



# WPI

## Biology & Biotechnology's

# NEWSLETTER

Welcome to Summer

2026

Edition V.5

## Letter from the Department Head

As another academic year comes to a close, I want to extend my sincere gratitude to our alumni, students, faculty, staff, collaborators, and friends for your continued support of the Department of Biology and Biotechnology at Worcester Polytechnic Institute. Our community continues to thrive because of the passion, curiosity, and generosity of people like you.

This year has been one of the tremendous energy and momentum for the department. Our students continued to distinguish themselves through innovative research, impactful project work, internships, and graduate and professional school placements. Faculty and students advanced scholarship across a broad range of areas including biotechnology, health sciences, bioinformatics, microbiology, neuroscience, ecology, and biomanufacturing, while also strengthening interdisciplinary collaborations across WPI and beyond.



## *We remain deeply committed*

to providing an education that combines scientific rigor with hands-on, project-based learning as we thoughtfully look toward the future and exploring emerging areas such as biomanufacturing, computational biology, sustainability, and translational biotechnology continue to shape our strategic vision as we prepare students for evolving careers in science, healthcare, research, and industry.

We are also continuing important conversations around mentorship, student well-being, inclusive excellence, and curricular innovation to ensure that our programs remain dynamic and responsive.

I am continually inspired by the dedication of our faculty and staff and by the accomplishments of our students and alumni.

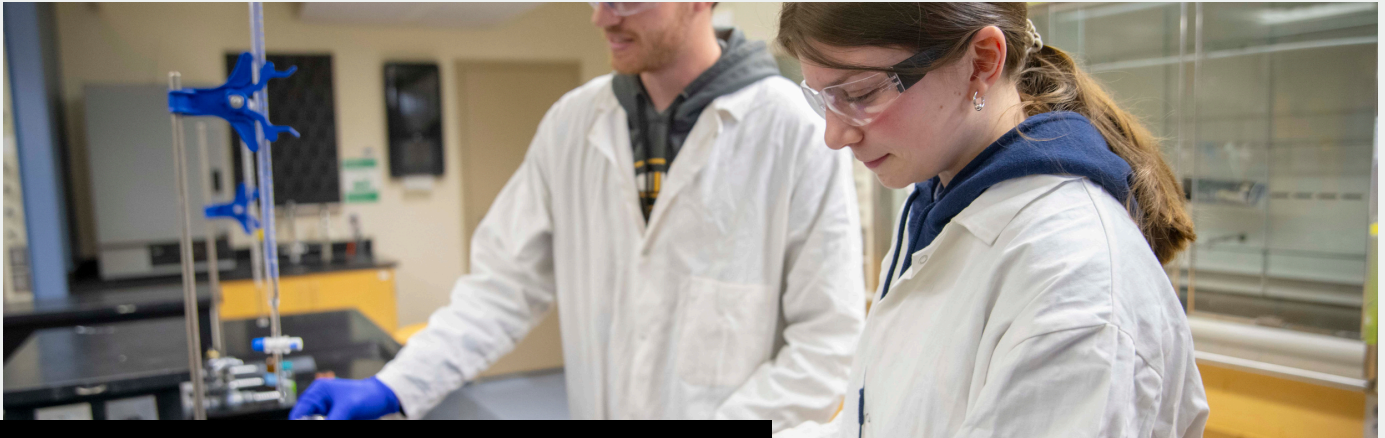
Thank you for remaining connected to the department. We are proud of all that our alumni and friends contribute to science, medicine, industry, education, and society, and we look forward to continuing to build these relationships in the years ahead.

With warm wishes and gratitude,

Reeta P. Rao, PhD

*Professor and department head, Biology and Biotechnology, WPI*

*Visiting Scholar, Broad Institute of MIT and Harvard*



## Undergraduate Announcements

This year, our undergraduate students have gone above and beyond in academics, research, leadership, and service. From prestigious fellowships and scholarly awards to impactful community engagement, these honors reflect not only individual dedication but also the collective spirit of excellence that defines the BBT community.

