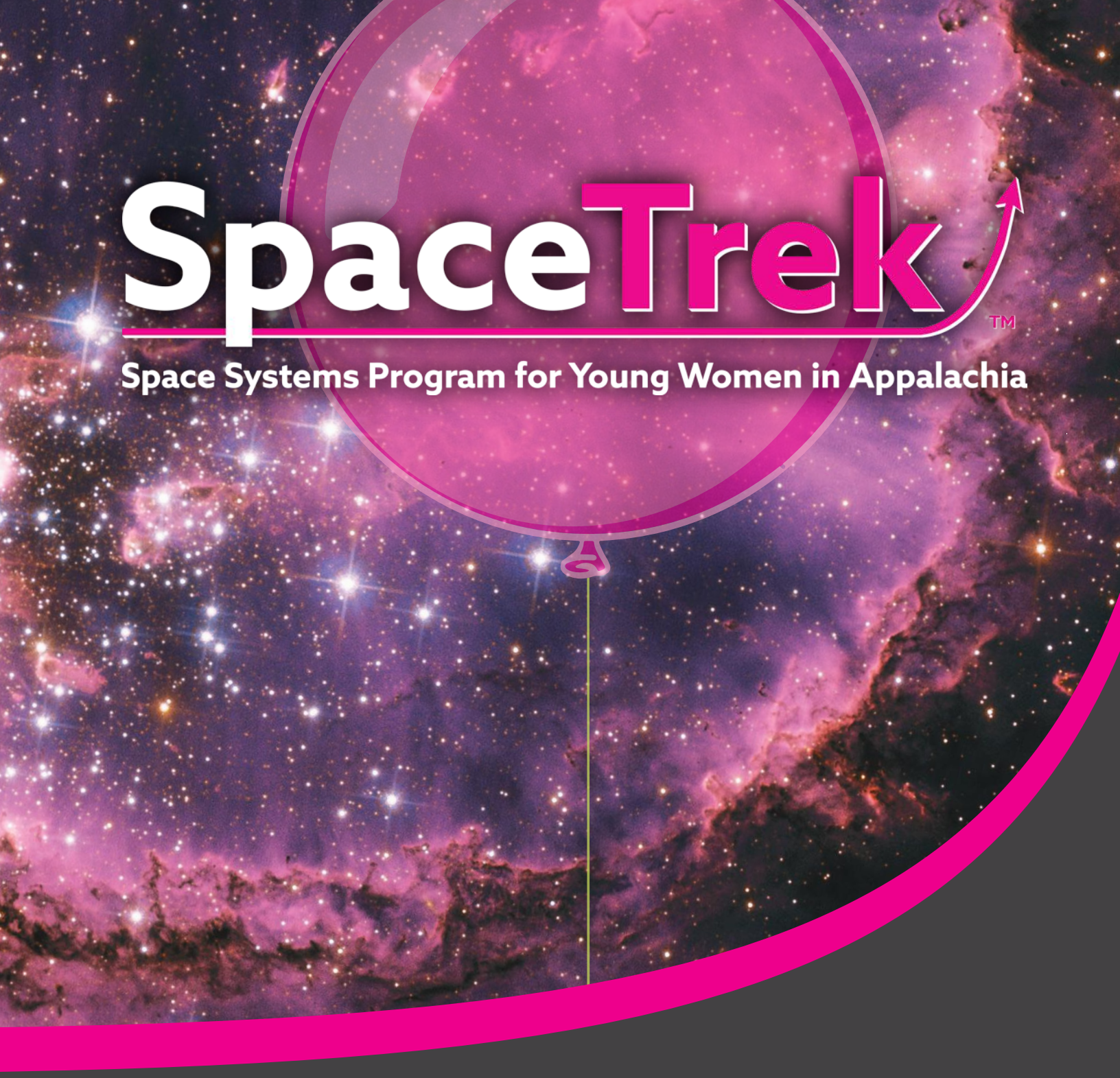
SpaceTrek™

Space Systems Program for Young Women in Appalachia



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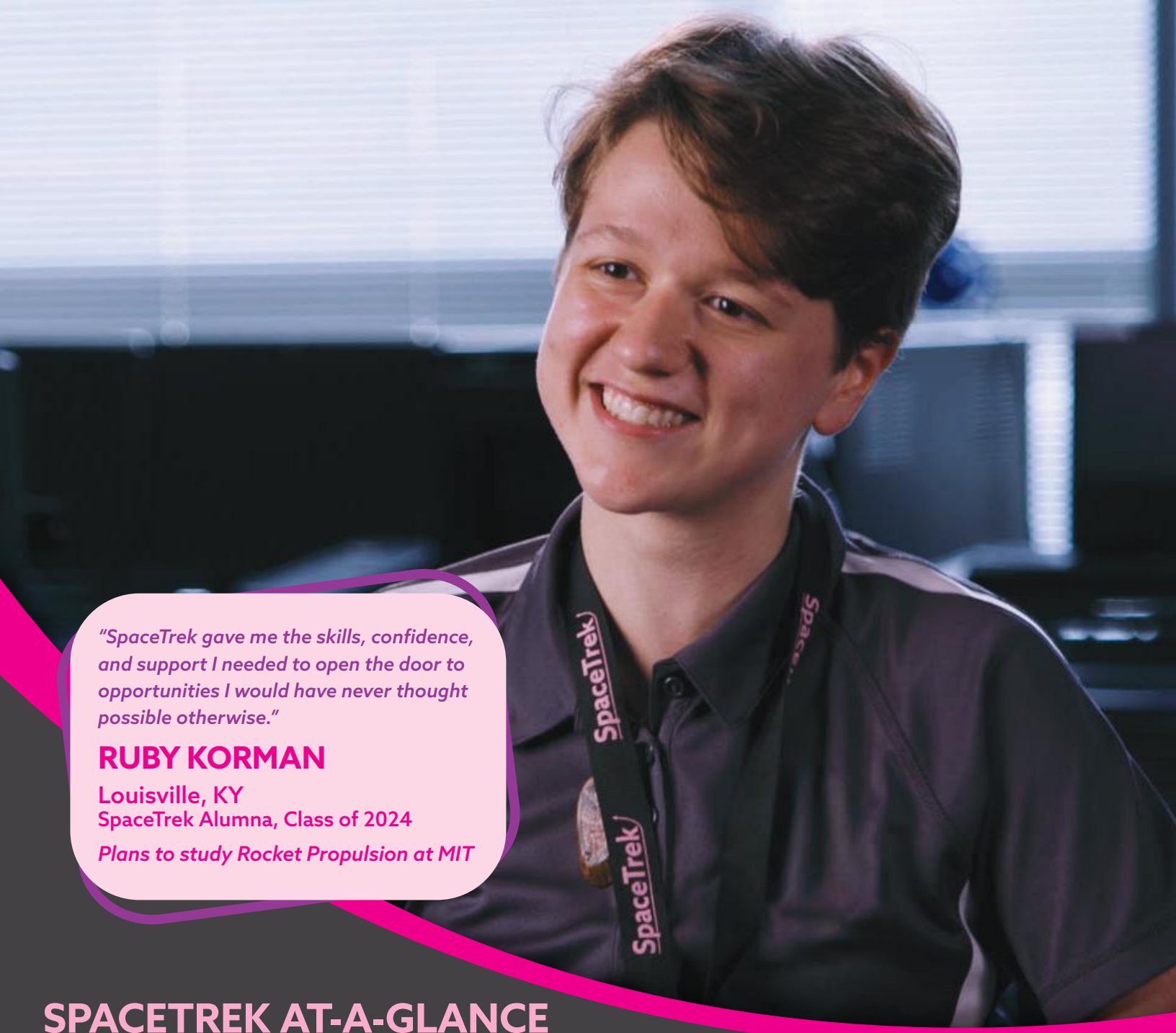
Center for STEM+eXcellence
MOREHEAD STATE UNIVERSITY

Space Science Center
MOREHEAD STATE UNIVERSITY



"SpaceTrek gave me the skills, confidence, and support I needed to open the door to opportunities I would have never thought possible otherwise."

