



**A73 STEM Outreach – Conduct Science Technology  
Engineering and Math (STEM) Outreach to Minority K-12  
Students Using Unmanned Aircraft Systems (UAS) as a  
Learning Platform  
(STEM V)**

December 6, 2024

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## TABLE OF ACRONYMS

ACE	Aviation Career Education
ASSURE	Alliance for System Safety of UAS through Research Excellence
COE	Center of Excellence
CTEC	Career Technical Education Center
DOA	Division of Aviation
FAA	Federal Aviation Administration
K-12	Kindergarten through 12 <sup>th</sup> Grade
MAAP	Mid Atlantic Aviation Partnership
NAWIC	National Association of Women in Construction
NCDOT	North Carolina Department of Transportation
NCSU	North Carolina State University
NWUCA	Northwest Utility Contractors Association
OrSU	Oregon State University
STEM	Science, Technology, Engineering, and Math
sUAS	small Unmanned Aircraft System
TRUST	The Recreational UAS Safety Test
UAS	Unmanned Aircraft Systems
VT	Virginia Tech



## EXECUTIVE SUMMARY

The Federal Aviation Administration (FAA) continues to prioritize workforce development through the support of the Center of Excellence (COE) for Unmanned Aircraft Systems (UAS) by providing funding that goes directly towards generating interest and excitement about UAS and aviation in local elementary, middle, and high school aged children throughout the United States. In this project, the fifth phase of funding through the COE directed towards Science, Technology, Engineering, and Math (STEM) outreach, the FAA tasked three universities with integrating UAS as a learning platform in both new and existing youth events, as well facilitating the distribution of the cutting-edge research being performed by the entire COE. As with the previous phases of this work, specific emphasis was placed on increasing diversity, equity, and inclusion in the STEM, UAS, and aviation disciplines.

North Carolina State University (NCSU) continued as the lead university for A73 STEM V and was joined by Oregon State University (OrSU) and Virginia Tech (VT). Both OrSU and VT were new additions to the COE STEM program which has now served 12 member institutions. The outreach framework remained flexible wherein each school was allowed to develop their own programmatic approach including the number and type of events to be supported by this effort. Table 1 presents the final statistics of events held, and participants engaged, broken down by the respective schools.

Table 1. Summary of Outreach Activities by School.

<b>School</b>	<b>Events</b>	<b>Participants</b>
NCSU	15	586
OrSU	10	897
VT	4	187
<b>Total</b>	<b>28</b>	<b>1,670</b>

# **1 INTRODUCTION & BACKGROUND**

The Federal Aviation Administration’s (FAA) continued support for the Center of Excellence (COE) for Unmanned Aircraft Systems (UAS) – the Alliance for System Safety of UAS through Research Excellence (ASSURE) – in outreach and the dissemination of the body of research has allowed for yet another phase of Science, Technology, Engineering, and Math (STEM) efforts. This report details what is commonly referred to as project A73 STEM V. The FAA grant amendment authorizing the project entitled: *A73 - Conduct Science Technology Engineering and Math (STEM) Outreach to Minority K-12 Students Using Unmanned Aircraft Systems (UAS) as a Learning Platform* was issued on December 1, 2023, with a 15-month period of performance and a completion date of February 28, 2025. The new phase of funding continued to be led by North Carolina State University (NCSU) and involved two schools not previously engaged in the ASSURE related STEM outreach projects, Oregon State University (OrSU) and Virginia Tech (VT), further expanding the overall program’s reach throughout the country.

## **1.1 Purpose**

While the STEM field has more job opportunities and often higher wages, key groups, such as women and minorities, are underrepresented in STEM. Moreover, the workforce requirements in STEM, aviation, and unmanned systems fields are expected to continue to grow, requiring a consistent student base from which to draw the next generation of professionals in those disciplines. To make STEM opportunities more accessible to underrepresented groups and to contribute to the interest in the UAS field, the FAA has supported ASSURE in conducting STEM activities using UAS as the central learning platform. This project falls within the COE’s mandate to educate and strategically facilitate the distribution of ASSURE research.

## **1.2 Scope**

As outlined in the proposal, each school was expected to plan and support multiple events of various types throughout the A73 STEM V program. The three categories of supported initiatives were UAS Roadshows, UAS Summer Camps, and to support dynamic opportunities throughout the duration of the project, an optional category for other UAS activities deemed appropriate. The expectation of Roadshows was shorter duration events, possibly occurring throughout the school year on weekends. Summer Camps were more in-depth, extended opportunities for outreach. Most of the outreach performed under this program occurred over the Summer of 2024.

# **2 PROGRAM OVERVIEW AND EFFORTS**

A73 STEM V was performed by three ASSURE member institutions with their own unique approaches toward STEM. The following section depicts each school’s efforts with highlights to specific programs.

## **2.1 North Carolina State University**

NCSU served once again as the lead university for the COE’s STEM outreach program, handling the programmatic support for the project through technical interchange meetings and semi-annual program management review updates. Most of the events supported in A61 STEM IV in 2023 carried over to A73 STEM V and are detailed below. The continuity of funding allowed for equipment upgrades to NCSU’s UAS training fleet of aircraft and other supplies necessary to

execute such a robust outreach schedule. Many NCSU programs inherently support the FAA’s focus on minority and under-resourced communities with respect to diversity in STEM fields.

