



**NASA Kentucky EPSCoR
Research Infrastructure Development (RID)
2020 Request for Proposals**

Announcement: RFP-20-002

Release Date: April 10, 2020

Proposals Due: Friday, May 22, 2020, 4:00 pm ET
Proposal files submitted online at nasa.engr.uky.edu

Dr. Alexandre Martin, Director

NASA Kentucky
112 RMB (Robotics)
Lexington, KY 40506-0108
(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/epscor and
nasa.engr.uky.edu/requests-for-proposals

NASA KY EPSCoR RID 2020 Request for Proposals

NASA Kentucky EPSCoR Programs Overview

The NASA Kentucky EPSCoR (Established Program to Stimulate Competitive Research) Programs support faculty research development and strengthen research capability in the state in areas of importance to NASA and Kentucky by promoting development of aerospace-related research infrastructure, improving capabilities to gain support outside of EPSCoR and developing partnerships with NASA.

Request for Proposals

NASA Kentucky invites proposal submissions from KY Higher Education Institutions for the following:

Research Infrastructure Development Grants (RIDG) and Workshop/Conference/Seminar (WCS) awards

Deadline: Proposal files submitted online at nasa.engr.uky.edu by **4:00 pm ET, Friday, May 22, 2020.**

Period of Performance: Awards up to one year in the period August 1, 2020 to July 31, 2021.

Program Descriptions: Listed on pgs 8-9 of this RFP.

Numbers of Awards: Numbers of awards in each category are determined by sizes of the individual awards and available program funding levels. PI's are limited to one submission per category.

Submission Instructions

Proposal forms are available at nasa.engr.uky.edu/requests-for-proposals/forms. All proposals must be submitted via the NASA KY website as PDF files. Please title the proposal documents according to the specified file naming convention, in which **PI** is last name of proposer and **PGM** is the program category abbreviation (see Table 1).

- SIGNED COVER PAGE:** Scan the signed original and save as PDF. Digital signatures acceptable. (filename format: **PI_PGM_Cover_2020.pdf**)
- BUDGET FORM AND JUSTIFICATION:** Include justification detailing requested support and cost-share (filename format: **PI_PGM_Budget_2020.pdf**)
- PROJECT DESCRIPTION:** (filename format: **PI_PGM_Project_2020.pdf**)
 - 12 point font, 1 inch margins, single spaced
 - 5 page limit - See specific program guidelines for required content
 - Additional pages - See specific program guidelines for lists of documents

Submit proposals online at nasa.engr.uky.edu by 4:00 pm ET, Friday, May 22, 2020.

Additional information and FAQ: nasa.engr.uky.edu/epscor

General Guidelines: Proposals that omit required materials or that exceed the page limits may be rejected without review. Proposals from PIs who are delinquent in meeting reporting requirements on current or prior NASA Kentucky awards may be rejected without review. Failure to complete proposed work on prior NASA KY projects will be taken into consideration in selecting proposals. By submitting to this RFP, the proposer acknowledges that NASA KY reserves the right to request backup financial information at any time during the course of an awarded project. Proposers should contact NASA KY with questions about allowable costs. Submitted proposals must be consistent with the PI institution's policies and practices, e.g. definition of equipment, stipend, etc.

- *Equipment* may not be purchased or used as cost-share in any NASA KY award under this RFP.
- *Travel* funds are restricted to domestic travel only.
- *Cost-share* must be from non-Federal sources.

Eligibility for EPSCoR Awards [RIDG, WCS]: Proposals will be accepted from institutions of higher education in Kentucky. Eligibility is not limited to NASA Kentucky Space Grant Consortium Affiliate Institutions. US citizenship is not required.

Cost-Share: NASA requires cost-share of all state NASA EPSCoR jurisdictions, therefore the NASA Kentucky EPSCoR RIDG program requires cost-share. Cost-share must be from non-Federal sources.

F&A Rates: NASA EPSCoR is a research development program and proposing universities and colleges should use their full research rate for F&A.