## Salisbury Award Winner

The Salisbury Prize was awarded to the highly meritorious **Jack Whittaker**, who has faithfully, industriously, and with distinguished attainment completed all the requirements for the B.S. degree.

*"While I was at WPI, I was able to explore a wide range of topics and discover new areas of research that I was unaware of when I started in freshman year. Through its project-based courses and labs in the BBT program, I learned new laboratory techniques and practiced independently formulating hypotheses, proposing procedures, and gathering results. The long-term projects in these courses helped improve my teamwork skills and were a good way of applying the techniques I learned to real world problems. In addition to my classes, I worked as a Peer Learning Assistant for multiple Biology classes, which was a rewarding experience that helped me develop a different set of communication and problem-solving skills as well as gain new perspectives on coursework and learning in a college setting. A highlight of my time at WPI was working on my MQP in the BBT program. In this project I worked on uncovering how*

*actin network dynamics and organelle transport are affected in budding yeast cells with abnormal phenotypes. This experience provided me with the opportunity to tackle difficult research questions and work in a collaborative lab environment with other researchers. As a result, I became more resilient and learned how to overcome difficulties in a research setting, whether that involved failed experiments, unexpected results, or personal mistakes that I made. Overall, this experience helped me become more confident in my ability to succeed in new and intellectually challenging environments. Throughout my time at WPI, especially during the BBT lab courses and my MQP, I have been fortunate enough to make new connections with people both within and outside the BBT program. These friendships, along with the ones I made through extracurricular activities including the Biotechnology Club and Concert Band, helped me to succeed and have fun while completing my degree. As I move on into the future after WPI, I hope to continue these friendships that made my college experience so enjoyable. Overall, participation in the BBT program at WPI provided me with education in a wide range of fields and the experience I need to approach new opportunities with confidence. With these newfound skills, I plan to continue to work in biological research, hopefully in the fields of molecular biology and/or genetics. The experiences I have had over the past four years have taught me to approach new opportunities in a positive way and made me feel confident in my ability to overcome any challenge that may arise in the future."*



# Spencer Fellowship Recipients



The Spencer fellowship program is generously funded through the Spencer Undergraduate Research and Lab Enhancement Initiative. This year's recipients were **Shuling Lin** and **Vanya Malik**.

## Words from our PLA of the Year! *Vanya Malik*

*"As a senior pursuing a double major in BBT and CS, I have come to appreciate the interdisciplinary and project-based nature of WPI's curriculum. My experiences in both fields have shown me the value of combining biological research with computational approaches, which is something I am glad I get to explore at WPI.*

*This summer, I am conducting research in Prof. Srinivasan's lab as a recipient of the Spencer Fellowship. My project focuses on developing a neural network to classify *Caenorhabditis elegans* strains based on their phenotypes. I enjoy the process of designing and conducting biological experiments, but I am also excited by the challenges of writing code, analyzing data, and developing computational tools. Being able to integrate both skill sets into a single research project is an exciting prospect and I am looking forward to exploring it in more detail throughout this summer.*

*I appreciate the BBT program's emphasis on research-based learning. Many of the laboratory classes are built around open-ended investigations that mirror the research process. These experiences have helped prepare me for research opportunities both on and off campus. I have had the opportunity to develop skills such as using*

*laboratory equipment, maintaining lab notebooks, creating scientific posters, and communicating results, all of which have proven valuable in internships and undergraduate research. Additionally, I found PLAing for lab courses to be a very valuable experience in sharpening my skills while collaborating with others, and I appreciate the department's encouragement of peer mentorship.*

*I also like how the department incorporates modern digital tools into the curriculum. Learning to use platforms such as Benchling and AlphaFold has given me exposure to technologies that are increasingly important in both research and the biotechnology industry. Furthermore, gaining familiarity with these tools has helped me better understand how computational methods are changing biological research.*

