LSU

Department of Biological & Agricultural Engineering

2024 NEWSLETTER

Photo by AgCenter photographer, Ruthie Losavio

BE alum Shane Vallery (B.S.B.E., 2020) leveling one post of a medium-sized composite structure during a volunteer playground build in Belle Rose, LA.

LETTER FROM THE CHAIR

Welcome message from the Department Chair

Dear BE and BAE Nation,

I hope that this letter finds each of you well and that you enjoy our 2024 update.

As I reflect on the many highlights of this past year, the moment that sticks out most in my mind is from the American Society for Agricultural and Biological Engineers (ASABE) Annual International Meeting, which was held in Anaheim, California in late July and early August. For the first time, we had a senior design team that made the finals of the AGCO National Design Competition (we've sent several teams to the Gunlogson National Design Competition over the years, but never AGCO).

I watched LSU's team participate in the oral competition with strong teams from the University of Nebraska and Oklahoma State University, and all three teams made professional, sharp presentations. Winners were announced at the awards luncheon, the last event of the conference. I waited through the third-place announcement, and when LSU's project title, "Semi-Automated Soybean Cutting Device," was not declared, I knew that we were in the top two. I was listening hard to the second place announcement, and when "Semi-Automated Soybean Cutting Device" was again not declared, I had to simultaneously stifle my sob of joy and my wish to get up on the nearest table to jump up and down in victory (which I know that many BE alumni have seen me do in the past--bet you never forgot factor of safety!).

LSU BAE were national champions in the AGCO National Design Competition! Huge congratulations go out to team members Madisson Boutte, Eva Counts, Oliver Deal, Khai LeJeune, Elizabeth Peters, and Mikayla Powell. This team was advised by Kevin Hoffseth and co-advised by Bruno Rego. The team won a cash prize, and the Department did as well. I was thrilled to add prize funds to the Nye Senior Design Capstone Fund, which many of you have contributed to in recent years from challenges issued by Dr. Gloria Nye in honor of the late John Nye, former department chair and faculty member in BAE.

Every member of that national champion senior design team graduated in 2024 and were among the 48 students who earned their B.S. B.E. degrees. We also had two students complete their Ph.D. degrees, Dr. Beatriz Garcia and Dr. Spencer Lemoine; Hollt-man Flores earned a master's degree.

BAE had some well-deserved promotions this year, with Dr. Yongchan Kwon being promoted from Assistant Professor to Associate Professor with tenure, and Dr. Carol Friedland, Director of LaHouse, being promoted from Associate Professor with tenure to Professor with tenure. Also, Dr. Rubayet Bin Mostafiz was appointed the Assistant Director of Research for LaHouse.

One new tenure-track faculty member joined us in 2024. Dr. Debnath Maji received his Ph.D. in Electrical Engineering from Case Western University in 2020, and comes to us with several years of industrial experience in the design, translation, and commercialization of biomedical sensing devices. BAE was also fortunate to add Ms. Alena McDuff to the office staff, where her expertise in grants management is already paying dividends for our faculty. The LaHouse Research and Education Center grew substantially in the past year, adding faculty members Ayat Al Assi, Meggan Franks, and Md Adilur Rahim, and staff members Candace Derbes, Shelly Kleinpeter, and Celeste Robin.

This year, we made strides toward realizing our long-term goal of having a $1,000,000 scholarship endowment in the department. First, Professor Emeritus Richard Bengtson made a $50,000 gift to endow the BESO Mailander Scholarship. This generous donation completed a 14-year effort undertaken by the Biological Engineering Student Organization to endow this scholarship.

Second, we executed a successful fundraising campaign to meet a $10,000 challenge gift made to the Thomas Family Scholarship by family members Dan Thomas (former department chair and faculty member), Mike Thomas (a graduate of BAE), and Jill Davis (LSU alumna). The advisory council worked with BAE and the LSU Foundation, especially Maddie Volland, Daja Thomas, and Lee Ann Stenvick, to help secure matching funds for this scholarship. Thanks to the generosity of many, over $15,000 in matching funds were raised. Because of this successful endeavor, we will be able to award more (and better) Thomas Family Scholarships to deserving students in the future.

Finally, I am happy to report that the groundwork was laid in 2024 for a new roof in the Ag Metals Building, which I hope will be completed sometime in 2025!

