

Professor Team Webinar #1 (Returning Professors)

April 25, 2024

Yeonjin Bae, ORNL
Kim Trenbath, NREL

Agenda

- JUMP into STEM Overview
- JUMP into STEM Competition
- 2024-2025 Professor Team
- 2023-2024 Competition
- Q&A

Management Team



U.S. Department of Energy (DOE) Building Technologies Office (BTO)



Nicholas Ryan

Oak Ridge National Laboratory Grid Interactive Controls, Integrated Building Performance



Dr. Yeonjin Bae



Bill Eckman

National Renewable Energy Laboratory Building Technologies and Science Center



Dr. Kim Trenbath



Allison
Georgeson

Pacific Northwest National Laboratory Building Simulation & Design, Building Systems



Dr. Sarah Newman



Carmen Cejudo



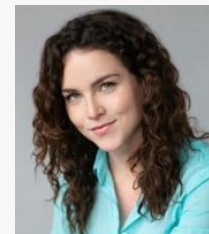
Dr. Mini Malhotra



Dr. Yeobeom Yoon



Jason Schmidt



Dr. Kerry Rippy



Alyssa Bersine



Willy Heredia

JUMP into STEM Overview



- BTO-sponsored building science collegiate competition
- Student teams respond to one of three challenges
- Promotes ideation and diversity
- Awards include mentoring and paid internships
- 2024-2025 is seventh year of student competition

For more info:
www.jumpintostem.org

Vision

- Inspire the next generation of building scientists, focusing on creative ideation and diversity in the building science field
- Provide a gateway for college undergraduate and graduate students to experience the research and career possibilities of studying building science
- Attract students from diverse majors and diverse backgrounds



JUMP into STEM Competition

Tentative Student Competitions for Building Technology Innovation



3 concurrent online challenges
August-November

Final competition
at ORNL or NREL

Awards: Summer
Internships
(2025)

For more information,
visit jumpintostem.org

How it works:

- Fall semester: three building science challenges for innovation
- Supported with technical overview slide deck for each challenge
- Webinars
 - Professor team webinars
 - Student webinars
- Finalists compete in Final Competition at ORNL or NREL for paid summer internships at ORNL, NREL or PNNL

JUMP into STEM Supporting Resources and Webinars



JUMP into STEM website

- Go-to location for students and professors
- www.jumpintostem.org



JUMP emails (jump@ornl.gov & jump@mailor.ornl.gov)

- Challenge topic
- Webinar
- Winner announcement



Professor webinar

- 6-7 Professor team webinars
- Potential challenge topics
- Program updates



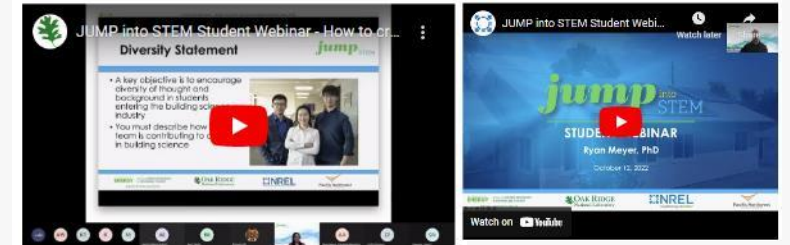
Professor Team recruiting video



Professor Team slides and flyer

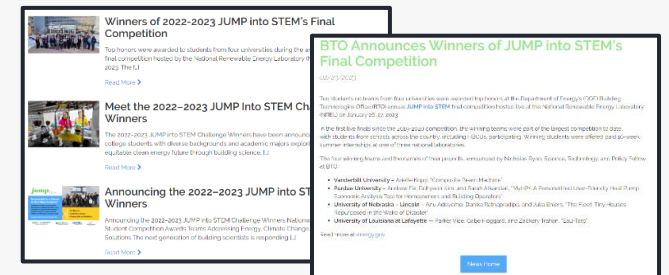
Student webinar

- Student webinars
 - How to create successful submission
 - JUMP into STEM Student Webinar



