



Kentucky Space Grant Consortium 2024 Request for Proposals

Announcement: RFP-24-001

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Proposals Due: **Wednesday, February 21, 2024**

Proposal files submitted online at nasa.engr.uky.edu

Dr. Alexandre Martin, Director

NASA Kentucky

151 RGAN (R.G. Anderson Bldg)

Lexington, KY 40506-0503

(859) 218-NASA (6272)

nasa@uky.edu

For more information contact:

Jacob Owen, Associate Director

(859) 323-4542

jacob.owen@uky.edu

Proposal forms, FAQ, and additional information available:

nasa.engr.uky.edu/space-grant and
nasa.engr.uky.edu/requests-for-proposals

Kentucky Space Grant Consortium 2024 Request for Proposals

NASA Kentucky Space Grant Consortium Overview

The Kentucky Space Grant Consortium partners with the NASA Office of STEM Engagement and 29 Kentucky affiliates to support student fellowships and internships, research projects and workforce development in STEM areas of interest to NASA and Kentucky. The [National Space Grant College & Fellowship Program](#) promotes networking and cooperation among education, industry and government at the local, state and Federal levels. Recruitment and training of US citizens for careers in aerospace science and technology is a national priority, with special focus in Kentucky on increasing participation of women, underserved rural students, underrepresented minorities and persons with disabilities. The Kentucky Space Grant Consortium (KYSGC) supports Kentucky students, faculty and outreach through award programs in this RFP that address the national priorities of NASA and state goals of Kentucky.

2024 Request for Proposals

NASA KY invites proposal submissions from KY Space Grant Consortium affiliates for the following programs:

- Graduate Fellowship (GF)
- Research Experience for Undergraduates (REU)
- Faculty Research Initiation Award (RIA)
- Team Project (TP)
- Enhanced Mini-Grant (EMG)
- Mini-Grant (MG)

Deadline: Wednesday, February 21, 2024. Proposals will be accepted at any time through the deadline date.

Period of Performance: Up to 1 year, with an initial 9-month performance period of May 1, 2024 to January 31, 2025. Projects may request earlier start dates.

Extensions: Extensions through April 30, 2025 are expected, in order to complete a full 1-year performance period, provided project activities during 2024 have been implemented as planned.

Program Descriptions: Included in the following pages.

Number of Awards: Number of awards per program category are determined by size of individual awards and available funding. Approximately 20 awards expected.

Submission limit: PIs are limited to one (1) new proposal submission per program category. There is no submission limit for renewals.

Submission Instructions

All proposals must be submitted via the NASA KY website as PDF files. Documents should be titled as follows:

PI is last name of proposer; PGM is program abbreviation (e.g., GF, REU, TP, etc.)

- SIGNED COVER PAGE:** NASA KY cover page form completed in Adobe Acrobat or Reader. Digital signatures are accepted, or print and sign the original document, then scan and save as PDF.
(File name: **PI_PGM_Cover_2024.pdf**)
- BUDGET:** Submit with project description; see budget instructions below.
(File name: **PI_PGM_Project_2024.pdf**)
 - BUDGET FORM AND JUSTIFICATION: Complete NASA KY budget form with budget narrative that fully describes all requested support and cost-share. Pages with additional budget detail may be included.
- PROJECT DESCRIPTION:** Submit together with budget.
 - PROJECT DESCRIPTION: 5 page limit – 12pt font, 1-inch margins, single spaced
 - ADDITIONAL PAGES: See program descriptions for required elements
- STUDENT INFORMATION FORM (SIF):** Include with GF and REU projects

Proposal forms: nasa.engr.uky.edu/requests-for-proposals/forms

Submit proposals online at nasa.engr.uky.edu through **Wednesday, February 21, 2024**

Proposal Guidelines

Eligibility for Kentucky Space Grant Awards: Proposals will be accepted from NASA Kentucky Space Grant Consortium Affiliate Institutions. Affiliate Institutions are listed on the following pages and the [NASA KY website](#). Reporting on current and prior awards must be up-to-date to be eligible for funding. PIs may submit one (1) new proposal per each program category (exclusive of renewals).

- Academic affiliates in the Kentucky Space Grant Consortium are eligible for all programs.
- Non-profit and Industry affiliates can participate in partnership with Academic affiliates or can propose directly involving students of various educational levels via MG, EMG, TP and REU programs.
- Kentucky commercial and educational institutions (including K-12) who are not affiliates can participate in projects proposed by KY Space Grant Consortium affiliate institutions.

Citizenship: U.S. citizenship is required for students funded under GF and REU programs. There is no citizenship restriction for other programs. There is no citizenship restriction for faculty mentors or cost-share – academic year effort contributed from non-citizen faculty employed at Kentucky institutions may be accepted as cost-share.

General Guidelines: Proposals that omit required materials or exceed page limits may be rejected without review. Proposals from PIs who have not completed reporting requirements or proposed work on prior NASA Kentucky awards may be rejected without review. Submitted proposals must be consistent with the PI institution's policies and practices, e.g. definition of equipment, stipend, etc. Proposers should contact NASA KY with questions about allowable costs.

- *Capital Equipment and Facilities Construction* are not eligible as expenses or cost-share.
- *Travel* funds are restricted to domestic travel only and must be related to the project.
- *Cost-share* must be from non-Federal sources and reported concurrent with project expenses.
- *Letters of support* must be included from cost-share sources and partners participating in the project

Budget and Performance Period: Project activities through April 30, 2025 can be proposed. Due to the performance period of the prime grant, each award will be funded in two increments. The first increment will fund project activities through January 31, 2025. The second increment will fund through April 30, 2025 to complete a 1-year performance period, provided project activities during 2024 have been implemented according to plan.

Featured Program Elements

Inclusive participation: All projects should encourage inclusive participation. TP, EMG and MG proposals must include plans to recruit diverse participants in areas such as gender, race, ethnicity, background, underserved areas (rural or urban), and academic disciplines.

Communication of project activity: All projects must demonstrate plans for communications and/or featured media about project activities and results to the public or academic/educational community.

Faculty mentorship: GF, REU and TP must demonstrate plans for faculty mentorship of student participants.

Waiver of match requirement: Team Projects (TP) do not require match for the 2024 funding year. GF and RIA projects proposing KY-based research partnerships will not require match (limited selection). Voluntary match is accepted for all programs to contribute to NASA match requirements for the KY Space Grant Consortium.

