

NASA Minority University Research Education (MUREP) Activities

NASA Jenkins Graduate Fellowship Program (JGFP)

MUREP Scholarships

Administered by Ames Research Center

Type of Agreement: Training Grants

FY 2014 Annual Report (10/1/13 – 9/30/14)

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Activity Description

NASA provides financial assistance (grants and cooperative agreements) to the Nation's Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs), Tribal Colleges and Universities (TCUs), American Indian and Alaskan Native Serving Institutions (AIANSIs), Predominantly Black Institutions (PBIs) and eligible community colleges. The Administration recognizes the valuable role that these institutions play in educating our citizens, as reflected in the five Minority-Serving Institutions (MSI) focused Executive Orders signed by the President.

NASA's Minority University Research and Education Activity (MUREP) investments enhance the research, academic, and technology capabilities of MSIs through multi-year awards. Awards assist faculty and students in research and provide authentic STEM engagement related to NASA missions. These competitive awards provide NASA specific knowledge and skills to learners who have been historically underrepresented and underserved in STEM. MUREP investments also assist NASA in meeting the goal of a diverse workforce through student participation in internships, scholarships, and fellowships at NASA Centers and JPL.

The competitive MUREP Jenkins Graduate Fellowship Program and MUREP Scholarship activities focuses on underserved, underrepresented undergraduate and graduate students majoring in Science, Technology, Engineering and Math (STEM) disciplines. Academic tuition support is provided, as well as a required 10-week paid internship or Center Based Research Experience is funded at a NASA center that provides an opportunity for students to deepen their understanding the application of their chosen STEM discipline and professional development.

Activity Goals

MUREP Jenkins Graduate Fellowship Program and MUREP Scholarship addresses the following FY14 Annual Performance Indicator (API):

- ED-14-1: Provide significant, direct student awards in higher education to (1) students across all institutional categories and types (as defined by the U.S. Department of Education); (2) racially or ethnically underrepresented students, (2) females, and (3) persons with disabilities at percentages that meet or exceed the national STEM enrollment percentages for populations, as determined by the most recently publicly available data from the U.S. Department of Education's National Center for Education Statistics for a minimum of two of the three categories.

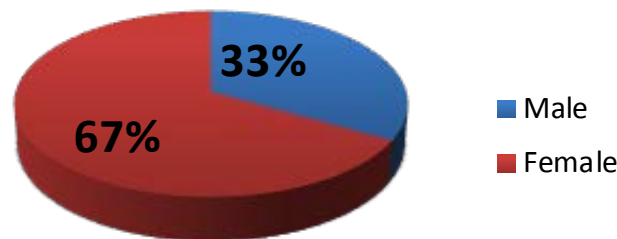
The CoSTEM priorities that are indirectly supported by are:

- Enhance STEM Experience of Undergraduate Students: Graduate one million additional students with degrees in STEM fields over the next ten years.
- Better Serve Groups Historically Under-represented in STEM Fields: Increase the number of students from groups that have been underrepresented in STEM fields that graduate with STEM degrees in the next 10 years and improve women’s participation in areas of STEM where they are significantly underrepresented.

Activity Benefit to FY2014 Performance Goals

MUREP Jenkins Graduate Fellowship Program

Measure Number	Performance Indicator Description (API)
APG 5.1.2.1:ED-12-1	Achieve 40 percent participation of underserved and underrepresented (race and/or ethnicity) in NASA higher education projects
APG 5.1.2.1:ED-12-2	Achieve 45 percent participation of women in NASA higher education projects



MUREP Scholarships

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Activity Fiscal Year Accomplishments

MUREP Jenkins Graduate Fellowship Program

- Texas A&M University fellow, Carlos Lopez's paper on the Efficacy of Nano-fluids in Active Battery Thermal Management was presented at the 225th Meeting of the Electrochemical Society in Orlando, FL on May 15th, 2014. His presentation on the nano-fluid cooling systems at the Electrochemical Society was well-received.
- University of Colorado at Boulder fellow, Jessica Kenigson, presented her work on understand sea level rise acceleration along the US Northeast Coast, where sea level rise has been suggested to be accelerating in the past few decades due to global warming at the biennial AGU Ocean Sciences Meeting in Hawaii in February 2014.

