



## AUBURN CHEMICAL ENGINEERING

# REPORT

## FROM THE CHAIR

DR. MARIO EDEN *Department Chair*



In the latest rankings by *U.S. News and World Report*, our graduate program was ranked number 56 (39 among public institutions) out of

approximately 160 programs. This puts us on par with schools like Drexel, Tufts, Northeastern and UC San Diego, and ahead of schools like CUNY, Tulane, University of Arizona, among others. We remain the 4th highest ranked department in the SEC behind Texas A&M, Florida, and Vanderbilt. Interestingly, this year we received the highest numerical score ever, but unfortunately it did not translate into a move in the rankings. I remain proud that the numerous contributions of our faculty and students continue to be recognized by our peers!

The future indeed looks bright for our department as the quality of incoming students continues to improve. The average ACT score for the 178 freshmen that declared Chemical Engineering as their major in Fall 2018 was 30.7. This is the tenth year in a row that the average ACT score for our incoming freshmen class is above 29 and the seventh year in a row that it is above 30.

In the past year, one of our department's highest priorities has been our faculty search. We had a sizable faculty contingent attend the AIChE Annual Meeting in Pittsburgh last October, where we met with a large number of faculty candidates. We received almost 350 applications for our open positions and we interviewed eight candidates on campus in the Spring. I am

so proud of our entire faculty and staff for their dedication and hard work throughout this process. It has been and continues to be an extraordinarily busy time and I am deeply grateful for the continued enthusiasm shown by all. It clearly made an impact on the candidates during their visits. We have extended offers to our top four candidates, and are bringing them back to Auburn with their families during the month of April.

Dr. Mario Eden  
[edenmar@auburn.edu](mailto:edenmar@auburn.edu)



# FACULTY & STAFF



**Dr. W. Jeffrey Horne** will be recognized as the 2018-2019 *Outstanding Faculty Member in the Department of Chemical Engineering* at the College of Engineering Spring Awards ceremony on April 12. The graduating senior class selected **Dr. Bill Josephson** as the 2019-2020 *Outstanding Faculty Member*.

**Dr. Virginia Davis** received the *Provost's Award for Faculty Excellence in Undergraduate Research Mentoring* and was recently honored with the 2019 University Award for Inclusive Excellence and Diversity.



**Dr. Joseph Shaeiwitz** was selected as recipient of the inaugural *Donald R. Woods Lectureship for Lifetime Achievement in Chemical Engineering Pedagogy* from the ASEE Chemical Engineering Division in recognition of his many contributions to our chemical engineering community in the areas of education and scholarship. This award recognizes Dr. Shaeiwitz' outstanding achievement through improvements of lasting influence to chemical engineering education. As its name implies, as part of this award there will be a session in his honor at the coming ASEE conference (June 15-19 in Tampa, FL), where Dr. Shaeiwitz will deliver a lecture on his work.



**Dr. Selen Cremaschi** and **Dr. Bob Pantazes** were selected to be among the *Outstanding Young Chemical Engineering Educators* invited to attend the CACHE conference "The Future of Cyber-Assisted Chemical Engineering Education" in Breckenridge, CO this summer. **Dr. Cremaschi** was honored as a member of the 2018 Class of Influential Researchers presented by the journal *Industrial & Engineering Chemical Research*.

**Dr. Bryan Beckingham** was invited to attend a NSF CAREER proposal writing workshop.

## NEW GRANTS & CONTRACTS

**Dr. Jin Wang** received a \$447,750 grant from Department of Education Graduate Assistantships in Areas of National Need (GAANN) program.

**Dr. Elizabeth Lipke** received a \$746,250 grant from Department of Education Graduate Assistantships in Areas of National Need (GAANN) program.

**Dr. Elizabeth Lipke** also recently received a \$75,300 seed grant from NIH CCTS Interdisciplinary Network Pilot Program entitled: "Patient-Derived Tumor Models to Evaluate the Obesity-Linked Colon Cancer Microenvironment".

