



# Embedded Teacher Program

## A Design-Build-Fly Parabolic Research Experience

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# Space Research is for Everyone

bring it to your classroom  
share it with the world



## Student Designed

- Authentic research
- Exceptional engagement
- Real career-readiness



## Student Built

- Integrated across disciplines
- Inclusive environment
- Accessible to all



## Student Tested

- Sustainable model
- Scalable programming
- High visibility



## Teacher Flown

- University/industry involvement
- Student mentorship
- Global outreach

The Embedded Teacher Program.  
An immersive microgravity research experience.

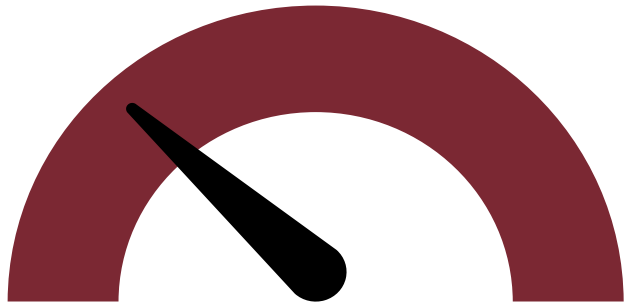
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# Move the needle on STEM persistence



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STEM interest peaks  
and declines rapidly in  
middle school



Changing perception requires changing  
accessibility

Research and Inquiry: A proven way to grow  
student interest in STEM

Space is the hook



# Program overview



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Teacher mentors



Microgravity workshop



Student driven research,  
building, testing

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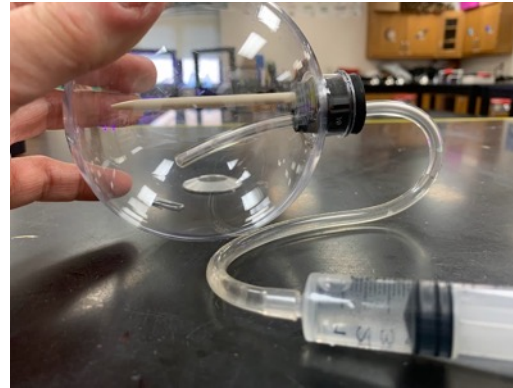
# Program overview



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Teacher flight



Collaboration



Opportunity sharing

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# Program overview



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Milwaukee Magazine



mini PCR Biobits

Curriculum and Educational  
Resource Development



EDUCATOR TAKING MUSIC TO ZERO GRAVITY

Media and Outreach



ISS Extensions

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# Workshop



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## Competitive Teacher Selection Process

### Two Day Workshop Covers:

- Hands-on Activities
- Microgravity Platforms
- Commercial Providers
- Suborbital Research Community
- Teaching NGSS content through space
- Proposal Development
- Guest Speakers:
  - Commercial Providers,
  - biological, medical, and fluids researchers





# Standards aligned



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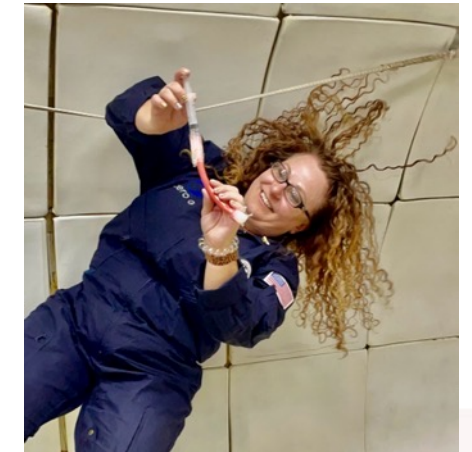
Spring oscillation



Gas distribution



Sound resonance



Human health



Fluid dynamics



Water distribution in regolith



Navigating  
microgravity for the  
visually impaired



# Effect of microgravity on catalase enzyme in liver



Hydrogen peroxide breaks down to form water and oxygen.