MUREP Scholarships

Sixteen undergraduate students from across the nation were selected from a pool of 213 applications to receive the NASA MUREP Scholarship for the 2014-2015 academic year forming Cohort 2. The scholarships were awarded in September 2014. Nine students Cohort 1 scholarships were renewed. Total students who received the NASA MUREP Scholarship in the FY 2014 were 25. Twenty-three scholars completed a summer Internship at NASA Centers and JPL.

Activity Contributions to FY2014 Annual Performance (API) Measures and CoSTEM Priorities

Successful MUREP Jenkins Graduate Fellowship Program and MUREP Scholarship have contributed to performance measures and CoSTEM priorities as follows:

MUREP Jenkins Graduate Fellowship Program Cohort

- 67% are female
- 57% of students self-identified as minorities
 - 17% Black
 - 27% Hispanic
 - 3% Native American
 - 10% Asian.

Both of these percentages exceed the API Measures of 40% and 45% respectively.

MUREP Scholarship Cohorts:

- 8% are veterans:
- Students from HSI: 36%
- Students from TCU: 4%
- Students from HBCU: 36%
- STEM underrepresented minority: 76%
 - 40% Black
 - 20% Hispanic
 - 8% Native American
 - 12% Asian.
- Total Females: 48%

Both of these percentages exceed the API Measures of 40% and 45% respectively.

Activity Fiscal Year Improvements Made in the Past Year

The activity has improved its cohesiveness by establishing a yearly schedule for student /PI meetings with program management, student reporting and deadlines to required documentation for renewal.

Project Partners and Role of Partners in Activity Execution

Students attend MSI and the funds are provided to the institutions via a training grant.

Reference:

MUREP Jenkins Graduate Fellowship Program		
Institution	Fellow	Proposal Title
Brown University	Lauren Jozwiak	Intrusive Magnetism on the Moon and Mercury: Comparisons of Magma Degassing Processes, Styles of Intrusions, and Insights on Observed Surface Morphologies
Case Western Reserve University	Bradley Rodier	Fusion of Multi-angle Remote Sensing Imagery and Lidar to Determine Structure in Coastal Mangroves and Tropical Forests
Florida A & M State University	Faheem Muhammed	Development of Novel Magnetic Composites
Georgia Institute of Technology	Mariel Frieberg	Paper Electrochemical Device for Detection of DNA and Thrombin by Target-Induced Conformational Switching
New Mexico Institute of Mining and Technology	Hilary Kelly	Insect Sized - Mobile Robots
Rensselaer Polytechnic Institute	Katrina Bermudez	Noble Gases and Planetary Evolution
Rice University	Amelia Hart	Novel Ceramic Fiber Matrix Composites for Mechanical, Thermal, and Electrical Applications