The U.S. Department of Energy (DOE) established the Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute of the American Institute of Chemical Engineers (AIChE) as the newest, and tenth, member of the nation's network of Manufacturing USA Institutes. **Drs. Bruce Tatarchuk, Mario Eden, and Selen Cremaschi** are in the final contracting stages for four grants to our department totaling \$2.8M in DOE funding:

- *Microfibrous Entrapped Sorbents for High Throughput Modular Process Intensified Gas Separation and Ion Exchange*, Lead Organization: IntraMicron, DOE funds to Auburn: \$1M over 3 years.
- *Modular Catalytic Desulfurization Units for Sour Gas Sweetening*, Lead Organization: IntraMicron, DOE funds to Auburn: \$450K over 18 months.
- *SYNOPSIS — Synthesis of Operable Process Intensification Systems*, Lead Organization: Texas A&M University, DOE funds to Auburn: \$460K over 4 years.
- *Modular Catalytic Partial Oxidation Reactors using Microstructured Catalyst Structures with Combined High Thermal Conductivity and Flame Extinction to enable High per Pass Conversion of Non-diluted Reactants above the LEL*, Lead Organization: Auburn University, DOE funds to Auburn: 922K over 3 years.





**Dr. Zhihua Jiang**, Director of the Alabama Center for Paper and Bioresource Engineering (AC-PABE) has generated a lot excitement about our pulp and paper program and has recruited not only several new member mills to the Auburn Pulp and Paper Foundation, but has successfully secured new scholarship endowments of more than \$1M from Packaging Corporation of America (PCA).

**Dr. Mario Eden** was elected 2nd Vice-Chair of the AIChE Computing and Systems Technology (CAST) Division. He will serve in this role for one year, then one year as 1st Vice-Chair, and then as Chair of the division.



**Dr. Elizabeth Lipke** and her doctoral student **Yuan Tian** successfully competed in the LAUNCH competition on campus receiving almost \$50K in funding for their proposal *"Flexible microfluidic platform for rapid production of uniform cell-laden hydrogel microtissues"*, a device which can encapsulate human cells to better mimic their natural environment, allowing for more efficient early screening of drug candidates.



**Mrs. Georgetta Dennis**, our departmental accountant, has successfully obtained all three major certifications in the field of research administration: Certified Financial Research Administrator (CFRA), Certified Research Administrator (CRA) and Certified Pre-Award Research Administrator (CPRA). She is the only person on campus to have all three, and in fact she is one of only eleven in the entire country! We are all truly blessed to have this outstanding level of programmatic support right here in the department!

# CHEMICAL ENGINEERING OPEN HOUSE

**NOVEMBER 1, 2019  
10-2 PM**





# ALUMNI



## LINDA DUCHARME NAMED 2019 OUTSTANDING ALUMNA

The 2019 *Department of Chemical Engineering Outstanding Alumnus* is **Linda DuCharme**, President of ExxonMobil Global Services Company and Vice-President of ExxonMobil Corporation. Linda joined Exxon Company U.S.A. in 1986 after graduating from Auburn University with a Bachelor of Science degree in chemical engineering.

Linda spent her early career gaining experience in engineering and project management for production operations in the Gulf of Mexico and subsequently had assignments in the U.S. and Europe to gain experience in business development and marketing. In 2011, she transferred to London, England as Director of ExxonMobil International Limited for Europe, Russia and Caspian. She then assumed the role of Vice President of Americas, Africa and Asia Pacific New Markets in 2015.

In August 2016, Linda was appointed President of ExxonMobil Global Services Company. Active in Houston area philanthropy, Linda serves on the Cynthia Woods Mitchell Pavilion Board, the Executive Advisory Board for Houston Minority Supplier Development Council and the Board of the United Way of Greater Houston Hurricane Harvey relief fund.

We are truly delighted that Linda's outstanding accomplishments and commitment to our college/department are recognized this way. We are honored to present Linda with this award, and we're humbled to count her among our Auburn Engineering family.



The **Tom Hendrick Leadership Award** is given every year by the Auburn University Chemical Engineering Alumni Council to one or more individuals who demonstrate both leadership and support of the Auburn University Chemical Engineering Department. Tom Hendrick, who passed away in October of 2011, was the first president of the Alumni Council and was instrumental in the growth of the Council over the years. Tom played a key role in helping the Alumni Council have a positive impact on the students, faculty, and alumni of the Department. Following Tom's example, the award recipient must have demonstrated a high level of leadership and service to the mission of the Chemical Engineering Department.

