Lafayette ChBE Students Attend AIChE Conferences

Colleen Lavelle ‘17.

Mentored by Lafayette College AIChE Advisor, Assistant Professor Michael Senra, several Lafayette Chemical and Biomolecular Engineering students were able to learn, present research, win awards, and network through attending professional AIChE conferences.

In the spring of 2017, five students from traveled to Rowan University in Glassboro, NJ for the Mid-Atlantic Regional Conference. On the first day, Patrick Leggieri ‘18, Cameron Darkest-Burkey ’18, Colleen Lavelle ’18, and Sara Mikovic ’18, Lafayette’s first ever ChemE Jeopardy team, took a close second place finish in their round. The following day, two students presented their research, Leggieri in the oral presentation competition and Colleen McGovern ’18 in the poster competition. Lavelle and Mikovic attended the student chapter officer meeting. Students were also able to attend workshops on a variety of topics, a career fair, and the student bash, getting to meet students from other chapters.

Then in October, nine Lafayette ChE students traveled to Minneapolis, Minnesota for the National AIChE conference. Here students attended keynote lectures, a graduate school and career fair, leadership workshops, and re-search presentations and multiple students received awards. Aleeza Ajmal ’18, Nahin Ferdosy ’19, Ugochukwu Okeibunor ’18, Rachel Tenney ’18, and Junwei Xiang ’18 presented posters in the Undergraduate Student Poster Competition. Tenney and Xiang each earned recognition, winning 1st place in their respective divisions. Patrick Leggieri ’18 gave an oral presentation of his work as part of the Undergraduate Research Forum on Energy and the Environment. Andrew Frucht ’20 was awarded the Freshman Recognition Award which he accepted at the award’s ceremony. Finally, Colleen Lavelle ’18 and Frucht were in attendance at the AIChE Chapter Officer’s meeting, where updates were given for student chapter programs and strategies for improving student chapters were discussed.

The students found many aspects of the conference extremely valuable. Favorites included the recruitment fair, where over 60 graduate schools were present, and the Executive Industry Panel, which had executives from 3M, Honeywell, and ExxonMobil. Faculty members in attendance presenting work and recruiting included Professors Christopher Anderson, Lauren Anderson, Melissa Gordon, Polly Piergiovanni, Michael Senra, and Lindsay Soh. In their free time, many enjoyed exploring Minneapolis and visiting the Mall of America. We are looking forward to great conferences this year in Princeton, NJ and Pittsburgh, PA.

Connect with us!

We are always interested in connecting and reconnecting with alumni. We are grateful to alumni that have given their time by speaking at AIChE and ChBE events and/or opening their workplace to us to host a plant tour or workshop. For more about Lafayette ChBE, please join our mailing list by e-mailing us for a link at aiche@lafayette.edu. Lafayette Chemical Engineering website: che.lafayette.edu  Lafayette AIChE websites: sites.lafayette.edu/aiche We’re on Facebook! Lafayette AIChE AIChE Board 2017-2018: Professors Lauren Anderson, Polly Piergiovanni, and Michael Senra; Colleen Lavelle ’18, Sara Mikovic ’18, Alexandra Bord ’19, Trent Eastman ’19, Andrew Frucht ’20, Sarah Park ’20, Cassandra Warriner ’20

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Photo Spotlight

Above: Visiting Assistant Professor Kyle Doolan socializes with seniors at ChemE Pub Night (From L to R: Aditya Mehta ’18, Dhanvi Zhang ’18, Rahulmita Shridhar ’18, Bilal Akbar ’18.) Below: Owen Robinet ’18 assists middle school students from Nitschmann Middle School in an outreach activity.

