



North Carolina Space Grant Consortium Strategic Plan, 2010-15

NC Space Grant Overview

The NC Space Grant is a network of universities, community colleges, industrial partners, nonprofit organizations, and government agencies representing diverse aerospace education and research interests in North Carolina. NC Space Grant is funded through an annual base grant from the NASA/National Space grant College and Fellowship Program, annual recurring funding from the NC General Assembly, supplemental competitive grants from NASA and other federal agencies, private contributions, and annual matching funds from Consortium Affiliates.

NC Space Grant Vision

To expand the opportunity to participate in NC Space Grant programs to all citizens of North Carolina.

NC Space Grant Mission

To promote, develop and support aeronautics and space-related science, engineering and technology training and programs in North Carolina.

HIGHER EDUCATION INITIATIVES

FELLOWSHIP AND SCHOLARSHIP

Goal 1: To deliver a competitive Fellowship and Scholarship program that provides research and education opportunities to students in science, technology, engineering, and mathematics (STEM) disciplines at NC Space Grant Affiliate institutions.

Objective 1.1: Engage students in basic and/or applied aerospace-related research projects through Graduate Research Fellowships and Undergraduate Research Scholarships.

Strategy 1.1.1: Engage graduate and undergraduate students in hands-on, aerospace-related research projects with an emphasis on networked collaborations within the consortium, NASA laboratories and other research shared facilities.

Outcome Indicator: 30-35 students supported annually.

Strategy 1.1.2: Facilitate positive mentor relationships between students, faculty and the NASA/aerospace community.

Outcome Indicator: 30-35 mentored relationships established annually. Of these, 10-15 will conduct research on-site at a NASA center in conjunction with a NASA mentor.

Objective 1.2: Promote undergraduate STEM-related research through Undergraduate Scholarships.

Strategy 1.2.1: Assist early undergraduate students in the establishment of relationships between students and peer/faculty mentors. *Outcome Indicator: 10-15 students supported annually.*

Objective 1.3: Offer scholarships to Community College students engaged in associate degree programs who are preparing for advanced STEM degrees or careers in STEM fields, particularly those with aerospace relevance in North Carolina.

Strategy 1.3.1: Establish the Community College STEM Scholarship program. *Outcome Indicator: Receive 25 applications and make 10-15 awards for the 2010-11 academic year. Increase the number of applicants and awards by 10% each year.*

Objective 1.4: Offer scholarships to students enrolled in STEM-related teacher education degree program at the undergraduate and graduate level.

Strategy 1.4.1: Establish the STEM Teacher Education Scholarship program. *Outcome Indicator: Receive 20 applications in the initial year of the program (2011-12 academic year) and make 5-10 awards. Increase the number of applicants and awards by 10% each year.*

Objective 1.5: Ensure a fair, equitable and competitive distribution of fellowship and scholarship funds.

Strategy 1.5.1: Promote the fellowship/scholarship programs statewide through a comprehensive marketing campaign to the member institutions. *Outcome Indicators: Publish announcements through 12 Affiliate institution scholarship offices. Annually announce student opportunities through the NC Space Grant website in October. Continue to use a centralized application system.*

Strategy 1.5.2: Utilize a statewide review committee to select awards. *Outcome Indicator: Each student application will be reviewed by a minimum of three faculty*



Objective 1.6: Leverage funds with other sources to provide additional Fellowship and Scholarship Projects. *Outcome Indicator: Facilitate at least one collaborative fellowship/scholarship project each year with industry and/or research facilities. Metrics will be established individually for each program.*

RESEARCH INFRASTRUCTURE

Goal 2: To strengthen NC's aerospace-related research infrastructure and capabilities.

Objective 2.1: Provide startup funding to early career faculty at Affiliate institutions who are conducting interdisciplinary research that is directly aligned with NASA's Strategic Framework.

Strategy 2.1.1: Faculty will establish and enhance his/her professional career through research. *Outcome Indicator: Annually support 8-10 faculty seed grants. 10-15 students engaged in faculty research projects annually.*

Objective 2.2: Encourage research collaborations between faculty at NC Space Grant Affiliate institutions and NASA Field Centers/aerospace industry/research facilities. *Outcome Indicator: Facilitate at least one collaborative project each year. Collaborative research projects will engage at least 15-20 students annually.*

Objective 2.3: Ensure competitive distribution of research funds.

