INSPIRE - ENGAGE - EDUCATE - EMPLOY

The Next Generation of Explorers

Minority University Research and Education Project (MUREP) Overview

by Joeletta Patrick
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Agency Vision & Mission for Public and STEM Engagement

**Vision**
We immerse the public in NASA’s work, enhance STEM literacy, and inspire the next generation to explore.

**Mission**
We engage the nation in NASA’s mission.

**Focus Areas**
- Create **unique opportunities** for students and the public 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 **public understanding** by enabling powerful connections to NASA’s mission and work.
# Agency Strategy for Public and STEM Engagement

**STEM Engagement in the Context of NASA’s Mission**

<table>
<thead>
<tr>
<th>NASA Vision</th>
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<td>To discover and expand knowledge for the benefit of humanity.</td>
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<th>NASA Mission</th>
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<td>Lead an innovative and sustainable program of exploration with commercial and international partners to enable human expansion across the solar system and bring new knowledge and opportunities back to Earth. Support growth of the Nation’s economy in space and aeronautics, increase understanding of the universe and our place in it, work with industry to improve America's aerospace technologies, and advance American leadership.</td>
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<th>NASA Strategic Goal 3</th>
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<td>Address national challenges and catalyze economic growth.</td>
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A New Architecture to Enable Relevant Student Opportunities and Contributions

NASA Mission Directorate Drivers & Requirements

- Scalability to magnify NASA’s reach and impact
- Evidence-based strategies
- Rigorous planning
- Integrated operational model

Focus Areas

- Creating unique opportunities for students to contribute to NASA’s work
- Building a diverse future STEM workforce by engaging students in authentic learning experiences.
- Strengthening public understanding by enabling powerful connections to NASA’s mission and work.

Strategic, balanced portfolio

NASA-unique learning experiences

Student contributions to NASA’s work in action

Beneficiaries of NASA’s STEM Engagement Portfolio

- Pre-K-Elementary
- Middle School
- High School
- Undergraduate
- Graduate

STEM Inspire - Engage - Educate - Employ

The Next Generation of Explorers

NASA
NASA’s Office of Education consist of two programs and four projects:

<table>
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<tr>
<th>Aerospace Research and Career Development (ARCD) Program</th>
<th>HQ Manager</th>
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<tr>
<td>National Space Grant College and Fellowship Program (Space Grant)</td>
<td>Joeletta Patrick</td>
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<tr>
<td>Experimental Program to Stimulate Competitive Research (EPSCoR)</td>
<td>Jeppie Compton</td>
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<th>STEM Education and Accountability (SEA) Program</th>
<th>HQ Manager</th>
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<td>STEM Education and Accountability Project (SEAP)</td>
<td>Diane DeTroye</td>
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<td>Minority University Research and Education Project (MUREP)</td>
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MUREP’s Mission

Our Mission

To enhance the research, academic and technology capabilities of Minority Serving Institutions to provide authentic learning experiences to students related to NASA missions to contribute to a diverse future STEM workforce.
Why MUREP?

Agency’s Response to Presidential Executive Orders for Minority Serving Institutions

MUREP was established to increase NASA’s responsiveness to federal mandates related to Minority Serving Institutions (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)/American Indian and Alaskan Native Serving Institutions (AIANSI)
- **EO 13555**: Hispanic Serving Institutions (HSIs)
- **EO 13515**: Asian American and Native American Pacific Islander – Serving Institutions (AANAPISIs)
- **EO 13621**: Predominantly Black Institutions (PBIs)
Minority University Research and Education Project (MUREP) Engagement

At A Glance

- Limited to Minority-Serving Institutions
- Responsive to Presidential Executive Orders
- Portfolio includes 7 funded activities

Elements of the Approach

- Student Opportunities
- MSI Partnerships and Sustainability
- Mission Directorate Collaborations
- K-12 Engagement

Impact

- Contribute to solving Mission Directorate problems
- Increased STEM Awareness
- Increase retention of Underserved and Underrepresented groups in STEM
- Enhance MSI infrastructure
- Enable MSI sustainability

NASA Mission Directorate Drivers & Requirements

STEM INSPIRE - ENGAGE - EDUCATE - EMPLOY
The Next Generation of Explorers
# MUREP Portfolio