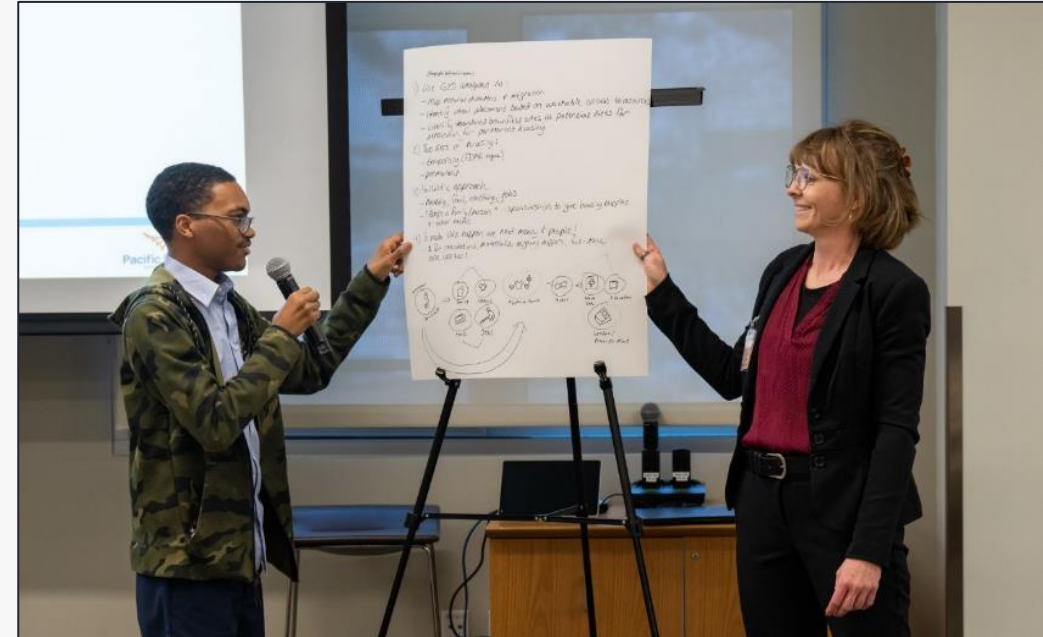
Share the recording

Share the JUMP into STEM news



Challenge Winners

- Each team chooses to participate in one of three Challenges
- Online resources help teams explore solutions and craft submissions
- Winning teams selected from each Challenge will be awarded a token of recognition and 1:1 mentorship with an industry expert



Challenge Finalists

- Challenge winners, and additional eligible teams will be selected to compete at the **Final Competition**
- Finalists will be notified in December
- To be eligible to participate in the Final Competition, students must complete Zintellect **internship applications**



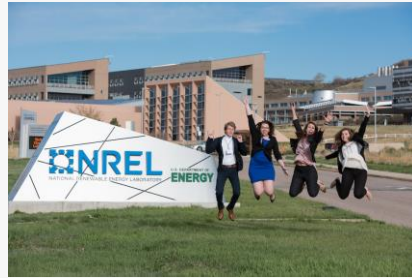
Final Competition



- The Final Competition will be held in person at NREL (January, 2025)
- Finalists will present ideas to a panel of judges from industry, DOE, academia, and national labs

Winning Teams

- Will receive 10-week paid internship at ORNL, NREL, or PNNL



- Will be highlighted in DOE online article
- Interns will have dedicated mentors and work with national lab staff members

Buildings

BTO Announces Winners of JUMP into STEM's Final Competition

FEBRUARY 15, 2023

Buildings » BTO Announces Winners of JUMP into STEM's Final Competition

Participants at the JUMP into STEM finals competition Jan. 26-27, 2023, at the National Renewable Energy Laboratory included students, professors, judges, national laboratory management, and the Department of Energy.

Ten students on teams from four universities were awarded top honors at the Department of

2024-2025 Professor Team

2024-2025 Professor Team



Join the JUMP into STEM Professor Team!

Your Role and Activities:

- The Professor Team connects DOE's goals within the Challenges to university students.
- Engage with JUMP into STEM team to provide feedback on potential challenges and updates during the competition
- Incorporate at least one (1) challenge into an appropriate Fall 2024 course as part of the student's grade
- Support students on research and submissions
- Promote JUMP into STEM to other university stakeholders.



JUMP into STEM participants Jarrett Thomas and Jai Huntley, and Hampton University Professor Laura Battaglia

For more info:
<https://jumpintostem.org/professors/>

2024-2025 Professor Team (cont.)

Benefits to participating:

- Give your students the opportunity to earn a **10-week paid summer internship** to a national laboratory (ORNL, NREL, or Pacific Northwest National Laboratory).