Strategy 2.3.1: Release an annual statewide call for proposals to all Affiliate institutions. *Outcome Indicator: Provide 1 award per three submitted proposals.*

Strategy 2.3.2: Utilize a peer review system to select awards. *Outcome Indicator: Each proposal will be reviewed by a minimum of three peers and constructive feedback will be provided.*

COURSE DEVELOPMENT

Goal 3: To provide groups of students with opportunities to engage in NASA-mission and STEM-based academic research and coursework.

Objective 3.1: Engage the future STEM workforce in basic and/or applied aerospace-related research projects and facilitate the development of relationships among students, faculty and the NASA community.

Strategy 3.1.1: Link higher education students to hands-on experiences in the scientific and technical disciplines. *Outcome Indicator: 30-35 students participate in design competitions or research collaborations annually (examples include the: Cessna/Raytheon Missile System Student Design-Build-Fly competition; AUVSI International Autonomous Underwater Vehicle Competition; High-altitude ballooning activities)*

Objective 3.2: Develop STEM courses that are aligned with NASA's research direction and corresponding Mission Directorates.

Strategy 3.2.1: Develop sustainable interdisciplinary and/or distance learning courses that are focused on enriching students understanding of complex aerospace issues. *Outcome Indicator: 3-5 course development initiatives will be supported annually. By 2015, four interdisciplinary courses will be sustained; each course will engage 10-15 students.*

Objective 3.3: Ensure competitive distribution of higher education funds.

Strategy 3.3.1: Release an annual statewide call for proposals to all Affiliate institutions. *Outcome Indicator: Provide 1 award per three submitted proposals.*

Strategy 3.3.2: Utilize a peer review system to select awards. *Outcome Indicator: Outcome Indicator: Each proposal will be reviewed by a minimum of three peers and constructive feedback will be provided.*

DIVERSITY

Goal 4: To deliver activities that facilitate the National Space Grant College and Fellowship Program's focus on involving women underrepresented groups and persons with disabilities in all higher education program areas.

Objective 4.1: Actively pursue the participation of women, underrepresented minorities, and persons with disabilities in NC Space Grant higher education program areas of Fellowship and Scholarship, Student Research and Course Development, and Research Infrastructure.

Strategy 4.1.1: Increase the participation of females. *Outcome Indicator: 55% of awards will be made annually to female applicants. The 59% target was derived from the enrollment of students in NC degree-granting institutions as published by the National Center for Education Statistics (U.S. Department of Education, 2008).*

Strategy 4.1.2: Maintain appropriate participation of underrepresented minorities. *Outcome Indicator: At least 28.3% of awards will be made to underrepresented groups. The 28.3% target was derived from the enrollment of students in NC*



degree-granting institutions as published by the National Center for Education Statistics (U.S. Department of Education, 2008).

Strategy 4.1.3: Collaborate with Affiliate institutions to develop alliances with key minority education groups to recruit underrepresented students to participate in NC Space Grant programs. *Outcome Indicators: Develop and maintain 5 ongoing relationships with minority-serving groups.*

Strategy 4.1.4: Collaborate with Affiliate institutions to develop alliances with key organizations that target persons with disabilities for studies and careers in STEM fields. *Outcome Indicators: Establish relationships with the following groups NC School for the Deaf, Governor Morehead School for the Blind, and the Affiliate institutions' disability service offices.*

PRE-COLLEGE EDUCATION INITIATIVES

Goal 5: To equip NC pre-service and in-service educators with tools to inspire the future science, technology, engineering and mathematics (STEM) workforce to pursue education and careers in aerospace-related fields.

Objective 5.1: Develop, promote, or utilize new, innovative, and replicable approaches to improving NASA-focused, STEM learning and instruction through experiences and activities that are grounded in education research or utilize evidence-supported approaches, techniques, and tools.

Strategy 5.1.1: Support K-12 professional development workshops to increase teacher education and training. *Outcome Indicators: Annually provide funding for 2-4 professional development initiatives that collectively serve 35-40 pre/in service teachers.*

Strategy 5.1.2: Collaborate and partner with state, regional and national organizations dedicated to working with teachers to increase STEM discipline training opportunities and resource sharing across the state. *Outcome Indicators: NC Space Grant will strive to undertake at least one collaborative project each year that reaches a minimum of 100 teachers in the state.*

Objective 5.2: Ensure competitive distribution of Pre-College Education funds.

