



Build Discover Accomplish

Aerospace science, engineering and research opportunities for Kentucky students and faculty



Workforce Training Partnership with NASA

- Research experience with Kentucky labs
- Internships with NASA and KY companies
- Contribute to NASA missions and science
- Build payloads for high-altitude and space
- Rocketry, aeronautics and robotics teams



KY Space Grant Consortium

14 KY college institutions
30,000 participants
130 projects funded
8 STEM organizations
(2020-2025)

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Accomplishments for Kentucky

In Fall 2025, a team of undergraduates at the UK-Paducah Engineering campus finished Top 3 in the world in the aerospace design phase of AIAA competition



KCTCS Asbury University Bellarmine University Berea College Centre College Thomas More University
Aviation Museum of KY Challenger Centers of KY KY FIRST Robotics KY Science Center Living Arts & Science Center



NASA EPSCoR

Established Program to Stimulate Competitive Research

Expanding Kentucky's Aerospace Research Infrastructure

- Aerospace research development in Kentucky labs
- Research collaboration between KY faculty and NASA
- Investment for advanced research infrastructure in KY
- Aerospace workshops and seminars
- NASA and commercial spaceflight and high-altitude missions
- Advanced workforce training opportunities for students



NASA KY EPSCoR

Primary Research Areas

Hypersonics & Spacecraft
Thermal Protection
Heliophysics & Space Weather
Space Communications
Aeronautics & Aerospace Design
Materials Science
Remote Sensing



Return on Investment 15:1

Approximate 15:1 ROI for seed grants in aerospace research from this program, resulting in follow-on research funding from agencies including NASA, NSF, NIH, DoE, and DoD

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NASA KY EPSCoR & National Space Grant College and Fellowship Program

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Aerospace Research, Innovation, and Workforce Development for the Commonwealth

\$34.3M

NASA



\$6.0M

State Match



\$5.7:1

State Match ROI



Since 2010

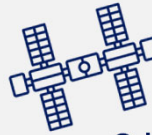
KY Space Grant Consortium



2020-2025

- 30,000** KY Participants
- 130** Projects Funded
- 100+** Jobs Supported
- 22** KY Organizations

KY Aerospace R&D



\$15:1

Follow-On ROI

- 8** KY public universities
- 9** NASA Centers collaborating
- Increasing KY Aero R&D activities*

Innovation Spotlight

CubeLab

NASA EPSCoR Research Award: "CubeLab Standard for Improved Access to the International Space Station for Science Payloads"

- Developed standardized CubeLab system for microgravity research
- Facilitated ISS research with minimal requirements for astronaut workload
- Over 250 CubeLabs have been utilized on ISS over 35 missions
- UK Students formed KY startups: Space Tango, Faradine Systems, Helios Aerosystems

KRUPS

NASA EPSCoR Research Award: "Improving Heat Shields for Atmospheric Entry"

- Developed KY Re-entry Universal Probe System (KRUPS) and KATS CFD codebase
- UK faculty and students achieved first hypersonic re-entry flight by a university
- UK faculty assisted NASA with Orion capsule engineering for Artemis lunar program
- Over 10 KRUPS capsules have flown in space
- KATS code transitioned for use by multiple agencies and industry

Kentucky Space Grant Consortium Profile

The Kentucky Space Grant Consortium began serving the Commonwealth in 1991 and has been managed at the University of Kentucky since 2010

Kentucky Space Grant Consortium (KYSGC) is led by the University of Kentucky (UK) and consists of 29 affiliate members: 18 Kentucky higher education institutions (universities, colleges, community colleges), 5 industry partners and 6 STEM educational organizations. KYSGC engages with stakeholders statewide to develop expertise and expand capacity for science, research and education in aeronautics and space. KYSGC uses best practices and a portfolio of programs to support *Pathways of Opportunities* for students and faculty toward aerospace-related career goals, contributing to a more skilled and high-performing workforce to meet emerging needs of both NASA and Kentucky. KYSGC programs support STEM education and training primarily at the post-secondary level, including developmental pipeline pre-college programs. Participation of the state's students and faculty, multiple academic disciplines and institutional types is essential and integral to success of the program. KYSGC is administered and hosted by the UK Department of Mechanical and Aerospace Engineering.

State Demographics: Kentucky is the 36th largest state by land area with a population of 4.5 million, divided 60/40 between urban and rural residents, of which 22% identify among minority and multiracial groups. Kentucky's economy, once largely agricultural and extractive, is now led by healthcare, education and manufacturing as major employers. Key industrial sectors include automotive (Toyota, Ford, GM), logistics (UPS Worldport, DHL, Amazon), and business/consumer products (Lexmark, GE). Aerospace industries support 23,000 jobs, generating \$16.2 billion in 2022 revenue and recognized as a national leader in aerospace manufacturing.

State and NASA Priorities: KYSGC integrated programs leverage NASA alignment to directly address Kentucky's needs for STEM engagement and experiential opportunities in workforce development and research initiatives. Three strategic themes chosen by the Consortium to help define KYSGC priority areas are *Data + Science*, *Earth + Space*, and *Aerospace + Innovation*. These themes allow multiple programs to be unified in balance to serve state and national aerospace needs.

Unique Consortium-wide Aspects and Specialization: STEM degree tracks related to aerospace are available at the state's community colleges, regional, and research universities, including aerospace engineering and professional pilot training, along with engineering, physics, biology, astronomy and astrophysics programs statewide. The University of Kentucky College of Engineering offers Bachelors, Masters, and PhD degree programs in aerospace engineering at its Lexington and Paducah campuses. Students in space science and engineering programs at Morehead State University learn firsthand using a large-aperture radio telescope and with small sat development. Students in Advanced Manufacturing at Owensboro Community and Technical College have put training into action with NASA team projects. Current NASA research projects at University of Louisville, Western Kentucky University, Murray State University and University of Kentucky allow students and faculty to work directly with NASA personnel and make important contributions in aerospace, space science, technology, advanced materials, fluid dynamics, hypersonics, thermal protection systems, autonomous satellite navigation, UAVs, biomedical, energy and more, with NASA, National Lab, and industry partners. Kentucky universities participate with NASA and commercial scientific payloads, small satellites, ISS experiments, and re-entry capsules. Industry partners work with commercial laboratory platforms and unique experimental facilities to conduct advanced research in microgravity.