Constructing an apparatus for microgravity



Ground truthing at 1-G



# Do changes in gravity affect plant-disease interactions?



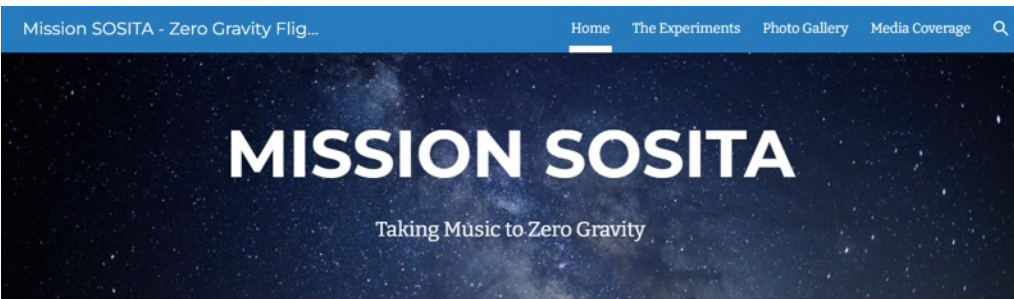
Authentic research experiences



Texas A&M Department of Plant Pathology



# Your personal space... research across disciplines



St. Bruno Parish School's very own Mrs. Lisa Werner is one of 10 teachers across the United States to be chosen to be a part of this program, and only one of four to fly. More than that - she is THE ONLY band teacher! (Most are science and math teachers). Her combination of science and music bring a unique perspective not only to our students, but to the entire National Space Society program! Mrs. Werner's flight took place May 12, 2022, flying out of Fort Lauderdale, FL.

With the help of the St. Bruno Parish School students, our flight mission has been named SOSITA: Sounds Of Space In The Air.