I encourage you to read on to learn more about the things going on in BAE. Our people-centered, supportive, engineering environment makes serving in BAE a joy. Feel free to drop in if you are around or to get in touch at mlima1@lsu.edu. I hope that each of you has a fantastic 2025!

All my best,

Marybeth

DEPARTMENT HIGHLIGHTS

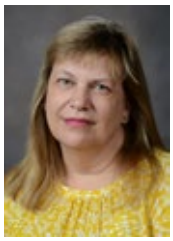
Faculty Highlights

Faculty and adjunct faculty members in BAE perform outstanding work, with many earning well-deserved recognitions in 2024.

Giovanna Aita, Dorin Boldor, Gillian Eggleston, Todd Monroe, and Cristina Sabliov were part of a larger team that received the Tipton Team Research Award from the LSU AgCenter for their roles in the Louisiana Institute for Bioproducts and Bioprocessing.


Giovanna Aita


Dorin Boldor


Gillian Eggleston


Cristina Sabliov

Stacia Conger, Md Adilur Rahim, Shifat Mithila, Andrew Garcia, Robert Rohli, Carol Friedland, and Meggan Franks were awarded an Educational Aids Blue Ribbon Award at the American Society for Agricultural and Biological Engineers Annual International Meeting for their electronic publication "DIRT: Drought Irrigation Response Tool." To learn more about this tool, see https://www.lsuagcenter.com/articles/page1716235240332.


Stacia Conger


Andrew Garcia


Meggan Franks

Carol Friedland
Promoted from Associate Professor with tenure to Professor with tenure and recognized at the inaugural LSU AgExcellence Awards Ceremony as a Notable Grant Recipient, for garnering more than $1M in funding in a year.

J. Philip Jung was nominated and accepted as a full member of Sigma Xi.

Yongchan Kwon was promoted from Assistant Professor to Associate Professor with tenure.

Marybeth Lima received a faculty mentoring award from LSU.

Sathivel Subramaniam was awarded the William "Bud" Davis Alumni Professorship from LSU.

Faculty Spotlight

Dr. Debnath Maji recently joined the Department of Biological and Agricultural Engineering at Louisiana State University as a tenure-track assistant professor. He holds a Bachelor's and Master's degree in Electronics and Electrical Communication Engineering from the Indian Institute of Technology, Kharagpur, India, and a Ph.D. in Electrical Engineering from Case Western Reserve University.

Dr. Maji's doctoral research focused on developing a miniaturized measurement platform using dielectric spectroscopy to assess hemostasis with a single drop of whole blood. His work was instrumental in advancing diagnostic methodologies for blood disorders. Following his Ph.D., he worked at Coagulation Sciences, where he developed a Point-of-Care device for assessing bleeding disorders and guiding transfusion and resuscitation decisions.

Most recently, Dr. Maji was a Senior Research Engineer at RenBio, where he contributed to the development of a novel combination platform device leveraging electroporation and cellular machinery to produce therapeutic proteins in vivo from encoded plasmid DNA.

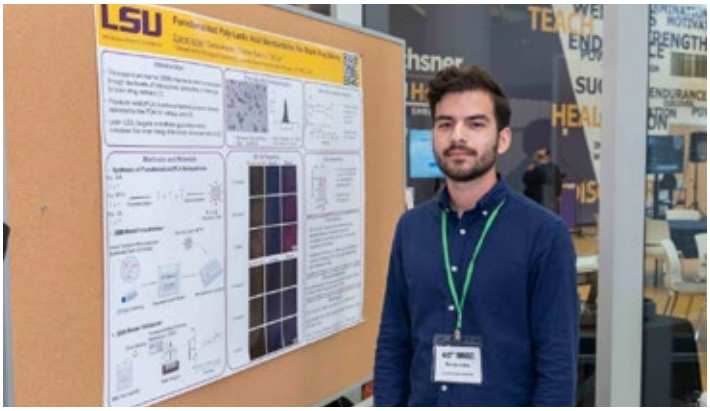
Dr. Maji's current research interests span low-cost impedance-based microfluidic diagnostics and electroporation-based therapeutics. His work aims to advance affordable, point-of-care diagnostic devices and innovative therapeutic platforms, addressing critical healthcare challenges and shifting paradigms from late-stage intervention to early detection and prevention.