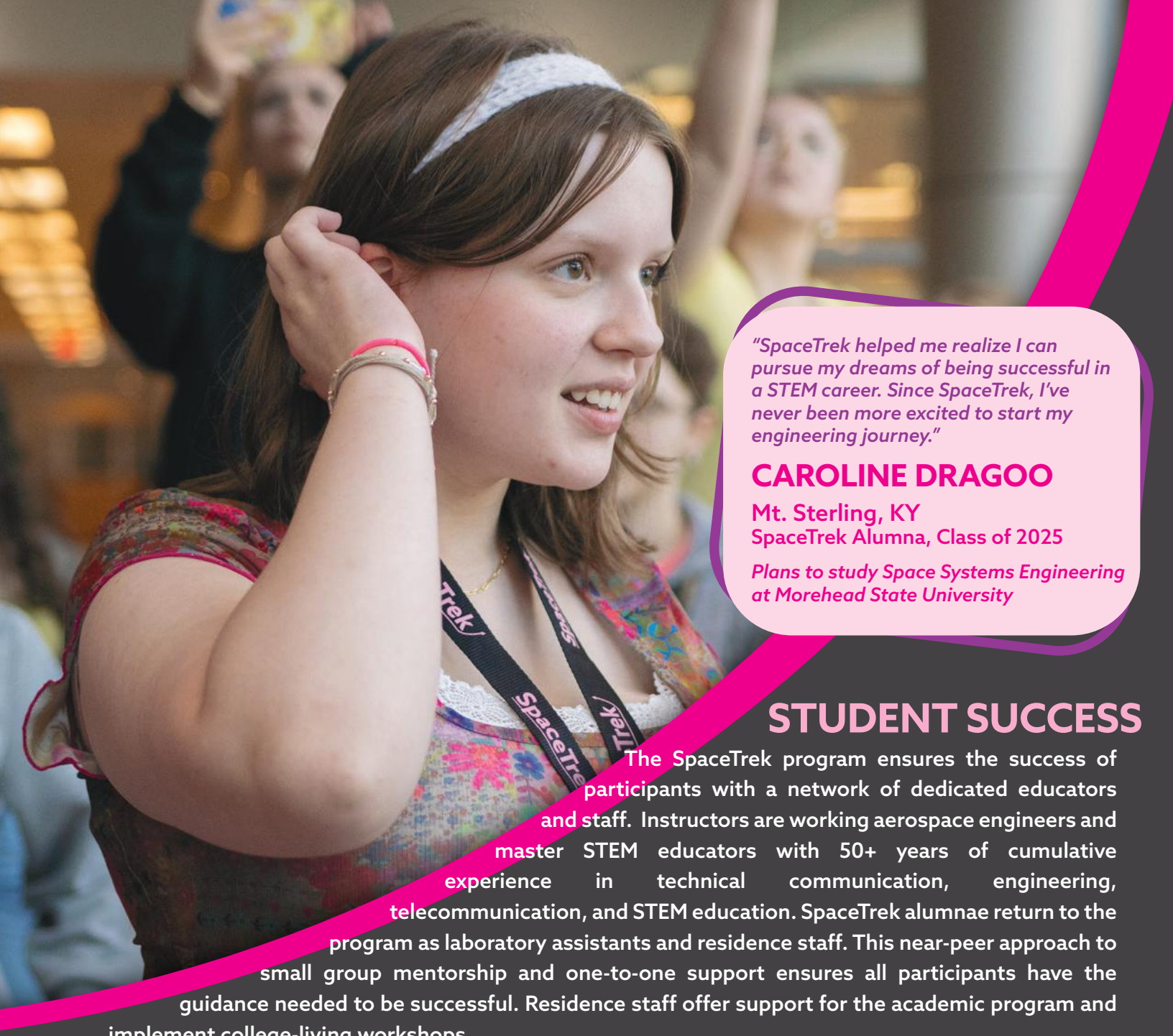
RUBY KORMAN

Louisville, KY
SpaceTrek Alumna, Class of 2024

Plans to study Rocket Propulsion at MIT

SPACETREK AT-A-GLANCE

- PROGRAM DURATION: 2 Weeks in Summer
- LOCATION: The Space Science Center at Morehead State University
- CAPACITY: 24 Participants per Program
- DEMOGRAPHIC: Girls in rising 9th – 12th grade and rising College Freshmen.
  - Participants must have successfully completed Algebra 1 prior to attending.
- RESIDENCE: Craft Tower
  - Home of the Craft Academy for Excellence in Science and Mathematics
- PROGRAM COST: $1,000
  - Scholarships and Financial Assistance Available
- Founded in 2012
- Over 300 Alumnae
- 8:1 Student/Instructor Ratio
- All instructors are working aerospace engineers and master STEM educators.
- PROGRAM FEATURES:
  - Rigorous Curriculum aligned with the needs of aerospace degree programs and industry.
  - A Holistic Empowerment Program designed to help develop a growth mindset necessary for being successful as a professional and well-rounded individual.
  - Guest Speakers and Role Models from a variety of backgrounds to encourage and inspire girls in the pursuit of their career and personal goals.