ARTEMIS VIDEO



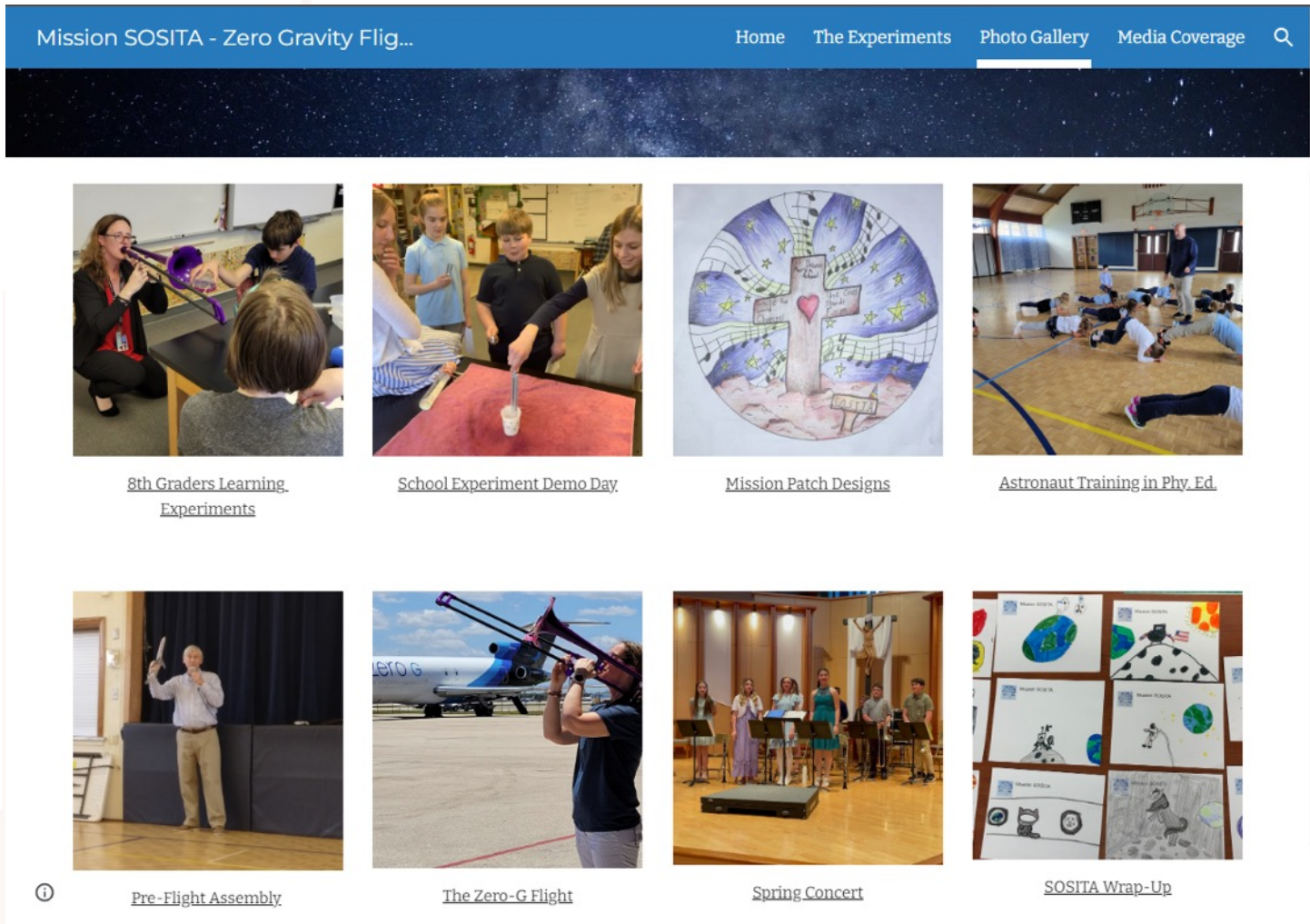
MISSION PATCH VIDEO



Mrs. Werner's Blog



Time Tracker fanfar in M70M A1 to





# Impact



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- Highly engaging
- Emphasizes teamwork
- Real, scientific research and engineering experience
- Problem solving
- Builds confidence
- Collaboration and mentorship
- Inspiration to pursue courses and careers in STEM
- Authentic, inclusive space research  
Accessible to all students

94% of 6th grade students would like to continue participating in the Salado Space Team



68% of 6th grade students enjoy science more than before because of this experience