Dr. Maji has published numerous peer-reviewed articles, has been awarded numerous patents, and has presented his work at national and international conferences. His doctoral research led to the development of **ClotChip**, a groundbreaking point-of-care diagnostic device for assessing blood coagulation. The technology was licensed by Xatek and received FDA breakthrough device designation in March 2020. He is a member of the Institute of Electrical and Electronics Engineers and the International Society for Electroporation-Based Technologies and Treatments.

For more information, please visit his lab website:
https://faculty.lsu.edu/maji/.

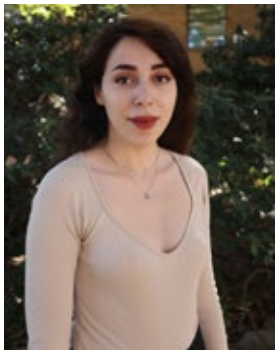
STUDENT HIGHLIGHTS

Like our faculty, undergraduate and graduate students in the Department were well-recognized for their outstanding achievements in 2024.



Daniel Alday *(ABOVE)*, an undergraduate student who works in Dr. Qi Cai's lab, won first place in the student poster competition at the 40th Southern Biomedical Engineering Conference, held September 13-15 at LSU Shreveport.

Senior design team Madisson Boutte, Eva Counts, Oliver Deal *(not pictured)*, Khai LeJeune, Elizabeth Peters, and Mikayla Powell *(BELOW)* (faculty advisor Kevin Hoffseth, faculty co-advisor Bruno Rego) won first place in the national AGCO Design Competition at the American Society for Agricultural and Biological Engineers Annual International Meeting in Anaheim, CA.



Fateme Nazaryabrbekoh *(RIGHT)*, a graduate assistant in Dr. Philip Jung's lab, received an LSU Graduate School Travel Award to attend the Biomedical Engineering Society Annual Conference in Baltimore, MD, where she presented a paper entitled "Cell-cell communication and gene regulation of stem-cell parenchymal cell fusion."

Avery Olinde, who graduated with her B.S.B.E. in December, was selected to represent the entire Fall 2024 Engaged Citizens cohort for "exemplary dedication to service and community engagement" with the Engaged Citizen Program Series Dossier Spotlight: https://www.lsu.edu/academicaffairs/ccell/stories/ecp-dossier_averyolinde_fall2024.php.

Ricki Pierce won the McGlaughlin Medal, given each semester to the graduating senior with the highest grade point average in the entire LSU College of Engineering. Ricki graduated summa cum laude with her B.S. in Biological Engineering in December.

Peter Vallet, an undergraduate student who works in Dr. Philip Jung's lab, received a national Astronaut Scholarship.

At LSU, there are a number of graduation distinctions that students can undertake to enrich their college experience, including academic excellence awards administered through the LSU Honors College; communication excellence by earning the Distinguished Communicator Award; civic engagement excellence by earning the Engaged Citizen Award; and research excellence by earning the Distinguished Undergraduate Researcher Award.

We salute the following students who earned graduation distinctions in 2024:

Honors Graduates who completed and defended a research thesis under the direction of a faculty advisor include:

Corinne Martin, thesis entitled "Characterization of a Custom Capacitive Sensor Array for a Force-Sensing Mouthguard."
Faculty Advisor Chandra Theegala

Erinn Roblee, thesis entitled "Investigation of Cell Viability Analysis for 3D Cell Culture Utilizing Alamar Blue."
Faculty Advisor Todd Monroe

Distinguished Communicators, who completed at least 12 credits of communication-intensive courses, participate in a significant leadership or service-learning experience, and create a digital portfolio showcasing their written, oral, visual, and technological communication skills with the help of a faculty advisor include:

Emly Bracey	Faculty Advisor Marybeth Lima
Cailynn Gerald	Faculty Advisor Nick Totaro
Jacob Lincoln	Faculty Advisor Nick Totaro
Chloe Marino	Faculty Advisor Nick Totaro
Corinne Martin	Faculty Advisor Marybeth Lima
Avery Olinde	Faculty Advisor Nick Totaro
Ricki Pierce	Faculty Advisor Marybeth Lima
Erin Roblee	Faculty Advisor Nick Totaro

Engaged Citizens, who completed at least 7 credits of service-learning courses, completed at least 100 hours of community service, and wrote a reflective essay illustrating how their experiences were informed by LSU's Commitment to Community, include: Cailynn Gerald, Avery Olinde, Ricki Pierce

Distinguished Undergraduate Researchers, who complete 270 research practice hours, present and/or publish their work at conferences inside and outside of LSU, participate in research professional development opportunities, and create a research portfolio under the direction of a faculty advisor, include:

Jacob Carignan
(faculty advisor Juhee Haam, Biological Sciences)

Corinne Martin
(faculty advisor Sunggook Park, Mechanical Engineering)

NOTE: Philip Jung served as the faculty advisor for Stephen Wheat (Biochemistry major)

Additional awards earned by students within LSU are listed below

Two Biological Engineering students were awarded LSU Discover Grants to conduct undergraduate research after a university-wide proposal competition, including:

Shea Lee and her project, "Production and Deimination of Filaggrin Using the Cell-Free System," Faculty Advisor Yongchan Kwon.

Nicholas Wagner and his project: "Developing the Framework for Agricultural Energy Optimization at Crawfish Farms using Water Quality Sensing, faculty advisor M.P. Hayes (Dr. Hayes is in LSU's School of Plant, Environmental & Soil Sciences).

LSU Discover Day is an undergraduate research conference held each spring, and we require capstone senior design groups to submit posters of their designs to this conference, which gives them the chance to present their work; student posters are also entered into college and university-wide competitions. This past year, the College of Engineering gave five awards for outstanding group posters at LSU Discover, and BE senior design teams had a clean sweep of awards! The groups recognized with College honors include:

- Anna Johnson, Corinne Martin, Nick Demas, and Andre James
- Erinn Roblee, P. Riley Haydell, Kirsten Malone, Joseph Randall, Nicholas Bair, and Jaime Cordova
- Eva Counts, Elizabeth Peters, Oliver Deal, Khai Lejeune, Madisson Boutte, and Mikayla Powell
- Cailynn Gerald, Chloe Marino, Jacob Lincoln, Brady Billiot, and Travis Sharpe
- Emly Bracy, Avery Olinde, Olivia Henderson, and Cody Thompson

Additionally, Anna Johnson, Corinne Martin, Nick Demas, and Andre James received the overall first-place poster award at the university level in Science, Technology, Engineering, and Mathematics disciplines.

Scholarships

The BAE department has a long-term legacy of supporting students with departmental scholarships. We are eternally grateful to the donors who established and contributed to these scholarships and the contributions of many alumni and friends who have helped to fund the education of hundreds of BE students over the course of decades. This fall, we awarded scholarships to 22 students for a total of $16,100. The recipients are:

Scholarship	Recipients
Harold T. Barr Memorial Scholarship:	Eva Counts
Harold T. Barr Memorial Scholarship:	Brock Guillot
Richard L. Bengtson Endowed Scholarship:	Luis Delsolar Carlie Dutile Shea Lee Mary Werther
William H. and Barbara A. Brown Scholarship:	Adejoke Adewumi Maximilien Caffery Avery Olinde Ricki Pierce
Albert P. Halluin Memorial Scholarship:	JoAnne Huang Gerard Lorio
Mansel M. Mayeux Honorary Scholarship:	Brandon Martinez Jonathan Vo
Wiley D. Poole Memorial Scholarship:	Raymond Martin Madeline Picard
Scott-Windham Scholarship:	Cameron Ashley Laila Sabree
Carl H. and Christine F. Thomas Family Scholarship:	Olivia Hupperich Catherine Whitehead
Charles E. Severance Scholarship:	Mustafa Alam Claire Lanclos
BESO Michael P. Mailander Scholarship	Eli Dishman

Senior Design

Senior Design Final Presentations were held on May 3, 2024. We had 9 groups, with 49 students enrolled. The Biological and Agricultural Engineering department acknowledges and expresses gratitude for the continued technical and financial support of all our project sponsors and donors, particularly Dr. Gloria Nye, through the John and Gloria Nye Capstone Senior Design Fund. Here are the titles of the projects, along with group members, advisors, and sponsors:

Project Title: **An Efficient, Low-Cost System for Creating External Ear Prostheses for Patients Undergoing Auriculectomy/Lateral Temporal Bone Resection**
Members: Emly Bracey, Olivia Henderson, Avery Olinde, Ricki Pierce, Cody Thompson
Advisor: Dr. Philip Jung, Dr. Qi Cai
Sponsor: Dr. Michael Dunham

Project Title: **Design and Production of an Advanced Cell-Free Protein Synthesis Reaction Chamber**
Members: Nestor Alvarez, Ansu Andrews, Kateland Howard, Kandace King, Elena Nikolaychuk
Advisors: Dr. Carol Friedland
Sponsor: Dr. Carol Friedland

