



Summer 2025 Newsletter

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Where
**Engineering
Innovation**
Impacts Health



New faculty hires

We are excited to welcome Profs. Amirtaha Taebi and Juan Aceros who bring exciting new research to our Department.

Dr. Amirtahà Taebi will join the BioE Department in August 2025 as Assistant Professor (TT). His research focuses on cardiovascular remote monitoring, wearables, and digital health technologies. Dr. Taebi is a recipient of the prestigious NSF CAREER Award and was recognized as an ASME Rising Star of Mechanical Engineering.

Dr. Juan Aceros will join the BioE Department in Fall 2025 as Associate Professor with tenure. His research focuses on developing cutting-edge assistive technologies for children with disabilities. With over a decade of experience in both teaching and medical device development, Dr. Aceros brings a multidisciplinary approach to improving pediatric mobility and quality of life.



**Dr. Amirtahà Taebi (left) and
Dr. Juan Aceros (right).**

Faculty Making an Impact

BioE Faculty and Staff recognized at the 2025 Rossin College Awards

At the annual Rossin College Awards, held May 5th, faculty and staff of Lehigh's Rossin College gathered to celebrate achievements in research and education excellence within the college. Three of our BioE faculty members were awarded:

- **Yevgeny Berdichevsky:** Excellence in Research Scholarship and Leadership
- **Lori Herz:** Richard P. Vinci Award for Educational Excellence
- **Rebekah Short:** Excellence in Graduate Student Support

[READ ARTICLE](#)

Wearable Tech to Advance Women's Health

Two initiatives led by Assistant Professor Dhruv Seshadri and industry partner Ultrahuman focus on injury prevention in female athletes and breaking menstrual health taboos in India through data, education, and outreach. [READ MORE!](#)



Faculty Highlights

- **Tomas Gonzalez-Fernandez** was invited as speaker for the 2025 American Society for Gene and Cell Therapy Conference in New Orleans, his talk was entitled “Novel Cell Penetrating Peptide for Multimodal CRISPR Gene Editing of Primary Mesenchymal Stem Cells”.
- **Dhruv Seshadri** was invited as a speaker at the 2025 World Congress on Science and Soccer in Glasgow, United Kingdom. His talk was entitled, “Wearable Technology and Prescriptive Analytics for Health and Performance Optimization in Division 1 Female Soccer Athletes”. He led an applied workshop with PlayerData (leading wearable technology company in human performance) where his talk was titled, “Academic-Industry Collaborations to Drive Research Forward for Sports Performance”).
- **Dhruv** was also invited by the Defense Strategies Institute to moderate a panel alongside key opinion leaders from the Department of Defense at the 2025 Human Performance and Biosystems Summit in National Harbor, MD on wearable technology and human performance to maximize warfighter lethality, readiness, and health.

