NASA COMMUNITY COLLEGE AEROSPACE SCHOLARS (NCAS)

FY 2020 ANNUAL PERFORMANCE REPORT

FUNDING SOURCE:
OFFICE OF STEM ENGAGEMENT
MINORITY UNIVERSITY RESEARCH AND EDUCATION PROJECT
(MUREP)

MANAGING ORGANIZATION:
JOHNSON SPACE CENTER
OFFICE OF STEM ENGAGEMENT

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ACTIVITY DESCRIPTION

NASA Community College Aerospace Scholars (NCAS) is a nationwide program designed for post-traditional learners enrolled in an accredited 2-year institution in the U.S. who are interested in a Science, Technology, Engineering or Math (STEM) career. NCAS participants complete a 5-week online non-credit course about NASA missions and research, culminating in a four-day onsite experience hosted at either a NASA field center or a partner campus, or a nine-day virtual experience. The onsite experience consists of a team-based engineering design challenge under the mentorship of NASA engineers and scientists. Teams design, build and test a robotic rover for competition. In addition to the rover competition, scholars tour NASA's unique facilities, learn from NASA subject matter experts, network with NASA's diverse workforce, receive resume feedback, and guidance on improving their resumes for NASA internship and employment opportunities.

NCAS helps students make the connection between a STEM degree and NASA career opportunities and realize that working in STEM is an attainable goal. NCAS prepares and motivates students to participate in other competitive NASA projects, programs, and internships, and encourages community college students to finish their 2-year degree and pursue a 4-year degree or career in a STEM field.

ACTIVITY GOALS

- Provide a unique opportunity for community college students to contribute to NASA's work in exploration and discovery.
- Build a diverse future STEM workforce by engaging community college students in authentic learning experiences with NASA's people, content and facilities.
- Create powerful connections to NASA's mission inspiring scholars to continue to pursue their academic and professional goals.

At the conclusion of their participation in NCAS, students will

- Aspire to pursue a STEM-related career
- Continue to pursue NASA learning opportunities such as internships and competitions
- Complete 2-year degree
- Transfer to a 4-year university for a STEM degree

ACTIVITY BENEFIT TO PERFORMANCE GOALS

FY 2020 Performance Goals

Performance Goal 3.3.3: Provide opportunities for students, especially those underrepresented in STEM fields, to engage with NASA's aeronautics, space, and science people, content, and facilities in support of a diverse future NASA and aerospace industry workforce.

The NCAS recruitment and retention strategies focus on students from Minority Serving Institutions. In FY20, 77.7% of the students who participated in both the online and onsite components of NCAS attended Minority Serving Institutions. The NCAS logic model and design use research-based practices to serve the unique needs and challenges of underrepresented students.

Performance Goal 3.3.5: Provide opportunities for students to contribute to NASA's aeronautics, space, and science missions and work in exploration and discovery.

NCAS funded 17 NASA internships to alumni of NCAS. Student internships provide meaningful contributions to mission directorate priorities though projects. Interns are integrated in NASA teams and assigned to authentic projects. At least 25 additional alumni were awarded internships via other Agency funding sources.

ACTIVITY ACCOMPLISHMENTS

NCAS continued to create opportunities for STEM students across the nation with 1097 students accepted into the online component of NCAS. 675 students completed the online course and received invitations to attend an onsite experience, with 78.9% of the students coming from Minority Serving Institutions. The number of women participants invited to an onsite experience was 39.2%. COVID-19 affected our ability to hold face-to-face onsite experiences past March 2020.

Prior to March, we were able to hold face-to face experiences at the Jet Propulsion Laboratory (JPL), Ames Research Center, Johnson Space Center, Goddard-Wallops Flight Facility, and Stennis Space Center. Again, due to COVID-19, face-to-face onsite experiences were canceled at Armstrong Flight Research Center, Glenn Research Center, Kennedy Space Center, Langley Research Center, and Marshall Space Flight Center.

NCAS implemented a virtual onsite experience three (3) times in the last quarter of FY20. The three virtual onsite events, known as Virtual NCAS, invited 447 students to participate, equivalent to 11 face-to-face onsite events. Third party evaluations showed students were just as motived to complete their 2-year STEM degree and either transfer to a 4-year institution or enter the STEM workforce.