# Impact

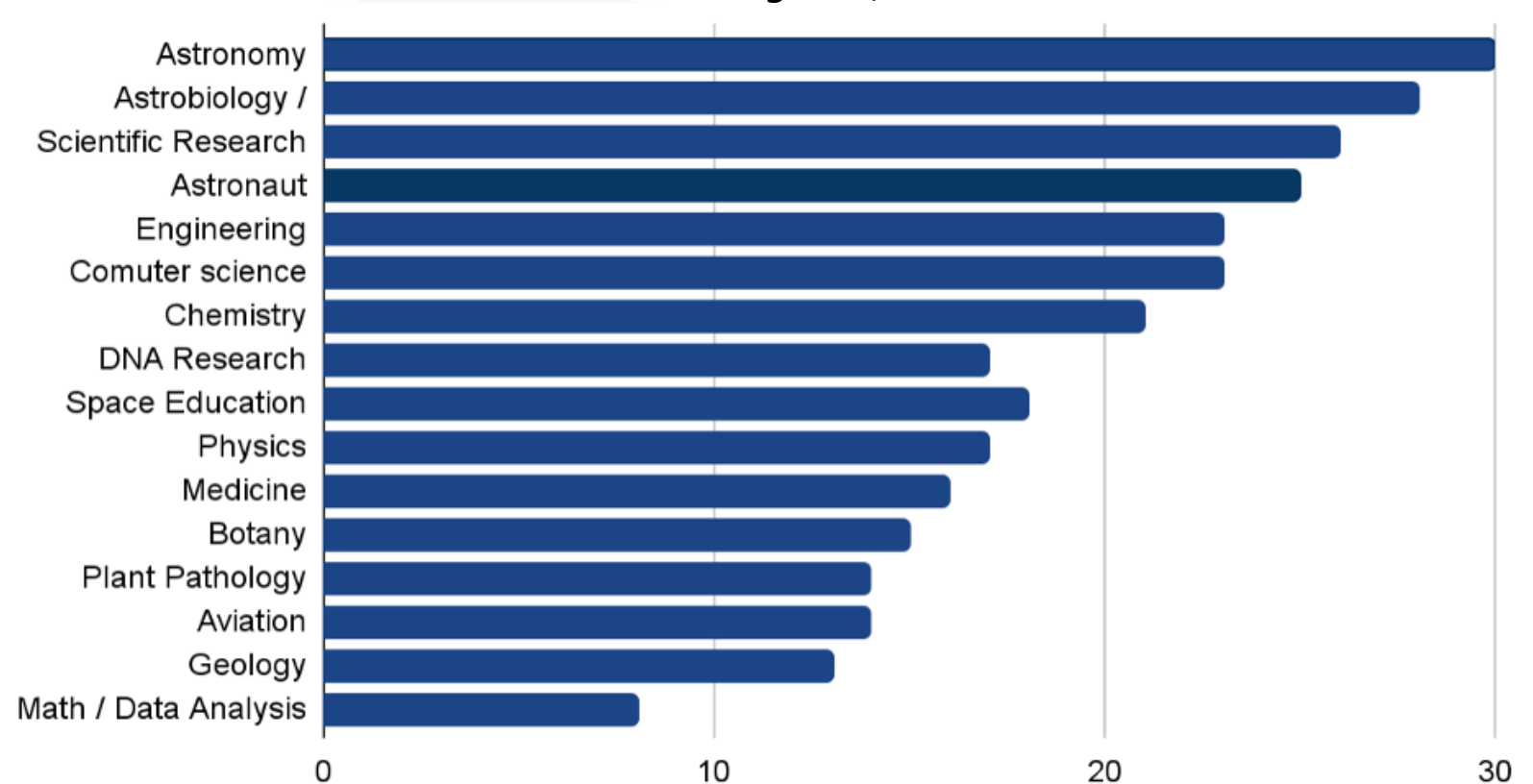


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60% of 6th grade students were inspired to pursue a career in STEM due to their microgravity research this year.

70% of 6th grade students felt their research contributed to the Artemis program.

Choose any of the field(s) below that are you interested in pursuing as a career  
\*Sixth grade, n=96



*"I'm helping the world move forward, and it feels incredible."*

*-Glendale River Hills, Murali classroom*



# Mentors inspiring a new generation...



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Professor Bob Twiggs teaching satellite basics

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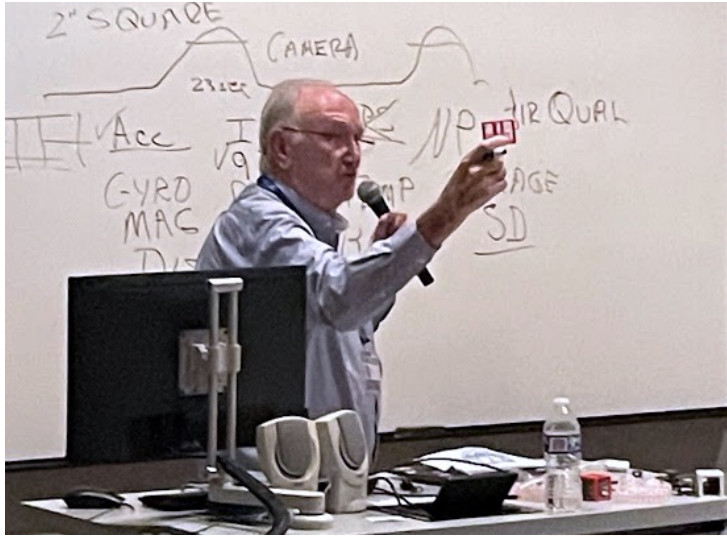


# ...with a new generation of technology



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small satellites for classroom collaborations and global data sharing

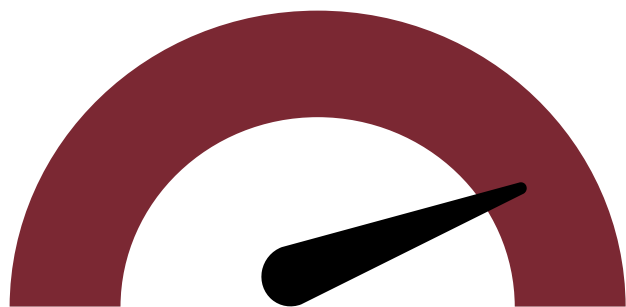


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# Changing perceptions.



***It is so cool that they are learning about the same things we are learning about!*** -Anonymous

***Working with universities inspired many students to work hard. It also shows what Salado Middle School students can do.*** -Adie

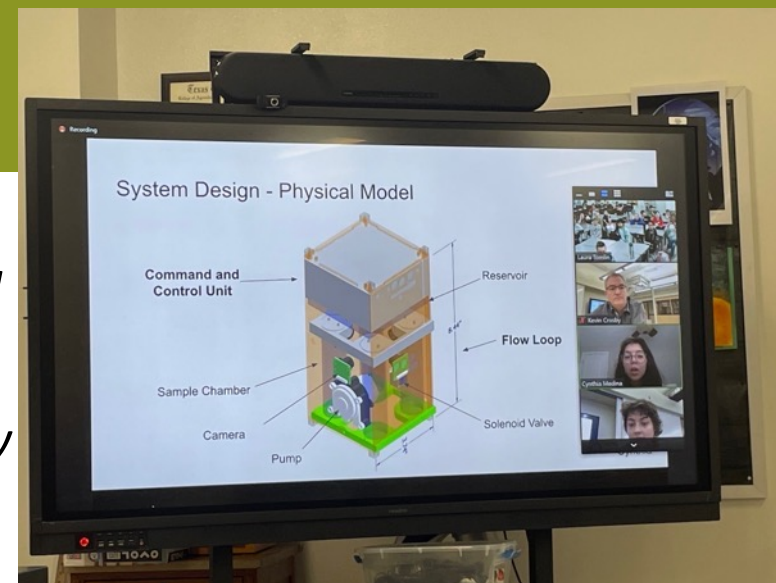
***I felt like a real scientist.*** -Alyson