Strategy 5.2.1: Release an annual statewide call for proposals to all member institutions. *Outcome Indicator: Member institutions will have at least one submission for each competition each year.*

Strategy 5.2.2: Utilize a peer review system to select awards. *Outcome Indicator: Awards will reflect the diversity of the consortium's membership.*

INFORMAL EDUCATION

Goal 6: To increase interest in and understanding of NASA-mission and STEM activities by inspiring and engaging individuals of all ages throughout NC.

Objective 6.1: Link and engage providers of informal education using NASA-mission and STEM-related content through professional development projects that enable educators to carry NASA content back to their households, school, after school groups, summer camps, 4-H communities, etc.

Strategy 6.1.1: Support a variety of professional development workshops to increase informal education and training. *Outcome Indicators: Annually provide funding for 2-4 professional development initiatives that collectively serve 35-40 informal educators.*

Strategy 6.1.2: Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission. *Outcome Indicators: NC Space Grant will partner with NC informal learning institutions (science museums, planetariums, 4-H, etc.) to undertake at least one collaborative project each year.*

Strategy 6.1.3: Participate in statewide activities to disseminate NASA-related activities at informal venues and career/science fairs. *Outcome Indicator: Annually participate in the NC Museum of Natural Science's Astronomy Days event; participate in 10 additional activities annually.*

Objective 6.2: Ensure competitive distribution of Informal Education Professional Development and Public Outreach funds.

Strategy 6.2.1: Release an annual statewide call for proposals to all member institutions. *Outcome Indicator: Member institutions will have at least one submission for each competition each year.*

Strategy 6.2.2: Utilize a peer review system to select awards. *Outcome Indicator: Awards will reflect the diversity of the consortium's membership.*



CONSORTIUM MANAGEMENT AND PUBLIC RELATIONS

Goal 7: To expand the geographic diversity and awareness of NC Space Grant.

Objective 7.1: Increase the number of Affiliates and Partners to represent the geographic diversity of the state.

Strategy 7.1.1: Add the NC Community College System (NCCCS) as a Higher Education Affiliate/Member Institution.

Outcome Indicator: NC Community College System assumes member status and actively engages in all NC Space Grant activities. NCCCS representative serves on the Consortium Executive Board.

Strategy 7.1.2: Add two additional universities as Affiliate institutions. *Outcome Indicator: Pending funding increases, two additional universities will be selected for membership through consensus of the Consortium Executive Board.*

Strategy 7.1.3: Add additional Partners from education, industry and government. *Outcome Indicators: Add 4 educational affiliates and 5 industrial affiliates by 2014. All Partners are represented on the Consortium's Advisory Board.*

Objective 7.2: Increase the funding base for NC Space Grant to allow for expanded programming with adequate staffing and program support.

Strategy 7.2.1: Work through the NC General Assembly to obtain an increase in appropriated funds. *Outcome Indicator: NC Space Grant will request that its budget line be increased to reflect the expanded reach of the Consortium's reach in the state.*

Strategy 7.2.2: Pursue supplemental competitive funding opportunities as they arise from NASA and other sources.

Outcome Indicator: Evidence of submitted proposal activity and award of solicited funds.

Objective 7.3: Build upon and intensify NC Space Grant efforts for creating public awareness and visibility of NASA and NC Space Grant activities.

Strategy 7.3.1: Continue to develop the NC Space Grant website (www.ncspacegrant.org) as an informative, user-friendly communication tool. *Outcome Indicator: NC Space Grant website will be maintained in an up-to-date manner.*

Strategy 7.3.2: Continue to use *the Aerospace Capsule*, NC Space Grant's online quarterly newsletter, as a primary communication vehicle. *Outcome Indicator: NC Space Grant newsletter will be released 4 times per year to continually updated database.*

Strategy 7.3.3: Develop effective informational materials on NC Space Grant programs and activities (brochures and displays). *Outcome Indicator: NC Space Grant materials will be annually updated to reflect the current activities of the Consortium.*

Strategy 7.3.4: Engage local, state and nationally elected representatives to NC Space Grant programmatic events and activities located in congressional/senatorial/state assembly districts. *Outcome Indicator: Participation of elected officials or their staff in at least two NC Space Grant-supported events annually.*