Project Title: **Innovating FORTIFIED Building Education through 3D Interactive Modeling**
Members: Julie Armand, Anna Guidry, Evan Nguyen, Elizabeth Reich, Janusz Wojcik
Advisor: Dr. Todd Monroe
Sponsor: Dr. Todd Monroe

Project Title: **Semi-Automated Cutting of Soybeans for Imaging Processing**
Members: Madisson Boutte, Eva Counts, Oliver Deal, Khai LeJeune, Elizabeth Peters, Mikayla Powell
Advisors: Dr. Kevin Hoffseth and Dr. Bruno Rego
Sponsor: Dr. Kevin Hoffseth

Project Title: **Measurement of Hemostatic Seal Strength After Circumcision**
Members: Lauren Boudreaux, Stefany Crosby, Jonathan Escobar, Chelsea Le, Peyton Pipher and John Mychal Warren
Advisor: Dr. Marybeth Lima and Dr. Carlos Astete
Sponsor: Dr. Chip Roth

Project Title: **Biometric Smart Personal Protection Equipment for Heat Stroke Monitoring and Alerting**
Members: Brady Billot, Andres Escobar, Cailynn Gerald, Jacob Lincoln, Chloe Marino, Travis Sharpe
Advisor: Mr. Nick Totaro and Dr. Todd Monroe
Sponsors: Mr. Nick Totaro

Project Title: **Pressure Sensing Mouth Guard for At-Home Stress Measurements to Track Jaw Clenching**
Members: Atula Danivas, Nick Demas, Andre James, Anna Johnson, Corinne Martin
Advisor: Dr. Chandra Theegala
Sponsor: Dr. Chandra Theegala

Project Title: **Tumor-on-a-Chip: Microfluidic System to Culture and Evaluate 3D Printed Cancer Tissue Scaffolds**
Members: Nicholas Bair, Jamie Cordova, Riley Haydell, Kirsten Malone, Joseph Randall, Erinn Roblee
Advisor: Dr. Todd Monroe and Dr. Jorge Belgodere
Sponsor: Dr. Todd Monroe

Project Title: **Biomedical Model Fish Embryo Processing and Dispensing Device**
Members: Carley Bajon, Jacob Carignan, Victoria Fuentes, Gabriel Medina, Meredith Mareno
Advisor: Dr. Ben Dubansky and Dr. Todd Monroe
Sponsor: Dr. Ben Dubansky

RESEARCH HIGHLIGHTS

Dr. Qi Cai's Lab is leading the way in creating innovative drug delivery systems to improve cancer treatment. Supported by a $75,000 LSU Provost Award grant (https://www.lsu.edu/eng/news/2024/11/lsu-bae-cai-retinoblastoma-eyedrop-treatment.php), the team is developing an eye-drop-based drug delivery system to make treatment more accessible for retinoblastoma patients. In addition, the lab is designing a minimally invasive, portable, and targeted drug delivery system for glioblastoma therapy. These groundbreaking approaches aim to enhance treatment precision, reduce invasiveness, and improve the quality of care for cancer patients. Dr. Cai also received a grant from the Louisiana Board of Regents to understand how tumor microenvironments contribute to glioblastoma cell migration and invasion.

Marybeth Lima co-authored an article with former students and professionals from the Louisiana School for the Visually Impaired on community-based design aspects of a 3D tactile map for playgrounds. The article was published in the Journal of Rehabilitation and Assistive Technologies Engineering and can be seen at https://journals.sagepub.com/doi/full/10.1177/20556683241283703.

Todd Monroe and colleagues published a report in *Micro and Nano Engineering* that evaluated the accuracy and precision of 3D resin printers to create microdevices, as part of an effort to produce rapid prototype microfluidic chips. While these tiny structures have traditionally been fabricated through expensive and slow techniques involving lithography, consumer-grade 3D printers are now able to create precise geometries that meet the design needs of many microfluidic device applications, such as diagnostic and lab-on-a-chip assays.