Reporting Requirements: Principal Investigators (PIs) are required to report research productivity and students supported: 1) during the award period, 2) within 30 days of the end of the award (final technical report), and 3) annual update 1 year post-award. Reporting must be current in order for NASA KY to meet NASA and state annual report cycles. Requests for no-cost extensions must be submitted no later than 30 days prior to the end date and include a status report on all tasks listed in the proposal.

Award Processing: All subaward invoices must show appropriate documentation of cost share in relation to expenses. 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.

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 Kentucky under NASA award No: 80NSSC19M0052.***"

Review Process

Proposals will be rated, ranked and funded up to the budgeted amount available for each program. As a panel, 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. The NASA Kentucky EPSCoR Subcommittee, external content specialists, and NASA KY program staff will review proposals and rate them based on the following criteria:

- MERIT: Intrinsic merit of the proposed research (40%)
- RELEVANCE: Relevance of proposed research to NASA and Kentucky priorities (20%)
- FOLLOW-ON: Specific plans for pursuing follow-on funding including further development of NASA and industry collaborations (20%)
- MANAGEMENT: Management and evaluation; Successful and timely completion of prior proposed NASA Kentucky projects and reporting (10%)
- BUDGET: Reasonableness of budget narrative (10%)

Table 1. Summary of NASA Kentucky EPSCoR Programs

Funding Source	Award Program Category ¹	Program Acronym	Program Description	US Citizen Required	Max Award	Indirect Costs Allowed	Required Cost-Share (\$CS:\$Award)	Level of NASA Collaboration
NASA EPSCoR	Research Infrastructure Development Grants	RIDG	Faculty-directed research to enhance existing collaborations with NASA partners	No	\$45,000	Yes	0.5:1	NASA letter of support ²
NASA EPSCoR	Workshop/Conference/Seminar	WCS	Researchers meeting to explore aerospace topics and joint funding opportunities	No	\$3,000	Yes	None required	Letter of support from partner ³

Note: Full program descriptions listed on pgs 8-9 of this RFP.

¹ Pis are limited to **one (1) proposal submissions per program category.**

²Letter of support required **that commits NASA partnership or collaboration to the project.** Letters of support do not include letters of affirmation (i.e., letters that only endorse the value or merit of a proposal). 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, and others. (See [NASA KY FAQ](#) for more information about NASA letters of support.)

³ Letter of support describing **support to the project proposal from committed partners** (not required to be NASA partners).

Program Alignment and Collaboration

Proposals should align with the goals and objectives of the NASA Kentucky EPSCoR Program, national NASA EPSCoR Program Objectives, and the agency's missions and research, as well as the interests of the state of Kentucky. In recent years, NASA has strengthened requirements for alignment with its work and mission directorates. Unlike sponsors who support basic research, NASA EPSCoR seeks to support research projects that have close alignment with NASA priorities while also benefiting research directions supported by Kentucky's institutions. See Table 1 as well as program descriptions and the following for more information on NASA and programmatic alignment.

Kentucky Statewide NASA EPSCoR Program Objectives

The statewide Kentucky EPSCoR Program mission is to enhance research and intellectual capacity of the state's universities and colleges by building and coordinating strategic investments in human capital necessary for Kentucky to excel in Federal R&D funding competitiveness. Derived from this statewide mission, NASA Kentucky EPSCoR has goals to enhance capacity through strategic investments focused on NASA-priority research areas and competitiveness for non-EPSCoR funding.

A key factor in achieving these goals is initiation of collaborative relationships between Kentucky's and NASA's researchers that develop into partnerships. Every aspect of the program emphasizes the process of relationship building, including the involvement of early-career faculty in helping to solve NASA technical problems.

NASA KY EPSCoR investment is focused on NASA priorities including Aeronautics, Science, Human Spaceflight and Space Technology missions, ISS National Laboratory, and lunar exploration, to develop researchers in Kentucky who are nationally and internationally recognized for contributions to their fields.

Equally important to building research capacity are the resulting contributions to economic development evidenced by securing non-EPSCoR follow-on research funding and supporting aerospace industrial development and associated job creation. Growth in economic development as a result of the NASA EPSCoR investment is therefore also a jurisdictional emphasis underlying all aspects of the program.