2019 Summer		2020 Summer		2021 Summer		2022 Summer		2023 Summer			
Sarah Tinsley	Cade Lawson	Taylor Sparacello	Kira O'Hare	Zoe Landers	Trisha Gupta	Alka Khadka	Xinyang Rui and Xiang Huo	Sarah Alkandari	Dohyeon Kim	Zackery Trahan	
Carl Woodard	Cade Lawson	James Whitfield	Catherine Moore	Megan Bush	Aryanna Sanchez	Grant Walker and Alka Khadka	Andrew Fix	Gabe Hoggard	Anuoluwapo Adeyemo		
Carl Woodard	Sarah Tinsley	Jai Huntley	Destiny Currie	Vedyun Mishra	Sarah Canastra	Samantha Eddy	Kyra Owensby	Xinyan Liu	Julia Ehlers	Danika Ratnapradipa	Parker Vice

- To date, 32 students have interned at ORNL, NREL, and PNNL.

2024-2025 Professor Team (cont.)

- **Benefits to participating:**

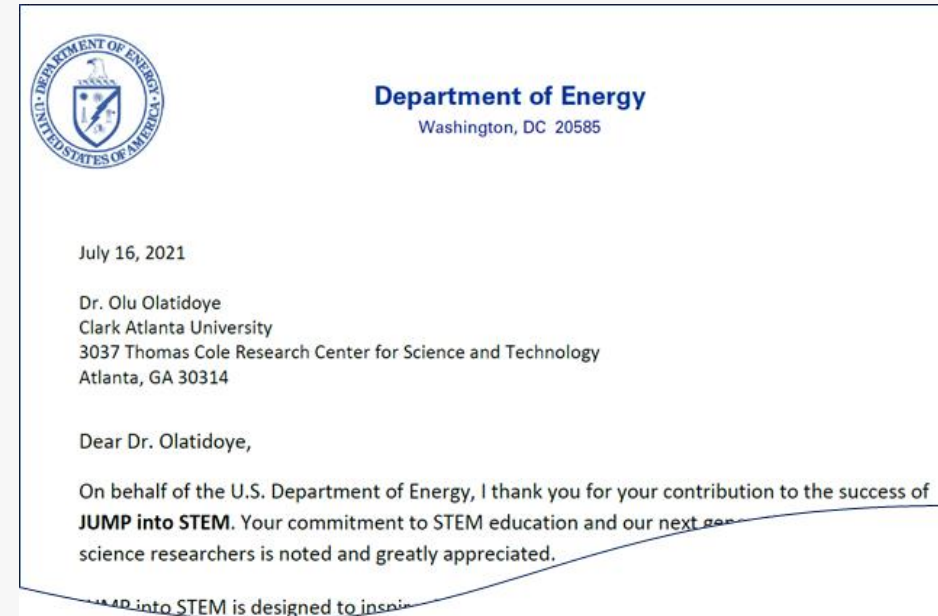
- Make connections with DOE and the national laboratories that can lead to additional scientific progress.
- Invited to attend the JUMP into STEM Final Competition
 - Results in teaching students about national labs and DOE.
 - Collaboration on proposals.



2024-2025 Professor Team (cont.)

▪ Benefits to participating:

- Meet service-related metrics for your university by contributing to the development of a nationwide student competition.
- Letter of Recognition
 - Recognizes participation
 - Official letter from U.S. Department of Energy's Building Technologies Office (BTO)
- Incorporate at least one (1) challenge into an appropriate Fall course as part of the student's grade **that leads to students' submissions**



2023-2024 Competition

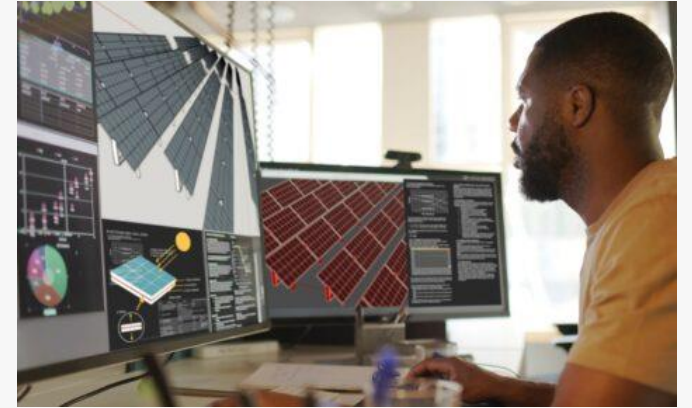
2023–2024 Challenge Topics



Keepin' it Cool (or Hot)



That's a Wrap!