### 2.1.1 NCSU Planned Approach

In partnership with the NC Department of Transportation’s (NCDOT’s) Division of Aviation (DOA), NCSU supported the Aviation Career Education (ACE) Academies to serve as UAS Roadshow events. This grant program hosts elementary, middle, and high school students at local public airports in North Carolina. The 2024 iteration of the ACE Academies included eight events at seven host airports.

Two summer camp programs were supported through this project, both of which are ongoing university initiatives. The TRIO Upward Bound program at NCSU hosts a STEM Summer Camp for under-resourced high school students from across North Carolina. Figure 1 shows a drone photo from the TRIO program. While these camps are traditionally based on broad STEM topics, this funding increased the focus on aviation, UAS, and career opportunities in those industries. This year NCSU provided TRIO with two full days of instruction on principles of aviation and flight, flight time in the classroom and outdoors, time on drone simulators, and an introduction to the interaction between computers and aircraft through block programming flight tasks.



Figure 1. Drone Group Photo from the TRIO Summer Camp Program at NCSU.

The Science House is another on-campus outreach unit with several STEM opportunities for middle and high school students. One of which, the Catalyst program, provides both weeklong summer camps and Saturday activities during the school year to students with disabilities. The priority is to help educate and prepare these students to participate in a growing STEM workforce. Many of these students are repeat participants and some have pursued and passed the Part 107 exam, receiving their Remote Pilot certificate from the FAA.





Figure 2. Catalyst Group Drone Photo at NCSU.

The Science House also introduced a Saturday program called Drone Wolves, which is a more traditional STEM event focused on continuing students' exposure to drones throughout the school year. This program has implemented Drone Soccer from Drone Sports into its curriculum to showcase the value of teamwork and technical troubleshooting in a competitive game environment.



Figure 3. Drone Wolves Inflatable Drone Soccer Arena at NCSU.

A similar monthly STEM club was established by the Jim Shaw ACE Academy at Smith Reynolds Airport in Winston-Salem, NC. After providing support through the ACE Academy with NCDOT over the summer, NCSU was also able to make one final trip for the December meeting of the club to once again showcase Drone Soccer as well as the Block Programming education material. Finally, NCSU was able to support one camp that received FAA ACE Academy funding Vance-Granville Community College in Henderson, NC. This program was a participant in 2023's NCDOT ACE Academy program but was not selected again for 2024.

### 2.1.2 NCDOT Aviation Career Education Academies

NCSU took on a larger role in supporting the ACE Academies under this effort, leading the representation on behalf of NCDOT's Division of Aviation. For each camp, a brief presentation on career opportunities in aviation-related fields was provided before moving on to the fun part: flying drones! The camps were allowed to select from a variety of opportunities including simulators, small indoor classroom drones, and hangar or outdoor flying of UAS. Additionally, interns from NCDOT in high school and college participated in the facilitation of the academies including sharing their own experience in pursuing STEM education and career opportunities. Below is an excerpt from the 2024 ACE Academy Report from DOA:

“Talent fuels North Carolina’s aviation sector. North Carolina’s public airports helped inspire the next generation of talent to pursue careers in aviation during summer 2024 by hosting aviation-focused Aviation Career Education (ACE) Academies for elementary, middle and high school students. The N.C. Department of Transportation (NCDOT) Division of Aviation supports these summer academies with technical assistance, presentations, and funding of up to \$3,000 per academy. The seven public airports hosting academies in 2024 exposed a diverse mix of more than 260 students from across the state to career opportunities in the rapidly changing world of air transportation. Students got back-stage passes to their local airports and the companies that operate on them. They learned about aviation careers from local pilots, air traffic controllers, civil air patrol members, manufacturers and military and civilian aircraft mechanics. They sat inside aircraft cockpits and took the controls of aircraft simulators. They learned flight theory and how to interpret the weather. NCDOT Aviation staff showcased aviation career and education opportunities in North Carolina for students at each academy and offered hands-on drone demonstrations.”



Figure 4. ACE Academy Graphic (NCDOT 2024).

### 2.1.3 NCSU Summary and Demographics

As described previously, many of the events supported by NCSU under this effort have a focus on creating opportunities for students of diverse backgrounds to gain an interest in STEM. Nine of the events captured demographic data – the TRIO Upward Bound camp and all eight of the NCDOT ACE academies (both of Smith Reynolds ACE camps are reported together in Figure 5). In the interest of student safety and privacy, specific race data was not always obtainable and so the data is presented in a binary fashion based on both race and gender. By embedding these camps in local communities, many of them in rural parts of the state, the camps were able to recruit students from a variety of socio-economic backgrounds. Furthermore, the TRIO program indicates that 20 out of 25 of the participants are first-generation college-bound students. Overall, NCSU’s programs maintained a student-to-teacher ratio of less than 6:1, providing high-impact instruction at each event supported by A73 STEM V.