Kentucky research collaborations: GF and RIA projects may choose to omit NASA support letters and instead submit support letters from collaborators of Kentucky-based, aerospace-related research partnerships; for example, in partnership with Kentucky airports, logistics carriers, data science companies, electric vehicle manufacturers, multiple KY universities, or similar collaborations. These proposals should include narrative that discusses alignment with NASA goals and the potential for future NASA collaboration or follow-on funding. A limited number of GF and RIA projects without NASA support letters may be selected.

Additional Guidelines

Renewal Proposals: Existing projects may propose under this RFP for a renewal period and additional funding. Renewal projects should describe extended objectives in the project description and provide discussion of achievements towards current objectives. Renewal funding may be administered via a project's current account.

F&A Rates: Space Grant is primarily a higher education workforce development program and proposals should align with the intent of the program, i.e., projects that recruit and train Kentucky students for careers in aerospace-related science and technology or associated fields (e.g., logistics, manufacturing, education, etc). In line with this program, proposing universities and colleges should use their "other sponsored projects" or training F&A rate if one exists, instead of a full research F&A rate. University of Kentucky on-campus proposers should use the 34% "Other" F&A rate. A 10% *de minimis* indirect rate may be allowable for institutions without an established Federal F&A rate. No F&A is permitted on NIFs awards (GF, REU) as directed by the NASA Office of STEM Engagement. Some projects may be funded by Kentucky state matching funds, which do not allow for F&A (to be determined at time of award).

Cost-Share: The NASA Office of STEM Engagement (OSTEM) requires cost-share of all Space Grant consortia, therefore some NASA Kentucky Space Grant Consortium programs also require cost-share to contribute to this NASA requirement. Cost-share must be from non-Federal sources and not used as cost-share on other projects. Cost-share from non-US citizen faculty effort is allowable. Voluntary match is accepted on all programs.

Performance Reporting: Principal Investigators (PIs) are required to report project progress and results: 1) during the award period, 2) within 30 days of the end of the award (final technical report), and 3) annual updates post-award. Reporting must be current in order to meet NASA and state annual reporting cycles.

Cost reimbursement: Invoices for subawards made under this RFP must be submitted via the University of Kentucky Online Subaward Invoicing system, with a courtesy copy to nasa.invoices@uky.edu. Supporting documentation must be submitted for all invoiced expenses and cost-share. All subaward invoices must show appropriate documentation of cost share in proportion to expenses.

Attribution: Publications, posters, and presentations resulting from awards made under this RFP should include an attribution statement acknowledging NASA KY support. Example: ***"The material is based upon work supported by NASA and the Kentucky Space Grant Consortium under NASA award 80NSSC20M0047."***

Proposal Review Process

Proposals will be rated, ranked and funded up to the budgeted amount available for each program. Technical reviewers may include NASA KY Space Grant Affiliate representatives and external content specialists. Proposals will be reviewed for budget compliance and programmatic alignment. Reviewers will recommend proposals for funding to the NASA KY Director. Past reporting and accomplishments will be considered in evaluation of proposals. To avoid conflicts of interest, alternate reviewers may be recruited.

Proposals will be reviewed and rated based on the following criteria:

- SCIENCE: Scientific merit and implementation; NASA mission and research relevance (30%)
- TECHNICAL: Technical merit and feasibility, including cost risk (30%)
- PROGRAMMATIC: Fulfillment of proposal requirements; management and evaluation; successful and timely completion of prior NASA KY projects and reporting; alignment with KY Space Grant Consortium Strategic Themes and NASA Office of STEM Engagement/Space Grant Objectives (30%)
- BUDGET: Reasonableness and completeness of budget narrative (10%)

Additional information and FAQ: nasa.engr.uky.edu/space-grant

Summary of NASA Kentucky Space Grant Consortium Programs

TABLE 1:

Funding Source	Award Program Category ¹	Program Acronym	Program Description	US Citizen Required ²	Max Award Request	Indirect Costs Allowed	Required Cost-Share (\$CS:\$Award)	Level of NASA Collaboration
Space Grant	Graduate Fellowships	GF	Salary or stipend, tuition, materials and travel for MS and PhD students to conduct NASA-aligned research	Yes	\$50,000	No	0.5:1 ⁶	NASA/state letter of support ³
Space Grant	Research Experience for Undergraduates	REU	Salary or stipend, materials and travel for undergrad students to conduct NASA-aligned research	Yes	\$10,000	No	None required	Use of NASA resources ⁴
Space Grant	Team Projects	TP	Salary, materials, travel and other support for student teams participating in NASA-related competitions, research or design projects	No	\$17,500	Yes	None required	Alignment with NASA objectives ⁵
Space Grant	Research Initiation Awards	RIA	Faculty directed research to explore NASA collaborations and NASA-aligned research topics	No	\$35,000	Yes	0.5:1 ⁶	NASA/state letter of support ³
Space Grant	Mini-Grants	MG	Pre-college, science center and college outreach activities, targeted student activities and teacher PD	No	\$10,000	Yes	None required	Alignment with NASA objectives ⁵
Space Grant	Enhanced Mini-Grants	EMG	Pre-college, science center and college projects aligned with KYSGC Strategic Themes or NASA Space Grant objectives	No	\$25,000	Yes	0.5:1	Alignment with NASA objectives ⁵

Note: Full program descriptions listed on following pages of this RFP.

¹ PIs are limited to **one (1) new proposal submission per program category**. There is no limit for renewal proposals.

² **US Citizenship** is required for students receiving direct support under NIFs awards (GF, REU). Citizenship is not required for other programs.

³ **Letter of support required that commits partnership or collaboration to the project.** Letters endorsing the value or merit of the project without acknowledging involvement or support do not qualify. (See [NASA KY FAQ](#) for more information.) Letters of support may be from NASA or affiliated organizations including NASA Institutes/Laboratories such as JPL, Space Telescope Science Institute, National Space Biomedical Institute, CASIS, etc. A limited number of proposals for KY Research Partnerships may be selected which do not require NASA-affiliated letters of support.

⁴ **NASA resources may include:** facilities, collaborators, datasets, modeling, source code, curricula, images, citizen science projects, etc. developed and made available to the public or researchers by NASA or NASA-supported projects. Links to NASA research studies are available through NASA STI (<https://sti.nasa.gov/>) and NASA Techport (<https://techport.nasa.gov/home>).