New Scientific Publications

- A Review of Wearable Electroceutical Devices for Chronic Wound Healing. A. A. Mutah, J. Amitrano, M. A. Seeley, **D.R. Seshadri**. *Electronics* (2025).
- Soft Flexible Skin Conformable Nanocomposites as a Platform for Electroceutical and Orthopedic Applications. **D.R. Seshadri**, A.R. Radwan, N.D. Bianco. J. Lerchbacker, A.M. Zorman, C.A. Zorman, K.M. Bogie. *Journal of Biomedical Materials Part B* (2025).
- Understanding the Role of Vascular Stretch on Modulation of VWF and ANGPT-2 in Continuous Flow Left Ventricular Assist Device (CF-VAD) Patients. J. P. Sah, J. E. Dominguez De Leon, I. C. Berg, B. L. Cornelius, D. B. Dekle, E. Ismail, **X. Cheng**, G. A. Giridharan, P. Sethu. *Lab on a Chip* (2025).
- Biodegradation of Cellulose-Based Water-Soluble Polymers through Interactions with Wastewater Bacteria. **P. Pulyala**, M. Jing, W. Young, K. Michels, W. Gao, **X. Cheng**. *Polymer Degradation and Stability* (2025).
- Multiband EEG Signatures Decoded Using Machine Learning for Predicting rTMS Treatment Response in MDD. **A. Arteaga**, X. Tong , K. Zhao, N. B. Carlisle, D. J. Oathes, G. A. Fonzo, C. J. Keller, **Y. Zhang**. *Journal of Affective Disorders* (2025).
- Biocompatible Composite Hydrogel with On-Demand Swelling-Shrinking Properties for 4D Bioprinting. **P. J. Jensen**, J. P. Graham, T. K. Busch, O. Fitz, S. Jayanadh, T. E. Pashuck, **T. Gonzalez-Fernandez**. *Biomaterials Science* (2025).
- Pathway-like Activation of 3D Neuronal Constructs with an Optical Interface. **S Omid**, **Y. Berdichevsky**. *Biosensors* (2025).
- Hydrogels with Multiple RGD Presentations Increase Cell Adhesion and Spreading. **A. S. Moghaddam**, K. Dunne, W. Breyer, Y. Wu, **E. T. Pashuck**. *Acta Biomaterialia* (2025).
- Understanding Viral-Glycocalyx Interactions Using Brush-Linked to Cross-Linked Models. **M. Ziarnik**, D. Hou, X. F. Zhang, **A. Jagota**. *Langmuir* (2025).

Stronger Together



CHOICES Program 2025: The BioE Department participated in the 2025 CHOICES Program, an initiative aimed at inspiring middle school girls to pursue careers in STEM. Tomas Gonzalez-Fernandez led the activity “Color Capsules: Design, Build, and Test Drug-Delivering Beads” focused on explaining how biomaterials could be used for drug delivery.

MusikFest 2025: The BioE Department will join the Rossin College at the Lehigh Lounge during the 2025 edition of MusikFest, a beloved Bethlehem tradition. Come visit us on August 8 and 9 from 3–7 pm at Country Club Brewing, we hope to see you there!



Graduate Seminar Series Brings Diverse Perspectives in Academia and Research

Drawing upon our theme of highlighting the various ways that academic research, industry, and clinical practice intersect within the healthcare ecosystem, this semester we welcomed six seminar speakers to provide their unique perspectives. Every seminar brought a full house and great conversations. Thank you to all of our guest speakers, for sharing your knowledge and experience with our students! *Please contact our team if you are interested in giving a seminar for the upcoming school year.*



Dr. Mark Seeley



Dr. Chase Cornelison



Dr. Yue Yu



Dr. Robby Bowles



Dr. Tatiana Segura

Undergraduate News

BioE Places at the 2025 Undergraduate Research Symposium

Seven BioE students represented our department at the 2025 David and Lorraine Freed Undergraduate Research Symposium including: **Alexis Kelerchian** (second place) and **Jose-Gabriel Castro** (honorable mention). Special shoutout to: **Nico Babbio**, **Ethan Bernstein**, **Rachel Lischin**, **Norman Zvenika**, **Lauren Paolucci**, **Layla Puig**, and **Aditi Sathe**. We are proud of our undergraduate students and their great accomplishments in the field of research! [READ ARTICLE](#)



A New Cohort of Rossin Junior Fellows (RJFs) Announced

With Spring semester comes the appointment of new Rossin Junior Fellows who are undergraduate students selected to represent their department, the Rossin College, and the greater Lehigh community, serving as ambassadors throughout their time as students. 2025 BioE students selected include: **Luke Blum, Milan Boga, Nancy Cárcamo Paiz, Victoria De Bruyn, Owen Holst, Gianna Lombardi, Paula Rudnick, and Luke Stallings.** [READ MORE](#)

BioE Undergrads Make an Impact through Summer Research

Juliana Magarelli '27 and **Layla Puig '26** will conduct summer research in the Bioengineering Department through the Clare Boothe Luce Fellowship. Juliana will work in both the Gonzalez-Fernandez Lab and the Chow Lab, while Layla will focus her research in the Gonzalez-Fernandez Lab.