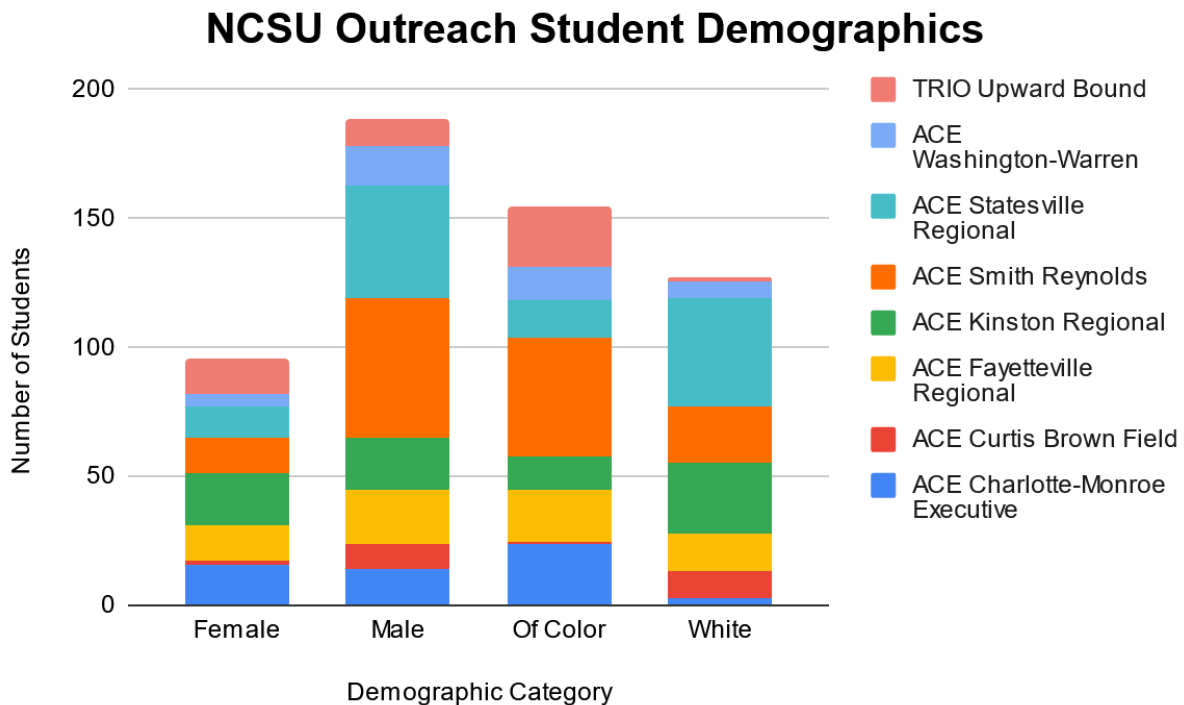


Figure 5. NCSU Outreach Student Demographics.

## 2.2 Oregon State University

To close the diversity gap in the aviation industry, Oregon State University (OrSU) proposed to use UAS as a learning platform to spark interest in UAS technology and UAS-related careers among underrepresented K-12 students in the state of Oregon. OrSU developed engaging hands-on activities focused on small UAS (sUAS), along with presentations and discussions highlighting career opportunities in civil engineering that incorporate sUAS. These initiatives specifically targeted underserved students in Oregon, including those from rural communities, as well as Hispanic and African American populations.



### 2.2.1 OrSU Planned Approach

As a land-grant institution dedicated to teaching, research, and outreach, OrSU actively promotes events designed to provide valuable information to a diverse group of K-12 students. In this context, the OrSU research team focused on sharing insights about UAS-related career paths and highlighting educational opportunities based on UAS-applications.

The College of Engineering at OrSU hosted the *Oregon State University Beaver House* event which targeted K-12 students and their families, providing valuable insights into university administration, campus life, and potential career paths. To highlight OrSU's recent research advancements in engineering, specifically in UAS applications, as well as the university's courses related to UAS, the OrSU team participated in this event, and engaged with 55 students.



Figure 6. Oregon State University Beaver House Event.

### 2.2.2 OrSU Summer Camps

OrSU participated in three summer camps aimed at engaging the target student population. These camps primarily served migrant, Hispanic, and African American students from various regions across Oregon. During these events, participants were introduced to the anatomy and flight mechanisms of UAS through interactive discussions. A hands-on drone assembly activity was

conducted, challenging students to apply the knowledge gained during the discussions. Following the assembly, students tested their drones in flight exercises, providing a practical and engaging learning experience. These combined theoretical and practical sessions provided an engaging experience, enhancing students' understanding of drone technology and its applications while inspiring interest in engineering and career opportunities.

Additionally, an advanced topic on sensor spoofing in UAS was introduced to highlight vulnerabilities in current systems and underscore the critical need for engineers to address these challenges in UAS automation. The discussion and demonstration of a spoofing attack on the optical flow sensor of UAS was followed by a UAS spoofing challenge activity. OrSU designed a UAS spoofing challenge to provide students with an opportunity to design and test their own sensor spoofing attacks on UAS. To further motivate participation, successful attempts were recognized with small rewards, adding an element of excitement to the challenge.

The *Beaver Achiever Middle School Summer Camp*, co-hosted by the Black Student Access and Success Initiative within the Educational Opportunity Program at OrSU, brought together African American students from the Portland, Oregon, area to explore educational and career opportunities. A total of 20 students participated in this engaging program. The OrSU team gave a presentation on the anatomy and flight mechanisms of sUAS, providing students with the foundational knowledge of drone technology. Following the presentation, students participated in a hands-on activity where they assembled their own sUAS and conducted flight tests, offering a practical and interactive learning experience. Additionally, the program included a discussion and demonstration on sensor spoofing in sUAS to introduce students to vulnerabilities in current systems. This topic emphasized the importance of engineering solutions to address such challenges in UAS automation, inspiring students to think critically about real-world problems and the role of innovative technology in solving them.