Chemical and Biomolecular Engineering Departmental Highlights

The Department continues to offer a premier undergraduate experience in chemical engineering through a combination of courses rich in experiential learning and research opportunities in cutting edge areas like sustainable energy sources, smart materials, atmospheric chemistry, and bioengineering. The department is home to approximately 150 undergraduate students across all four class years and 10 full-time faculty. In both cases, we are well above national averages with 49% female students and 5 full-time female faculty. Students and faculty are actively engaged in departmental affairs, as you will read about in the following pages. Select highlights of the past year include:

Faculty and students continue to engage in research projects at a high rate. 12 students participated in summer research through the EXCEL Scholars or Clare Boothe Luce Scholars Programs students; 10 students are currently conducting Honors Theses in Chemical Engineering, and over 20 additional students have been involved in independent projects throughout the academic year. Several of these projects have led to peer reviewed publications in the past year, featuring student co-authors.

Visiting Professors Kyle Doolan and alumnus Alex Wolpert ’80 have significantly enhanced experiential learning opportunities for our students. Professor Doolan has actively engaged students through his teaching in the laboratory sequence, while Professor Wolpert continues to provide our seniors with hands-on, real-world capstone design projects with local industry. This year, we are also grateful for the time and energy that alumnus John Plumeri ’78 is donating to our capstone projects. Mr. Plumeri brings an industrial perspective commensurate with his 37+ years of experience working with Mobil and ExxonMobil. The ability to provide students with innovative and entrepreneurial opportunities depends on the generosity of dedicated alumni and strong industrial partnerships.

Assistant Professors Melissa Gordon ’11, Lindsay Soh, and Joseph Woo attended and presented at the Chemical Engineering Summer School in late July at NC State University. Professor Polly Piergiovanni designed and led a highly-rated workshop on using food to teach chemical engineering principles. The summer school, sponsored by ASEE and offered every five years, is designed to provide guidance and resources to help new faculty excel as teachers and as scholars.

Professor James Schaffer continues to mentor students in an independent study course focused on the mathemati-cal modelling of chemical engineering systems. These students apply problem-solving skills across the curriculum and study advanced mathematical topics to prepare them for graduate study.

Finally, this past summer James T. Mar-cus ’50 Professor of Chemical Engineering James Ferri accepted a position at Virginia Commonwealth University. His 16 years at the College, James played a central role in growing enrollments, adding faculty lines, acquiring several major assets, including a twin-column distillation plant, and forging strong partnerships with industry. We thank Professor Ferri for his vision, leadership, and strong mentorship of students, and in wishing him well in his new position. The Department is currently searching for a tenure-track assistant professor to fill this vacant line.

We’re on Facebook!

Lafayette ChBE website: che.lafayette.edu Lafayette AIChE website: sites.lafayette.edu/aiche

AIChE Board 2017-2018: Professors Lauren Anderson, Polly Piergiovanni, and Michael Senra; Colleen Lavelle ’18, Sara Mikovic ’18, Alexandra Bord ’19, Trent Eastman ’19, Andrew Frucht ’20, Sarah Park ’20, Cassandra Warriner ’20

We’re on Facebook! Lafayette AIChE Professor and Depart-ment Head

When I was contemplating where I wanted to go to college and what I wanted to major in—I was completely lost. I’ve always had many diverse interests, but none particularly screamed, “Do this!” Naturally, I turned to my parents and two older brothers for advice. That is when my oldest brother, Matt, graduated with a BS in Chemical Engineering and a minor in Religious Studies in 2014 from Lafayette College. After graduating, Air Products hired Matthew and he began their three year Career Development Program with some of his classmates. He began in Allentown, Pennsylvania, and then moved to Houston, Texas for two years of his rotation and has been there ever since. At the moment, he is the production engineer at one of the HyCO plants in La Porte, TX which produces hydrogen and carbon monoxide via partial oxidation. Recently, he and the process safety and process system teams worked to determine if it would be safe to increase the interval for testing the Critical Safety System (CSS) for two of the large compressors from 2 to 4 years. The tests ensure that the safety interlocks are functioning properly, i.e. sending out an alarm if there is too little pressure at the compressor inlet and shutting it down to avoid potential damage to the machine. By extending the interval, the impact on productivity and reliability