Collagen, the most abundant protein in mammals, provides critical mechanical support and strength to a wide range of soft tissues, including cartilage, ligaments, skin, and blood vessels. Ty Watson, a student in **Dr. Bruno Rego**'s lab, developed an innovative plugin for the popular image analysis software ImageJ that allows users to detect and measure properties of collagen fibrils in microscopic images. Designed for high-throughput applications, the plugin combines advanced computational techniques with interactive features for user-guided corrections, enabling precise measurements of fibril geometry and spatial arrangement. This practical tool helps to bridge advanced computational methods with experimental biomechanics, fostering new opportunities for studying collagen's role in health and disease. The plugin is freely available, open-source, and documented on GitHub (https://github.com/Ty-Watson/TEM-Collagen-Analysis-Plugin).

In **Dr. Cristina Sabliov**'s laboratory, novel chemical techniques were employed to form biodegradable polymers, and the polymers were assembled into nanoparticles and films of interest for agriculture, food and medicine applications. See https://doi.org/10.1021/acs.langmuir.3c03965 for an article published by Dr. Sabliov's group in the prestigious journal *Langmuir*; this peer-reviewed publication is one of seven published in by the Sabliov lab in 2024.

Community-Based Design Highlights

The last volunteer shift poses in front of the completed playground. Caution tape is wrapped around the equipment for 48-72 hours until the concrete finishes setting. Photo by Ruthie Losavio, LSU AgCenter.

The LSU Community Playground Project completed two playgrounds in 2024, both in conjunction with the LSU AgCenter Healthy Communities Initiative, including a professionally installed playground in Greensburg, LA, and a volunteer build in Belle Rose, LA.

BE 2350 students collaborated with MakeGood LLC in New Orleans to switch adapt devices and build measurement systems to quantify engagement from pre-kindergarten students at Southdowns Elementary school. The LSU students spent a month designing, wiring, programming, calibrating, and validating a sensing system, then 3D printing an enclosure for the system and the adapted button. As part of this process, LSU students visited Southdowns to engage the students with the newly adaptive toys. There was laughter and excitement from the pre-kindergarten students, who pressed a button to see a cactus dance and used a Baby Shark bubble maker that would not have been possible without the implementation of universal design. The LSU students could see in action how their engineering impacted the community and were proud of their designs. A senior BE student finalized the switch adapted devices, and then the adaptive toys were donated to the Assistive Technology Office at the East Baton Rouge (EBR) School Board to ensure that K-12 students enrolled in EBR Public Schools who could benefit from adaptive devices were able to access one.

LaHouse Updates

The LaHouse Research and Education Center (https://www.lsuagcenter.com/topics/family_home/home/lahouse) is affiliated with BAE and led by Professor Carol Friedland. During 2024, LaHouse faculty and staff received numerous grant awards, including:

- $300,000 from the USDA for research and outreach on energy efficiency during extreme temperatures.
- $1.5 million from the NSF to develop a software prototype aimed at reducing flood risk across Louisiana.
- $350,000 from The Water Institute to incorporate wind risk assessment into the Louisiana Coastal Master Plan through enhanced building code practices.
- $319,000 from the Coastal Restoration and Protection Authority to assess the flood insurance implications of the 2023 Coastal Master Plan
- $43,500 from Louisiana Sea Grant to educate communities, policymakers, and homeowners on the complexities of FEMA's Risk Rating 2.0 system and the factors influencing flood insurance premiums

Additionally, a team led by LaHouse was selected as one of 71 teams advancing to the final stage of the U.S. National Science Foundation Regional Innovation Engines (NSF Engines) program: The Louisiana Disaster Reduction Initiative aims to revolutionize how communities across Louisiana approach resilience, focusing on innovative approaches to building stronger homes and communities. The initiative will unite diverse stakeholders in this field to enhance home safety, tackle the rising cost of insurance, and drive potential economic growth.

This project is a collaboration among the LSU AgCenter, LSU, University of New Orleans, GOHSEP, LA DOTD, CDM Smith, Smart Home America, and many other state partners across academic, private industry, and non-profit organizations.