Figure 7. Beaver Achiever Middle School Summer Camp at OrSU Campus.

The *ENGR Migrant High School Summer Camp*, hosted by the College Assistance Migrant Program, selected migrant high school students from across Oregon through an application process. Participants were chosen for their demonstrated strong leadership within their



communities. The event was attended by 18 migrant high school students, the majority of whom were Hispanic. The OrSU team explained the components and flight principles of sUAS, followed by hands-on activities where students assembled and tested their own drones. Sensor spoofing in UAS topic was also introduced and demonstrated as a real-world example of system vulnerabilities, highlighting the need for innovative engineering solutions to enhance the reliability and security of such technologies. The OrSU team challenged students to spoof a UAS, rewarding those who succeeded with gifts. This activity encouraged critical thinking while highlighting the importance of developing secure engineering solutions.



Figure 8. ENGR Migrant High School Summer Camp at OrSU Campus.

*The Open Campus and Juntos Program*, part of a program designed to transform pathways to higher education for Latinx youth and their families, uniquely engages entire families with a culturally responsive approach while minimizing barriers to participation. A total of 13 students attended the session. The program included a presentation on the anatomy and flight mechanisms of sUAS, providing students with foundational knowledge of drone technology. A hands-on activity followed, where students assembled and tested their own sUAS, offering engaging and practical experience. The session also introduced sensor spoofing in UAS, demonstrating system vulnerabilities and emphasizing the need for engineering solutions to address such challenges.



Figure 9. Open Campus and Juntos Program at OrSU Campus.

### 2.2.3 Career Fair Outreach Activities

Oregon State University visited multiple K-12 schools and career day events targeting high school students in the Portland, Salem, and Corvallis areas. The main objective of these events, as set by the OrSU team, was to introduce recent technological developments and the vision for UAS use in future professions, as well as to spark students' interest in UAS-related careers. To achieve this, the OrSU team designed: 1) hands-on activities to give students experience with actual drones, and 2) information sessions to address students' questions about pursuing UAS-related professions.



Figure 10. Poster Material used during OrSU Information Sessions.

At *South Albany High School Career Day*, OrSU promoted three sessions introducing UAS technology and its applications in various engineering fields, such as civil and construction engineering. A total of approximately 1,440 high school students participated in the event, with 150 students joining in OrSU's sessions.

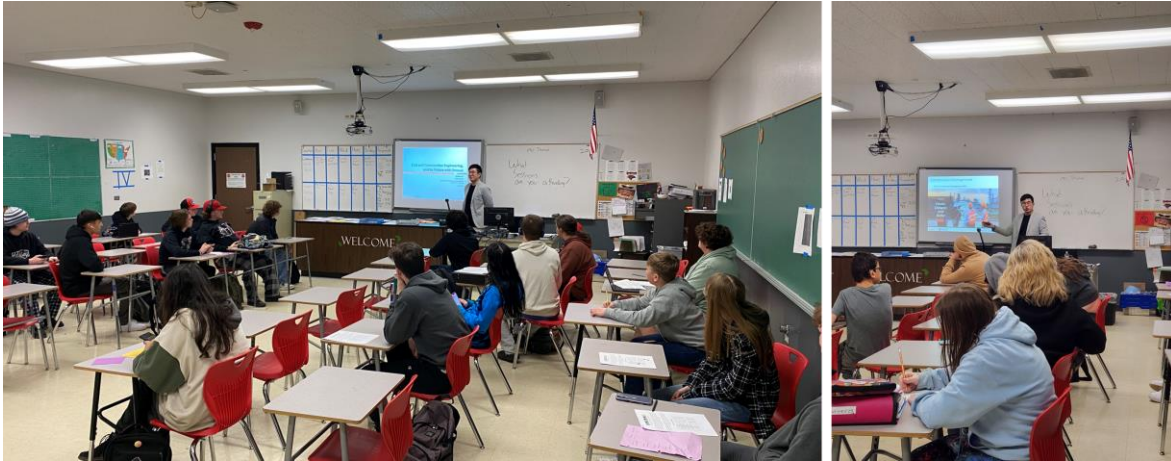


Figure 11. South Albany High School Career Day, Albany, Oregon.

The OrSU research team also participated in multiple third-party career fair outreach events targeted at underrepresented K-12 students. At the *Northwest Utility Contractors Association (NWUCA) Career Day*, in collaboration with OrSU's College of Engineering and the School of Civil and Construction Engineering, the team presented UAS-related research studies and professional career paths in UAS to 136 high school students from the Portland area. Next, OrSU and the College of Engineering, hosted four consecutive sessions at the *National Association of Women in Construction (NAWIC) Career Day*. These sessions introduced UAS-related professional career paths and showcased OrSU's course offerings to approximately 500 high school students from the Salem region. Lastly, The OrSU research team, along with the College of Engineering and the College of Forestry, participated in *Career Technical Education Center (CTEC) Pathways Night*, a career day event aimed at high school students in the Salem area. The goal of the event was to provide information on pursuing various professional career paths. The OrSU research team shared details about the professional course tracks and opportunities available at OrSU that are related to UAS. Throughout this event, the OrSU team reached out to 34 students and their parents to deliver our information package.