***I learned so much from them. I hope they know how thankful I am, and that it is a privilege to work with them.*** -Brooklyn

***It feels like we are all connected.*** -Anonymous



Dr. Tom Isakeit, TAMU Plant Pathology



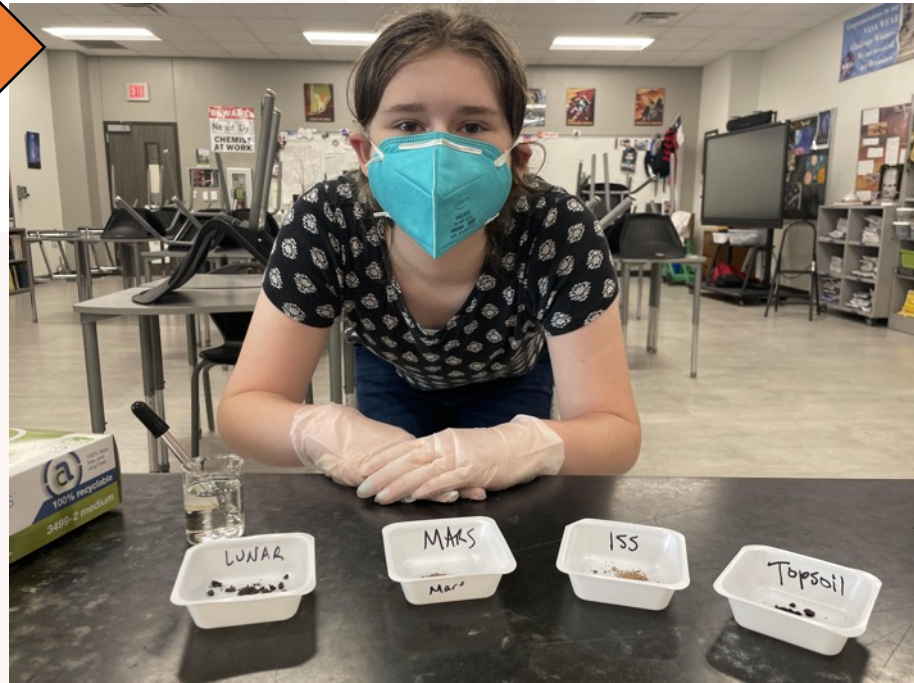
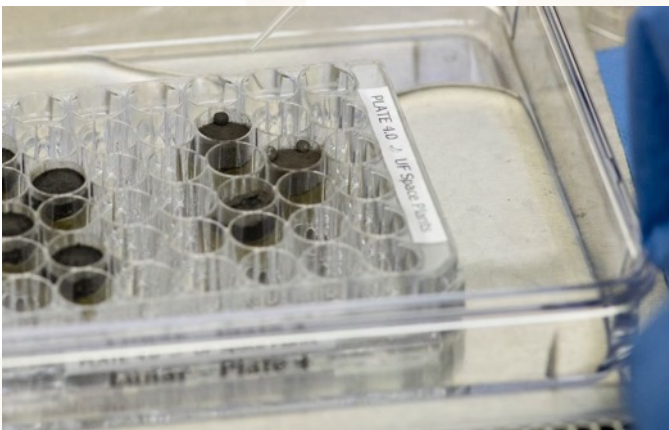