"SpaceTrek helped me realize I can pursue my dreams of being successful in a STEM career. Since SpaceTrek, I've never been more excited to start my engineering journey."

CAROLINE DRAGOO

Mt. Sterling, KY
SpaceTrek Alumna, Class of 2025

Plans to study Space Systems Engineering at Morehead State University

STUDENT SUCCESS

The SpaceTrek program ensures the success of participants with a network of dedicated educators and staff. Instructors are working aerospace engineers and master STEM educators with 50+ years of cumulative experience in technical communication, engineering, telecommunication, and STEM education. SpaceTrek alumnae return to the program as laboratory assistants and residence staff. This near-peer approach to small group mentorship and one-to-one support ensures all participants have the guidance needed to be successful. Residence staff offer support for the academic program and implement college-living workshops.

ALIGNMENT TO COLLEGE AND INDUSTRY NEEDS

The SpaceTrek academic curriculum is aligned with the space systems engineering curriculum at Morehead State University and provides participants with hands-on experiences building and testing spacecraft systems and tracking satellites with a ground station. Participants experience the primary elements of a space mission, including the development of a satellite bus and payload instrument, satellite launch, operation of a satellite tracking station to collect data, and the development and presentation of mission results. The Morehead State University Space Science Center is a research and educational facility where students and staff design and build satellites and satellite systems, and track satellites using a ground station. The Center is home to NASA's Deep Space Station-17. SpaceTrek participants take part in these same activities through the CricketSat Mission, enabling them to complete a scaled but comprehensive space mission.



Participants experience the primary elements of a space mission, including the construction and launch of a scientific instrument, the operation of a satellite tracking station to collect data, and the development and presentation of mission results.

SPACETREK PARTICIPANTS WILL:

- Be immersed in an empowering environment with ample female role models where they will be motivated and exposed to space systems engineering.
- Participate in a complete space mission life cycle.
- Apply mathematics and scientific principles to aerospace applications.
- Make observations and predictions, collect and interpret data, and draw conclusions about the atmosphere.
- Build electronic devices that demonstrate the principles of circuits and electrical components.
- Read and interpret electrical schematics and printed circuit board layouts.
- Work in cooperative mission teams to build a small atmospheric (satellite-like) instrument.
- Calibrate a scientific instrument to produce accurate data.
- Produce antenna beam patterns using an anechoic chamber.
- Measure and infer scientific data
- Use Microsoft Excel as a data analysis tool and produce graphical representations of data.
- Assemble and operate a portable satellite tracking station.
- Produce, prepare, and present a mission report to academic and industry professionals.
- Develop essential skills in cooperation, team building, communications, time management, and action item prioritization.
- Develop a growth mindset necessary for being successful as a professional and well-rounded individual.

