Create unique opportunities for students to contribute to NASA’s work in exploration and discovery.

Build a diverse future STEM workforce by engaging students in authentic learning experiences with NASA’s people, content and facilities.

Strengthen understanding of STEM by enabling powerful connections to NASA’s mission and work.

NASA’s MINORITY UNIVERSITY RESEARCH AND EDUCATION PROJECT (MUREP)
MUREP is established to increase NASA’s responsiveness to federal mandates related to MSIs and underrepresented and underserved communities, including women, girls, persons with disabilities and veterans.

- **EO 13779**: Historically Black Colleges and Universities (HBCUs)
- **EO 13592**: Tribal Colleges and Universities (TCUs)
- **EO 13555**: Hispanic Serving Institutions (HSIs)
- **EO 13515**: Asian American and Native American Pacific Islander – Serving Institutions (AANAPISIs)
- **EO 13621**: Predominantly Black Institutions (PBIs)
To **enhance** the **research**, **academic** and **technological capabilities** at **MSIs** by providing **authentic student learning experiences** related to NASA missions that contribute to a **Diverse Future STEM Workforce**.
CURRENT AREAS OF INVESTMENT

- Partnerships & Sustainability
- Research Infrastructure & Capacity Building
- Student Experiential Learning
- Community College & Tribal College Engagement
- K-12 Engagement & Teacher Preparation
- College & Tribal College Engagement

INSPIRE - ENGAGE - EDUCATE - EMPLOY
The Next Generation of Explorers
FY2019 – FY2020
MUREP MAP OF INVESTMENTS

25+ U.S. States and Territories Represented

U.S. States and Territories with active MUREP Awards

Alaska
Hawaii
Puerto Rico
Guam
Virgin Islands
FY2020 – FY2021
SHIFTING PORTFOLIO

MUREP Pillars of Investment

- Research Infrastructure and Capacity Building
- Curriculum Development and Service Provider Resources
- Student Engagement
- Partnerships and Sustainability

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The Next Generation of Explorers
RESEARCH INFRASTRUCTURE & CAPACITY BUILDING
MUREP Institutional Research Opportunity (MIRO)

Established to strengthen and develop the research capacity and infrastructure of MSIs

- **Expand** Aerospace R&D
- **Promote** MSI Research Capacity
- **Strengthen** Skills in NASA Priority Areas

Students conduct experiments in Langston’s LUNAR-BC lab while Principal Investigator, Dr. Byron Quinn, provides oversight (Image #1)

Student Research Assistant at the MIRO Center at Xavier University demonstrates use of laboratory equipment (Image #2)
MIRO FY2019 Awards To HBCUs

Congratulations!!!
MUREP AEROSPACE HIGH VOLUME MANUFACTURING & SUPPLY CHAIN COOPERATIVE

Established to address the need for a high-volume manufacturing and supply chain ecosystem in aerospace and future needs of manufacturing ecosystems

- Supports NASA’s Aeronautics Mission Directorate (ARMD) framework needs by introducing new high volume, aerospace manufacturing networks.

- Aligned with NASA and Industry high-volume manufacturing and supply chain ecosystem needs for national competitiveness.

- Advances the development of entrepreneurship and commercialization by guiding students to become leaders and entrepreneurs.
MUREP HIGH VOLUME FY2019 AWARDS TO HBCUs

Congratulations!!!

Virginia State

Tuskegee University
CURRICULUM DEVELOPMENT
AND SERVICE PROVIDER RESOURCES
MSI Capability Gateway

An online tool that supports your search for innovative and diverse academic collaborators by curating the capability statements and STEM offerings of MSIs nationwide.

Search MSI Capability Statements at:
https://msigateway.larc.nasa.gov/

700+
Minority Serving Institutions
HBCUs, HSIs, TCUs
AANAPISIs, PBIs, & other minority serving Institutions.

100+
Capability Statements
University Research Centers and Expertise
MUREP Innovations
In Space Technology Curriculum (MISTC)

Designed to prepare, train and develop NASA’s future workforce through innovations in Community College curriculum and experiential learning opportunities

New and revised courses focused on areas of priority for NASA’s Space Technology Mission Directorate (STMD)

Student internships at NASA Centers

Increased research, teaching and learning capability in NASA related fields for community college MSIs
MUREP Educator Professional Development (EPDC)

Face-to-face and online professional development opportunities & NASA resources for educators in K-12, university and community settings

Partnerships
15 MSI TEN Partners
117 Emerging Stars Partners

Digital Badging System
464 Badges earned this year; 4009 Professional Development Hours earned

Events
483 Events, including Webinars, Face to Face (on-site/off-site)
MUREP FOR AMERICAN INDIAN & ALASKA NATIVE STEM ENGAGEMENT (MAIANSE)

Designed to increase American Indian and Alaska Native engagement in STEM through authentic and unique NASA experiences.