Gerry McGlamery Sr.  
Dr. Robert P. Chambers  
Dr. Leo Hirth  
Joe McMillan  
George Uthlaut

Dr. Christopher B. Roberts  
Sue Ellen Abner  
Dr. Timothy D. Placek  
Ronald W. Kirkland  
Dr. Gopal Krishnagopalan

Dr. Y.Y. Lee  
Frank J. Magazine  
Dr. Bruce J. Tatarchuk  
Dr. Larry Monroe



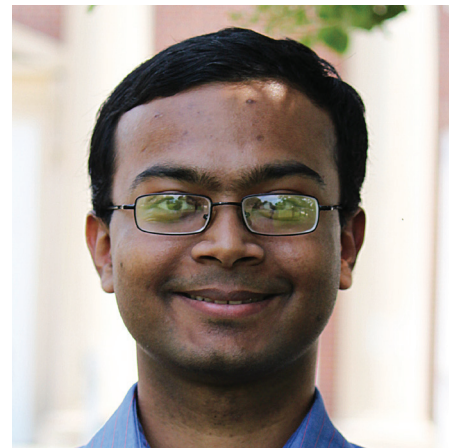


## ASHLEY ROBINETT NAMED OUTSTANDING YOUNG ENGINEER

**Mrs. Ashley Robinett** received the *Outstanding Young Auburn Engineer Award* at the Samuel Ginn College of Engineering Awards Banquet on September 28. Ashley serves as the vice president of corporate real estate at Alabama Power. Her responsibilities include managing the company's land holdings in support of business objectives.

Upon graduating from Auburn in 2001 with a Bachelors degree in Chemical Engineering, Ashley began her career with Southern Company as an engineer for Alabama Power's wholesale subsidiaries. She managed the wholesale subsidiary's resource planning, risk analysis and business case development functions, including renewable energy. In the years following, Ashley served as the assistant to the executive vice president and chief operating officer of Southern Company, and as the assistant to the president and chief executive officer of Alabama Power. Before her appointment to her current role, she was the area manager for Alabama Power's Birmingham division, where she oversaw business office operations, customer relations, community development and external affairs. Her professional climb at Alabama Power has been substantial and with merit. Other executives have taken notice of Ashley's knowledge, experience and talent, and she has become one of the youngest employees promoted to an officer level at Alabama Power. This is an honor not many Alabama Power employees can claim and few earn. She is very generous with her time, spending a lot of time talking to students when attending meetings of the 100+ Women Strong, where she is a tremendous role-model to our female students.

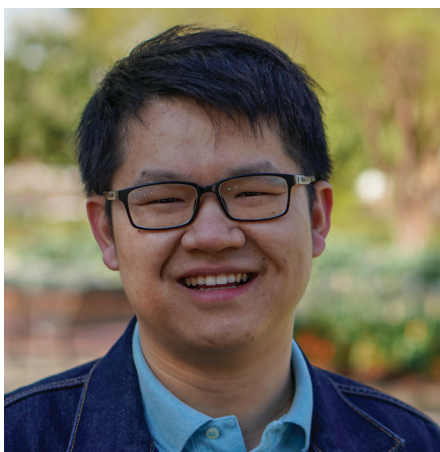
We are truly delighted that Ashley's outstanding accomplishments and commitment to our college/departments are recognized this way. Ashley was also recognized by the Auburn University Alumni Association with the Young Alumni Achievement Award at the 18th Lifetime Achievement Awards Ceremony on March 2, 2019.



**Dr. Shantanu Pradhan**, who completed his Ph.D with Dr. Lipke has accepted a faculty position at the Indian Institute of Technology (IIT) in Madras, one of the premier research institutions in India.



# STUDENTS



**Zuo Zeng** (advised by Dr. Selen Cremaschi) was selected as one of only four recipients of the prestigious *Harry Merriwether Fellowship* from the Auburn University Graduate School.