*In addition to learning technical skills, I have also expanded upon my collaborative capabilities, thanks to the department's commitment to incorporating teamwork into the curriculum. Nearly every biology course I have taken has included some form of group project or presentation. Since collaborative and interpersonal skills are arguably equally important as technical skills in industry and academia, I appreciate being able to develop these skills during my undergraduate coursework.*

*Entering my senior year at WPI, I am grateful for the faculty members who have encouraged curiosity, collaboration, and the pursuit of opportunities for students to engage in meaningful research. The combination of hands-on laboratory experiences and collaborative, project-based learning has shaped my academic interests and prepared me for future work at the intersection of biology and technology."*



## Lapre Summer Undergraduate Research Fellows

The Undergraduate Research Fellows were supported by our WPI Alumni David LaPre. David has served as the Chair of the WPI Board of Trustees and had endowed the LaPre Fellow stipends. This year's recipients were **Jacob Bundesmann** and **Carys Evans**.



## Provost MQP Award Winner

This award is offered in recognition to those students who have completed outstanding Major Qualifying Projects (MQPs) as a demonstration of their competency in a chosen academic discipline. Each academic department conducts its own competition to select the winners. For our BBT Department we have our provost MQP award winner, **Anoushka Mehta**.

*"I am honored to have received the MQP Provost Award for the Biology and Biotechnology Department. This award recognizes the hard work, growth, perseverance, and learning that I achieved through working on this project.*

*My MQP project was about determining the functions and phenotypic effects of two exoribonucleases, RNase AS and RNase D in Mycobacterium smegmatis, a nonpathogenic model mycobacterium. I was able to gain extensive laboratory skills through designing and constructing an RNase AS deletion strain, complementing the RNase AS and RNase D deletion strains, performing growth assays, and making RNA libraries for RNA-seq. This project challenged me to think critically, problem solve, and adapt to challenges when experiments did not go as expected.*

*Throughout this experience, I learned the value of curiosity, collaboration, and persistence in scientific research. I am very grateful to my advisor, Professor Scarlet Shell as well as everyone in the Shell Lab, including Vanesa Lopa, Opeyemi Ibitoye, Junpei Xiao, Abby Rapiejko, Victoria Turner, Amanda Warchal, and Aiyina Meng. Without their support and guidance, the research that I accomplished would not have been possible. Their willingness to help me when I was in need, answer all of my questions, and share their knowledge, helped me to become a better scientist. I am very thankful for the opportunity to have been a part of the Shell lab and work with such an amazing group. Lastly, I would also like to thank my family for their never-ending support and encouragement.*

*Looking forward, I am excited to apply these skills I have learned throughout this project to my future endeavors. I will carry these skills with me as I continue to grow and learn."*



## Congratulations!



We are incredibly proud of all the students recognized in this section. Your hard work, curiosity, and dedication have stood out in so many ways whether in research, academics, leadership or service. These awards and honors reflect not just talent, but real commitment to learning and growing, both inside and outside the classroom. Each of these students has put in long hours in labs, classrooms, and community spaces. They've written, presented, collaborated, and led. And through it all, they've made this department stronger. This recognition also reflects the support of peers, mentors, and faculty who helped along the way. To everyone mentioned here—congratulations. You've earned every bit of this recognition and we're excited to see where you go next! To those still on the path, keep going. Your efforts matter, and we look forward to celebrating your milestones soon. Thank you for making our BBT community one that celebrates **respect**, **empower** and **include**.



# PhD Candidate Announcements

## Dr. Armand P. Ferro and Mary H. Ferro Summer 2025 Fellowships

The Ferro Fellowship provides summer stipend support for a doctoral student in sound academic standing who is working in the fields of Neuroscience, Infectious Disease, or Cancer Biology. This year's selected PhD candidates that were awarded with this prestigious fellowships are **Danni Li** and **Shruti Shastry**.