Kentucky Science and Technology Strategic Plan

Kentucky has undergone an extensive effort to evaluate and produce a science and technology strategic plan, the 2012 Kentucky Science and Innovation Strategy, with a fifth-year anniversary update in 2018, reviewed by the Kentucky Council on Postsecondary Education (CPE). Five high-value areas are identified with strong potential to build innovation capacity in the Commonwealth: 1. Agriculture and Bioscience, 2. Energy and Environmental Technologies, 3. Human Health and Personalized Medicine, 4. Information Technology and New Media, and 5. Material Science and Advanced Manufacturing. The strategy acknowledges the importance of the aerospace sector to Kentucky's economy and that relevant high-value R&D often spans multiple areas, as is the case for aerospace research. The strategy further defines actions to catalyze investment in high-value areas and to build industry/academic partnerships for STEM workforce development, which overlap both NASA Kentucky Space Grant and EPSCoR priorities. NASA Kentucky EPSCoR programs receive state support through the statewide Kentucky EPSCoR Committee, the University of Kentucky, and affiliate-committed institutional cost-share.

National NASA EPSCoR Program Objectives

- Contribute to and promote the development of research infrastructure in NASA EPSCoR jurisdictions in areas of strategic importance to the NASA mission;
- Improve the capabilities of the NASA EPSCoR jurisdictions to gain support from sources outside the NASA EPSCoR program;
- Develop partnerships among NASA research assets, academic institutions, and industry;
- Contribute to the overall research infrastructure, science and technology capabilities, higher education, and/or economic development of the jurisdiction; and
- Work in close coordination with the NASA Space Grant program to improve the environment for science, mathematics, engineering, and technology education in the jurisdiction.

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), Human Exploration and Operations Mission Directorate (HEOMD), Science Mission Directorate (SMD), and the Space Technology Mission Directorate (STMD) identify their priorities on the NASA website www.nasa.gov/about/directorates/index.html. For information on all of NASA's missions, please visit www.nasa.gov/missions/index.html and the following URLs:

NASA Mission Directorate (MD) Descriptions

- Aeronautics Research (<http://www.aeronautics.nasa.gov/>)
- Human Exploration Operations (<http://www.nasa.gov/directorates/heo/home/index.html>)
- Science (<http://science.nasa.gov/>)
- Space Technology (<http://www.nasa.gov/directorates/spacotech/home/index.html>)

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.

Human Exploration and Operations Mission Directorate (HEOMD): The Human Exploration and Operations (HEO) Mission Directorate provides the Agency with leadership and management of NASA space operations related to human exploration in and beyond low-Earth orbit. HEO also oversees low-level requirements development, policy, and programmatic oversight. The International Space Station, currently orbiting the Earth with a crew of six, represents the NASA exploration activities in low-Earth orbit. Exploration activities beyond low Earth orbit include the management of Commercial Space Transportation, Exploration Systems Development, Human Space Flight Capabilities, Advanced Exploration Systems, and Space Life and Physical Sciences Research & Applications. The directorate is similarly responsible for Agency leadership and management of NASA space operations related to Launch Services, Space Transportation, and Space Communications in support of both human and robotic exploration programs.

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 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.

Research Infrastructure Development Grants - \$45,000

Description: EPSCoR programs seek to strengthen research capability in the state by promoting development of research infrastructure, improving capabilities to gain support outside of EPSCoR and developing partnerships with NASA. Proposals submitted for **Research Infrastructure Development Grants (RIDG)** must be aligned with one or more of NASA's Mission Directorates (MD) and further enhance an existing collaboration between Kentucky researchers and NASA collaborators. RIDG funding builds NASA partnerships to take a successful seed investigation to the next level in preparation for submission to the three-year Research Area (RA) or other nationally competitive solicitations. RIDG support is sufficient for a combination of summer salary, student stipend, tuition, supplies and travel. Faculty and institutions may design a budget within the guidelines to meet the needs of the researcher, institution and planned NASA partnership. Each funded NASA KY EPSCoR proposal is expected to establish research activities that will make significant contributions to the strategic research and technology development priorities of the NASA MD and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction (KY).