Capacity Building at Tribal Colleges & Universities

Strategic Partnerships
- AIHEC
- AISES
- NOAA
- NSF
- Bureau of Indian Affairs

Student Engagement
- Internships
- National Conferences

The Earth System Education for Climate Resiliency in the Salish Sea project at Northwestern Indian College incorporates remote sensing and geospatial tools into interdisciplinary programs and course curricula to increase students’ understanding of climate resiliency.
MUREP AEROSPACE ACADEMY (MAA)

Designed to increase participation and retention of historically underserved and underrepresented K-12 youth in STEM

- **Authentic STEM Experiences**
- **Technology Rich Environments**
- **Family Involvement**

Middle School Students building catapults to launch rockets

High School Students building catapults to launch rockets

Elementary School students track the Solar System
NASA Fellowship Activity

Established to provide academic institutions the ability to enhance graduate-level learning and development

- Student-authored and independently conceived graduate research proposals
- Funds support graduate students at a level that allows the students to fully concentrate on academic and research proficiency without the need to seek employment.
Higher education spinoff challenge established to develop new ideas for commercialization by seeking concept papers/business plans from multidisciplinary student teams at MSIs.

MSI teams' partner with NASA Small Business Companies.

Poster Session & Space Tank Competition ‘Lightning Pitch” of business concept to a panel of judges.

Winning team awarded travel funds to present business concept at Ames Research Center and various companies in Silicon Valley.
NASA COMMUNITY COLLEGE AEROSPACE SCHOLARS (NCAS)

Designed to engage community college students in NASA’s mission and encourage students to pursue a two-year degree or transfer to a four-year university to pursue a STEM field or career

DIVERSITY
• NCAS creates powerful connections to NASA’s mission, people, and facilities though authentic learning experiences.

WORKFORCE
• NCAS inspires underrepresented students to pursue their academic and professional goals and identify as future leaders and STEM professionals.

PIPELINE
• Over 150 NASA internships have been awarded to NCAS alumni since 2014.

KEY COLLABORATIONS
• Minority Serving Space Grant Institutions
• NASA Internships for NCAS Alumni

GROWTH
• Seeking new MSI Space Grant Affiliates interested in bringing NCAS to their community college campus.
PARTNERSHIPS
& SUSTAINABILITY
MUREP for Sustainability & Innovation Collaborative (MUSIC)

Designed to provide workshops and training materials that establish sustainable training and support for MSIs that desire to develop capacity through competition for federal funds.

74 MSIs
57 HBCUs, 12 HSIIs, 3 AANAPISIs, 2 TCUs participated in MUSIC activities.

Institutional Capacity
Increasing capacity of MSIs to compete for federal funds.

Access & Exposure
MUSIC interacted with 259 participants in FY2019 through webinars and workshops.

**MUSIC participant Alabama A&M University was selected for a 2019 NASA SBIR/STTR award.**
A partnership between NSF and NASA MUREP under the auspices of NSF INCLUDES will leverage the strength of both organization's proficiency and capabilities to maximize and impact efforts towards broadening participation in STEM engagement.

- MUREP aims to release a NASA Research Announcement (NRA) within the next few months;
- The solicitation will call for Planning Grant proposals to facilitate the development of diverse coalitions (led by MSIs) that are dedicated to exploring and establishing new approaches, designed to broaden participation in STEM engagement and ultimately the engineering workforce;
- Shortly after the official release of the NRA, a pre-proposal webinar will be offered;
- Resulting Planning Reports will be disseminated within NASA’s research and STEM Engagement communities to spur additional collaborative connections;
- MUREP will follow the planning grant NRA with a solicitation for new programmatic activities in NASA’s 2021 fiscal year.
WHERE TO FIND STUDENT OPPORTUNITIES
https://intern.nasa.gov

INTERN
Being an astronaut isn’t the only cool thing about space. Interns use their creativity and innovation to work on projects impacting NASA’s mission, such as returning to the Moon by 2024. As a NASA intern, you will be part of an amazing team that is dedicated to space exploration. You will work with leading experts and gain valuable experience as you participate in research and mission projects. Come dream with us and change the future.

CLICK HERE TO APPLY TODAY!

CONNECT WITH NASA INTERNSHIPS

Attention Puerto Rican applicants:
Please contact: NASA-Intern-Inquiries Help Desk.

