Photo courtesy of Shefelbine Lab.

Note from the Chair

Dear Bioengineering community,

As I reflect on our department's remarkable momentum, I'm filled with pride at what we've accomplished together and excitement for what lies ahead.

Our Master of Science program has experienced extraordinary growth over the past six years, more than doubling from 80 students in 2019 to 185 students in 2025. This expansion speaks to the strength of our curriculum and faculty, and to the growing recognition of Bioengineering as a destination for ambitious graduate students.
I'm particularly pleased to see our PlusOne program continuing to flourish, allowing our most driven undergraduates to complete their MS in just one additional year following their BS degree. Our PlusOne graduates are uniquely positioned for success across the biotech and pharmaceutical industries, medical device companies, and research institutions. The advanced degree enhances their qualifications for cutting-edge R&D positions, expands their professional networks, and creates flexibility to pivot between scientific, technical, and management roles throughout their careers.

As I near the end of my second year as chair, I find myself in a very different place than where I began. My first year was spent learning about the university, our department, and the community we serve. Now, with that foundation in place, I'm actively exploring new ways for our department to grow and improve. This coincides with a pivotal moment in time when pressures arising from market and political winds challenge us to think of innovative ways to demonstrate the impact of our educational and research initiatives. We are embarking on creative initiatives to address these challenges. Stay tuned.

Thank you for your continued commitment to the excellence of our community.

With gratitude,

Abraham Joy
Chair and Professor of Bioengineering
Northeastern University

BIOE Alumna Returns to the Department as a Faculty Member: Meet Victoria D'Agostino, PhD

Victoria D'Agostino, PhD, was uniquely involved in her undergraduate bioengineering program. As one of the first students to enroll, she was perfectly poised to provide feedback and offer her opinion to her professors: Teaching Professor **Tim Lannin**, COE Distinguished Professor **Jeff Ruberti**, and Associate Professor **Carolyn Lee-Parsons,** all from the College of Engineering at Northeastern University, back in 2014.

A Rhode Island native, D'Agostino picked Northeastern University for it's "cutting-edge and innovative," reputation. "The school itself is so innovative, hands-on," she said. "Really cutting edge with teaching, research, and experiential learning, of course."

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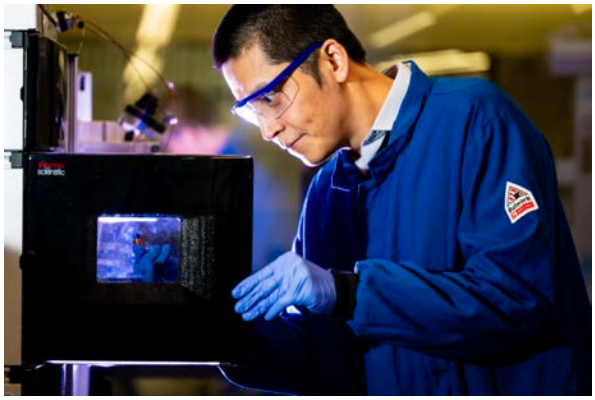
Read more.

The Department of Bioengineering's first graduating undergraduate class in 2019. D'Agostino is pictured center/back left, in purple.

Once Extinct Plant Gene Could Impact New Drug Discovery

AI Modeling Technology To Accelerate Cancer Diagnoses



COS/BioE Professor Jing-Ke Weng applied a new method called molecular gene resurrection to repair a defunct gene found in the coyote tobacco plant that encodes cyclic peptide nanamin. This peptide could be used in new cancer treatments, antibiotics development, and insect protection for crops. The research was published in PNAS.

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Read more.

Northeastern researchers, including BioE Assistant Research Professor Saeed Amal, are partnering with Santovia Path AI and Prima CARE to develop AI modeling tools to speed up the cancer diagnosis process. This collaborative research effort will be based on AI technology created by Amal to assist in diagnosing various forms of breast and prostate cancers.

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Read more.

Bioengineering Students Develop Innovative Prosthetic for Para-Athlete

A group of bioengineering undergraduate students came together for their capstone project to develop a custom prosthetic foot and ankle for a para-athlete.

Megan Hopkins was gliding on the Charles River, her oars slicing the water as she executed each stroke. It was some of the best rowing of her career, a testament to the ingenuity of a group of Northeastern University bioengineering students who had developed a prosthetic foot and ankle for the local para-athlete.

“It’s so good,” Hopkins hollered to the group of students trailing on a launch boat as she tested the device.

Where her previous prosthesis made it challenging for her to distribute pressure evenly between her legs and caused some discomfort, this new one was a dream, providing a long range of motion and allowing her to perform powerful strokes with little trouble.

It was a moment of celebration for both Hopkins and the students, who had spent the past few months developing the prosthesis.