⁵ See following sections for description of **NASA STEM Engagement and NASA Research objectives**.

⁶ **Match requirement reduced for 2024:** Match for GF and RIA may be waived for projects in collaboration with state research partners (limited selection).

Kentucky Space Grant Consortium Affiliate Membership

The Kentucky Space Grant Consortium consists of 18 academic affiliates and 11 non-academic affiliates across the Commonwealth. Affiliate institutions and contact information for affiliate representatives are listed below.

Academic Affiliates

Asbury University	Duk Lee	duk.lee@asbury.edu
Ashland CTC	Mark Riggs	mark.riggs@kctcs.edu
Bellarmino University	Akhtar Mahmood	amahmood@bellarmine.edu
Berea College	Wei Wu	wuw@berea.edu
Bluegrass CTC	Tracy Knowles	tracy.knowles@kctcs.edu
Centre College	James Kelly	james.kelly@centre.edu
Eastern Kentucky University	Anthony Blose	anthony.blose@eku.edu
Hopkinsville CC	Sherry McCormack	smccormack0001@kctcs.edu
Kentucky State University	<i>tbd</i>	
Morehead State University	Tom Pannuti	t.pannuti@moreheadstate.edu
Murray State University	Aleck Leedy	aleedy@murraystate.edu
Northern Kentucky University	Nathan De Lee	deleenm@nku.edu
Owensboro CTC	Shawn Payne	shawn.payne@kctcs.edu
Thomas More University	Wes Ryle	wesley.ryle@thomasmore.edu
University of Kentucky	Janet Lumppp	jklumppp@uky.edu
University of Louisville	John Kielkopf	john.kielkopf@louisville.edu
West Kentucky CTC / Challenger Center	Mellisa Duncan	mellisa.duncan@kctcs.edu
Western Kentucky University	Mike Carini	mike.carini@wku.edu

Science Center and STEM Education Affiliates

Aviation Museum of Kentucky	Ed Murphy	em1234@twc.com
Challenger Learning Center of KY	Tom Cravens	tom.cravens@kctcs.edu
Kentucky Science Center / Challenger Center	Veronica Greenwell	Veronica.Greenwell@louisvilleky.gov
Kentucky FIRST Robotics	Kelli Gowan	kelli@kyfirstrobotics.org
Living Arts and Science Center	<i>tbd</i>	
Sky Science Festival, Inc.	Richard Gelderman	rgelderman@me.com

Industry Affiliates

Faradine Systems	Jason Rexroat	jason@faradinesystems.com
Innoviator, LLC	Alan Beaven	alan@innoviator.com
Kentucky Science and Technology Corporation	Terry Samuel	tsamuel@kstc.com
Million Concepts	Chase Million	chase@millionconcepts.com
Space Tango, Inc.	Twyman Clements	tclements@spacetango.com

Programmatic Alignment for Proposals

Proposals should align with goals and objectives of the NASA Kentucky Space Grant Consortium, the National Space Grant College and Fellowship Program, NASA missions and research, as well as educational and workforce training interests of Affiliate institutions and the state of Kentucky.

Proposals shall address how the proposed project and its programmatic elements directly align with goals and objectives of the Kentucky Space Grant Consortium and the National Space Grant College and Fellowship Program as outlined below. Proposals should align with one or more of Kentucky Space Grant's strategic themes and/or the research priorities of NASA Mission Directorates and Centers.

NASA Kentucky Space Grant programs encourage increasing levels of involvement with NASA, from base alignment with NASA objectives (TP, EMG and MG programs), utilization of NASA resources (REU program), progressing to NASA or state research collaboration (GF and RIA programs). See Table 1, program descriptions, and the following for more information on NASA and programmatic alignment.

Research projects (GF, RIA) must indicate alignment with NASA technical objectives. Proposers can review proposal resources available on the [NASA KY EPSCoR](#) web page, including the NASA Center Core Competencies, the NASA Technology Taxonomy, and FY2024 NASA EPSCoR Focus Areas and R3 Topics. NASA points of contact are available in these documents. In addition, proposers can review [NASA Techport](#) and [NASA STI](#) to survey NASA research that has been done in their area of interest.

Kentucky Space Grant Consortium Profile

Kentucky Space Grant Consortium (KYSGC) is a diverse group of 29 affiliate members, including 18 Kentucky universities, colleges and community colleges, 5 industry partners, 4 science centers and 2 STEM educational organizations. KYSGC uses a portfolio-of-programs approach and best practices to set students and faculty on *Pathways of Opportunities* towards aerospace-related career goals, contributing to a skilled, high-performing and diverse workforce to meet emerging needs of both NASA and Kentucky. Kentucky Space Grant Consortium began serving the Commonwealth in 1991 and since 2010 has been managed by NASA Kentucky at the University of Kentucky. KYSGC programs engage competitively-selected participants in STEM education and training primarily at the post-secondary level, but including developmental pipeline pre-college programs. Diversity of students, faculty, academic disciplines and institutional types is essential and integral to this approach.

NASA Mission Directorate and OSTEM alignment is required for all programs. Current strategic themes chosen by KYSGC are **Data + Science**, **Earth + Space** and **Aerospace + Innovation**. These themes enable multiple programs to be unified in a portfolio approach balanced to serve state and national aerospace needs. A fundamental premise of KYSGC programs is that STEM education should reach, inspire and recruit talent from all student populations to engage and enable innovative contributions to NASA and the National Space Grant College and Fellowship Program. Kentucky Space Grant Consortium focus areas to increase program and participant diversity include participation from regional institutions, community and technical colleges, students from rural and urban historically underserved backgrounds, students with disabilities, and minority and female students and faculty.

Kentucky Space Grant Consortium Program Elements

1) NASA Internships and Fellowships (NIFs):

Graduate Fellowship (GF) and Research Experience for Undergraduates (REU) programs (pgs. 12-13)

Higher education is the primary objective of NASA's Space Grant Program. NASA seeks to promote science, technology, engineering and mathematics (STEM) education; encourage interdisciplinary training, research and public service programs related to aerospace; and recruit and train US citizens for careers in aerospace science

and technology. Fellowships are designed to support independently conceived or designed research by highly qualified students, in disciplines needed to help advance NASA's missions. This program supports hands-on NASA-aligned training, guided by faculty mentors in collaboration with NASA and industry, serving to advance student knowledge and provide experience working with technical professionals in support of NASA's missions and with established R&D and start-up aerospace companies in Kentucky.