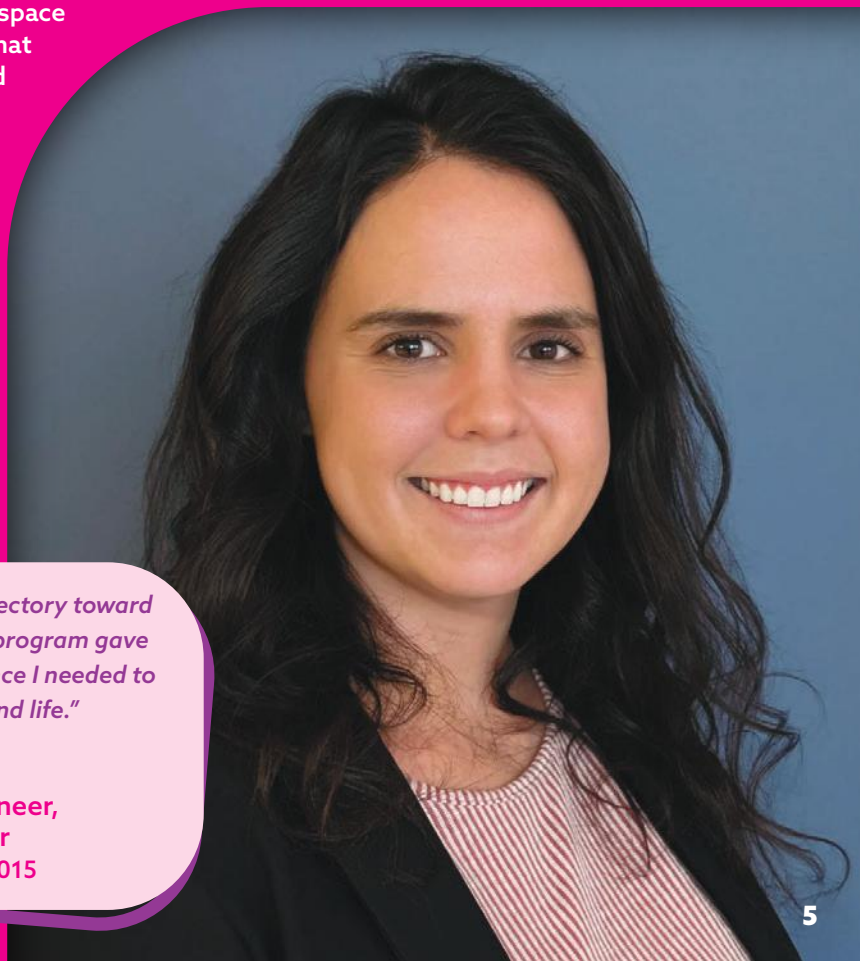
A Pathway to the Aerospace Industry

FROM SPACETREK TO SPACE SYSTEMS ENGINEERING

Growing up in Boyd County, KY, Chloe Hart knew that she wanted something beyond the traditional opportunities available in her hometown, but she didn't know what else might be out there. That all changed in 2015, when Chloe attended the SpaceTrek summer program. There, Chloe found herself in a hands on environment, taking on complex projects, and overcoming challenges beyond anything she'd encountered before.

Manning the ground station antenna as she tracked a CricketSat flying miles overhead, Chloe discovered a passion for space systems engineering. This passion, and the confidence that she could succeed in this path, led her first to attend Morehead State University, and eventually saw her become the Lead Ground Station Operator for NASA's Deep Space Station 17, located at Morehead State University.

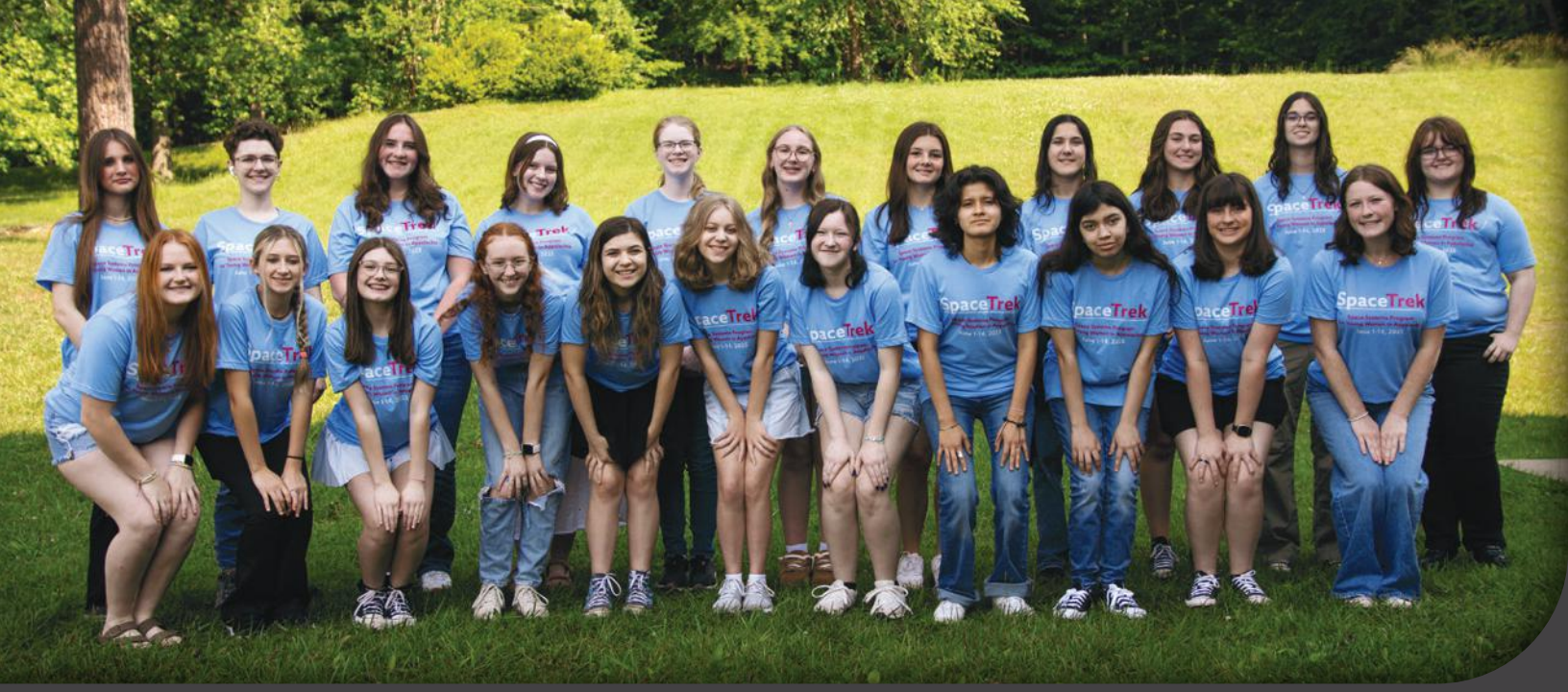
Chloe has now worked with various satellite missions, both in the private and public sectors. Including several operations relating to mankind's return to the moon and beyond. In addition to this work, Chloe has returned to SpaceTrek as a program instructor; inspiring and training young women just like her to pursue careers beyond what they may have thought possible for themselves.