My’Kelya Dickerson ‘19 a highly driven student, participating in many different activities on Lafayette’s campus. She is one of a number of chemical engineering student athletes, as she is a member of the Lafayette College Cheerleading Team. In addition to cheering at football games and basketball games, she is responsible for choreographing some of the team routines. As Co-President of the Marquis Scholars and Fellows My’Kelya is responsible for planning events for all of the scholars and fellows on campus, encouraging them to maintain a strong connection to the rest of campus. Furthermore, My’Kelya is a Kaleidoscope Coordinator, which entails organizing social justice advocacy and working fellow “scopes” to pursue a more fair and just society. She explains that the group of students “all have different passions, but have the same goals.”
can be minimized as it allows testing to better align with normal plant outage schedules. During this time, he worked with another Lafayette alumnus, Shannon Noll, ‘13, and together their groups decided that raising the limit from two years to four was, in fact, safe.

While in Texas, Matthew also volunteers at the Houston Humane Society and Hermann Park. Matthew explained that the Lafayette arts and science co-curricular education has continued to encouraged him to explore and “test out the other half of [his] brain [he] doesn’t use at work.” This is evident in his other hobbies like taking jazz piano lessons and a beginner’s course at the piano. He also plays drums in a weekly trivia night, he uses both halves of his brain to help take his team to victory. Fortunately, when Hurricane Harvey struck Houston, Matthew was mostly unaffected, but he couldn’t leave his apartment for a few days due to flooding in the streets. After the State of Emergency was lifted, he went to volunteer at the Houston Food Bank, citing, “I wanted to give back to the community and those who were devastated by the storm, especially considering how fortunate, comparatively, I was.” He also said that Lafayette helped to instill the importance of “giving back,” that is still essential for him today. Matthew continued, explaining how Lafayette taught him leadership and how to work in a group. He has had many projects that utilized teams, and having the tools Lafayette gave him to communicate, clarify, and “focus on individual strengths and weaknesses” has led to many successes. Matthew added one more Lafayette lesson to the list: effective presentations. He found that doing presentations in lab classes and at national conferences allow him to speak clearly and confidently. Matthew is grateful for all that Lafayette has given him and hopes to continue to take the spirit of Lafayette with him on his journey.

WARRENER (from Page 2)

Assistant Professor Lindsay Soh Awarded Named Chair Position

On July 1st, 2017, Assistant Professor Lindsay Soh became the Kate and Walter A. Scott ’59 Scholar in Engineering. This award, funded by an endowment given by the Scott family, was established in 2016 to allow Lafayette to strengthen its support for women and other under-represented groups in engineering.

In addition to her strong research record, Professor Soh cites several activities as reasons why she was chosen for this achievement. She is the faculty advisor for the Minority Scientists and Engineers student club on campus, which works to create a supportive community for minorities in these fields. They offer tutoring programs, mentoring programs, and encourage attendance at national conferences. She is also involved with the Society of Women Engineers (SWE) chapter at Lafayette and the Clare Boothe Luce scholarship program, a summer research program aimed at supporting women in STEM fields.

Professor Soh is very grateful for the award because of its representation that other people believe in the work that other people believe in the work she is doing for women and minorities in engineering. She holds this scholar position for two years. As a part of this accomplishment, Professor Soh receives funds that she hopes to use to attend a conference. Congratulations, Professor Soh!
Lafayette Students Earn Prestigious Scholarships and Fellowships

Andrew Frucht, ’20.

Sean McSherry ’17, Cara Abecunas ’17, and Patrick Leggieri ’18 have earned impressive scholarships and fellowships during the past year. McSherry earned a fellowship grant from the National Science Foundation’s Graduate Research Fellowship Program, while Cara received an NSFGRFP Honorable Mention. Leggieri was named a Goldwater scholar from the Barry M. Goldwater Scholarship and Excellence in Education Program.