“I have the sense that engineering is in my blood,” said Max Sproull, one of six Northeastern undergraduates who designed and manufactured the prosthesis for their bioengineering capstone class.

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Read more.

Northeastern Faculty Travel to West Africa for Medical Innovation Expo

Lee Makowski, professor of bioengineering, jointly appointed in chemistry and chemical biology, traveled to Accra, Ghana, in October for the **Medical Innovation Expo at Academic City University**. The three-day exposition featured workshops, plenary talks, panels, and poster presentations that showcased innovative designs and approaches to medical treatment under limited resources.

With a tagline of “New Paradigms in Healthcare Technology,” the expo brought together over 200 engineers, entrepreneurs, students, and healthcare professionals committed to fostering the growing medical device industry in Ghana. This event was a further extension of the evolving collaboration established between Northeastern University and Academic City University.

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Read more.

A Student’s Personal Experiences Inspired Their Career Aspirations

Emmanuel Amoako, MS’25, bioengineering with a concentration in biomedical devices and bioimaging, used his personal experiences from living in Ghana as a driving force to begin developing accessible, low-cost medical devices for low-resource countries. His passion for helping the community, mixed with his co-op experience and research opportunities, has allowed him to jump into the field of bioengineering and make an impact on the world.

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Read more.

Bioengineering Student Receives 2025 Compass Award

Gabrielle Rose Bailey, E’25, bioengineering and biochemistry, is a recipient of the **2025 Compass Award**, which recognizes exemplary students from

From Young Scholars Program to Full-Time Student

While in high school, Dmitra Mukasa, E’28, bioengineering, participated in the Young Scholars’ Program offered by Northeastern. There, she learned about Northeastern’s impactful research and

the senior class who have demonstrated a true dedication to the core values of leadership, volunteerism, academic integrity, and a commitment to Northeastern.

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Read more.

vast array of career opportunities available to its students, sparking her interest in attending the school. Now, in her second year of undergraduate studies, Mukasa has found a degree path that encapsulates all her interests and aspirations, making her excited to continue the journey.

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Read more.

Revolutionizing Live-Cell Research With InCu-Click

BioE Assistant Professor Sara Rouhanifard's lab has developed InCu-Click, a breakthrough reagent that makes the powerful click chemistry technique safe for live-cell applications, opening up new possibilities in drug discovery, diagnostics, and biological research. She received a Spark Fund Award from the Center for Research Innovation at Northeastern for this research.

To develop new therapies, diagnose diseases, or understand fundamental biological mechanisms, scientists need the ability to monitor biomolecules inside living cells with precision. However, current techniques for intracellular biomolecule labeling are either imprecise, inefficient, or toxic.

One of the most powerful tools in chemical biology, copper-catalyzed azide-alkyne cycloaddition (CuAAC)—commonly known as click chemistry—has long been used for biomolecule labeling. Despite its widespread application, click chemistry has never been viable for live-cell research because it requires toxic levels of copper for cells.

Now, Sara Rouhanifard, assistant professor of bioengineering, is breaking this long-standing barrier. Her lab has developed InCu-Click, a breakthrough reagent that makes click chemistry safe for live-cell applications by reducing copper toxicity while enabling real-time biomolecule labeling.

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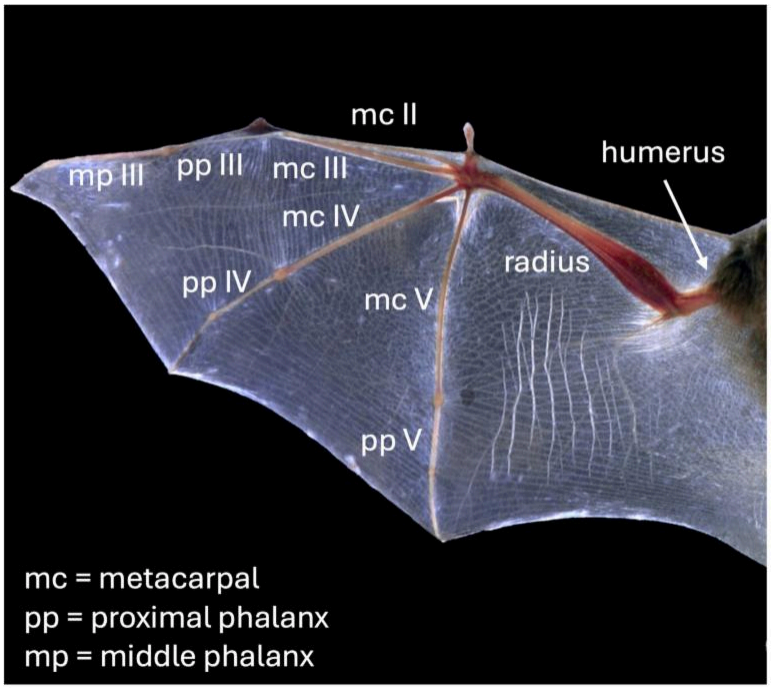
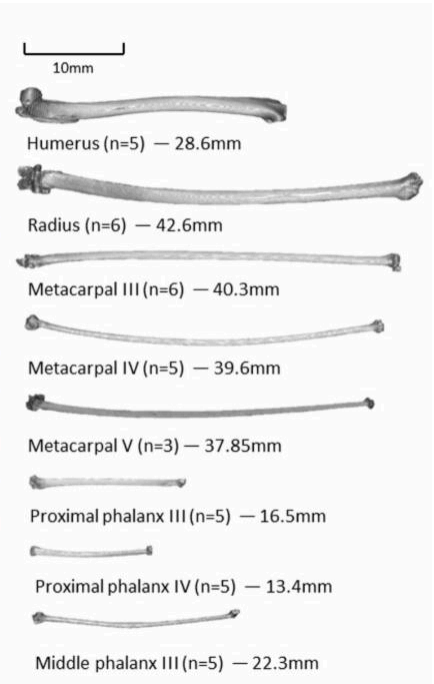
Read more.