Learn More about Chloe's Journey:

"SpaceTrek set me on the trajectory toward Aerospace Engineering. This program gave me the tools and the confidence I needed to pursue a meaningful career and life."

CHLOE HART
Lead Ground Station Engineer,
MSU Space Science Center
SpaceTrek Alumna, Class of 2015



HOLISTIC LEARNING AND IMPROVEMENT

SpaceTrek takes a holistic approach to empowering young women to pursue STEM degrees and careers by building confidence, community, and essential skills required for college and career success. An empowerment program consisting of intentional activities and events including guest speakers, professional development and college and career events, and focused self-care and wellness are the foundation of this approach. SpaceTrek blends STEM exploration, professional development, wellness, and connection.

GUEST SPEAKERS

Representation and inspiration are central to the SpaceTrek experience. SpaceTrek partners with dynamic guest speakers who serve as roles both in and out of STEM fields. SpaceTrek guest speakers present personal experiences that address topics that lead to the development of essential skills and strong personal character. Topics include overcoming obstacles, perseverance, persistence, grit, time management, prioritization, and more.

PROFESSIONAL DEVELOPMENT AND COLLEGE AND CAREER NETWORKING

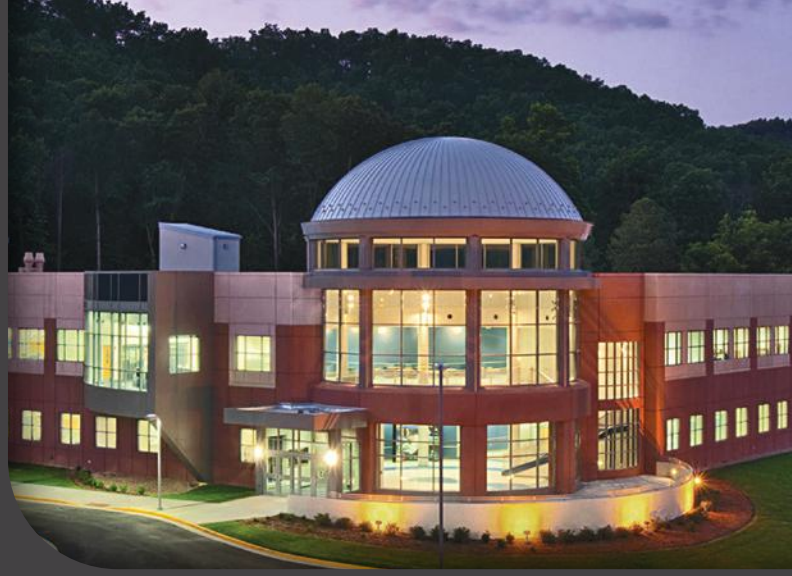
Participants build networking, communications, and leadership skills at SpaceTrek. Meaningful connections within academic and professional pathways are gained during College and Career Networking events that features Morehead State University Admissions, The Craft Academy for Excellence in Science and Mathematics, Space Systems Engineering faculty, student organizations, and aerospace industry representatives.