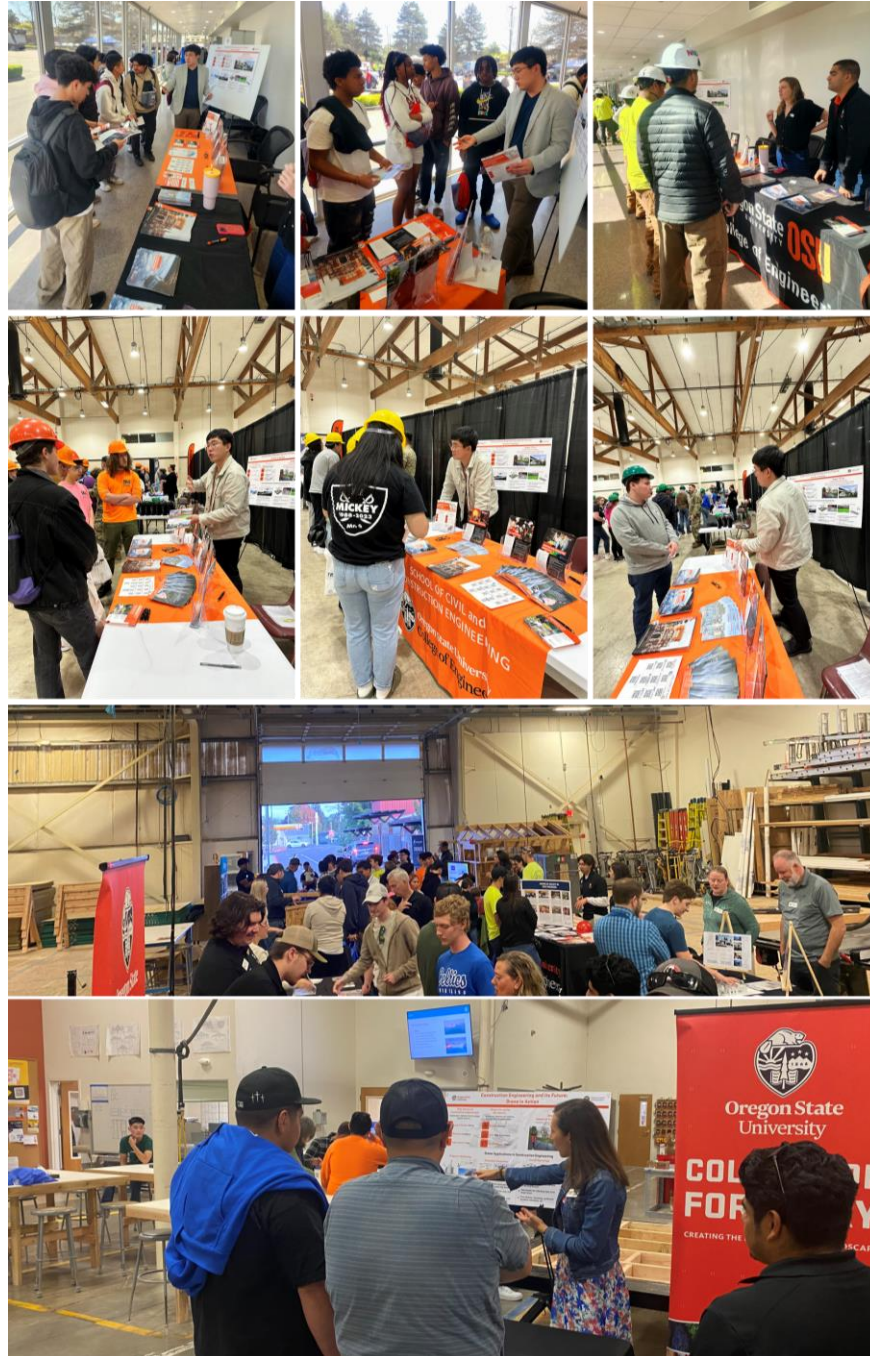


Figure 12. Career Fair Events. NWUCA Career Day (Top), NAWIC Career Day (Middle), CTEC Pathway Nights (Bottom).

### 2.2.4 Hands-On Outreach Activities

OrSU actively engaged in outreach programs designed to inspire and educate students from under-resourced communities about UAS technology and its applications. These programs targeted diverse student populations, including those from rural areas and low-income backgrounds, aiming to bridge educational gaps and spark interest in STEM fields. Through interactive discussions, students explored the anatomy and flight mechanisms of drones, gaining foundational knowledge in UAS technology. Hands-on drone assembly workshops allowed participants to apply these

concepts tangibly, fostering practical problem-solving skills and a deeper understanding of drone operations.

The OrSU team participated in *Blodgett Elementary STEAM Night*. Blodgett Elementary School (Philomath, OR) is in a rural setting and has a small enrollment of about 33 students in total. OrSU team organized a hands-on drone assembly workshop and demonstrated pre-programmed drone flights. 33 students from kindergarten to 4<sup>th</sup> grade participated in the activity.

OrSU also participated in an event hosted by *TRIO Talent Search*, a program that supports students from low-income families, first-generation college students, and those facing barriers to higher education. The event engaged 13 students in the 11th and 12th grades. The program featured a presentation on the structure and operational principles of sUAS, followed by a hands-on activity where students assembled drones and performed the test flight of the assembled drones. This interactive session reinforced the concepts discussed and gave the students a practical understanding of drone technology.



Figure 13. Blodgett Elementary STEAM Night, Philomath, Oregon.