Eligibility: Proposals will be accepted from institutions of higher education in Kentucky. Eligibility is not limited to NASA KY Space Grant Consortium Affiliate Institutions. US citizenship is not required.

Requirements: The proposed activity must be aligned with NASA priorities addressed by one or more of the Mission Directorates. Funded research activities should result in submission of a joint publication. Strengthened partnerships will result from the collaboration and provide an established foundation for submission to EPSCoR Research Area or non-EPSCoR funding opportunities. Funded projects will be expected to develop plans for follow-on funding and should result in submission of one or more proposals. See also Table 1.

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 including specific goals for the funded period and anticipated outcomes, and alignment with NASA MD. Proposals must describe a schedule for regular contact with their NASA collaborator and plans for a visit to the NASA site.
- Additional pages - included after 5-page project description
 - Bibliography/References as needed
 - Principal Investigator's 2 page CV, Co-Is 1 page CV
 - List of Current and Pending Awards: Award title, sponsor, dates, amount, commitment
 - Executive summary describing results of all prior NASA KY funding (not to exceed 1 page)
 - Letter of support (or email) from a NASA researcher indicating commitment to the proposed research project, relevance to NASA priorities and willingness to participate in proposed research.(See [NASA KY FAQ](#))

Budget Guidelines: Maximum award level is \$45,000 for one year. Allowable costs include faculty salary, student stipend or salary, fringe benefits, tuition, materials and supplies, and domestic travel. Required cost-share of at least 0.5:1 (\$CS:\$Award) must be provided by the proposing institution. Indirect costs are allowed and unrecovered indirect costs may be used as cost-share.

Longitudinal Tracking of Students: All students receiving compensation must be reported to NASA KY. Any student receiving \$3,000 or more in NASA funding or working 160 hours or more on NASA-supported projects or a combination of both will be longitudinally tracked by NASA for three years. Longitudinally tracked students will need to keep their information current through follow-up correspondence for the 3-year period.



Workshop/Conference/Seminar Grants - \$3,000

Description: EPSCoR programs seek to strengthen research capability in the state by promoting development of research infrastructure, improving capabilities to gain support outside of EPSCoR and developing partnerships with NASA. Proposals submitted for **Workshop/Conference/Seminar (WCS)** awards must be aligned with one or more of NASA's Mission Directorates (MD) and increase collaboration among Kentucky researchers and NASA collaborators. Workshop funding up to \$3,000 builds Kentucky and NASA partnerships to develop interdisciplinary teams interested in pursuing the three-year EPSCoR Research Area (RA) or other nationally competitive solicitations. Conference funding up to \$3,000 provides partial support for a local, regional, national or international meeting hosted in Kentucky focused on NASA-related research. Seminar funding up to \$2,000 supports a series of seminars or webinars on an aerospace topic.

Each funded NASA KY EPSCoR proposal is expected to establish research activities that will make significant contributions to the strategic research and technology development priorities of the NASA MD and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction (KY).

Eligibility: Proposals will be accepted from institutions of higher education in Kentucky. Eligibility is not limited to NASA Kentucky Space Grant Consortium Affiliate Institutions. US citizenship is not required.

Requirements: WCS activities must be aligned with NASA priorities addressed by one or more of the Mission Directorates and promoted statewide, impacting at least six participants from at least two different organizations. A summary document of the meeting/sessions that summarizes the discussion should be prepared and submitted post-meeting. NASA Kentucky must be acknowledged as a sponsor of the events. Connections with Kentucky companies will be viewed favorably. See also Table 1.

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 MD, specific goals for the funded period and anticipated outcomes. Proposals must describe a schedule and identify potential participants.
- Additional pages - included after the 5-page project description
 - Bibliography/References as needed
 - Principal Investigator's 2 page CV
 - Letter of support from institution partner, scientific site and/or NASA collaborator

Budget Guidelines: Anticipated award levels are \$500 up to a maximum award amount of \$3,000. Allowable costs include transportation and lodging for participants and guest speakers, speakers' fees (not honoraria), and meeting room rental. No cost-share is required, however partnerships are strongly encouraged and will be viewed favorably. Indirect costs are allowed and unrecovered indirect costs may be used as cost-share.