## Sam C. Tetlow and Andreea Stan Graduate Fellowship

The Tetlow Fellowship provides stipend support for an outstanding graduate student pursuing a PhD in Biology and Biotechnology. This year's recipient is **Samuel Isife**.





# WELL DONE, *DR. 'S!*

We proudly celebrated the achievements of our outstanding PhD students who successfully completed their doctoral journeys in the Biology and Biotechnology Department. Their research contributions, dedication, and perseverance have greatly enriched our academic community. We shared their accomplishments in a special social media post to honor their hard work and wish them continued success in their future endeavors. Congratulations to **Yizhe Ma** and **Abigail Rapiejko**.



## Making Waves Nationwide: GSA Taps Two of Our Rising Stars!



National stage, here they come! **Shruti Shastry** and **Rachael Oluwabukola Asaolu** have just been selected for the prestigious Genetics Society of America (GSA) Early Career Leadership Program, where they'll help shape the field on the Multimedia Subcommittee.

The momentum doesn't stop there. A massive congratulations to Rachael, who was just awarded the GSA Presidential Membership for 2026 - fresh off her trip to San Diego to present cutting-edge lab work at Neuroscience 2025!

This incredible dual recognition is a testament to their hard work and the powerhouse mentorship of their advisor Jagan Srinivasan, and faculty members Reeta Rao and Amity Manning.

# History Made: BBT Takes Top Honors at WPI's 3MT Competition

Massive congratulations is in order! For the first time in Worcester Polytechnic Institute's history, a Biology & Biotechnology graduate student **Abeer Asif** has secured 1st Place at the annual Three Minute Thesis (3MT) competition - taking home the People's Choice Award as well!

Distilling complex research into a compelling three-minute presentation is no easy feat, but our latest champion proved that with the right approach, it can be an award-winning performance.

For future competitors and science communicators, Abeer shared their top four strategies for owning the stage:

**Speak to a General Audience:** Ditch the heavy jargon. Not everyone understands terms like "tumor heterogeneity" or the intricate details of cell division. Practice with friends outside of your field to ensure your research is accessible and easy to digest.

**Highlight the Bigger Picture:** Judges are looking beyond the immediate data. The key to winning pitch is successfully linking your day-to-day lab work to its broader, real-world impact.

**Treat it Like a Show:** A 3MT presentation isn't just a lecture; it's a performance. Body language, facial expressions, tone of voice, and well-placed humor are just as critical as the script itself. Have fun with it and trust yourself!

**Lean on Your Community:** Behind every great presentation is an amazing support system. Having friends and lab mates cheering from the audience makes all the difference.



# Sasha Takes First Place at GRIE!



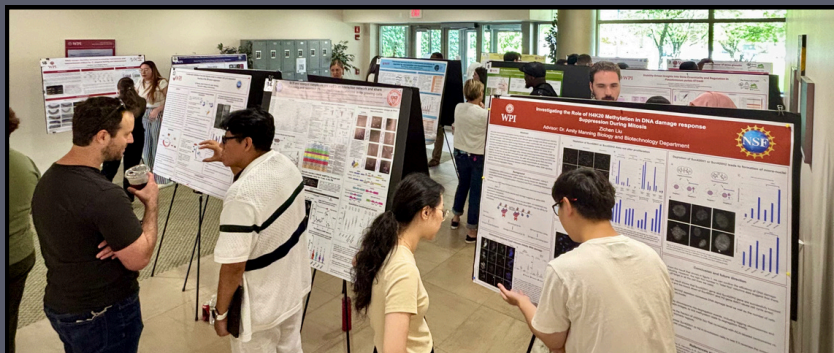
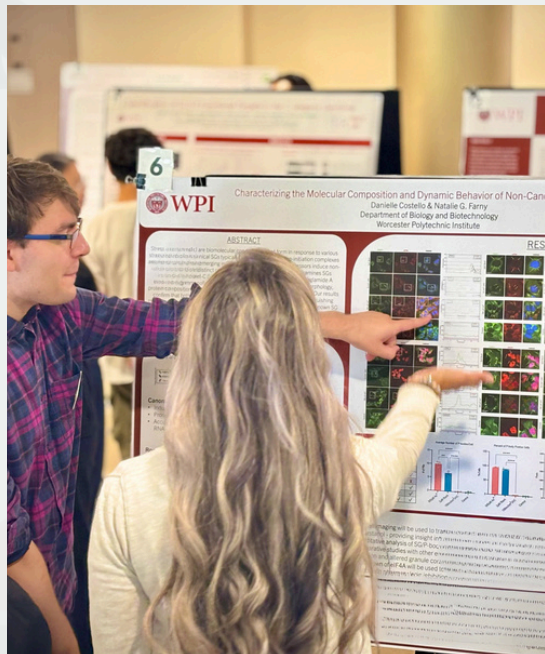
The accolades keep rolling in for our graduate researchers! We are thrilled to announce that **Sasha Freeman** has secured First Place in the Life Sciences and Physical Sciences division at this year's Graduate Research Innovation Exchange (GRIE).