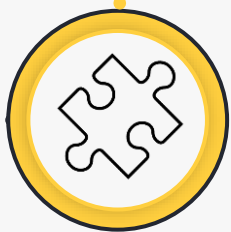


You and Me, Carbon Free!

2024 Final Competition

23–24 Challenge Series Topics

- Keepin' it Cool (or Hot)
- That's a Wrap!
- You and Me, Carbon Free!



Professor team

44 professors from
38 schools
16 professors from
12 MSIs



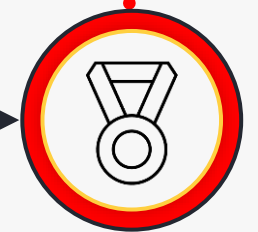
Submissions

83 ideas
from **267** students



9

**FINALIST
TEAMS**



JUMP into STEM's Professor Team



2023-2024



44

Professors



16

HBCU/HSI/MSI



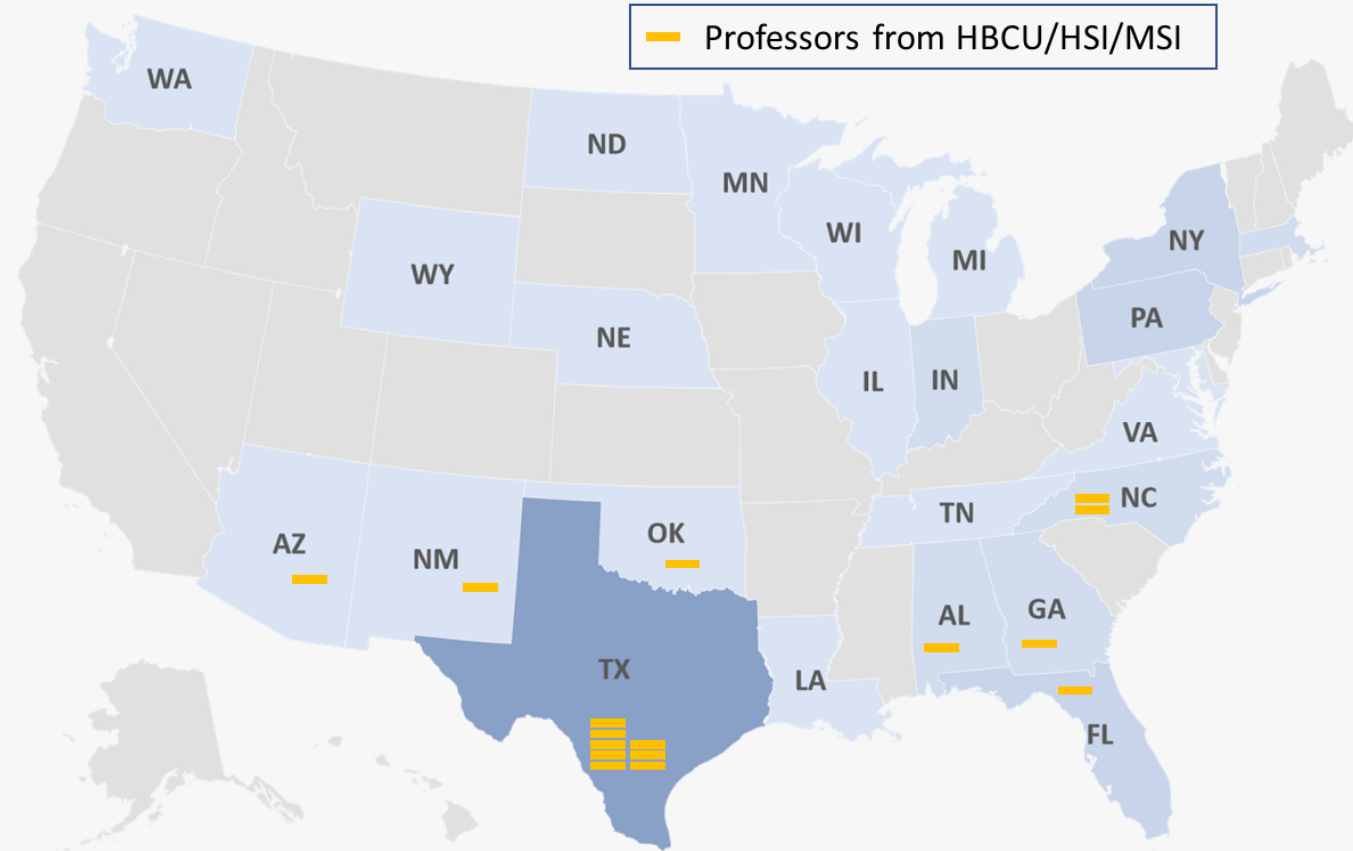
38

Universities



12

HBCU/HSI/MSI



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JUMP into STEM's Student Participation