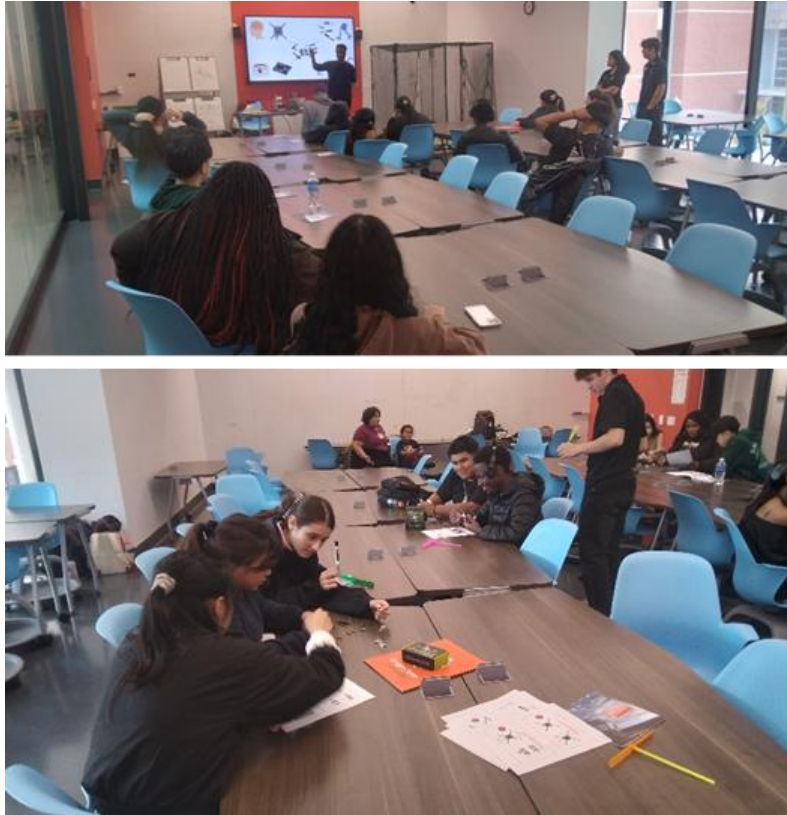


Figure 14. TRIO Talent Search at OrSU Campus.

### **2.2.5 OrSU Summary and Demographics**

During the A73 STEM Outreach project, OrSU engaged with 897 students and members of the broader public across Oregon between February and October 2024. The students in the program gained valuable insights into UAS as a potential career path, and participated in hands-on activities, including assembling and flying their own small drones using prepared kits. Due to privacy and consent concerns, collaborating organizations did not collect or provide specific demographic data, such as age, ethnicity, gender, or other metrics.

### **2.3 Virginia Tech**

Virginia Tech, through the Mid-Atlantic Aviation Partnership (MAAP), contributed to the A73 STEM initiative by leveraging its expertise in UAS research and its robust outreach infrastructure to engage K-12 students in STEM fields. MAAP has a strong history of community engagement and innovative educational programming, which made it a natural fit for this initiative.

With support from FAA ASSURE funding, VT expanded its capacity to deliver hands-on, impactful STEM experiences that emphasized UAS technology and aviation careers. These programs align with Virginia Tech's commitment to fostering diversity and inclusion, particularly among underrepresented and underserved communities, while inspiring the next generation of STEM professionals.



### 2.3.1 VT Planned Approach

Virginia Tech's MAAP led several innovative STEM outreach initiatives to inspire interest in unmanned aircraft systems and related STEM fields, particularly among underrepresented communities. These efforts are directly aligned with the FAA UAS Center of Excellence/ASSURE mission to educate, diversify, and prepare the future workforce for careers in aviation and UAS technology.

The outreach focused on three key areas: immersive week-long summer camps, educational presentations, and community engagements. The week-long summer camps focused on hands-on learning, professional mentorship, and preparing the students for a STEM career. The other outreach activities focused on exposure to cutting-edge UAS technology and fostering an environment where students could explore the potential of drones in real-world applications.

### 2.3.2 UAS Camps

Virginia Tech organized two week-long UAS summer camps designed for middle school students from underserved communities. These camps provided students with a unique opportunity to immerse themselves in STEM learning, build drones, and interact with industry professionals.



Figure 15. A VT Drone Camp Participant Proudly Displaying Their Drone.

#### 2.3.2.1 Blacksburg Campus Residential Camp

The residential camp was held on VT's main campus from July 14<sup>th</sup> through July 20<sup>th</sup>, 2024, and 39 students from across the local region attended. Participants lived in residence halls and experienced university life while engaging in drone-related activities and workshops. The diverse makeup of students included 36% female, 21% first-generation college and 66% from underrepresented minority groups. The program featured:

- Drone Building Workshops: Students assembled drones from individual components, learning essential engineering and problem-solving skills.



Figure 16. Students Working with Instructors on Building and Programing Drones.

- FAA The Recreational UAS Safety Test (TRUST) Certification: Participants gained practical knowledge about drone safety and regulations. By the end of the camp, they had earned their FAA TRUST certification.
- Professional Career Panels: Experts from the FAA, VT Police, geospatial science, and Wing, a drone delivery company, provided insights into career opportunities in UAS and STEM.
- Tours and Demonstrations: Students toured the VT Drone Park and Wing's delivery facilities, exploring drone applications in fields like safety, logistics, and geospatial mapping.
- Drone Competition: The program culminated in a drone flight competition at the VT Drone Park, where students showcased their custom-built drones in a series of challenges. This hands-on experience highlighted the practical applications of their learning and fostered a sense of accomplishment.