**Iman Hassani** (advised by Dr. Elizabeth Lipke) had images from his research selected for display as part of the *Auburn University Research Showcase*



The Auburn University Graduate School will recognize **Ms. Nicole Habbit** (advised by Dr. Elizabeth Lipke) with a *2019 Outstanding Masters Student Award* at its awards ceremony in late April. Our department can only nominate one Masters and one doctoral student each year, and we are extremely proud that this is the 12th consecutive year that a chemical engineering student has been honored with one of these awards. Nicole will also be honored with an *2019 Outstanding Masters Thesis Award*, which recognizes a thesis that is making a significant contribution to the respective discipline. Selections were based on the clarity of style and presentation, scholarship, research methodology, and contributions to the field or discipline.

**Morgan Ellis** (advised by Dr. Lipke) was selected as the recipient of the *2019-2020 100+ Women Strong Graduate Fellowship* valued at \$2,000.



**Michael Minkler** (advised by Dr. Bryan Beckingham) was selected as the recipient of the *2019-2020 J. Alley Family Leadership Graduate Fellowship* valued at \$2,000.



**Raj Thakur** (advised by Dr. Carlos Carrero) received the 2019 Kokes Award to attend the 26th North American Catalysis Society Meeting.



A large group of students participated in the *2019 AIChE Regional Conference* in Starkville, Mississippi on March 29-31. More than students attended the meeting as officers, car team members, and to present research. Our Chem-E Car Team performed very well with a strong 3rd place finish, that qualifies them to compete at the national meeting in Orlando in the Fall. We are proud that we had such a strong presence at the meeting since our AIChE Student Chapter has presented a successful bid to host the 2020 Regional Conference in Auburn. We are excited about this opportunity to highlight our program to our peer institutions in the Southeastern Region and have already started planning the conference activities.





Several of our graduate students presented posters at the *6th Graduate Engineering Research Showcase* in the Fall and represented our department extremely well with a large number of excellent posters. Not only did all of our students do a very nice job in presenting their research, they also did very well in the poster competition. **David Young** (advised by Dr. Selen Cremaschi) won overall 3rd place, while **Fatima Hamade** (advised by Drs. Virginia Davis and James Radich), **Ferdous Finklea** and **Yuan Tian** (both advised by Dr. Elizabeth Lipke) received honorable mentions in the overall competition and **Iman Hassani** (advised by Dr. Lipke) received the award for the *Top Chemical Engineering Poster*.



**Joseph Naro** and **Tina Huang** were selected for a summer abroad program in China this year.

**Tyler Compher** was selected by the Chemical Engineering Faculty as the *Outstanding Chemical Engineering Student* for 2018-2019.

At the 2018 *AIChE National Student Conference* in Pittsburgh last October, several students were recognized for their poster presentations:

**Kareem El-Kattan** (advised by Dr. Allan David) won 1st place in the Food, Pharmaceuticals, and Biotechnology division for his poster "*Developing a Targeting Protein to be used for the Detection of Matrix Metalloproteinase-2 Activity in Tumor Models*".

**Tarun Kore** (advised by Dr. Raghav in Aerospace Engineering) won 3rd place in the Computing Simulation and Process Control division for his poster "*Computational Fluid Dynamics in the Human Trachea*".

**Kaitlyn Lawrence** (advised by Dr. Carlos Carrero) won 1st place in the Catalysis and Reaction Engineering division for her poster "*Structural and Electronic Insights on Supported Mixed Metal Oxide Catalysts*".



Chemical engineering students received an impressive 8 Undergraduate Research Fellowships in the College of Engineering:

**Tina Huang**  
(advised by Dr. Bryan Beckingham)

**Andrew Moore**  
(advised by Dr. Elizabeth Lipke)

**Tarun Kore**  
(advised by Dr. Vrishank Raghav, Aerospace Engineering)

**Johann Phan**  
(advised by Dr. Gretchen Oliver, Kinesiology)

**Jack Schuler**  
(advised by Dr. Andrew Adamczyk)

**Lily Gong**  
(advised by Dr. Bryan Beckingham)

**Connor Jones**  
(advised by Dr. Forrest Smith, Pharmacy)

**Noah Blackwood**  
(advised by Dr. Allan David)

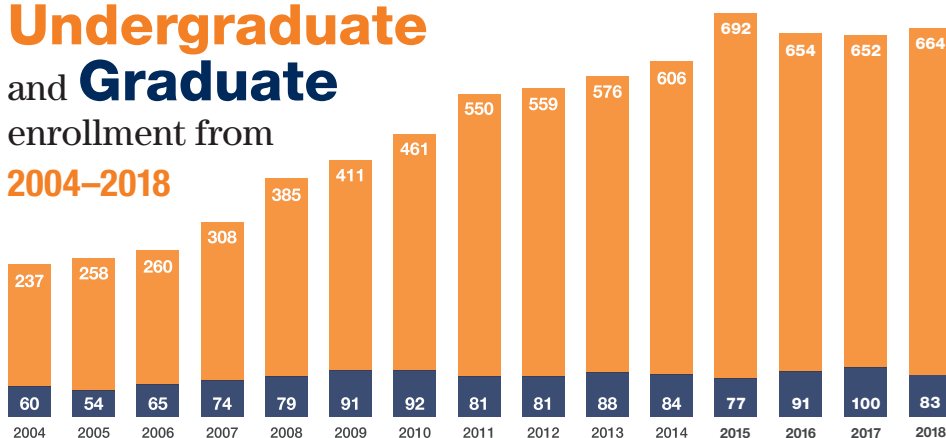


# ENROLLMENT

Our undergraduate student enrollment appears to have stabilized. We currently have 664 undergraduates (271 pre-chemical engineers and 393 in major) per the Fall 2018 data. This is up slightly from 652 a year ago. We are committed to maintaining our high quality instructional programs and our successful efforts to recruit additional faculty and staff will help us in this regard.

In the Fall semester, we welcomed 12 new graduate students to our department from a variety of high quality programs including University of Southern Mississippi, University of New Hampshire, University of Alabama Huntsville, Missouri University of Science & Technology, as well as top international schools. This brings the total number of graduate students in our program to 83 (11 Masters and 72 Ph.D.). The combination of a much smaller incoming class of students compared to last year as well as a very high graduation rate caused our total enrollment to drop quite a bit this year. Increasing our graduate enrollment to above 100 students remains the goal for our department and we will work hard in the coming year to achieve this enrollment level again.

## Undergraduate and Graduate enrollment from 2004–2018



## SAVE THE DATE! 2019 SPRING OPEN HOUSE

**November 1, from 10–2pm**

Reconnect with old friends, catch up with past faculty and welcome our new members. Meet students, tour our facilities, and learn about our exciting research and educational opportunities.

Join us the following day, November 2, three hours prior to the Auburn vs. Mississippi kickoff for our College of Engineering Tailgate.

**I want to support excellence and innovation in Auburn's  
Department of Chemical Engineering with a tax-deductible gift of:**

- ☐ \$10,000    ☐ \$5,000    ☐ \$2,500  
☐ \$1,500    ☐ \$1,000    ☐ \$500  
☐ \$250    ☐ \$100    ☐ Other \$ \_\_\_\_\_

**I would like to make an ongoing monthly gift.**

**Please charge my card until instructed to stop:**

- ☐ \$100/month    ☐ \$50/month    ☐ \$25/month  
☐ Other \$ \_\_\_\_\_ /month

**My contribution today will be paid by:**

☐ Check enclosed (payable to *Auburn University Foundation*,  
designate *Department of Chemical Engineering* on the memo line)

- ☐ Mastercard    ☐ American Express  
☐ Visa    ☐ Discover

Name as it appears on card \_\_\_\_\_

Card Number \_\_\_\_\_

Expiration Date \_\_\_\_ / \_\_\_\_    Security Code \_\_\_\_\_

Signature \_\_\_\_\_

You may also make your gift online at  
<https://eng.auburn.edu/chen/giving>

## Make a Difference

**The Department of Chemical Engineering** is committed to providing an unparalleled environment for education and research. We recruit and retain the best and brightest faculty and students, and we provide them with the latest technology, state-of-the-art facilities, and essential materials they need to attain even higher levels of excellence. The support and partnership of our alumni is a necessary factor in our continued success.

The Auburn Family includes students and alumni, faculty and staff, corporations and foundations, parents and friends. We all have a role to play, and if we work together, our department will continue to have a profound impact on the world.

Your gift, large or small, is an investment in the future of Auburn Chemical Engineering and is a vote of support for the department. Together, we can accomplish our goals and build upon our long tradition of excellence. Together, we will make a difference.

**Mail to:**

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