Media Mentions:

- Dr. Carol Friedland spoke about resilience and its relationship to home insurance on Louisiana Considered
- Claire Scott spoke to *The Advocate* about protecting the home during extremely low temperatures
- Shelly Kleinpeter spoke to *The Advocate* about reducing energy spending in extreme heat.
- Shelly Kleinpeter appeared on Louisiana: The State We're In giving a tour of LaHouse and discussing the FORTIFIED Home Standard
- Shelly Kleinpeter appeared on a Houston news station debunking common hurricane preparedness myths
- LaHouse media releases were picked up by multiple news outlets:
  - Energy Efficiency Day
  - Rebuilding After Hurricane Francine
  - Take Caution After Hurricane Francine
  - Simple Hurricane Preparedness Steps
  - September is National Preparedness Month
- The LSU Media Center published an article on LaHouse's work on the State Hazard Mitigation Plan - Calculating the Real Cost of Wind and Flood Risk in Louisiana
- LaHouse's work on the State Hazard Mitigation Plan was featured on many news sites across the state

BIOLOGICAL ENGINEERING STUDENT ORGANIZATION UPDATES AND ALUMNI NEWS

Our Mission

The Biological Engineering Student Organization (BESO) is a professional networking organization with a strong sense of community that aims to forge connections through catered meetings, workshops, and events between its members and the local community representing biological or agricultural engineering. LSU students of all classifications meet throughout the semester to listen to experienced guest speakers, discuss potential career paths, and learn ways to build the credibility and confidence to advance themselves professionally.

Spring 2023 Meetings and Socials

The Biological Engineering Organization (BESO) kicked off 2024 with its first general meeting on January 24, featuring graduate student Kassidy Porche and PhD candidate Beatriz Garcia. The second general meeting, held on February 20, welcomed Haley Lassiter, a Tissue Engineering Research Scientist at Obatala Sciences, and Lacey Simon, who works in product supply and commercialization at BioMarin, a pharmaceutical company. On February 26 and 27, BESO hosted its first-ever two-day Lounge Cleaning event, providing a volunteer opportunity for members while ensuring the lounge remained a clean and organized space. Beyond meetings, BESO also facilitated opportunities for members to connect and unwind. A game night social was held on March 18, where attendees enjoyed video games, board games, and a variety of snacks. Later that month, on March 27, the third general meeting featured Agricultural and Environmental Engineer Tyler Ortego and Dr. Rob Egnatchik, a Research and Development Engineer at PepsiCo. BESO also contributed to the community by participating in Geaux Big, LSU's most significant day of service, on April 13. Members volunteered at the YMCA, assisting with landscaping and painting hopscotch and four-square courts for local children. To support the organization, BESO hosted two fundraising givebacks-one at Andy's Frozen Custard on April 12 and another at Jason's Deli on April 23. The semester concluded with a finals study night on April 29 in the BESO lounge, providing members with a productive study environment and coffee and donuts to help them power through dead week.

2024 Annual Crawfish Boil

Last year, BESO's annual crawfish boil transformed into a Fish Fry, but the tradition of fun and community remained strong. The Fish Fry occurred on April 25, and admission was free for all BAE students, faculty, staff, and active BESO members. One of the highlights of the event was the "Pie Your Professor" fundraiser, which drew a large crowd and successfully raised funds for BESO. For just $5 for two pies or $50 for 50 pies, participants could throw whipped cream pies at BESO executive board members and, even more excitingly, at BAE faculty members. Professors who bravely participated included Mr. Nick Totaro, Mr. Sumit Libi, Dr. Marybeth Lima, Dr. Qi Cai, Dr. Carlos Astete, Dr. Cristina Sabliov, and Dr. Jorge Belgodere. The event allowed faculty, staff, students, and BESO members to come together, enjoy delicious food, and connect in a fun, relaxed environment.

Fall 2024 Events

BESO kicked off the fall semester on September 5 with its first general meeting featuring a BAE faculty and staff panel. Panelists included Dr. Todd Monroe, Mr. Nick Totaro, Mrs. Donna Elisar, Dr. Carlos Astete, and Mrs. Celeste Robin, who shared insights and advice with members. The semester's first giveback night took place on September 20 at Jeremiah's Italian Ice, allowing members to support BESO while enjoying a sweet treat. On September 26, BESO hosted a pickleball social at the UREC courts, where attendees played pickleball, mingled, and enjoyed snacks. A new initiative, the Upperclassman Panel, was introduced on October 1, bringing together ten BE upperclassmen with diverse experiences to share guidance and advice with underclassmen. BESO's second general meeting was held on October 9, featuring guest speakers Cristina Patterson, an agricultural engineer for the USDA, and Meghan Sills, a mechanical engineer at the Naval Information Warfare Center Pacific. Another giveback night followed on October 16 at Raising Cane's, helping to raise additional funds for the organization. BESO continued its efforts to maintain a welcoming space by hosting its second Lounge Cleaning event on October 28. Due to the thorough cleaning in the spring, this session was completed in just one day. The final general meeting of the semester took place on November 12, featuring Dr. Conner Allison, a BE dentist at Northlake Dental, and Eva Schmidt, a biomedical researcher at AxoSim, who shared their professional experiences with members. Leading up to Thanksgiving, BESO held its annual Sweet Potato and Rice Sale, offering Beauregard sweet potatoes and popcorn-flavored rice. The organization extends its gratitude to everyone who contributed to this year's successful sale. The semester wrapped up with a finals study night on December 2 in the BESO lounge, where members prepared for exams with coffee, hot chocolate, and donuts.