2) Research Initiation:

Research Initiation Award (RIA) program (pg. 15)

Alignment with NASA interests and meaningful collaborations with NASA scientists are essential to the development of competitive proposals for Federal funding opportunities. Research Initiation Awards (RIA) provide support for early-career faculty and faculty who are new to NASA research, proposing new research and building NASA connections, where faculty can begin applying for increasingly challenging NASA-aligned research awards to initiate NASA partnerships, develop collaborative research potential, improve proposal and research skills and expand capacity for student-mentoring.

3) Higher Education:

Team Project (TP), Mini-Grant (MG), and Enhanced Mini-Grant (EMG) programs (pgs. 14, 16-17)

Higher Education funding is a primary Kentucky Space Grant objective designed to support competitive awards in multiple areas of resource needs for KYSGC affiliates, with a goal of attracting talented students to Kentucky institutions of higher education and motivating them to excel and finish their degrees. NASA seeks to promote STEM education; encourage interdisciplinary training, research and public service programs related to aerospace; and recruit and train US students for careers in aerospace science and technology. Team Projects (TP) support faculty-mentored experiences focused on authentic, hands-on research and design in science and engineering to inspire innovation, including participation in team engineering competitions, entrepreneurial pitch competitions, and flight opportunities. Higher Education Enhanced Mini-Grants (EMG) support well-developed projects aligned with Kentucky and NASA priorities for higher education objectives including outreach and recruiting, K-12 teacher training, and curriculum development. Mini-Grants (MG) support pilot projects to develop program concepts and demonstrate outcomes in these areas.

4) Pre-college and Informal Education:

Mini-Grant (MG) and Enhanced Mini-Grant (EMG) programs (pgs. 16-17).

Pre-college and informal education activities are secondary goals supported by the NASA Space Grant Program to help fill the higher education pipeline with well-prepared, inspired and engaged students, motivated to pursue their degrees. NASA seeks to promote STEM education, encourage interdisciplinary training, research and public service programs related to aerospace; and recruit and train US students for careers in aerospace science and technology. These programs support pre-college opportunities aligned with Kentucky and NASA priorities including STEM camps and competitions, K-12 teacher training, and museum-based astronomy and aerospace programs. Mini-Grants (MG) support pilot projects to demonstrate outcomes, [evidence-based educational practices](#) and efforts toward sustainability that can be developed into Enhanced Mini-Grants (EMG).

5) NASA Center Internships:

In addition to programs available from KYSGC through this RFP, NASA Kentucky supports Kentucky undergraduate students through internships at NASA Centers. Students are encouraged to visit the NASA Intern website at intern.nasa.gov, then complete a profile in the [NASA STEM Gateway](#) and browse NASA [internship listings](#) for opportunities of interest. Interested students should apply early in the application window as NASA often begins internship selections prior to the application deadline.

Kentucky Space Grant Consortium Strategic Themes

Strategic Theme 1: Data + Science (Multidisciplinary Data Science)

Data science is central to the future of many research fields and investigators find themselves challenged with managing exponentially growing datasets. This is true for NASA Kentucky Affiliates pursuing research in exo-solar discovery, space-based astronomy, ground-based astronomy, earth science, atmospheric science, and meteorology, among others. Cybersecurity, secure communications and data fidelity are also topics of special concern due to widespread usage of data-collection sensors and peer-to-peer networking architecture. Training in data science methods can benefit students across disciplines. This theme captures the need to address data science in multiple NASA-related disciplines as well as interconnect and support Kentucky's growth in data science degree programs, supercomputer applications and artificial intelligence, to establish additional NASA collaborations, and engage use of NASA resources including high-performance computing and large datasets. Data mining and analyzing NASA databases are recurring themes cross-cutting many NASA opportunities. KYSGC projects that engage these pursuits will be better positioned to participate in new discovery and compete for follow-on funding from NASA and other sponsors.

This theme has relevant topics to engage all KYSGC affiliates, including museums and science centers, businesses, community colleges and 4-year institutions. Related areas such as data visualization and virtual reality are outreach tools that can communicate technical concepts and enable younger students and the public to better understand scientific studies and results. Data science finds new relevance when associated with related tangible experience, therefore this theme encourages project concepts to associate data science with experiential approaches in which a hands-on component helps students better understand and engage with data science methods. Examples include data collection in conjunction with ground-based astronomical observations from Kentucky's several observatories or student-led flight projects such as drones or scientific balloons that fly data-collection instruments. **NASA Mission Directorate (MD) Alignment: SMD, ESDMD, SOMD, STMD, ARMD**

Strategic Theme 2: Earth + Space (Earth & Space Discovery)

The 2020-2024 Space Grant cycle represents an exciting moment for Kentucky Space Grant Consortium affiliates to engage in earth and space discovery like never before, with new opportunities enabled by growth of commercial spaceflight, development of NASA's Artemis and Gateway lunar programs, and satellite and flight-based research platforms that will enable Kentucky students and faculty to increasingly participate in space-related scientific missions and discovery at national and local levels. Many of these efforts can be utilized to address challenges facing life on Earth. Geosciences, such as atmospheric science and meteorology, will continue recent advancements thanks to new approaches in remote sensing and data collection. Earth analogue studies can be used to help understand other solar system bodies and exoplanets, as studies of other planets and moons can be used to help understand Earth. Atmospheric flight missions offer Kentucky students the chance to be significantly engaged in scientific investigation with near-space balloon missions, UAV flight campaigns, parabolic aircraft flights or sounding rocket launches that can serve as important milestones in a student's academic career. Consortium pre-college efforts can be targeted towards the next group of college students to prepare for Space Grant projects focused on the 2024 total solar eclipse. Opportunities exist as well for Kentucky students to participate in missions beyond Earth. Microgravity research is being utilized to develop new insight into the influence of gravity and understand fundamental physical phenomena. Re-entry spacecraft are being developed to study atmospheric fluid dynamics and improve thermal protection systems. Students can be involved with NASA's Artemis mission, via internships and research fellowships, as well as with NASA's Lunar Gateway Program, lunar-related technology development and other lunar missions such as GLEE and lunar-orbiting small satellites.