EXPLORE NASA INTERNSHIPS
- Opportunities / Projects
- Meet Our Interns
- Virtual Career Fair

"EVERY DAY YOU ARE A PART OF A BIGGER MISSION, A BIGGER PLAN, SOMETHING THAT YOU NEVER THOUGHT YOU WOULD BE CAPABLE OF ACHIEVING." – ISABELLA (INTERN), AMES RESEARCH CENTER

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The Next Generation of Explorers
WHERE TO MUREP FUNDING OPPORTUNITIES

ENGAGEMENT OPPORTUNITIES IN NASA STEM (EONS)

https://nspires.nasaprs
MUREP Points of Contact

K-12 Outreach & Teacher Preparation

MUREP Aerospace Academy (MAA)
POC: Priscilla Mobley,
Glenn Research Center
priscilla.a.mobley@nasa.gov

MUREP Internships
POC: Veronica Seyl,
Johnson Space Center
veronica.l.seyl@nasa.gov

Student Experiential Learning

NASA Community College Aerospace Scholars (NCAS)
POC: Alicia Baturoni Cortez,
Johnson Space Center
alicia.baturoni@nasa.gov

Community College & Tribal College Engagement

MUREP Internships
POC: Veronica Seyl,
Johnson Space Center
veronica.l.seyl@nasa.gov

Research Infrastructure & Capacity Building

MUREP Internships
POC: Veronica Seyl,
Johnson Space Center
veronica.l.seyl@nasa.gov

POC: Priscilla Mobley,
Glenn Research Center
priscilla.a.mobley@nasa.gov

MUREP Internships
POC: Veronica Seyl,
Johnson Space Center
veronica.l.seyl@nasa.gov

MUREP Aerospace High-Volume Manufacturing and Supply Chain Management Cooperative
POC: Garnise Dennis
Langley Research Center
garnise.a.dennis@nasa.gov

POC: Priscilla Mobley,
Glenn Research Center
priscilla.a.mobley@nasa.gov

NASA Community College Aerospace Scholars (NCAS)
POC: Alicia Baturoni Cortez,
Johnson Space Center
alicia.baturoni@nasa.gov

MUREP Institutional Research Opportunity (MIRO)
POC: Dr. Victoria Costa,
Armstrong Flight Research Center
victoria.b.costa@nasa.gov

MUREP Sustainability Initiative
POC: Rod Chappell
Langley Research Center,
roderick.d.chappell@nasa.gov

MUREP Educator Professional Development Collaborative (EPDC)
POC: Gina Blystone,
Langley Research Center
gina.r.blystone@nasa.gov

NASA Fellowship Activity
POC: Carolyn Knowles,
Headquarters
carolyn.knowles-1@nasa.gov

MUREP for American Indian and Alaskan Native STEM Engagement (MAIANSE)
POC: Dr. Alicia Joseph
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MUREP Institutional Research Opportunity (MIRO)
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Armstrong Flight Research Center
victoria.b.costa@nasa.gov

MUREP for Sustainability and Innovation Collaborative (MUSIC)
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MUREP for American Indian and Alaskan Native STEM Engagement (MAIANSE)
POC: Dr. Alicia Joseph
Goddard Space Flight Center
alicia.t.joseph@nasa.gov

MUREP Capability Gateway
POC: Sharon Fitzgerald
Langley Research Center
sharon.g.fitzgerald@nasa.gov

MUREP Innovation & Tech Transfer Idea Competition (MITTIC)
POCs: Misti Moore,
Johnson Space Center
mistim.moore@nasa.gov;

MUREP for Sustainability and Innovation Collaborative (MUSIC)
POC: Garnise Dennis
Langley Research Center
garnise.a.dennis@nasa.gov

MUREP Institutional Research Opportunity (MIRO)
POC: Dr. Victoria Costa,
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victoria.b.costa@nasa.gov

MUREP Capability Gateway
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garnise.a.dennis@nasa.gov

MUREP Innovation & Tech Transfer Idea Competition (MITTIC)
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Johnson Space Center
mistim.moore@nasa.gov;

Partnerships & Sustainability

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www.nasa.gov/stem/murep
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hq-murep@mail.nasa.gov
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NASA FUNDING OPPORTUNITIES
UNDERGRADUATE AND GRADUATE RESEARCH OPPORTUNITIES
NASA Internships allow students to work directly with NASA. Many of these positions provide stipends and opportunities are available throughout the academic year. For more information, visit: http://Intern.nasa.gov.

NASA's Summer Undergraduate Program for Planetary Research (SUPPR) is an eight-week summer internship that provides undergraduates the opportunity to participate in NASA planetary geosciences research under the direction of a NASA-sponsored investigator. For more information, visit: https://www.lpi.usra.edu/suppr/.