# Changing lives.



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## Radish germination



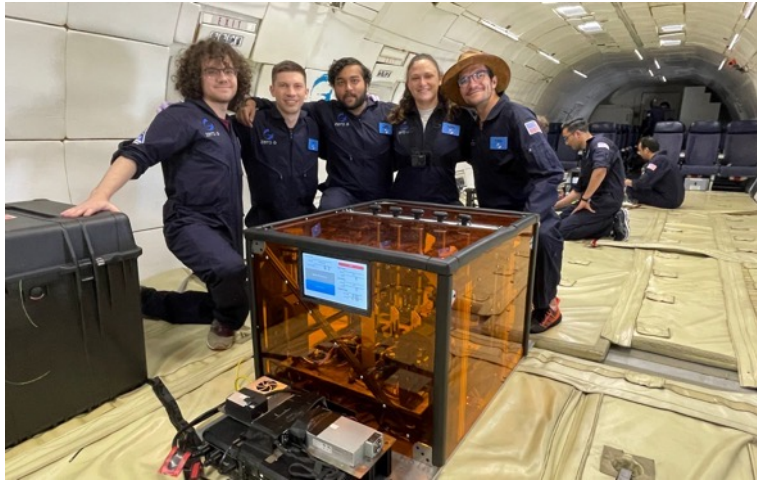
Salado Space Team at  
UF Astrobiology



# Start the career path.



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UC Berkeley



Carthage College

Seeing class projects flown  
alongside ISS and Artemis  
research is a powerful  
message to students ...

There is a place for you in  
space!



University of Louisville, Kentucky





**Sustainable. Inclusive. Broad in Scope.**

*Changing student perception of STEM by providing access to space research*

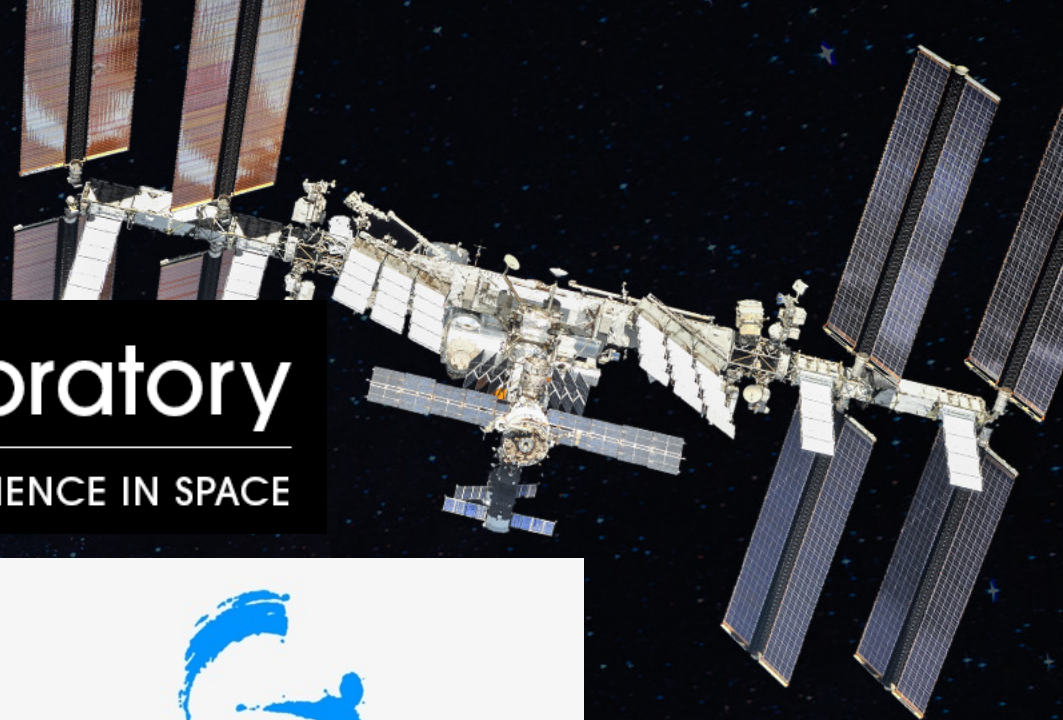
- Real microgravity research- designed, built, and tested by students
- Academic and commercial partnerships
- Leveraging existing ISS educational resources- Genes in Space, DreamUp, Growing Beyond Earth
- Classroom collaborations, across disciplines, on a global level
- Open source curriculum development

# Acknowledgements



**ISS National Laboratory**

CENTER FOR THE ADVANCEMENT OF SCIENCE IN SPACE



The University of Texas at Austin  
Center for Space Research  
Cockrell School of Engineering

SCIENCE FROM SPACE - SERVICE TO SOCIETY - EDUCATION FOR ALL



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Flight Opportunities

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