Figure 17. Blacksburg Drone Camp Group Picture.

#### **2.3.2.2 Alexandria - VT Innovation Campus Camp**

This weeklong camp was held at the Patrick Henry K-8 School in Alexandria, VA, from July 8<sup>th</sup> through July 11<sup>th</sup>, 2024, and culminated in Blacksburg, VA, on July 12<sup>th</sup>. This mirrored the structure of the Blacksburg program; however, the students did not live on campus during the camp. It catered to 36 students from diverse backgrounds across Maryland and Virginia. This camp focused on diversity and included African American (58%) and female (42%) participants.

On the final day, students traveled to Virginia Tech's main campus to participate in the drone flight competition, allowing them to showcase the drones they constructed in the VT Drone Park.





Figure 18. Alexandria Drone Camp Group Picture.

### 2.3.3 Outreach Activities

In addition to the two drone camps, MAAP also participated in community outreach activities.

On September 25, 2024, MAAP led a presentation at Christiansburg Middle School, reaching approximately 80 students. This session introduced UAS technology and highlighted its applications in various industries, such as public safety, agriculture, and drone delivery. Students learned about MAAP's groundbreaking research and gained exposure to the innovative work being conducted at Virginia Tech.

MAAP also organized a site visit to Wing Aviation in Christiansburg, VA, for a local Cub Scout pack on November 16<sup>th</sup>, 2024. This tour gave young children (grades K–5) an up-close look at how drones are revolutionizing delivery. Scouts explored drone delivery systems and learned about the innovation and future potential of this technology, fostering an early interest in aviation and STEM.



Figure 19. Cub Scouts and Parents Learning about Wing's Delivery Drone.

### 2.3.4 VT Summary and Demographics

Virginia Tech's efforts were marked by a commitment to diversity, equity, and inclusion. Across all STEM initiatives:

- **Camp Participants:** 75 students from Virginia, Maryland, and several other states attended the camps.
- **Outreach Activities:** 104 students from the Christiansburg and Blacksburg area of Virginia participated.
- **Diversity Highlights:** In the Alexandria camp, 58% of participants identified as African American and 42% were female. The Blacksburg camp included participants from Southwest Virginia, a region traditionally underrepresented in STEM fields, and a range of ethnicities.



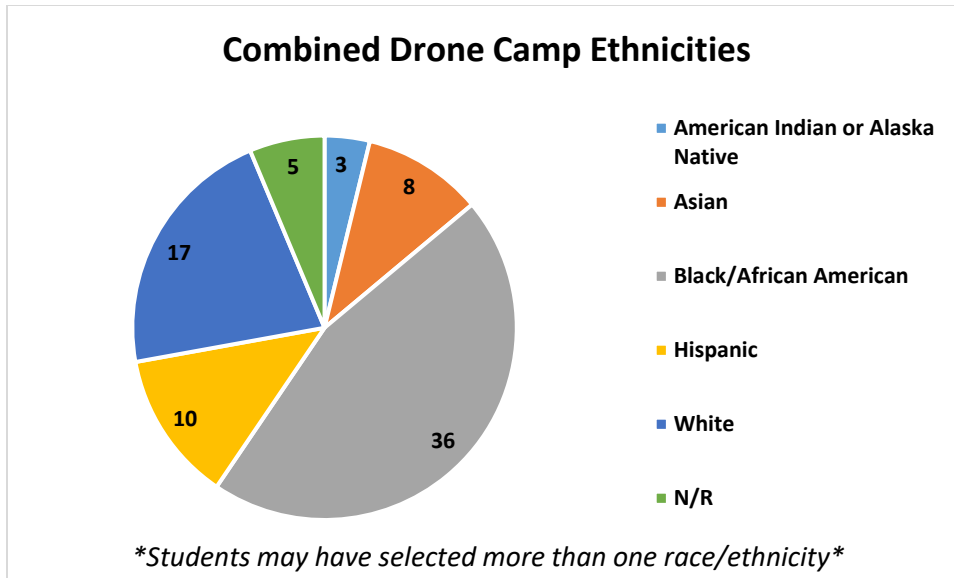


Figure 20. Combined Drone Camp Ethnicities.

Drone Camp feedback for the students and parents was very positive:

- **Program Satisfaction:** 98% of participants stated they would recommend the program to others.
- **STEM Awareness:** 95% of participants reported a greater understanding of the importance of science in everyday life.
- **Career Aspirations:** Many students expressed new or increased interest in pursuing STEM careers, including aerospace and industrial engineering.

### 3 CONCLUSIONS

This year's STEM support through the ASSURE COE marked the fifth iteration of the effort funded by the FAA. With the addition of Oregon State University and Virginia Tech, 12 ASSURE members have been able to participate in the overall program from 10 unique states, allowing the center to demonstrate its significant geographic reach. In 2024 most of the outreach events were smaller programs with excellent student-to-teacher ratios. This style of programming is highly engaging for students at the elementary, middle, and high school levels. In just 29 total events, over 1600 students and educators were supported across all three schools combined. As charged in the proposal, each university supported efforts that championed the inclusion of students from diverse backgrounds.