McSherry, hailing from Doylestown, PA, is currently a graduate student at the University of Michigan investigating radiative energy transfer in two-dimensional hyperbolic metamaterials. At Lafayette, McSherry conducted a senior honors thesis researching Percolation Network Characterization within Segmented Polyurethanes under the mentorship of Professors James Ferri and Ashley Cramer. The NSF grant will help McSherry research his own ideas in grad school.

He was quoted in The Lafayette as saying, “If there is a really awesome, novel idea ... but the professor hasn’t secured funding for it, then you can be that person [to research it].” Abecunas, from Medfield, MA, is also currently pursuing graduate studies at the University of Michigan in the field of biomedical engineering, conducting research in systems biology focusing on melanoma cancer. In the summer of 2016, she was named one of 20 AMGEN Scholars in the UCLA program. The AMGEN Scholars Program allows undergraduates to participate internationally in cutting-edge research opportunities at one of 17 world-class institutions. At Lafayette, she investigated the fabrication of PNIPAM-collagen thermally responsive hydrogels for drug delivery applications in a senior honors thesis, mentored by Professor Christopher Anderson.

Leggieri, originally from East Stroudsburg, PA, was awarded the Barry Goldwater Scholarship. The Goldwater Scholarship helps cover tuition costs for undergraduate students in STEM pursuing careers in research. Considered the most prestigious scholarship in the STEM field, it is awarded to only 300 highly qualified college sophomores and juniors across the United States. This merit scholarship was established by Congress in 1986 to honor the former U.S. Senator and presidential candidate by the same name.

Leggieri plans to earn a PhD in chemical engineering or bioengineering while pursuing research opportunities integrating both biotechnology and integrating alternative energy. He recently presented his work on ethyl ester cold flow properties at the 2017 AIChE annual meeting held in Minneapolis (see national conference article) and was first author on an article recently accepted by the scientific journal Fuel. Leggieri has worked with Professors Michael Senra and Lindsay Soh, and has listed both professors as mentors during his time at Lafayette.

Congratulations to Cara, Sean, and Patrick and good luck in your future researching endeavors!

Trent Eastman, ’19.

Assistant Professor Joseph Woo was awarded the Student Government Superior Teaching Award for Natural Science or Engineering for the 2016-2017 academic year! Every year, this award is given to the faculty member who embodies the skills and traits of outstanding teaching technique, and the winner is chosen by a student vote among three finalists selected by a student panel based on student nominations.

Students are asked to nominate faculty who have taught above and beyond the expectations of the students and impacted them positively both inside and outside the classroom. Professor Woo is very thankful to have received this honor. In teaching, Professor Woo strives to be the professor he wishes he had.

During his undergraduate studies he struggled in the classes he currently teaches, Process Controls and Thermodynamics. Because of those struggles he now better understands where his students can get tripped up. He believes it is very important to see your mistakes and not only learn from them, but also be transparent with the students about them.

From a student perspective, his intense desire to constantly improve his classes and teaching style is inspiring to students. Thank you Professor Woo for your hard work and your dedication to our education!

Chemical Engineering Elective Focus: Polymers

Polymers is a Chemical Engineering elective course currently being taught by Assistant Professor Melissa Gordon ’11. Alexandra Bord (’19) sat down with Professor Gordon to hear her thoughts about teaching the course.

Why did you want to teach Polymers?

“I wanted to teach Polymers because I am really interested in it and I got my PhD in the subject as well. I hope the class will encourage students to pursue the area in their futures. I was happy to come back to alma-mater to teach something I am so passionate about.”

What do you hope the students get out of the class?

“I want to ensure that the students have a general understanding of the fundamentals of polymer chemistry and polymerizations. I hope that some students become interested in a field they may have only heard briefly about, and potentially could even consider this field for their graduate work. I also get a sense of fulfillment sharing the various projects I have worked on. I am working on how to best explain the field of polymers to those who are interested, but may not have had any previous experience.”

What are your goals?

“The overall goal of the class is to have students learn the most about polymers with the most excitement. I definitely try to keep the excitement alive, even in a lecture.”

Assistant Professor Melissa Gordon ’11.