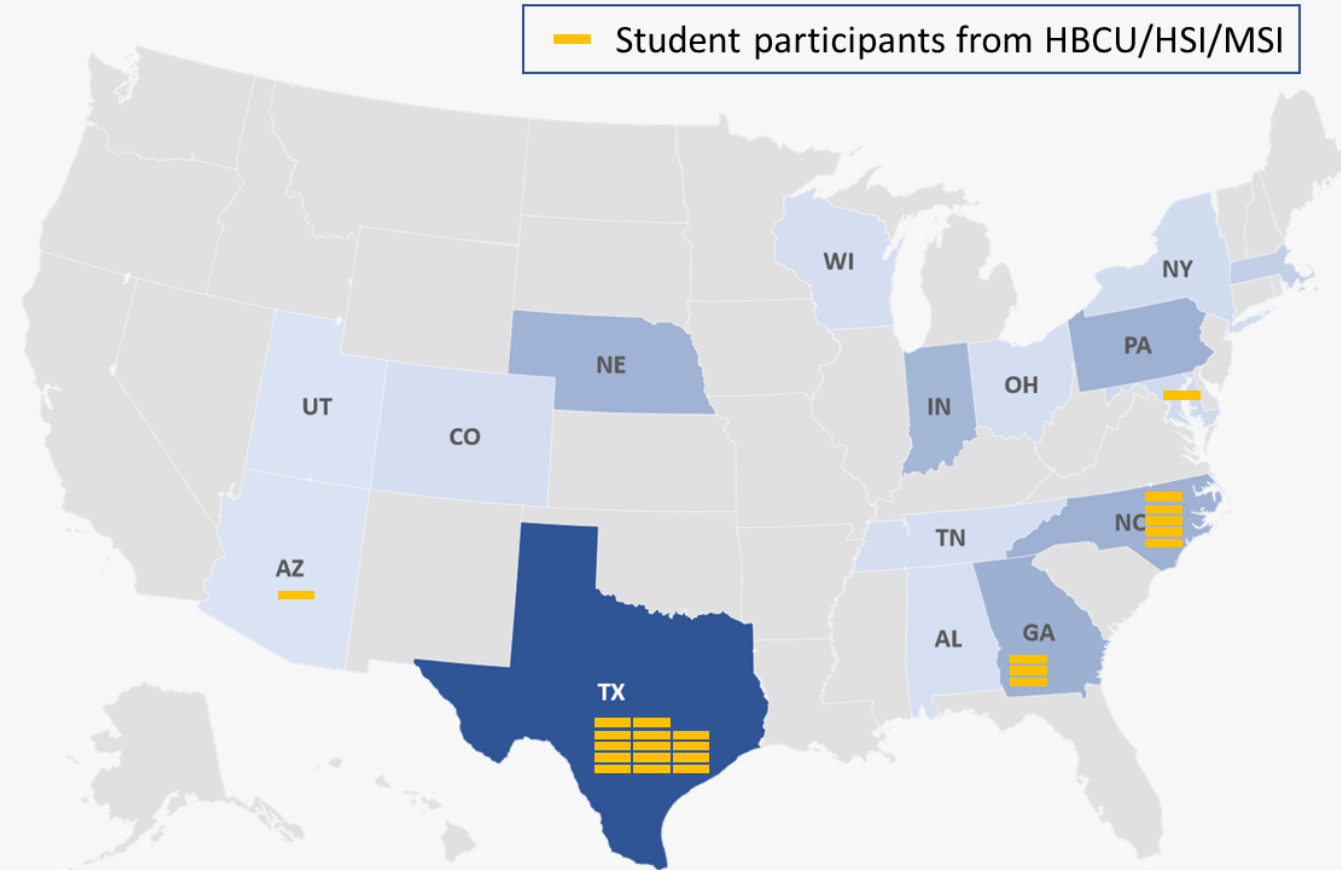
2023-2024



267
Students



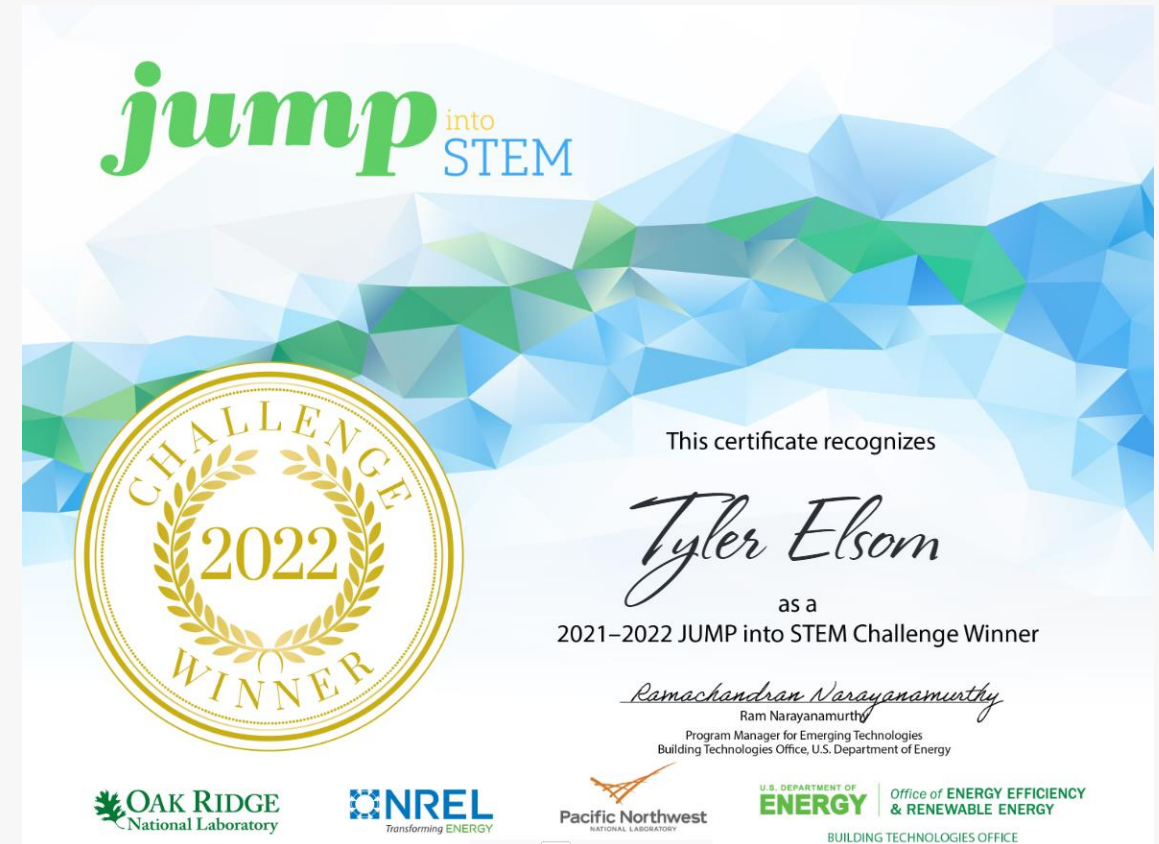
116
HBCU/HSI/MSI



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Challenge Awards

- One hour of one-on-one mentoring with BTO, ORNL, NREL or PNNL staff
- Certificate