Future meeting and event dates will be announced on our social media. Please be sure to follow us on Instagram @BESO_LSU or join our Facebook Group "Biological Engineering Student Organization (BESO)."

BESO Officers 2023

President
Madison Lee

Vice President
Shea Lee

Secretary
Amerika Embers

Treasurer
Mary Werther

Social Chair
Caroline Badeaux

Outreach Chair
Emma Kate Conner

Fundraising Co-Chairs
Olivia Hupperich
Victoria Sartin

Fundraising Sub-Chairs
Grant Harris
Kyra Piper

Faculty Advisor
Nick Totaro

Alumni News

In December, Dr. Brandon Kilbourne, B.S. B.E. 2005, Research Biologist at the Berlin Natural Museum of History, was notified that he had won the 2025 Cave Canem Poetry Prize; in addition to a cash award, Dr. Kilbourne's first book of poetry, *Natural History*, will be published by Graywolf Press this fall. Dr. Kilbourne will also do a public reading of his work in New York City. https://www.theadvocate.com/acadiana/entertainment_life/brandon-kilbourne-cave-canem-25-prize/article_00d439b6-b3eb-11ef-8202-abd4ecedea6a.html

The BAE Department was saddened to learn of the death of Alumni Mr. Henry Landry, BSAE '74. For more information on Mr. Landry, please see https://www.resthavenbatonrouge.com/obituaries/henry-landry

Dr. Lakiesha Williams, B.S.B.E. 2001, MS-BAE 2003, was inducted into the 2024 Class of Fellows of the Biomedical Engineering Society. Dr. Williams, Professor of Biomedical Engineering at the University of Florida, leads the Tissue Mechanics, Microstructure and Modeling Laboratory and focuses on traumatic brain injury. https://bme.ufl.edu/williams-named-2024-bmes-fellow/

BAE Advisory Council

The BAE Advisory Council consists of BAE alumni who share their time, talents, and resources to support departmental activities that directly benefit students. The Council administered a survey to current students in 2024, and based on the responses, the Council donated a new microwave to the student lounge! The Council plans to purchase additional tables and chairs for the lounge after the new roof is completed.

Another activity funded by the Advisory Council is the BAE Distinguished Lecture Series. The following speakers participated in 2024:

- Daniel Hayes, PhD—Biomedical Engineering, Pennsylvania State University (1/22/2024) Light-Activated Drug Delivery and Release System for Delivery of siRNA Therapeutics in Esophageal Cancer Treatment
- Gianluca Veggiani, PhD—Pathobiological Sciences, Louisiana State University (2/26/2024) Hide & Seek: Ultra-Sensitive Detection and Modulation of Post-Translational Modifications
- Mark Styczynski, PhD—School of Chemical and Biomolecular Engineering, Georgia Institute of Technology (3/18/2024) Low-Cost, Point-of-Care Diagnostics for the Developing World Using Synthetic Biology
- Jon A. Leydens, PhD—Department of Humanities, Arts, and Social Sciences, Colorado School of Mines (9/9/2024) Where is Diversity, Equity, and Inclusion Inside the Engineering Curriculum?
- Senlin Chen, PhD—School of Kinesiology, Louisiana State University (10/14/2024) Children's Health and Determinants: Disparities and Interventions for Louisiana
- Kurt Ristroph, PhD—Departments of Agricultural & Biological Engineering and Chemical Engineering, Purdue University (11/11/2024) Controlled Nanoprecipitation to Formulate Bioactive Molecules for Improved Delivery in Medicine and Agriculture - Walking the Line Between Two Disciplines

All alumni are invited to join the BAE Advisory Council; please contact Advisory Council President Joe Zerkus, joe.zerkus@nv5.com, for more information.

ASABE State Section News

The ASABE State Section Awarded its 2024 scholarship to BE senior Ricki Pierce.