Seba's Short-Tailed Bat Displays Distinctive Wing-Bone Morphological and Material Properties





Bioengineering alumni Xiaoxiang Ma, MS'23, and MIE/BioE Professor Sandra Shefelbine, published their research on "**A proximodistal gradient in bone structure and mechanics in the wings of Seba's short-tailed bat, Carollia perspicillata**" in The Anatomical Record.

Xiaoxiang (Albert) Ma began his academic journey in Mechanical Engineering in Shanghai, where his early exposure to design and systems thinking laid the foundation for his later work in medical technologies. After two years of industry experience at **TÜV Rheinland**, he pursued an M.S. in Bioengineering at Northeastern University. During his graduate studies, Ma explored a range of interdisciplinary courses in both mechanical engineering and biomechanics. One course in particular—Musculoskeletal Biomechanics, taught by Professor Sandra Shefelbine—sparked his interest in research and ultimately led him to join her lab as a Research Assistant.

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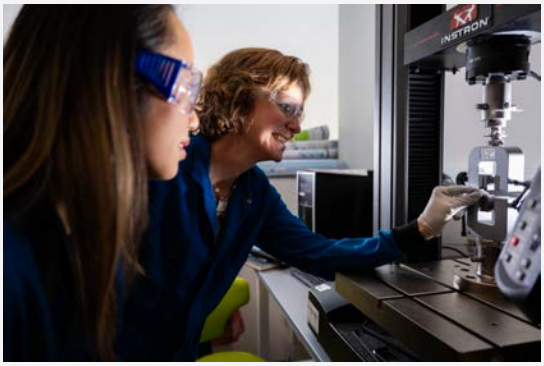
Read more.

Examining Mice to Study Bone Development



MIE/BioE Professor Sandra Shefelbine and Lindsey Young, PhD'28, bioengineering, are working on innovative research on bone development by examining two species of deer mice to determine how much of bone development is evolutionary or can be impacted by physical activity.

These mice are trading places to teach us about bone development.

Go to the gym, lift a few weights. We all know that this will help you build stronger muscles — but did you know that this can help your bones get stronger, too?

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Read more.

New Faculty Spotlight

Victoria D'Agostino joins the bioengineering department in August 2025 as an assistant teaching professor.

She has a PhD in biomedical engineering from Duke University.

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Read more.

New Faculty Spotlight

Beth A. Winkelstein joins Northeastern University in August 2025 as Provost and Senior Vice President for Academic Affairs and as a professor in bioengineering.

She has a PhD in biomedical engineering from Duke University. Her research interests include mechanisms of bodily injury and pain – especially injuries from sports, automobile accidents, and/or degenerative diseases.

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Read more.

New Faculty Spotlight - 2026

Yinnian "Andy" Feng joins Northeastern University in January 2026 as an Assistant Professor in Bioengineering.

He has a PhD in chemical and biomolecular engineering from Vanderbilt University. Following a postdoctoral fellowship at Stanford, he transitioned to industry as a senior scientist at Merck.

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Read more.

Engineers Without Borders Making a Difference in Uganda and Panama

Bioengineering students Casey Laguna, E'26, and Elizabeth-Anne Burgett, E'26, are members of Engineers Without Borders at Northeastern. Currently, they are working on an impactful project to build water distribution systems in Panama and Uganda.

How one club is making a difference in Uganda and Panama.

Casey Laguna has had a lot on her plate lately.

In addition to the rigorous coursework accompanying her final year at Northeastern University, the fourth-year bioengineering student and her peers oversee projects to build water distribution systems in Panama and Uganda.

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Read more.

More Bioengineering News

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