

THE OUTREACH ORBIT

OFFICIAL NEWSLETTER OF WPAFB STEM OUTREACH

THIS MONTH'S NEWS:

A Good News Story with LEGACY

LEGACY's Impact at the AIAA Conference

Job Shadow Day Connects Students with STEM Careers

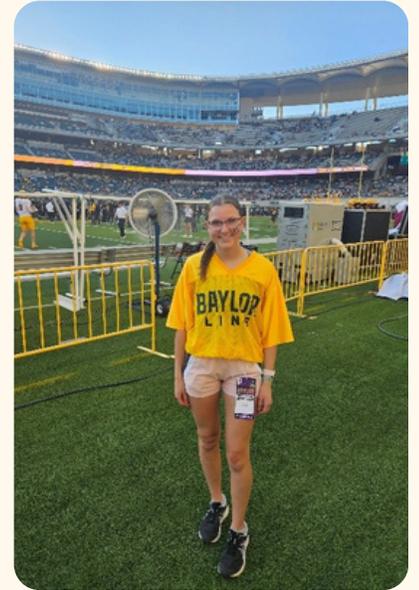
Spark STEM Curiosity in Your Classroom with WOW!

LOOKING AHEAD

April 30th - AETC All Star Event

A Good News Story with LEGACY

For each summer she spent as an apprentice at the United States Air Force Academy (USAFA), Maci has had the privilege of working in the Department of Biology. From testing zero gravity conditions on plants that were launched on the **Polaris Dawn**, to analyzing how mutated fly wings affect mating behaviors, Maci has gained valuable experience that she was able to bring with her to college this year.



"Baylor is hard! But it is cool that I could bring my experience from LEGACY into my college labs. It put me ahead of the game and made my classes more fun (and easier) because I had already mastered those lab techniques." says Maci. The most impactful project she worked on was last summer, learning aerospace physiology. **"I was able to jump in on a parabolic flight with the cadets and experience what it would feel like to be on the moon!** It was interesting to feel the differences between the various forces on the flight. I'm just proud of myself for not getting sick!" While at Baylor University, **Maci is pursuing the pre-vet path** and wants to attend Colorado State University for veterinary school. Although her college schedule is hectic, she's excited to get out more and explore the ecology of the surrounding Waco, TX area very soon.



CHECK OUT MACI'S PARBOLIC FLIGHT!

<https://drive.google.com/file/d/1sNHAUizo-VReQE0VU-PZtolvH9YyAI64/view>



THE OUTREACH ORBIT

OFFICIAL NEWSLETTER OF WPAFB STEM OUTREACH

LEGACY's Impact at the AIAA Conference

Isaiah, a Jr. Apprentice, has been a dedicated participant in the Department of the Air Force's Leadership Experience Growing Apprenticeships Committed to Youth (LEGACY) program since attending the Age 14 Craftsman Camp. Following two consecutive summers at STEM-focused Craftsman Camps, he spent the last three summers working as a Jr. Apprentice at Wright-Patterson Air Force Base (WPAFB).

Last summer, under the mentorship of Ms. Kara Combs, Isaiah's work focused on Large Language Models (LLMs). His role was to test their analogical thinking skills using the Ratterman dataset and evaluate their performance. This research was incorporated into a recently published journal paper, "Evaluating the Trade-off Between Analogical Reasoning Ability and Efficiency in Large Language Models," in the journal IEEE Transactions on Cognitive and Developmental Systems; making Isaiah a published author while still in high school! This past summer, he continued his project with Ms. Combs, evaluating and validating the accuracy of auto-generated knowledge graphs.

In March, Isaiah presented at the 51st Dayton-Cincinnati Aerospace Sciences Symposium (DCASS), sponsored by the American Institute of Aeronautics and Astronautics (AIAA). After Ms. Combs encouraged him to attend, his 500-word abstract was accepted. Reflecting on his second time presenting at the symposium, Isaiah noted, "the experience this year was much easier than last year." He credits his newfound confidence to the LEGACY Professional Refinement sessions and the program's final presentation, which prepared him to speak in front of aerospace professionals.

His mentor, Ms. Combs, added, "Isaiah and I have worked together for two internships, and I have enjoyed every second of it. Not only has he done an excellent job during the summer, but he has gone above and beyond by participating in the AIAA DCASS conference and volunteering at TechFest Dayton."