GRIE is a hallmark event that challenges students to present their cutting-edge work to peers, faculty, and industry professionals, emphasizing innovation, clarity of communication, and the broader impact of their studies. Taking the top spot in such a highly competitive and rigorous category is a tremendous achievement. It is a true testament to Sasha's hard work, dedication, and exceptional research capabilities.

# 3rd Annual Graduate Research Symposium

This past summer, our department hosted its 3<sup>rd</sup> Graduate Research Symposium, providing graduate students with an opportunity to showcase their research. The event brought together students, faculty and guests for a day of scientific discussion and discovery. In addition to student presentations, attendees enjoyed research talks from several of our own faculty members, offering insight into the exciting work being conducted across our department. We are incredible proud to highlight the exceptional efforts of all our participants.

A massive congratulations to **Danni Li** and **Darah de la Cruz**! Both Danni and Darah delivered outstanding presentations that earned them well-deserved Travel Awards, which will support their continued academic and professional journeys. Thank you to everyone who attended and helped make the showcase a resounding success.





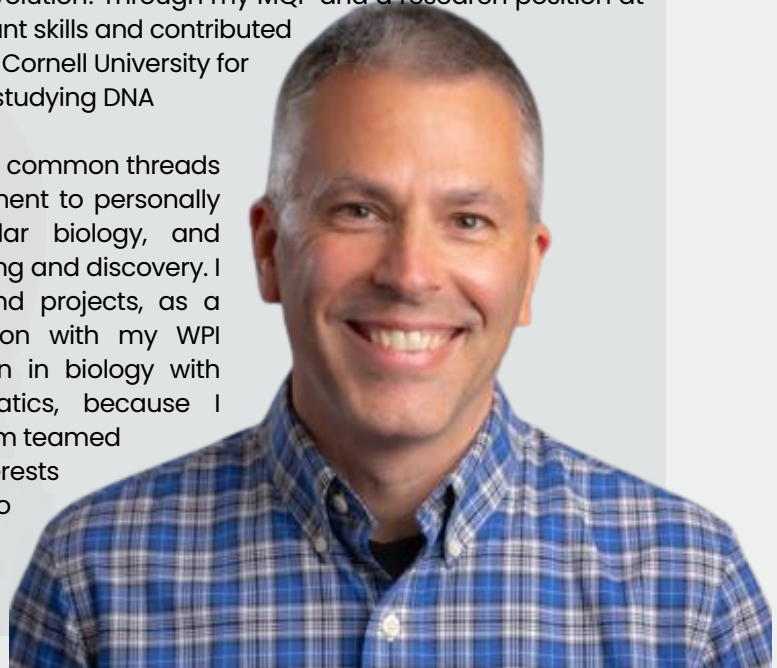
# Faculty Highlights

## Faculty Spotlight: Professor Lou Roberts

“Hi everyone! I was born and grew up in Springfield, MA and chose WPI for my undergraduate education as a BBT major. I vividly recall my excitement when I first heard that I would be able to copy and change an organism’s DNA using newly-popular techniques (PCR, DNA cutting with restriction enzymes, and plasmid transformation). I loved how, given DNA sequences, we could know exactly what products and outputs to expect from our methods, so we could build a cohesive research project to discover or characterize something unknown. I felt I was part of a biological revolution! Through my MQP and a research position at a biotech startup in Worcester, I learned many important skills and contributed to research in both academia and industry. I attended Cornell University for grad school, where I grew as a scientist and a person, studying DNA replication initiation.