2023-2024 Finalist



UNIVERSITY OF
Nebraska



**NORTH CAROLINA AGRICULTURAL
AND TECHNICAL STATE UNIVERSITY**

PURDUE
UNIVERSITY



UNIVERSITY OF NORTH CAROLINA
CHARLOTTE

INDIANA**TECH**



WPI

2024 Final Competition

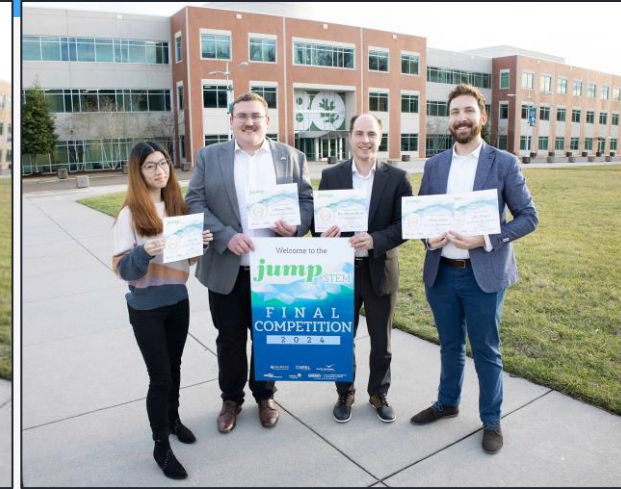
- Finalists presented ideas to a panel of judges from industry, DOE, academia, and national labs
- Networking sessions for students, professors, and industry partners
- Laboratory tours



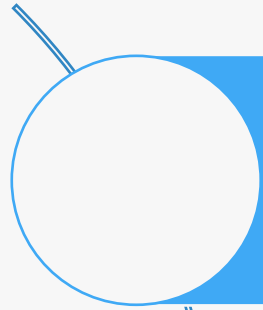
2024 Final Competition Winners



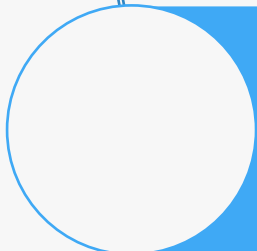
- University of Nebraska Lincoln
 - Detecting, Contracting, Sealing (DCS)
- Purdue University
 - Energy Efficient Heating and Cooling for Low-Income Families in the United States of America
- Worcester Polytechnic Institute
 - Thermal Energy Storage Kiln
- Embry-Riddle University
 - Energy Save Solutions: Mini-Split Thermal Energy Storage System



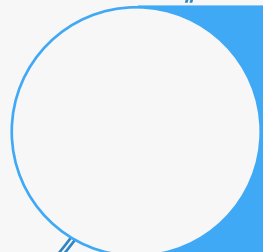
2024 Final Competition Student Feedback



I had a lot of fun researching and discussing possible solutions. Getting the chance to compete against so many great minds pushed me to elevate my idea and to work harder. - Israel Bryant, University of Nebraska Lincoln

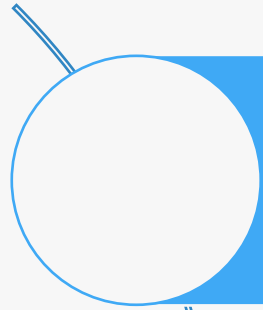


Participating in JUMP into STEM has undoubtedly broadened my knowledge in the fields of building science. The networking opportunities will likely contribute to my professional growth, opening doors to new possibilities and connections. – Felix Ekufu, UNC Charlotte

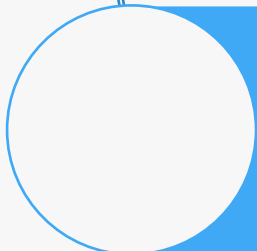


My participation in JUMP into STEM has introduced me to holistic problem solving, which is being able to factor in all variables of a problem, both the good and the bad, in the solution to a problem. This will help me in my pursuits as an architectural engineer by equipping me with the ability to make connections with diverse fields of people and knowledge in order to solve a common goal relating to buildings and the environment. – Michael Murray, NC A&T

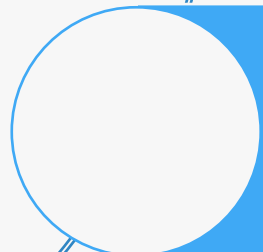
2024 Final Competition Professor Feedback



Participating on-site has been eye-opening. Prior to attending the competition, I had no interaction with national labs. This experience has provided resources that I will share with my students and colleagues. I have also established new connections and potential collaborative opportunities. –Mariantonieta Gutierrez Soto, Penn State University



This opportunity will definitely help my students understand the wonderful work being done at the national labs. They are very interested in getting an internship or job here in the future. –Thomas Tran, Indiana Institute of Technology



JUMPintoSTEM provides unique access into the cutting edge work of the national labs. Incredibly open, warm, and welcoming to our students - this program makes it clear that you have a place at the DOE. The access to directors from programs and leading scientists and engineers shows just how much the DOE is dedicated to bringing young people who represent the fabric of this country to the forefront of cutting edge research on building technology. No matter where you come from you belong here! – Liane Hancock, University of Louisiana Lafayette

2024 Final Competition Professor Feedback (cont.)



- JUMP into STEM tagline



- Inclusion of the advisor's name in the winners and their project descriptions on the webpage
- Introduction of JUMP mailer
- Stay tuned for further updates

JUMP into STEM Videos

- Check out latest videos of JUMP into STEM!