Lehigh University BMES Student Club Support Student Initiatives

The Lehigh student chapter of the Biomedical Engineering Society (BMES) raised \$1,500 during Lehigh Giving Day, thanks to the generous support of Bioengineering alumni, faculty, family, and friends. These funds will directly support the organization's activities, which center on three core pillars: professional development, volunteer outreach, and social engagement. Through these efforts, BMES fosters a vibrant and inclusive community for all Bioengineering students.



Other Undergraduate Highlights

Grace Duke '25 recently received the university-level Bosey Reiter Leadership Cup in recognition of her outstanding contributions to campus leadership. She has conducted research in Professor Bob Skibbens' lab (BIOS), with her work soon to be published in the Genetics Society of America journal under the title "Analysis of Combinatorial Cohesin Subunit Gene Deletions in Budding Yeast." This summer, she will begin a position at Merck. [READ MORE](#)

Norman Zvenyika '25 (BIOC) has distinguished himself through extensive community service, impactful research projects, and recognition as a Rhodes Scholar finalist. His dedication to service and scholarship exemplifies the values of the Lehigh community.

Julianna Magarelli '27 is deeply involved in the Creative Inquiry program, having contributed to multiple projects over the past two years. She also supports the department as a dedicated work-study student. This summer, Julianna was awarded a Clare Boothe Luce Fellowship and will conduct research in both the Gonzalez-Fernandez Lab and the Chow Lab.

Congratulations Graduates!

Over twenty undergraduate students received their Bachelor of Science degree in Bioengineering at the end of Spring semester. We had a wonderful time celebrating them at commencement, reminiscing about college life, and discussing future plans.



Here is a snapshot of some of our new graduates and their upcoming plans:

- **Derek Hammerstone '25, Devon Ennis '25, Matthew Diaz '25, Nico Czeck '25, Nate Rygh '25, and Jack Grotke '25** will be returning to Lehigh to pursue an MS in Bioengineering.
- **Zachary Weiser '25** will be pursuing his PhD in Biomedical Engineering at **Drexel University**.

Graduate News

- New MS student **Devon Ennis** will be stepping in as our new Graduate Student Ambassador, interacting with new and prospective BioE graduate students. Welcome to the team, Devon!
- PhD student **Matthew Ziarnik** (Jagota Lab) was the 2025-26 recipient of a scholarship from the **Kosciuszko Foundation**.
- The BioE GSA organized a site visit to **ABEC**, where they were hosted by Lehigh BioE alum, **Nick Leight**, '16.
- **Allyson Deihl** MS'25 will start her PhD next Fall at **Villanova University**.



MS Degrees Granted

In addition to our many undergraduate students who finished Spring semester with their graduation, we are excited to add eight MS students to our alumni list! Our MS graduates are **Partho Adhikary**, **Rafael Bonner**, **Anthony Cino**, **Allyson Deihl**, **Olivia Doyle**, **Xiaofei Guo**, **Christie Ortega**, and **Jose Rodriguez**.

Saeed Omid Wins Prestigious Award

PhD student Saeed Omid won first place by **Mightex** for his project "Pathway-like Activation of 3D Neuronal Constructs with an Optical Interface". This study developed an all-optical interface to stimulate and monitor three-dimensional neuronal constructs, mimicking how the brain receives sensory inputs. Saeed and his team guided axons and dendrites within the constructs into microchannel bundles and optogenetically stimulated them while recording activity through calcium imaging.

[READ MORE](#)



New Program Connects Aspiring UG Researchers with PhD Student Mentors

One of those doctoral students is bioengineer Hayley Whitney '24, a member of the lab led by Dhruv Seshadri, an assistant professor of bioengineering. Whitney, who is in her first year of graduate studies, is exploring how integrating subjective health information with wearable devices can improve performance in athletes, specifically, in members of Lehigh's basketball, soccer, and football teams. The long-term vision, she says, is to develop AI-driven injury prevention and return-to-play strategies while providing insights for coaches. [Read More!](#)

Dissertations

We had five PhD dissertation defenses during this semester. Congratulations to these standout student researchers- we are so proud of the work you have been doing.