ACTIVITY CONTRIBUTION TO ANNUAL SUCCESS CRITERIA

FY 2020 Annual Success Criteria

Success Criteria 3.3.3 STEM-20-1: Meet or exceed the national average in two of the four categories of student diversity for NASA STEM enrollees in internships, fellowships, or other student engagement opportunities. Diversity Categories: (1) students across all institutional categories and levels (as defined by the U.S. Department of Education), (2) racially or ethnically underrepresented students (Hispanics and Latinos, African Americans, American Indians, Alaska Native, Native Hawaiians and Pacific Islanders), (3) women, and (4) persons with disabilities at percentages that meet or exceed national averages for science and engineering enrollees, as determined by the most recent, publicly available data from the U.S. Department of Education's National Center for Education Statistics.

While NCAS does not meet the threshold for qualifying as a significant award, the project prepares students to pipeline into additional NASA activities. NCAS uses its resources to maximize the number of students across the nation it can reach focusing on women and student participants from Minority Serving Institutions (MSIs).

The 2019 United States ethnicity data showed 76.3% white, 1.3% Native American, 18.5% Hispanic, 0.2% Native Hawaiian, 5.9% Asian and 13.4% African American, according to US Census Bureau for 2019. The NCAS 2020 scholar ethnicity percentages exceeded the national average in nearly every

category with 11% self-reporting as Native American, 35.3% Hispanic, 1% Hawaiian, 19.9% Asian (7% gain over FY19) and 12.2% African American (2% gain over FY19).

ACTIVITY IMPROVEMENTS MADE IN THE PAST YEAR

PIPELINE: NCAS provided one fully funded internship at each of the ten NASA centers for any NCAS alumni currently attending a Minority Serving Institution and seven to our 2019 Cohort campuses. At least 25 additional students were awarded internships throughout the agency in FY19. Informal tracking since 2014 shows that over 200 internships have been awarded to NCAS alumni.

EXPANSION: NCAS collaborated with the National Space Grant Program to offer an augmentation grant in the National Space Grant College and Fellowship Program - Opportunities in NASA STEM FY 2020 – 2024 Solicitation: NNH19ZHA001C. NCAS selected proposals from six state Space Grant Consortia in New Jersey, California. Mississippi, Connecticut, Georgia and Texas who identified 11 minority serving institutions across the nation with the goal of attracting and retaining more students in STEM programs. The awards come as a cross-program collaboration between NASA's Minority University Research and Education Project (MUREP) and NASA National Space Grant College and Fellowship Project. MUREP funded the awards while Space Grant accessed its existing network of affiliated 2-year MSIs.

The selected minority-serving community colleges are:

1. Atlanta Metropolitan State College, Atlanta, Georgia
2. Cypress College, Cypress, California
3. Lonestar Community College-CyFair, Cypress, Texas
4. Norwalk Community College, Norwalk, Connecticut
5. Southwestern College, Chula Vista, California
6. Union County College, Cranford, New Jersey
7. Cerritos College, Norwalk, California
8. College of the Desert, Palm Desert, California
9. Essex County College, Newark, New Jersey
10. Hinds Community College-Utica, Utica, Mississippi
11. Meridian Community College, Meridian, Mississippi

MUREP provided funding in the following amounts: Year 1 funding of $25,000, per campus, provided to Atlanta Metro, Cypress, Lonestar, Norwalk, Southwestern and Union County; Years 2-4 funding of $12,500 per campus, per year, provided to Cerritos, College of the Desert, Essex, Hinds and Meridian. Awardees are now completing the training cycle to prepare for a virtual onsite event in August 2021.

VIRTUAL ONSITE - The NCAS team of coordinators and center representatives across the agency came together to create a virtual team experience based on NASA's Moon to Mars theme and the NCAS core components. In eight (8) weeks, the team researched a mission design challenge, adapted it to a virtual environment (including game cards and a game board); recruited SMEs, judges, internship presenters, and inspirational speakers from across the agency; created NASA content-based activities; and combined it into an engaging online learning platform.

ACTIVITY PARTNERS AND ROLE OF PARTNERS IN ACTIVITY EXECUTION

NCAS typically partners with the MAIANSE team to host one of two non-Tribal College and University (TCU) sponsored competitions at the American Indian Higher Education Consortium (AIHEC) Spring Conference. The conference attracts students from TCUs nationwide. NCAS staff have built relationships with the students, faculty, and tribal elders. The conference was canceled in 2020 and 2021 due to COVID-19; however, we plan to attend in 2022.

The NASA Community College Aerospace Scholars recruitment strategy for Minority Serving Institutions (MSIs) resulted in 78% of students being invited to an NCAS onsite experience from 140 MSIs (a 12% increase in the number of institutions over FY19).

NCAS partnered with 11 MSIs in six Space Grant Consortia including California, Connecticut, Georgia, New Jersey, Mississippi, and Texas to train faculty to implement NCAS on their campuses.