

Arkansas Space Grant Consortium
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PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia one each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Arkansas Space Grant Consortium is a Capability Enhancement Consortium funded at a level of \$590,000 for fiscal year 2009.

PROGRAM GOALS

Educational Outcome 1 Goals (Metrics in parentheses)

1. Fund Research Infrastructure Grants to affiliate institutions (42).
2. Fund Student Fellowship/Scholarship Grants (65).
3. Fund Minority Serving Institution (MSI) Partnership Development Program (8-12).
4. Fund Workforce Development Fellowships of \$6,500 (6).
5. Continue five (5) existing Collaborative Research Programs (5).
6. Fund a program for Aeronautic two-year certificate students (10).
7. Fund a Pilot Program with Henderson State University, the only four-year institution in Arkansas that offers a degree in aviation (1).
8. Continue to collaborate with the National Space Grant Foundation's program for longitudinal tracking of awardees, and participate fully in reporting results to NASA.

Educational Outcome 2 Goals

1. Fund Mini-Grants to K-12 educators in Arkansas to promote their ability to teach aerospace related science in their classrooms, and Outreach Grants to K-12 educators in Arkansas who are affiliated with NASA Explorer Schools, in order to enhance their ability to participate in NES programs. Continue to support the 2 *Arkansas BalloonSat* teams and the *Arkansas Academy of Space Science for Educators*. (Mini 30, Outreach 5)
2. Offer applications and funding for students to be accepted to a NASA Academy, a Summer Internship at a NASA Center, Graduate Student Research Program, or summer employment positions with NASA affiliated contractors in or out of the state. (as needed)

Educational Outcome 3 Goals

1. Fund Guest Lecturers from STEM disciplines to make presentations for the General Public at affiliate campuses. (2)
2. Hold the 18th Annual Symposium so students and faculty can present their research to their peers and other members of the community.
3. Maintain the ASGC website as needed.
4. Continue active involvement with University Affairs Offices at all the NASA centers.

PROGRAM/PROJECT BENEFIT TO OUTCOME (1, 2, OR 3) :

Outcome 1:

Henderson State University students Clay White and Thomas White interned at the ASRC Aerospace Corporation located at Kennedy Space Center this past summer. Their mentor Dr. Steven Trigwell sent us glowing remarks about their knowledge base and work ethic.

ASGC Collaborative Research Program (CRP) is growing around the state. Each year ASGC is receiving more qualified applications for this program. The program office is proud of the research Arkansas is producing and that ASGC is aiding in these efforts.

Outcome 2:

The ASGC Outreach Coordinator was able to enhance contact with several of the Math and Science Centers located statewide; therefore further networking with localized K-12 STEM related programs and science focused programs. ASGC presented four programs on the K-12 Mini-Grant application process, encouraging teachers to apply for funding for professional development activities. Response has been positive, as reported below.

Increasing interest is noted in the increased number of emails and telephone calls coming into the Program Office containing inquiries about how to participate.

Members of the ASGC program office also visited with each Workforce Development Fellow and Mentor(s), and with recipients of other undergraduate NASA internships, on their respective campuses, in order to conduct a Q&A session and coordinate internship positions at NASA Centers, research facilities, or with NASA contractors.

Outcome 3:

The 18th ASGC Symposium was held at the Winthrop Rockefeller Institute at Petit Jean Mountain. Attendance was 164. Former Astronaut Duane Carey was our Keynote speaker. His presentation about experience piloting the STS-109 was well received. Mr. Carey also did a K-12 talk at Pottsville School district and stayed overnight to make an appearance at our NASA EPSCOR Conference.

PROGRAM ACCOMPLISHMENTS

Outcome 1:

With our FY09 funding ASGC was able to exceed our goals in most of our Outcome 1 areas. ASGC funded 57 Research Infrastructure awards, 108 Student Scholarship/ Fellowships, and 6

Workforce Development Fellowships. Our goals for these programs were 42, 65 and 6 respectively. With the increase of NASA base funding and state matching funds ASGC was able to exceed all goals. Overall, we were able to fund a total of 75 students.

ASGC “Pilot” Programs are doing very well. Henderson State University, the only four-year institution in Arkansas that offers a degree in Aviation, funded one student project. With our second program, we funded 10 A&P mechanics students at Arkansas 2-year program schools, something the State of Arkansas has identified as a growth sector. Two additional 2-year institutions have recently included this program in their curriculum.