Decheng
Hou

Unraveling the
Biophysical
Mechanisms of
SARS-CoV-2—
Receptor Interactions
for Viral Docking



Yi Liu

Unfolding the
Mechanics:
Biophysical insights
into von Willebrand
Factor Activation



Yuwen
Zhao

Microphysiological
Modulation of
Colorectal Cancer
through Engineered
Microfluidics for
Therapeutic
Discovery



Praneetha
Pulyala

Fate of Polymers-in-
Liquid-Formulations:
Stability and
Biodegradability



Kanhao Zhao

Advancing Brain
Disorder Diagnostics
and Treatment
through Application
of Machine Learning
on Neuroimage

Alumni Updates

Snapshot of Alumni Career Updates

- **Mary Mahoney** '23 has started a new position as Manufacturing Engineer II at Integra LifeSciences.
- Newly graduated **Grace Duke** '25 was awarded the prestigious Bosey Reiter Leadership Cup.
- **Brittany Partain**, Ph.D, '16 has started a new position as Associate Director, Clinical Affairs and Physician Education at Exagen Inc.
- **Mark Mahoney** '14, MS '16, started a new position as Staff Systems Integration and Lab Service Engineer at Abbott.
- **Ana Vargas** '20 joined Boston Children's Hospital as a Cardiovascular R&D Engineer on the CardioEngineering Team.
- **Katie Klee** '17 completed her master's degree in Engineering Management through Johns Hopkins Engineering Management for Professionals.
- **Maddie Lindquist** '20 is soon graduating with her Master's in Business Administration from Villanova University.
- **Angelika Seltenreich**, MEng, '18 is starting a new position as Associate Director, Parenteral RAMP Operations at Eli Lilly and Company.
- **Laura Wells** '19 completed her Master of Business Administration at University of Colorado Denver.

- **Kieren Connor '17** started a new position as Director at Axtia - Ingenious Insights.
- **Anthony (Tony) Del Vecchio '23, MS '24** started a new position as Laboratory Technician at Columbia University.
- **Jameson Petrochko '15** completed his residency in general surgery at St. Luke's Hospital and recently moved to Pittsburgh, PA, for a cardiac surgery fellowship at Allegheny Hospital.
- **Christina Clerk** (BS '16, MS in Management, '18) was spotted on campus in early June, during Lehigh Reunion. Christina is a Senior Operational Excellence Analyst at Medtronic in Jacksonville, FL.
- **Ana Vargas** ('20) received her PhD in Bioengineering from Northeastern University and is now a Cardiovascular R&D Engineer at Boston Children's Hospital.
- **Lisette Werba** (MS'25) started a new position as Quality Control Analyst at Corden Pharma in Colorado.

Fun Times!

Ending the Year on a High Note:



Thank you to all the students, faculty, and staff who joined us to celebrate the end of the academic year! We reflected on student group accomplishments, honored leadership and service contributions, shared a great meal, and looked ahead to summer adventures. We're proud of everything our students achieved and excited for what's to come in 2025–2026.

Lehigh University BMES Student Club Celebrates with End-of-the-Year Banquet

Members of the Lehigh BMES chapter gathered to celebrate a successful year at their end-of-year banquet. The evening was filled with good food, laughter, and a strong sense of community among our BioE undergraduates.



Lab Group Fun

The Chow Lab wrapped up the semester with a lively gathering that brought together all its members for some well-deserved fun and celebration!



Support Lehigh BioE:

Gifts from our generous friends enrich learning opportunities for students and strengthen the teaching & research capabilities of our department.
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BioE Alumni: Want to be in the Next Newsletter?

Share your updated contact info, professional info (company and position), and any other exciting news/pictures with us.
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