NASA Mission Directorate Alignment: SMD, ESDMD, ARMD

Strategic Theme 3: Aerospace + Innovation (KY Engineering, Technology & Workforce Development)

Kentucky's aerospace industry continues to grow along with the state's role as a leader nationally in aerospace manufacturing product exports. In relation to the importance of Kentucky's aerospace manufacturing, more employees trained in advanced manufacturing skills are needed by the state's industries. Kentucky Space Grant team projects have been effective for motivating students at all levels to become involved in teamwork activities that pursue innovation and problem-solving, such as the NASA Human Exploration Rover Challenge and Robotic Mining Competition (Lunabotics). This cycle of Space Grant continues these kind of opportunities for students to be engaged in a learning framework that contributes to student retention and degree attainment and that benefits the state's workforce needs. From pre-college STEM motivation to post-secondary research and engineering careers, this theme brings together a common thread of engagement, innovation and enterprise that improves career readiness and workforce development at all levels. Internships contribute to this theme by allowing Kentucky students opportunity to increase their skill and work experience through the summer by working at one of ten NASA Centers nationally or with aerospace-related industries and research programs within the state. Technology-focused research fellowships, performed in Kentucky university labs in collaboration with NASA personnel, support NASA's missions and work and contribute to the state's research and entrepreneurial activity in significant areas including hypersonics, electric aircraft, energy storage, materials science, robotics, artificial intelligence, thermal protection, orbital payloads and more. These academic and internship experiences prepare students to contribute to aerospace workforce and technology sectors in support of the Consortium's industrial affiliates, the state's employers, university research enterprises and new technology commercialization.

NASA Mission Directorate Alignment: SOMD, STMD, ARMD

National Space Grant Program Goals and Objectives

The [National Space Grant College & Fellowship Program](#) was initiated by Congress in 1987 in response to the need for a coordinated effort to help maintain America's pre-eminence in aerospace science and technology. The Space Grant national network includes over 1,000 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies, all of which belong to one of 52 consortia in the 50 states, DC and Puerto Rico. The Space Grant Program is dedicated to building, sustaining, and deploying a skilled, high-performing and diverse workforce that meets the current and emerging needs of NASA and the nation. The goal of Space Grant is to contribute to NASA's mission, especially in the area of government and industry partnerships, to improve America's aerospace technologies and advance American leadership by funding education, research and informal education projects through a national network of university-based Space Grant consortia. Specific objectives of Space Grant are to:

- Create cooperative programs among universities, aerospace industry, and Federal, state, and local governments to foster STEM ecosystems;
- Encourage interdisciplinary training, research, and public service programs related to aerospace;
- Establish and maintain a national network of universities with interests and capabilities in aeronautics, space, and related fields;
- Attract, recruit and train U.S. citizens, especially women, underrepresented minorities, and persons with disabilities, for careers in aerospace science and technology;
- Promote a strong STEM education base from elementary through secondary levels while providing support to teachers in these grade levels toward more effectively improving student academic outcomes;
- Create opportunities that enable student contributions to the development of solutions addressing NASA Mission Directorate challenges; and
- Advance aerospace knowledge and expand related activities.

Kentucky Space Grant Consortium supports national Space Grant goals and objectives via program elements and strategic themes described above and helps facilitate priorities of the NASA Office of STEM Engagement and interests of the state of Kentucky.

NASA STEM Engagement Project Goals

These cross-cutting design and operational principles are at the core of NASA's efforts in STEM Engagement and serve to guide the planning and execution of projects for the NASA STEM Engagement community:

Mission-driven authentic STEM experiences, evidence-based practices, diversity and inclusion, scalability through partnerships and networks

NASA Research and Technology Development Priorities

The NASA Office of STEM Engagement (OSTEM) identifies research and technology priorities based on alignment with NASA's Mission Directorates. The Aeronautics Research Mission Directorate (ARMD), Exploration Systems Development Mission Directorate (ESDMD), Science Mission Directorate (SMD), Space Operations Mission Directorate (SOMD), and the Space Technology Mission Directorate (STMD) identify their priorities on the NASA website (www.nasa.gov/about/directorates/index.html). For information on NASA's missions, research and educational objectives, please visit www.nasa.gov/nasa-missions/ and the following websites:

- Aeronautics Research (ARMD) (www.aeronautics.nasa.gov)
- Exploration Systems Development (ESDMD) (www.nasa.gov/directorates/exploration-systems-development)
- Science (SMD) (science.nasa.gov)
- Space Operations (SOMD) (www.nasa.gov/directorates/space-operations-mission-directorate)
- Space Technology (STMD) (www.nasa.gov/directorates/spacetech/home/index.html)

- NSPIRES (<https://nspires.nasaprs.com/external/>)
- NASA Proposal Resources (<https://www.nasa.gov/general/grants-policy-and-compliance-team/#section-2>)

- NASA Space Grant (www.nasa.gov/stem/spacegrant/home/index.html)
- NASA EPSCoR (www.nasa.gov/stem/epscor/home/index.html)
- NASA Office of STEM Engagement (OSTEM) (www.nasa.gov/stem)
- NASA OSTEM Higher Education (www.nasa.gov/stem/highereducation/index.html)
- NASA SMD Science Education (science.nasa.gov/learn)

NASA Mission Directorate (MD) Descriptions

Aeronautics Research Mission Directorate (ARMD): NASA aeronautics has made decades of contributions to aviation. Every U.S. commercial aircraft and U.S. air traffic control tower has NASA-developed technology on board that helps improve efficiency and maintain safety. Research conducted by ARMD directly benefits today's air transportation system, the aviation industry, and the passengers and businesses who rely on aviation every day. ARMD scientists, engineers, programmers, test pilots, facilities managers and strategic planners are focused on aviation's future. They design, develop and test advanced technologies that will make aviation much more environmentally friendly, maintain safety in more crowded skies, and ultimately transform the way we fly. NASA's aeronautics research is primarily conducted at four NASA centers: Ames Research Center and Armstrong Flight Research Center in California, Glenn Research Center in Ohio, and Langley Research Center in Virginia.