Isaiah credits the LEGACY program for its significant impact. "The summer camps pushed me and made me eager to learn more," he said. "The Jr. Apprenticeship experience has provided a great foundation of knowledge going into college and great experiences and connections with professionals in the field."



THIS ARTICLE CONTINUES ON THE NEXT PAGE →



2261 Monahan Way, Bldg.196 Wright Patterson AFB, OH 45433

Daniel J. Andrews: daniel.andrews.1@us.af.mil
 AFRL/EZE STEM Division Chief
 WPAFB K-12 STEM Lead, LEGACY, STARBASE Wright Patt

THE OUTREACH ORBIT

OFFICIAL NEWSLETTER OF WPAFB STEM OUTREACH

LEGACY's Impact at the AIAA Conference

He also praised his mentor's guidance. "Ms. Combs has been an amazing and very helpful mentor. She has provided many opportunities for me," Isaiah shared. "In the summer of 2025, I had no clue what I wanted to do, so she introduced me to as many people as she could. She noticed my strengths and weaknesses and gave me projects to improve on them." He continued, "I was interested in coding, so she assigned me a coding bootcamp to help me develop my skills. The symposiums helped me with presenting and creating presentations. Kara also provided an interesting project which got me invested in what we were doing and made working feel a lot easier. She also helped me get volunteer hours at TechFest, which was a fun experience."

"The best part of LEGACY is all the people I have met, like my mentor, Ms. Combs, and all of the opportunities it has led to, like the symposium," Isaiah added. "It has challenged me and helped me create skills that I will use for my future employment."

After graduating high school, Isaiah plans to major in computer engineering. "I chose computer engineering because I feel it has more transferability as a major," he explained. "This was important to me because I am still unsure of which field I want to pursue."

This summer, Isaiah will work at the Autonomy and Navigation Technology (ANT) Center at the Air Force Institute of Technology (AFIT), and he is excited to explore a new career field at WPAFB to continue narrowing down his career path.

Job Shadow Day Connects Students with STEM Careers



Pictured: Mr. Chet Powers, the Integrated Solid Waste and Recycling Program Manager, is showing students around the facilities and explaining how solid waste and recycling are handled for the installation. Students are pictured outside in the recycling yard, where dumpsters are emptied before sorting. They also see the final product of the sorting process: paper products that have been sorted and baled, awaiting sale.



THE OUTREACH ORBIT

OFFICIAL NEWSLETTER OF WPAFB STEM OUTREACH

Job Shadow Day Connects Students with STEM Careers

For over 28 years, the WPAFB STEM Outreach Office has given high schoolers a glimpse into their futures with its Job Shadow Day.

This February, we welcomed 64 juniors and seniors from 31 high schools. With the guidance of 38 mentors and co-mentors, students explored careers in engineering, aerospace, human resources, C-17 fabrication, and more.

The next Job Shadow Day will be scheduled for this fall. Keep an eye out for the date announcement on our website.



Pictured: Students are getting dressed to enter the AFRL Sensors Directorate's cleanroom. It's important to minimize airborne particles in these rooms to prevent unintended contamination of semiconductor materials in the lab.

Spark STEM Curiosity in Your Classroom with WOW!

The **WOW!** project, through its *In the Classroom* and *On Wheels* initiatives, offers a variety of hands-on STEM lessons and resources designed to connect learning to real-world careers.

Each of the lessons is engaging, easy to use, and aligned to Ohio learning standards. **These lessons are designed with educators in mind.** They can be delivered to your school through *WOW! on Wheels*, or taught by a real STEM professional through *WOW! in the Classroom*.

There are over 50 lessons to choose from on our website, check out some below.

Grade Levels	Lesson(s)	Lesson Descriptions
K-2 nd	Clean Hands	Students explore germs, hygiene, and ultraviolet light to understand how science protects public health.
3 rd - 5 th	Virus Invasion	
K-3 rd	Animal Adaptions	Students explore how animal traits and strategies, like migration and camouflage, help them adapt and survive environmental changes.
3 rd - 5 th	Animal Survival	
5 th - 10 th	Forces of Flight: Glider Testing	Through hands-on testing, students investigate the forces that make flight possible.
	Forces of Flight: Testing Weight and Balance	
4 th - 10 th	Engineering: The Engineering Design Process	Students act as engineers, moving through the full design process: defining problems, brainstorming, prototyping, testing, and improving their models.
3 rd - 10 th	Engineering: Building a Roller Coaster	

Interested in scheduling?

For more information contact **Angel Callahan** at antoinette.callahan.ctr@us.af.mil