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| MIRO | MIRO is designed to establish significant, multi-disciplinary, scientific, engineering, and/or commercial research centers at the host MSI, that contribute substantially to the programs of one or more of the NASA Mission Directorates as described in the 2014 NASA Strategic Plan. | Lead Center: Armstrong Flight Research Center  
Activity Manager: David Berger |
| MUREP Aerospace Academy (MAA) | MAA educates students using a STEM curriculum that meets national math, science, and technology standards aligned to NASA’s Mission Directorates. | Lead Center: Glenn Research Center  
Activity Manger: Priscilla Mobley |
| MUREP Funded NASA Community College Aerospace Scholars (NCAS) | MUREP leverages the Texas stated funded NCAS to provide an authentic learning experience for community college students and encourage them to finish a two-year degree and/or transfer to a four-year university to pursue a STEM field or career. | Lead Center: Johnson Space Center  
Activity Manager: Alicia Baturoni-Cortez |
| MUREP NASA Internship and Fellowship | MUREP provides historically underrepresented and underserved students in STEM fields at MSIs the opportunity to use NASA facilities and assets to provide work experiences, research and educational opportunities. These opportunities are designed to improve retention rates in STEM and diversify the future STEM workforce. | Lead Center: Johnson Space Center (Internship)  
Activity Manager: Veronica Seyl  
Lead Center: Ames Research Center (Fellowship)  
Activity Manager: Brenda Collins |
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<td>MUREP Innovations in Space Technology Curriculum (MIST-C)</td>
<td>MUREP in partnership with Space Technology Mission Directorate (STMD) seek collaboration with two-year/community college MSIs to strengthen STEM curricula and curricular pathways.</td>
<td>Lead Center: Jet Propulsion Lab Activity Manager: Roslyn Soto</td>
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<td>MUREP Sustainability Initiative (MSI)</td>
<td>MSI seeks to increase the fiscal capacity of institutions by connecting capabilities with grants/cooperative agreements and contact opportunities supporting the Mission Directorates’ needs.</td>
<td>Lead Center: Langley Research Center Activity Manger: Dan Cherry</td>
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<tr>
<td>Within MSI is the opportunity: MUREP University Sustainability and Innovation Collaborative (MUSIC)</td>
<td>MUSIC provides opportunities to enhance MSI capacity building by leveraging the talent from successful MSIs and non-profit agencies with MSI emphasis through access and engagement. MSIs will develop strong partnerships and collaborations among organizations in the STEM eco-system.</td>
<td>Lead Center: Langley Research Center Activity Manager: Clarence Bostic</td>
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<td>MUREP Capstone (MCap) Initiative</td>
<td>MCap is designed to develop strategic partnerships with MSIs while encouraging innovation in problem-solving through student-faculty teams by providing opportunities that emphasize hands-on design, research, development, and manufacturing of technology that supports NASA’s missions.</td>
<td>Lead Center: Marshall Space Flight Center Activity Manager: Tracey Washington</td>
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Education Opportunities in NASA STEM (EONS)

- All MUREP Funded Opportunities
- www.nasa.gov/education/murep “How to find MUREP Funding Opportunities”
- EONS Grants Forecasting
Grants Forecasting

- Established Program to Stimulate Competitive Research (EPSCoR) & MUREP Institutional Research Opportunity (MIRO) Research Collaboration

- EPSCoR
  - [http://www.nasa.gov/education/epscor](http://www.nasa.gov/education/epscor)
  - Improve the capabilities of the jurisdictions to gain support from sources outside the NASA EPSCoR program.
  - Comprised of 27 states and territories
  - Research Awards solicits topic-specific proposals addressing high-priority NASA research and technology development needs.

- MIRO
  - [https://www.nasa.gov/offices/education/programs/descriptions/MIRO.html](https://www.nasa.gov/offices/education/programs/descriptions/MIRO.html)
  - Competitive Solicitation
  - Multi-year for up to ~$1,000,000 a year

- Outcome
  - Strengthen the collaboration between MSIs and PWIs
  - Advancement of NASA research and technology
  - Improve sustainability of research

  - Request for Information – RFI – NASA seeks implementation ideas [https://nspires.nasaprs.com](https://nspires.nasaprs.com)

Contact: Gloria Murphy – EPSCoR - NASA/KSC 321-867-8934 [gloria.a.murphy@nasa.gov](mailto:gloria.a.murphy@nasa.gov)
  Dave Berger – MIRO – NASA/AFRC 661-276-5712 [Dave.E.Berger@nasa.gov](mailto:Dave.E.Berger@nasa.gov)
Best Practices - University Partnership

• Example Opportunity: MIRO
  – Competitive Solicitation
  – Multi-year for up to ~$1,000,000 a year
  – strengthen institutional infrastructure
  – expand research and educational programming
  – position institutions for partnerships to acquire additional funds

Best Practices include the following, but are not limited:

Note: Incorporation of suggestions does not guarantee selection.

• The award is a part of a strategic plan for the institution
  – Five or ten – year STEM strategic plan
  – Administration Support includes President/Chancellor, Sponsored Programs, and Dean

• Consider Cross Discipline Proposals
  – Include School of Business with STEM for entrepreneurial component
  – Include Computer Science with Mechanical Engineering for autonomous robots

• Multiple Funding Sources
  – Institutional funding
  – Contractor funding from industry, research institutes, and as a subcontractor for other higher education institutions
Best Practices - University Partnership Cont.

- Sample University Center of Excellence - Multiple Funding Sources
  - NASA is 33% of total funding

![Pie chart showing funding sources from 2009 to 2015](chart.png)
How to get started

- Register in NSPIRES
- Become a Reviewer – email tkross@nasaprs.com Ref: MUREP Reviewer
Contact MUREP at HQ

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