Through all my educational experiences, there are two common threads I followed to guide my career path- genuine excitement to personally learn new approaches in molecular and cellular biology, and engagement with students in their processes of learning and discovery. I love working with students on their coursework and projects, as a mentor and teacher. I feel a particular connection with my WPI undergrads who are experiencing a new revolution in biology with methods like CRISPR and AI-assisted bioinformatics, because I experienced a revolution at WPI, too! I am fortunate I am teamed with graduate TAs and get to shape their skills and interests in teaching and mentoring. Along the way, I am lucky to have found the perfect role that fits my scientific interests, and embraces my innate passions.

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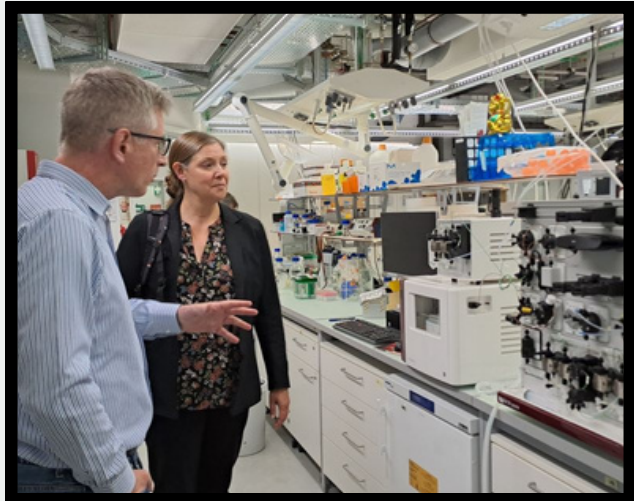


**Lou Roberts (continued)**

I am proud that I have been able to integrate my courses, projects, and outreach activities to maximize their value to the students and community. My MQP students often complete projects aimed at creating new laboratory course materials, such as isolating antibiotic-resistant bacteria to connect genotype and phenotype, and adapting the national “MDH CURE” curriculum to provide a more authentic research experience. These MQPs were truly impactful, as they helped create our new Foundations of Biology and Biotechnology Laboratory, and revise our Enzymes, Proteins, and Purification Laboratory. I am currently leading a WPI Professional Learning Community of 10 faculty and staff studying new approaches to neuroinclusive teaching; this intersects with an IQP I recently co-advised where students used traditional feedback surveys and AI analytics to guide instructors on course-specific teaching interventions to benefit all students in their learning processes.”

# BBT x ZHAW

The Biology and Biotechnology department is expanding our longstanding relationship with the Zurich University of Applied Sciences (ZHAW) in Switzerland to include new project exchange opportunities for students and faculty. BBT faculty **Jean King**, who serves on the Advisory Board for the School of Engineering at ZHAW, and **Natalie Farny** have been onsite in Switzerland to engage with ZHAW faculty and students and highlight key opportunities for ZHAW students in BBT labs, while also exploring opportunities for BBT students in ZHAW labs. Rising Senior Rod Chittem will be the first BBT student to take advantage of this opportunity as he completes his upcoming MQP in Zurich, under the guidance of ZHAW professor Thoman Schwander. We are excited to establish this new pipeline for students to explore biotechnology research internationally and welcome continued exchange of ideas and students!



*Together we make a difference*

# BBT MOMENTS



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