Exploration Systems Development Mission Directorate (ESDMD): The Exploration Systems Development Mission Directorate defines and manages systems development for programs critical to the NASA's Artemis program and planning for NASA's Moon to Mars exploration approach in an integrated manner. ESDMD manages the human exploration system development for lunar orbital, lunar surface, and Mars exploration. ESDMD leads the human aspects of the Artemis activities as well as the integration of science into the human system elements. ESDMD is

responsible for development of the lunar and Mars architectures. Programs in the mission directorate include Orion, Space Launch System, Exploration Ground Systems, Gateway, Human Landing System, and Extravehicular Activity (xEVA) and Human Surface Mobility. ESDMD duties were previously managed under the Human Exploration and Operations Mission Directorate (HEOMD).

Science Mission Directorate (SMD): NASA's Science Mission Directorate (SMD) is responsible for directing and overseeing the nation's space research program in Earth and space science. The Directorate engages the external and internal science community to define and prioritize science questions and seeks to expand the frontiers of four broad scientific pursuits: Earth Science, Planetary Science, Heliophysics, and Astrophysics. Through a variety of robotic observatory and explorer craft, and through sponsored research, the Directorate provides virtual human access to the farthest reaches of space and time, as well as practical information about changes on our home planet.

Space Operations Mission Directorate (SOMD): NASA's Space Operations Mission Directorate (SOMD) is responsible for enabling sustained human exploration missions and operations in our solar system. SOMD manages NASA's current and future space operations in and beyond low-Earth orbit (LEO), including commercial launch services to the International Space Station. SOMD operates and maintains exploration systems, develops and operates space transportation systems, and performs broad scientific research on orbit. In addition, SOMD is responsible for managing the space transportation services for NASA and NASA-sponsored payloads that require orbital launch, and the agency's space communications and navigation services supporting all NASA's space systems currently in orbit. SOMD duties were previously managed under the Human Exploration and Operations Mission Directorate (HEOMD).

Space Technology Mission Directorate (STMD): Technology drives exploration to the Moon, Mars and beyond. NASA's Space Technology Mission Directorate (STMD) develops transformative space technologies to enable future missions. As NASA embarks on its next era of exploration, STMD is focused on advancing technologies and testing new capabilities at the Moon that will be critical for crewed missions to Mars. In many ways, the Moon will serve as a technology testbed and proving ground for Mars. STMD engages and inspires thousands of entrepreneurs, researchers and innovators, creating a community of America's best and brightest working on the nation's toughest challenges. Space technology research and development take place at NASA centers, universities and national labs. STMD leverages partnerships with other government agencies as well as commercial and international partners. Our current technology portfolio spans a range of discipline areas and technology readiness levels. Investments in revolutionary, American-made space technologies provide solutions on Earth and in space. NASA technology turns up in nearly every corner of modern life. We make our space tech available to commercial companies to generate real world benefits – everything from creating jobs to saving lives.

NASA KY Space Grant – Graduate Fellowships - \$50,000

Description: NASA Kentucky **Graduate Fellowships (GF)** recognize and support graduate students addressing advanced research and engineering challenges related to NASA’s strategic goals. Research advisors at Affiliate Institutions may apply for a fellowship for a specific graduate student. Research projects must emphasize connections to NASA, address specific goals for the fellowship year, and contribute to program metrics including publications, presentations, and student advancement in disciplines of interest to NASA.

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions on behalf of Master’s or Doctoral students in NASA-aligned disciplines. Women and minorities are strongly encouraged to apply. US citizenship is required for the student.

Requirements: The proposed research topic must utilize NASA resources and identify alignment with NASA priorities addressed by one or more NASA Mission Directorates. Letter of support required describing NASA (or related) involvement with the project. Projects that propose Kentucky research partnerships may choose instead to submit a support letter from KY-based collaborators (limited selection). Connections with Kentucky companies and KYSGC strategic themes are viewed favorably. The proposal should demonstrate significant input from the faculty research advisor to manage tangible results. Renewal proposals should describe extended goals for the project and provide detail of results to date and degree progress. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, alignment with NASA Mission Directorate(s), specific goals for the funded period, milestones, anticipated outcomes, plans to communicate project activities and results, and student’s progress toward degree.
- Additional pages - included after 5-page project description:
 - Bibliography/References as needed
 - Statement by the student relating the project to their career goals (not to exceed 1 page)
 - Student’s resume and unofficial transcript
 - Letter of recommendation from a faculty member other than the research advisor
 - Research Advisor’s 2-page CV
 - List of Current and Pending Awards: Award title, sponsor, dates, amount, commitment
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from a NASA (or related) or KY collaborator (See also Table 1 and [NASA KY FAQ](#))

2) Student Information Form (SIF): Completed by the student applicant and uploaded with proposal files.

Budget Guidelines: Proposers may request up to \$50,000 per student per year. This funding is dedicated to student support, including student salary or stipend consistent with recipient institution policies and practices, fringe benefits, tuition and fees, materials and supplies and student domestic travel to attend conferences or technical meetings. Required cost-share of at least 0.5:1 (\$CS:\$Award) must be provided by the proposing institution. Projects that propose Kentucky research collaborations may choose to waive cost-share (limited selection). Indirect costs are not allowed, but unrecovered indirect costs on direct cost-share may be included as cost-share. Non-citizen faculty effort may be used as cost-share. Budget justification should demonstrate effective use of funds aligned with content and text of the proposed project. All proposed costs and cost-share should be fully described in the budget justification.

Longitudinal Tracking of Students: Any student receiving a combination of \$3,000 (or more) in NASA funding and/or participating 160 hours or more on NASA-supported projects will be longitudinally tracked by NASA for three years using information provided on the NASA KY Student Information Form (SIF). Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.



NASA KY Space Grant – Research Experience for Undergraduates - \$10,000

Description: NASA Kentucky **Research Experience for Undergraduates (REU)** recognize and support undergraduate students addressing scientific and engineering challenges related to NASA’s strategic goals. Research advisors at Affiliate Institutions may apply to support a specific undergraduate student to conduct 1-on-1 mentored research during the academic year or summer period. Research projects must emphasize connections to NASA, address specific goals for the project period and contribute to program metrics including publications, presentations and student advancement in disciplines of interest to NASA. Projects should describe plans to use NASA resources (or related) and how these resources will be acquired (e.g., public domain, provided by a collaborator, etc).

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions on behalf of undergraduate students in NASA-aligned disciplines. Women and minorities are strongly encouraged to apply. US citizenship is required for the student.

