of The University of Alabama. This year, four new alumni were recognized with this distinction at the spring Advisory Board Meeting. We congratulate these alumni for their outstanding achievement!

- **Dr. Jordan Vaughn** (Medhelp Clinics, COE and Owner)
- **Dr. Chao Ma** (Pfizer, Principal Scientist)
- **Stefanie Funk** (BBP, Director of Automation)
- **Lucas Bruner** (Pfizer, Manager, Process Engineering Gene Therapy)



### Gipson Recognized as Distinguished Engineering Fellow

Each year, the College of Engineering inducts a select group of alumni and friends as Distinguished Engineering Fellows, and **William P. Gipson** (B.S. CHE '84) was recently inducted into this select group of individuals. Gipson grew up in Montgomery, Alabama, and after earning his degree from UA, he began his career with P&G as a group leader and process development engineer. Gipson led P&G's R&D/Innovation efforts for multiple business units and geographies over thirty-four years, including an \$18 billion sector with more than 1,200 R&D professionals. In his last role as a President reporting to the CEO, he led enterprise packaging transformation for P&G, with an annual revenue above \$65 billion.





## Contact and Support

*While our department has been through many changes over the years, with increasing enrollment, new faculty hires, and renovated facilities, we are most proud of the alumni who pass through our program! If it has been a while since you have been to campus, we would love to reconnect and hear from you. Whether you want to take a tour of the unit operations lab or catch up with an old teacher, our door is always open!*



*Our past chemical engineering graduates regularly return to campus to share career advice with our graduating seniors, deliver guest lectures in our senior design classes, or find ways to financially contribute. If you have a desire to give back, we would love to talk with you. Financial contributions to the department can be made payable to the **Chemical Engineering Discretionary Fund** and sent to the Mailing Address below.*

*Roll Tide!*  
Heath Turner



**Department of Chemical and Biological Engineering**  
3043 H.M. Comer Hall  
Phone: (205) 348-6452

**Department Head**  
Prof. C. Heath Turner  
Email: hturner@eng.ua.edu  
Phone: (205) 348-1733

**Mailing Address**  
Box 870203  
Tuscaloosa, AL 35487-0203

THE UNIVERSITY OF  
**ALABAMA**<sup>®</sup>

College of  
**Engineering**  
**Chemical and Biological Engineering**