MUREP Jenkins Graduate Fellowship Program		
San Diego State University	Gabriela Sanz-Douglas	Stable Vanadium and Hydrogen Isotopes in Differentiated Inner Solar System Bodies
Texas A & M University	Carlos Lopez	PIPER: Pointing Control System Research Report
Texas A & M University	Stephen Hawkins	Active/Adaptive Flexible Motion Control with Aeroservoelastic System Uncertainties
The Catholic University of America	Emmaris Soto	Star-Forming Clumps and the Evolution of Galaxies in the UV HUDF
The University of Texas at Austin	Kelley Hashemi	Mechanics of the interaction between the drill bit and rocks interface
University of Alaska, Fairbanks	Christina Chu	Based Rapid Bacterial Detection System
University of Arkansas	Erika Kohler	Mineral Stability Under Simulated Venusian Conditions with Implications for the Venusian Radar Anomalies
University of California - Berkeley	Mera Horne	Significantly Enhanced Mechanical Performance of Epoxy Thin Films with Well-exfoliated Multi-walled Carbon Nanotube
University of Cincinnati- Main Campus	Jendai Robinson	The Fabrication and Characterization of Gold Arrays Using Nano-porous Alumina Templates: A Pilot Project
University of Colorado at Boulder	Christine Fanchiang	Data-Driven Data Query and Presentation Research
University of Colorado at Boulder	Jessica Kenigson	Coastal Sea Level Rise in a Warming Climate: Ocean General Circulation and Hydrodynamic Modeling Using Multi-Satellite Data
University of Maryland, College Park	Pratik Saripalli	Star-Forming Clumps and the Evolution of Galaxies in the UV HUDF at $0.5 < z < 1.5$
University of Massachusetts, Boston	Edward Saenz	Structural Evaluation of Frame-Stiffened Composite Panels
University of Southern Mississippi	Jessica Piness	The Fabrication and Characterization of Gold Arrays Using Nano-porous Alumina Templates: A Pilot Project
University of Texas at Arlington	Ezgihan Baydar	Micro-vortex generators (MVGs) for streamline-traced inlets
University of Texas at Austin	Nicholas Brenes	Nuclear Thermal Propulsion Systems: Evaluating Past and Present Effluent Treatment Systems
University of Texas at Austin	Josephine Cunningham	Novel Ceramic Fiber Matrix Composites for Mechanical, Thermal, and Electrical Applications
Vanderbilt University	Teresa Monsue	Investigating P-Mode Oscillations in Solar Chromospheric Active Regions
Woods Hole Oceanographic Institution/MIT	Adam Sarafian	Systems Engineering Support for The Development of the NEXT Thruster Power Processing Unit (PPU)
Yale University	Eleanor Stokes	Characterizing Urban Energy Signatures with Suomi-NPP VIIRS Nighttime Lights

MUREP Scholars Cohort 2013			
Institution	MSI	Student	Major
Morgan State University	HBCU	Ciara Lynton	Electrical Engineering
Navajo Technical College	TCU	Kristofferson Martin	Environmental Sciences
North Carolina A&T State University	HBCU	Kelechi Ikegwu	Electronics Technology
Oakwood University	HBCU	Kristin McLean	Chemical Engineering
Saint Louis University - Main Campus	HBCU	Morgan Elliott	Biomedical Engineering
Texas A&M University - College Station		Alexandra Cisotto	Aerospace Engineering
The City College Of New York	HSI	Rai Munoz	Electrical Engineering
UCLA transferred from College of the Sequoias	HSI	Isis Frausto-Vicencio	Chemistry Science
Virginia Polytechnic Institute and State University		Beck Giesy	Applied Mathematics
MUREP Scholars Cohort 2014			
CANADA COLLEGE	AANAPSI, HSI	Anthony Chin	Aerospace Engineering
CITY COLLEGE OF SAN FRANCISCO	AANAPSI	William Sprecher	General Engineering
COLLEGE OF THE SEQUOIAS	HSI	David Berlin	Chemical Engineering
DELAWARE STATE UNIVERSITY	HBCU	Deshaun Crawford	Computer Science
JACKSON STATE UNIVERSITY	HBCU	Derrick Davis	Computer Engineering
JACKSON STATE UNIVERSITY	HBCU	Robert Smith	Engineering
REEDLY COLLEGE	HSI	Nancy Hernandez	Computer Engineering
SPELMAN COLLEGE	HBCU	Mikaela Johnson	Biology
SPELMAN COLLEGE	HBCU	Lakirah Walker	Physics
TUSKEGEE UNIVERSITY	HBCU	Taylor Crocker	Chemical Engineering
UNIVERSIDAD DEL TURABO	HSI	Jenipher Gonzalez-Aponte	Computer Engineering
UNIVERSITY OF MARYLAND-COLLEGE PARK	HSI	Ameer Mohammed	Mechanical Engineering
University of New Mexico	AANAPSI	Gwendolyn Lynch	Mechanical Engineering
UNIVERSITY OF SOUTHERN CALIFORNIA	AANAPSI	Justin Ku	Computer Science
UNIVERSITY OF SOUTHERN CALIFORNIA	AANAPSI	Katie Cui	Chemical Engineering
VAUGHN COLLEGE OF AERONAUTICS AND TECHNOLOGY	AANAPSI, HSI	Olivia Hyman	Aeronautics Engineering