Requirements: The proposed research topic must utilize NASA resources (or related) and identify alignment with NASA priorities addressed by one or more NASA Mission Directorates. Connections with Kentucky companies and KYSGC strategic themes are viewed favorably. The proposal should demonstrate significant input from the faculty advisor to manage tangible results. Renewal proposals should describe extended goals for the project, and provide detail of results to date and degree progress. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, description of NASA resources (or related) to be used, alignment with NASA Mission Directorate(s), specific goals for the funded period, schedule, milestones, anticipated outcomes, plans to communicate project activities and results and student progress toward degree.
- Additional pages - included after 5-page project description
 - Bibliography/References as needed
 - Statement by the student relating the project to their career goals (not to exceed 1 page)
 - Student’s resume and unofficial transcript
 - Letter of recommendation (from a faculty member, employer or educator)
 - Research Advisor’s 2-page CV
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from collaborator (NASA or related) if applicable

2) Student Information Form (SIF): Completed by the student applicant and uploaded with proposal files.

Budget Guidelines: Proposers may request up to \$10,000 per student per year. This funding is dedicated to student support and should primarily budget for student stipend or salary. Funding can also include fringe benefits, tuition and fees, materials and supplies up to \$1,200 and student domestic travel up to \$1,200. Indirect costs are *not* allowed. Cost-share not required. Budget justification should demonstrate effective use of funds that align with content and text of the proposed project. All proposed costs should be fully described in the budget justification.

Longitudinal Tracking of Students: Any student receiving a combination of \$3,000 (or more) in NASA funding and/or participating 160 hours or more on NASA-supported projects will be longitudinally tracked by NASA for three years using information provided on the NASA KY Student Information Form (SIF). Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.

NASA KY Space Grant – Team Projects - \$17,500

Description: NASA Kentucky **Team Project (TP) awards** provide support for higher education student groups participating in competitions, research or design projects [offered by NASA](#), engineering and science organizations, or faculty. Projects will be faculty-mentored and focus on authentic, hands-on, student experiences in science and engineering disciplines, emphasizing active participation by students and experiential problem-solving in organized competitions, research or capstone design. Teams are nominated and mentored by faculty.

Example competitions include but are not limited to: NASA Robotic Mining Competition, NASA University Student Launch, AIAA Design/Build/Fly, AUVSI, RockOn, and entrepreneurial pitch competitions. A list of examples is available at nasa.engr.uky.edu/space-grant.

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions on behalf of student teams or clubs in NASA-aligned disciplines. Women and minorities are strongly encouraged to apply. US citizenship is not required.

Requirements: The proposed activity must be aligned with KYSGC objectives and NASA STEM priorities. Connections with Kentucky companies are viewed favorably. The proposal should support at least 5 students and demonstrate significant input from the faculty advisor to manage tangible results. Proposals must demonstrate plans to recruit diverse participants in areas such as gender, race, ethnicity, background, underserved areas (rural and urban), and academic disciplines. Renewal proposals should describe extended goals for the project and provide detail of results to date. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, alignment with NASA Mission Directorate(s), specific goals for the funded period, schedule, milestones, anticipated outcomes, plans to communicate project opportunities, activities and results, prior experience with team competitions, and list of competition deadlines.
- Additional pages - included after 5-page project description
 - Bibliography / References / Supplemental Documents as needed
 - Faculty Advisor's 2-page CV
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from collaborator (if applicable)

Budget Guidelines: Proposers may request up to \$17,500 per team per year. Budgets should support teams of at least 5 students. Allowable costs include student stipend or salary, fringe benefits, registration fees, materials and supplies, shipping costs to/from competition or research site, and student team member domestic travel. Domestic travel and limited salary support for faculty advisers may also be included. No cost-share is required for the 2024 funding year. Indirect costs are allowed and unrecovered indirect costs may be included as cost-share. Budget justification should demonstrate effective use of funds that align with content and text of the proposed project. All proposed costs and cost-share should be fully described in the budget justification.

Longitudinal Tracking of Students: All students receiving support must be reported to NASA KY. Any student receiving a combination of \$3,000 or more in NASA funding and/or participating 160 hours or more on NASA-supported projects will be longitudinally tracked by NASA for three years using information provided on the NASA KY Student Information Form (SIF). Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.

NASA KY Space Grant – Faculty Research Initiation Awards - \$35,000

Description: NASA Kentucky **Research Initiation Awards (RIA)** support faculty to become familiar with NASA research programs and Mission Directorates, establish and cultivate relationships with NASA researchers and visit NASA facilities. This program supports early-career faculty and faculty who are new to NASA research. RIA funding is an initial step in the faculty pathway to conduct NASA-aligned research. Next steps include mentoring Graduate Fellowships (GF) and leading proposals to NASA EPSCoR RIDG, R3 and NASA research solicitations (ROSES etc). RIA proposals may include any combination of allowable costs below, but should include support for academic year or summer effort for the PI. Projects should develop research concepts and collaboration to prepare for next-step funding and contribute to publications, presentations, curriculum enhancement, and follow-on funding.

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions to develop NASA-aligned research activities. Women and minorities are strongly encouraged to apply. US citizenship is not required.

Requirements: Proposed research topics must utilize NASA resources and identify alignment with NASA priorities addressed by one or more NASA Mission Directorates. Letter of support required describing NASA (or related) involvement with the project. Projects that propose Kentucky research partnerships may choose instead to submit a support letter from KY-based collaborators (limited selection). Connections with Kentucky companies and KYSGC strategic themes are viewed favorably. Principal Investigators are expected to submit at least one proposal for follow-on funding based on RIA activities. Renewal proposals should describe extended goals for the project and provide detail of results to date. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, alignment with NASA Mission Directorate(s), specific goals for the funded period, schedule, milestones, anticipated outcomes, plans to communicate project activities and results, and plans to pursue follow on funding.
- Additional pages - included after the 5-page project description
 - Bibliography/References as needed
 - Principal Investigator's 2-pg CV
 - List of Current and Pending Awards: Award title, sponsor, dates, amount, commitment
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from a NASA (or related) or KY collaborator expressing mutual interest in the research topic and agreement to be involved with the project, including meeting with the Principal Investigator in person at a research facility or a specific conference. (See also Table 1 & [NASA KY FAQ](#))

Budget Guidelines: Proposers may request up to \$35,000 per year. Allowable direct costs include faculty salary, fringe benefits, materials and supplies, domestic travel, and student support. Indirect costs are allowed and unrecovered indirect costs may be included as cost-share. Required cost-share of at least 0.5:1 (\$CS:\$Award) must be provided by the proposing institution. Projects that propose Kentucky research collaborations may choose to waive cost-share (limited selection). Space Grant is a workforce development program. In line with this, proposing institutions should use an "other" or training grant F&A rate (if one exists) versus the research F&A rate and indicate so in the budget justification. Budget justification should demonstrate effective use of funds that align with content and text of the proposed project. All proposed costs and cost-share should be fully described in the budget justification.