Join the JUMP into STEM Professor Team



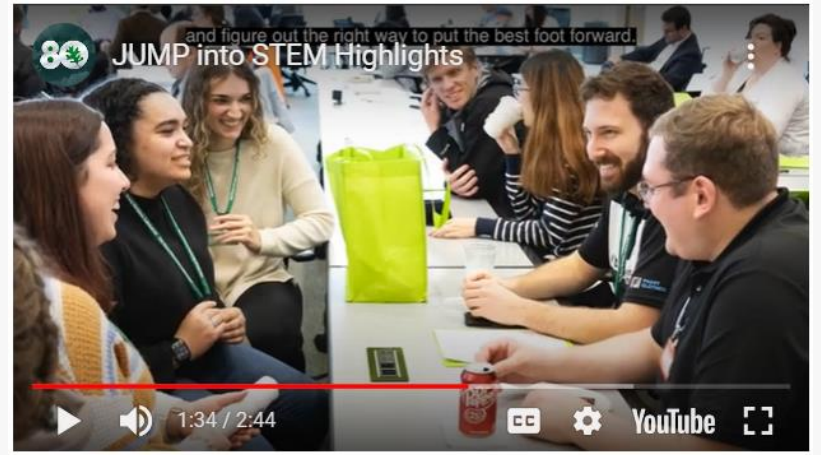
<https://jumpintostem.org/professors/>

2022-2023 JUMP into STEM Final Competition Highlights



<https://www.jumpintostem.org/final-event/>

2023-2024 JUMP into STEM Final Competition Highlights



<https://www.jumpintostem.org/final-event/>

JUMP into STEM Past Challenge Topics

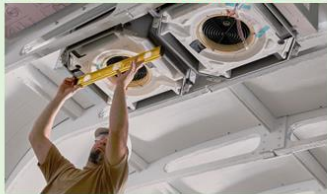
JUMP into STEM Challenge Topics



2019-2020



Pushing the Envelope with innovative Wall **Retrofit** Designs



Designing a Healthier and **Energy Efficient** Air Distribution System



Smart **Sensors and Controls** for Residential Buildings

2020-2021



Building Energy Audit for Residential/ Commercial Buildings



Grid-Interactive Efficient Buildings



Advanced Building Construction Methods

2021-2022



Equal Access to **Healthy Indoor Air**



Resilience for All in the Wake of Disaster



Solving Market Adoption for Emerging Efficiency Technologies

2022-2023



It's **Electric**



Curb Your **Carbon**



Sustainable and Resilient

For more info: <https://jumpintostem.org/challenge-archive/>

Next Steps

- Interested in joining the Professor Team?
- Please email me by **May 10** to confirm your interest
 - Yeonjin Bae (baey@ornl.gov)
 - Fall courses that could include a JUMP into STEM challenge
- Professor Team introductory Webinar for NEW professor team members
 - Recording and slide deck will be uploaded on the JUMP into STEM webpage
 - www.jumpintostem.org/professors

jump into
STEM
COLLEGIATE BUILDING SCIENCE COMPETITION

Professors

- ✓ Offer a unique, in-class learning experience
- ✓ Help students earn a paid national lab internship
- ✓ Introduce the next generation to building science

jumpintostem.org/professors

U.S. DEPARTMENT OF ENERGY | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY
BUILDING TECHNOLOGIES OFFICE

OAK RIDGE National Laboratory

NREL Transforming ENERGY

Pacific Northwest NATIONAL LABORATORY

Next Meeting

Professor Team Webinar for **ALL** professors

- Will be scheduled for mid-May
- Potential challenge topics
- Program updates

Sessions for returning professors to share their previous experiences

- How did you implement the JUMP into STEM challenge in your class/students
- How do you guide your students effectively to ensure successful submission of their assignments or projects



Thank you!



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Questions?



Discussions