SELF-CARE, WELLNESS, AND COLLEGE LIVING

SpaceTrek emphasizes work life balance, self-care and wellness. Wellness activities including yoga, Zumba, mindfulness, and friendship adventure retreats ensure students stay connected to themselves and develop social skills and lasting friendships.

SpaceTrek provides an authentic exposure to campus life. College living workshops for practical life-skills such as Laundry 101 and Sleeping in a College Dorm develop student independence living away from home. Tours of campus and the local community build comfort and trust in themselves that they can be successful in navigating the transition to college.

The SpaceTrek Empowerment Program is a launchpad for confidence, leadership, and exploration within space systems engineering and higher education. Participants leave with expanded networks, strengthened life skills, and a deeper understanding of college pathways in STEM fields.



CAMPUS SAFETY

Morehead State University consistently ranks among the safest campuses in the state of Kentucky. The MSU Police Department is available 24 hours a day and offers additional security through the LiveSafe app and Eagle Alerts - safety and weather notifications by text message and email.

HOW TO APPLY

Students must complete an application form, which includes:

- Two 500-word essays
- The name and email address of a recommender. A recommendation survey is emailed to recommenders.
- Name and contact information of individual who can verify completion of Algebra 1

The application form can be found on the SpaceTrek website. Participants are selected based on interest and desired outcomes as expressed through essays and information provided through recommendations.

APPLICATIONS AND ADDITIONAL INFORMATION CAN BE FOUND ON SPACETREK'S WEBSITE:

FINANCIAL ASSISTANCE & SCHOLARSHIPS

Financial assistance and scholarships are available to SpaceTrek participants, ensuring the program is accessible to all students. Financial assistance and scholarships ranging from partial to full coverage are available to students after the selection process. Selection does not depend on a student's financial needs.

Financial assistance is provided through the SpaceTrek initiative funded by an Appalachian Regional Commission (ARC) Appalachian Regional Initiative for Stronger Economies (ARISE) grant. Scholarships are made possible through the generosity of donors and supporters. Scholarship opportunities are continually growing. Current scholarships include the Larkin Bohn "Endless Horizon Explorer" Scholarship and the Society for Women in Space Exploration (SWISE) Scholarship. Scholarship applications are located on the SpaceTrek website. Financial Assistance is requested through a survey that participants receive after being selected.

THE CRAFT ACADEMY

The Craft Academy for Excellence in Science and Mathematics is a dual-credit academy for academically exceptional Kentucky students. Craft Academy provides students with a postsecondary residential experience to complete their junior and senior years of high school by enrolling in college courses. It is housed on the campus of Morehead State University. The academic rigor of the Craft Academy challenges students to excel at their highest level. Study is focused on a core of math and science courses and supplemented by electives in the arts and humanities.

Additionally, the Craft Academy offers unique, project-based STEM+X courses that enrich students' educational experiences and help them develop competencies in entrepreneurship and innovation, design and creativity, and civic and regional engagement.

SPACE SYSTEMS ENGINEERING AT MSU

The Space Systems Engineering degree program at Morehead State University prepares students for careers in space system engineering by providing them with skills and experiences in the development and testing of small satellite systems. Additional aspects of the program provide students with experiences in satellite telecommunications, including satellite ground station technologies and operations. Graduates of the programs work at NASA Centers, large aerospace companies (Boeing, Lockheed-Martin, Raytheon, ViaSat, Space Dynamics Lab), space start-ups (Intuitive Machines, SpaceTime, Advanced Space), local companies (Rajant Technologies, Stober, Toyota) and more, with nearly a 100% employment rate in the aerospace and related industries.

While in the program, students gain hands-on experience in designing, building and testing satellites and in satellite tracking operations using Morehead State's 21-meter and 12-meter space tracking antennas. The 21 meter ground station is the only affiliated node on NASA's Deep Space Network. These R&D programs allow students to interact with NASA engineers and scientists and with engineers in the aerospace and defense industries.

Students participate in space missions that are planned, built, managed and operated by students and faculty at Morehead State University - an experience few schools can offer.

Questions? Contact Us At:

stemxcenter@moreheadstate.edu

(606) 783-2300

Check Out Our Website:

SpaceTrek in Appalachia

@SpaceTrekGirls

SpaceTrek

@spacetrekgirls