Longitudinal Tracking of Students: All students receiving compensation must be reported to NASA KY.

NASA KY Space Grant – Mini-Grants - \$10,000

Description: NASA Kentucky **Mini-Grants (MG)** provide support for Affiliate Institutions to envision and pursue higher education, pre-college and educational outreach projects with STEM-related groups, at scientific sites (museums, planetariums, etc.), and group travel to NASA-related events. Project examples include student recruitment and retention, educational outreach programs, pre-college student field trips or workshops in disciplines of interest to NASA, professional development for K-12 STEM teachers, curriculum development and small group travel to events or a scientific site. Mini-Grants (MG) also support pilot projects to achieve demonstrated outcomes and evidence-based practices that can be developed into Enhanced Mini-Grants (EMG). Projects must be aligned with NASA STEM initiatives or KYSGC & NASA Space Grant objectives.

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions who may collaborate with science-related groups or sites (museums, planetariums, etc), schools and educational organizations, or affiliate institution recruiters. Women and minorities are strongly encouraged to apply. US citizenship not required.

Requirements: The proposed activity must be aligned with KYSGC objectives and NASA STEM priorities. Small group travel awards must support at least six participants on the proposed trip. Connections with Kentucky companies and third-party sponsors are viewed favorably. Proposals must demonstrate plans to recruit diverse participants in areas such as gender, race, ethnicity, background, underserved areas (rural or urban), and academic disciplines. Renewal proposals should describe extended goals for the project and provide detail of results to date. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, alignment with NASA Mission Directorate(s), specific goals for the funded period, schedule, milestones, event dates, anticipated outcomes, and plans to communicate project opportunities, activities and results.
- Additional pages - included after 5-page project description
 - Bibliography / References/ Supplemental documents as needed
 - Principal Investigator's CV (2-pg limit)
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from institution partner, scientific site and/or NASA collaborator

Budget Guidelines: Proposers may request up to \$10,000 per year. Allowable direct costs include registration and entry fees, materials and supplies, salary and fringe benefits, transportation (buses), domestic travel expenses for mentors, chaperones and students, and other related costs. Indirect costs are allowed. Cost-share not required, but in-kind match and third-party sponsorships are viewed favorably. The budget justification should demonstrate effective use of funds that align with content and text of the proposed project. All proposed costs should be fully described in the budget justification. Event meals and promotional items are not allowable as expenses.

Longitudinal Tracking of Students: All students receiving support must be reported to NASA KY. Any student receiving a combination of \$3,000 or more in NASA funding and/or participating 160 hours or more on NASA-supported projects will be longitudinally tracked by NASA for three years using information provided on the NASA KY Student Information Form (SIF). Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.

NASA KY Space Grant – Enhanced Mini-Grants - \$25,000

Description: NASA Kentucky **Enhanced Mini-Grants (EMG)** provide support for Affiliate Institutions to conduct higher education, pre-college and educational outreach projects. Project examples include short and long duration workshops, hands-on student activities, new or revised courses, professional development and pre-service teacher training, student recruitment and retention, learner-based educational programming at museums or science centers, or STEM competition activities. Projects must be aligned with [NASA STEM initiatives](#) or KYSGC and NASA Space Grant objectives. Projects must describe achievable outcomes, [evidence-based educational practices](#) (see NASA example), and efforts towards sustainability and long-term results. Cost-share is required.

Eligibility: Proposals will be accepted from Principal Investigators at KYSGC Affiliate Institutions who may collaborate with scientific sites (museums, planetariums), schools and educational organizations, or affiliate institution recruiters. Women and minorities are strongly encouraged to apply. US citizenship not required.

Requirements: The proposed activity must be aligned with KYSGC objectives and NASA STEM priorities. Group travel awards must support an appropriate number of students and/or educators on the proposed trip. Connections with Kentucky companies and third-party sponsors are viewed favorably. Proposals must demonstrate plans to recruit diverse participants in areas such as gender, race, ethnicity, background, underserved areas (rural or urban), and academic disciplines. Renewal proposals should describe extended goals for the project and provide detail of results to date. See also Table 1 (pg. 4).

Proposal Content: See *Submission Instructions* (pg. 1) for budget, format and filename instructions. All proposals should utilize the NASA KY cover sheet and budget form, followed by the project description and additional pages.

1) Project Description:

- No more than 5 pages including tables and figures describing: Abstract (200-300 words), project summary, alignment with NASA Mission Directorate(s), specific goals for the funded period, schedule, milestones, event dates, anticipated outcomes, and plans to communicate project opportunities, activities and results.
- Additional pages - included after 5-page project description
 - Bibliography / References / Supplemental documents as needed
 - Principal Investigator's CV (2-pg limit)
 - Executive summary describing results of prior NASA KY funding (not to exceed 1 page)
 - Letter of support from institutional partner, scientific site and/or NASA collaborator (if applicable)

Budget Guidelines: Proposers may request up to \$25,000 per year. Allowable direct costs include registration and entry fees, materials and supplies, salary and fringe benefits, transportation (buses), domestic travel expenses for mentors, chaperones and students, and other related costs. Indirect costs are allowed. Required cost-share of at least 0.5:1 (\$CS:\$Award) must be provided by the proposing organization. Unrecovered indirect costs may be used as cost-share. In-kind cost-share of any allowable cost is permitted. Budget justification should demonstrate effective use of funds that align with content and text of the proposed project. All proposed costs and cost-share should be fully described in the budget justification. Event meals and promotional items are not allowable as expenses or cost-share.

Longitudinal Tracking of Students: All students receiving direct support must be reported to NASA KY. Any student receiving a combination of \$3,000 or more in NASA funding and/or participating 160 hours or more on NASA-supported projects will be longitudinally tracked by NASA for three years using information provided on the NASA KY Student Information Form (SIF). Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.