### 4 REFERENCES

*NCDOT. North Carolina Aviation Career Education Academy 2024 Report.*

*ASSURE. A61 STEM IV A11L.UAS.53 Final Report.*

## 5 APPENDIX A

Table 2. A73 STEM V Complete Event List.

School	Accomplishment (title)	Date Completed	Location	Number of Students	Number of Educators
<b>A73 TOTAL</b>	29			1662	8
<b>NCSU Total</b>	15			586	0
<b>OrSU Total</b>	10			897	0
<b>VT Total</b>	4			179	8
NCSU	ACE Academy	6/3/2024	Statesville Regional Airport	56	N/A
NCSU	Catalyst/GIST summer program	6/17/2024	NC State University	20	N/A
NCSU	ACE Academy	6/17/2024	Washington Warren Airport	20	N/A
NCSU	ACE Academy	6/19/2024	Curtis Brown Airport	11	N/A
NCSU	ACE Academy	6/24/2024	Smith Reynolds Airport	40	N/A
NCSU	ACE Academy	6/25/2024	Charlotte-Monroe Executive Airport	30	N/A
NCSU	FAA ACE Academy	6/27/2024	Vance-Granville Community College	12	N/A
NCSU	ACE Academy	7/8/2024	Smith Reynolds Airport	28	N/A
NCSU	ACE Academy	7/9/2024	Kinston Regional Jetport	40	N/A
NCSU	TRIO Upward Bound program	7/15/24-7/16/24	NC State University	27	N/A
NCSU	ACE Academy	7/18/2024	NC State University	18	N/A
NCSU	ACE Academy	8/6/2024	Fayetteville Regional Airport	35	N/A
NCSU	NCSU College of Engineering Open House	10/19/2024	NC State University	200	N/A
NCSU	Science House Drone Wolves program	10/26/2024	NC State University	36	N/A
NCSU	Jim Shaw STEM Club	12/7/2024	Smith Reynolds Airport	13	N/A
VT	VT Innovation Campus Drone Camp	7/8/2024-7/12/2024	Alexandria, VA and Blacksburg, VA	36	5
VT	VT Main Campus Drone Camp	7/15/2024-7/19/2024	Blacksburg, VA	39	3

VT	Christiansburg Middle School Presentation about MAAP	9/25/2024	Christiansburg, VA	80	N/A
VT	Wing Tour for Cub Scouts	11/16/2024	Christiansburg, VA	24	N/A
OrSU	South Albany High School Career Day	2/22/2024	Albany, OR	75	N/A
OrSU	2024 NWUCA Construction Career Day	4/19/2024	Portland, OR	136	N/A
OrSU	NAWIC Willamette Valley Construction Career Day	4/23/2024	Salem, OR	500	N/A
OrSU	Blodgett Elementary School STEAM Night	6/12/2024	Philomath, OR	33	N/A
OrSU	Beaver Achiever Camp at OrSU Campus	6/25/2024	Corvallis, OR	20	N/A
OrSU	Migrant Engineering Institute Event at OrSU Campus	7/22/2024	Corvallis, OR	18	N/A
OrSU	OrSU Beaver Open House	10/4/2024	Corvallis, OR	55	N/A
OrSU	CTEC Industry Pathways Night	10/10/2024	Salem, OR	34	N/A
OrSU	OrSU Open House & Juntos Program	10/17/2024	Corvallis, OR	13	N/A
OrSU	TRIO Talent Search Program	10/29/2024	Corvallis, OR	13	N/A

## 6 APPENDIX B

Summary of Phases I-IV of ASSURE STEM Projects and Reference Information. This table is provided using data from the A61 STEM IV Final Report.

Table 3. Previous STEM Project Summary.

Phase	Performing School	Description of Events	Total Number of Participants
STEM I	Tuskegee University	4 Roadshows and 1 Summer Camp	225
STEM I	New Mexico State University	3 Roadshows and 2 Summer Camps	1,010
<b>STEM I Totals</b>		<b>10 Events</b>	<b>1,235</b>
STEM II	University of Alaska Fairbanks	3 Roadshows and 4 additional outreach events	Approx. 700
STEM II	University of California Davis	1 Summer Camp and 3 additional outreach events	Approx. 2,000 15 – Summer Camp
STEM II	Montana State University	2 outreach events and 2 additional apprenticeships supported	102
STEM II	New Mexico State University	4 Summer camps, 1 outreach activity, and 5 speaking engagements	520
<b>STEM II Totals</b>		<b>24 Events</b>	<b>3,337</b>
STEM III	University of Alabama Huntsville	18 total outreach events	765
STEM III	University of Alaska Fairbanks	29 total outreach events	1,805
STEM III	University of California Davis	3 total outreach events	39
STEM III	Ohio State University	4 total outreach events + additional online programs	127
STEM III	Sinclair College	118 total outreach events	9,198
STEM III	New Mexico State University	7 total outreach events	580
<b>STEM III Totals</b>		<b>179 Events</b>	<b>12,514</b>
STEM IV	North Carolina State University	21 total outreach events	835
STEM IV	Kansas State University	39 total outreach events	16,439
STEM IV	Sinclair College	37 total outreach events	3,735
<b>STEM IV Totals</b>		<b>97 Events</b>	<b>21,009</b>
<b>Cumulative ASSURE STEM Outreach</b>		<b>310 Events</b>	<b>38,095</b>