ASGC has added several non-funded “partners in aerospace”. We feel these additions are strengthening the aviation and aeronautics programs across the state.

Outcome 2:

Our K-12 programs have gained popularity this year. We awarded 30 Outreach Grants, through which 42 teachers received funding for professional development. 30 Mini-Grants were funded, of which 3 went to support our partnership with the Civil Air Patrol. Total teachers and youth-leaders funded: 72

Outcome 3:

ASGC funded one guest lecturer this year. Former Astronaut Duane Carey was our Keynote speaker at our 18th Annual Symposium. Twenty-nine presentations were made by a combination of faculty and students. There were 25 poster presentations.

Further involvement with the NASA Centers will aid in the placement of students in summer internships. Contact will be pursued through emails, telephone conversations, networking at regional and national Space Grant meetings, and invitations to UAOs to visit Arkansas, in order to explore the possibilities that exist at each center, and to place as many ASGC students in these excellent internship positions as possible.

PROGRAM CONTRIBUTIONS TO PART MEASURES

- **Longitudinal Tracking:** For those students who were significantly supported from FY 09 funds, all 75 of them are still enrolled in the degree program they were pursuing while receiving their Space Grant award. For all students who were significantly supported in the period spanning FY06-FY09, 5 students graduated and are pursuing advanced STEM degrees, 2 students accepted STEM positions in industry, and 1 is working in a STEM position at a non-K-12 academic institution. The remaining students have not yet received the degree they were pursuing while receiving their Space Grant award.
- **Course Development:** University of Arkansas, Fayetteville has added MEEG4503 Into To Flight and Arkansas State University has revised their PHYS3043 – Atmospheric Dynamics class. This has been done due to their involvement to ASGC’s Higher Education Program.
- **Matching Funds:** ASGC received a little over 1:1 matching funds. Total matching funds were \$666,075.

- **Minority-Serving Institutions:** Arkansas has only one HBCU, the University of Arkansas at Pine Bluff. UABP has become more competitive over the past few years in NASA related research, thus involving more under-served minority students.

IMPROVEMENTS MADE IN THE PAST YEAR

The greatest improvement in FY08 is involving more under-represented minority students. Arkansas's minority percentage enrolled in a four-year higher education institution is $\approx 22\%$. Last year ASGC's longitudinal tracking reported 18.5%. In FY08 we are proud to report an increase of 7.4% to 25.9% under-represented minority participation.

ASGC was successful in implementing A Minority Serving Institution (MSI) /STEM scholarship program. Not only has this program increase our underrepresented minority participation, but we have discovered a under marketed group of individuals that meet out regular programs.

ASGC combined some funds with some state matching funds, and was able to send 36 K-12 teaches to professional development workshops in other Space Grant states, including: "LiftOff 2009", "Flood & Flows: Exploring Mars Geology on Earth", NSTA in Portland, OR, "Northrop-Grumann Weightless Flight of Discovery," and the "16th Annual Space Exploration Educators Conference" in Houston, Texas.

PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

Four-Year Higher Education Institutions (Affiliates)

Arkansas State University - Jonesboro†
 Arkansas Tech University - Russellville
 Harding University – Searcy*
 Henderson State University - Arkadelphia
 Hendrix College – Conway*
 Lyon College – Batesville*
 Ouachita Baptist University – Arkadelphia*
 Southern Arkansas University - Magnolia
 University of Arkansas, Fayetteville†
 University of Arkansas at Ft. Smith
 University of Arkansas at Little Rock†
 University of Arkansas for Medical Sciences – Little Rock†
 University of Arkansas at Monticello
 University of Arkansas at Pine Bluff ‡
 University of Central Arkansas - Conway
 University of the Ozarks – Clarksville*

Partners in Aerospace

Arkansas Department of Aeronautics – updates on aeronautics development in Arkansas
 Aerospace Education Center – meeting place and input on aerospace programs
 Arkansas Department of Education – input and K-12 standards
 Arkansas Department of Higher Education – input and higher education standards for the state

Arkansas Science and Technology Authority – cash matching and state Science & Technology standards

BEI Systems & Space Division – industry contact and input

Civil Air Patrol – Arkansas Wing – aerospace education, teacher/flight program cooperation

John Brown University - 4-year institution

Arkansas Aerospace Training Consortium – input and services all 2-year A& P certifications’

Arkansas Economic Development Commission –Input and aid in Arkansas economic aerospace trends.

*Private Institutions

†Research/PhD Granting Institutions

‡HBCU