Future Investigators in NASA Earth and Space Science and Technology (FINESST) invites proposals for graduate student-developed research or technology projects. For more information, visit: https://nspires.nasaprs.com/external/solicitations/summary.do?solId=%7BE16CD59F-29DD-06C0-8971-CE1A9C252FD4%7D&path=&method=init
NASA DEVELOP is a training program that allows recent graduate and early career professionals to apply NASA Earth observations to interdisciplinary projects involving government, nonprofits, and other organizations, while being mentored by NASA science advisors. For more information, visit: https://develop.larc.nasa.gov

NASA Fellowship Activity is designed to support OSE objectives and provide academic institutions the ability to enhance graduate-level learning and development. For more information, visit: https://www.nasa.gov/stem/fellowships-scholarships/index.html.
WHERE TO FIND STUDENT FUNDING OPPORTUNITIES

https://intern.nasa.gov
NASA’s Mission Directorate Opportunities
Solicits basic and applied research in support of NASA’s Science Mission Directorate (SMD)

- Typically released on Valentine’s Day, February 14
- Includes opportunities for Basic and Applied Research, Technology Development, Guest Investigator Programs, and Early Career Programs in support of NASA Science
- Contains many individual program elements, each with its own due date and topics
- Subscribe to NSPIRES RSS feed and mailing lists for updates, amendments, and clarifications to program elements
- ROSES How To Guide can be found at https://science.nasa.gov/researchers/sara/how-to-guide
SMD Planned Announcements of Opportunities

FY 2020 Planned
• Earth Venture Mission-3, Q1
• Earth Venture Instrument-6, Q3
• Small Innovative Missions for Planetary Exploration (SIMPLEx) Missions of Opportunity, Q4

FY 2021 Planned
• Astrophysics Medium Explorers (MIDEX) and Missions of Opportunity, Q4
• Heliophysics Small Explorers (SMEX) and Missions of Opportunity, Q4

FY 2022 Planned
• Earth Venture Continuity-2, Q1
• New Frontiers-5, Q3

For most current target release dates of future solicitations, go to Science Office for Missions Assessments website, https://soma.larc.nasa.gov/
HUMAN EXPLORATION RESEARCH OPPORTUNITIES (HERO) NRA

Solicits applied research in support of the NASA Human Exploration and Operations Mission Directorate (HEOMD) Human Research Program (HRP)

Purpose:
Covers all aspects of research to provide human health and performance countermeasures, knowledge, technologies, and tools to enable safe, reliable, and productive human space exploration.

- Space Radiation
- Human Health Countermeasures
- Exploration Medical Capability
- Human Factors and Behavioral Performance
- Research Operations and Integration

Range of Awards:
under $100K per year for focused, limited efforts to more than $1M per year for extensive activities (e.g., development of scientific hardware).

Due Dates:
Proposal due dates will be staggered throughout the HERO open period of July 31, 2019 to July 2020.

Eligibility: All categories of United States (U.S.) institutions are eligible.
Solicits basic and applied research in support of NASA’s Space Life and Physical Sciences Research and Applications Division (SLPSRAD) and HEOMD

**Purpose:** Understand Responses of Physical and Biological Systems to Spaceflight by investigating the effects of short and long duration spaceflight environment exposure on the biology of cells, microorganisms, plants, and animals.

- Microbiology Element
- Cell and Molecular Biology Element
- Plant Biology Element
- Animal Biology Element
- Developmental, Reproductive and Evolutionary Biology Element
- Cross-cutting – Systems Biology Omics and GeneLab

**Range of Awards:** under $100K per year for focused, limited efforts to more than $1M per year for extensive activities (e.g., flight experiments).

**Due Dates:** Proposal due dates will be staggered throughout the ROSBio open period through March 2023.

**Eligibility:** All categories of United States (U.S.) institutions are eligible.
**USE OF THE NASA PHYSICAL SCIENCES INFORMATION SYSTEM (PSI) NRA**

*Solicits basic and applied research in support of NASA’s Space Life and Physical Sciences Research and Applications Division (SLPSRAD) and HEOMD*

**Purpose:**
- Promote investigations making use of currently available experimental data resulting in more scientists participating in reduced-gravity research
- Allow new areas of research and discovery to occur more quickly through open access
- Accelerate the “research to product or publication” timeline through the rapid sharing of data.

**Six Physical Science Research Areas:**
- Biophysics
- Combustion Science
- Complex Fluids
- Fluid Physics
- Fundamental Physics
- Materials Science

**Range of Awards:** Check each Appendix for funding information.

**Due Dates:** Proposal due dates will be staggered throughout the open period through September 2022.

**Eligibility:** All categories of United States (U.S.) institutions are eligible.
ENGAGEMENT OPPORTUNITIES IN NASA STEM (EONS)
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- Shortly after the official release of the NRA, a pre-proposal webinar will be offered;
- Resulting Planning Reports will be disseminated within NASA's research and STEM Engagement communities to spur additional collaborative connections;
- MUREP will follow the planning grant NRA with a solicitation for new programmatic activities in NASA’s 2021 fiscal year.
WHERE TO FIND NASA RESEARCH ANNOUNCEMENTS

NASA PROPOSAL INTEGRATED REVIEW AND EVALUATION SYSTEM (NSPIRES)

https://nspires.nasaprs
THANK YOU!