

Appendix 1. NC Space Grant Strategic Plan 2015-2018

NC Space Grant Mission

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

Goal 1: NIFS

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

Goal 2: Student Engagement

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

Goal 3: Research Infrastructure

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

Goal 4: Diversity

To deliver activities that facilitate NASA and National Space Grant College and Fellowship Program goal of involving women, underrepresented groups, and persons with disabilities in all NIFS, Student Engagement, Research Infrastructure, Precollege Education and Informal Education programs.

Goal 5: Precollege Education

To equip NC preservice and inservice educators with innovative tools to inspire the future STEM workforce to pursue education and careers in STEM fields relevant to NASA, and to provide opportunities for student-focused programs for students throughout the precollege pipeline.

Goal 6: Informal Education

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

Goal 7: Consortium Management and Public Relations

To serve as an effective steward of Consortium resources and a strong partner for STEM programs by effectively leveraging NASA resources.

Appendix 2. Summarized Table of Consortium Goals and SMART Objectives

(Summary of the 2015-2018 NC Space Grant Strategic Plan)

North Carolina Space Grant Consortium Goals (NCSG)	SMART Objectives	
	Projects & Activities	Indicators and Targets ¹⁵
Goal 1 (NIFS): To deliver a competitive NIFS program that provides research and education opportunities to students in science, technology, engineering, and mathematics (STEM) disciplines at NCSG Affiliate institutions.		
Objective 1.1: Engage students in basic and/or applied aerospace-related research projects through NASA/Industry Internships, Graduate Research Fellowships, and Undergraduate Research Scholarships.	NASA/ Industry Internships; Graduate Research Fellowships; Undergraduate Research Scholarships (Y1, Y2, Y3)	20-30 students supported annually
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 centers, industry and other research shared facilities.	Utilize a statewide review committee to select awards; Each student application will be reviewed by a minimum of three judges (Y1, Y2, Y3)	20-30 students supported annually
Strategy 1.1.2: Facilitate positive mentor relationships between students, faculty and the NASA/aerospace community.	Research must be supervised by faculty mentor (Y1, Y2, Y3)	
Objective 1.2: Promote undergraduate STEM-related research through Undergraduate Scholarships.	Undergraduate Scholarships (Y1, Y2, Y3)	3-8 students supported annually
Strategy 1.2.1: Assist early undergraduate students in the establishment of relationships between students and peer/faculty mentors.	Interviews with Affiliate Campus Directors and faculty (Y1, Y2, Y3)	
Objective 1.3: Offer Community College Scholarships to students enrolled in associate degree programs who are preparing for advanced STEM degrees or careers in STEM fields, particularly those with aerospace relevance in NC.	Community College STEM Scholarships (Y3)	3-8 students supported in Year 3 ¹⁶
Strategy 1.3.1: Assist Community College students in the establishment of relationships between students and peer/faculty mentors.	Interviews with CC faculty and industry employees (Y3)	
Objective 1.4: Offer STEM Teacher Education Scholarships to students enrolled in STEM-related teacher education degree programs at the undergraduate level.	STEM Teacher Education Scholarships (Y1, Y2, Y3)	3-8 students supported annually
Strategy 1.4.1: Assist pre-service teacher education undergraduate students in the establishment of relationships between students and peer/faculty mentors.	STEM curriculum development supervised by Education/STEM faculty (Y1, Y2, Y3)	
Objective 1.5: Leverage funds with other sources to provide additional Internship, Fellowship and Scholarship Projects.	LORD Corporation Internship Program (Y1, Y2, Y3)	10 students supported annually

¹⁵ NCSG Strategic Plan Indicators and Targets were developed assuming an annual base award of \$575,000; all targets contingent upon annual NASA funding.

¹⁶ Community College Scholarship in Year 1 and Year 2 will be supported by the Community College Cooperative Agreement Notice NNH14ZHA003C.

<p>Objective 1.6: Ensure a fair, equitable and competitive distribution of NIFS funding.</p>	<p>Release an annual statewide call for applications to all Affiliate institutions; Utilize a peer review system; Each application reviewed by panel of 3 judges</p>	<p>8 (62.5%) Affiliate campuses receive NIFS funding</p>
<p>Objective 1.7: Longitudinally track 100% of all students receiving significant awards¹⁷ to identify their next step in academia or the workforce.</p>	<p>Enter data into OEPM (Y1, Y2, Y3)</p>	<p>Categorized by # students that transition to: (1) Employment: – NASA – NASA contractors – Industry – K-12 academia – Higher Ed academia – Non-STEM disciplines (2) Advanced Degrees</p>
<p>Goal 2 (Student Engagement): To provide groups of students with opportunities to engage in NASA-mission and STEM-based academic research, competition and coursework.</p>		
<p>Objective 2.1: 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.</p>	<p>Senior Design (Y1, Y2, Y3) Team Competition (Y1, Y2, Y3) Affiliate HE Program (Y1, Y2, Y3) Aircraft Readiness Workshop with Connecticut Space Grant Y1 (CT), Y2 (NC), Y3 (CT)</p>	<p>Senior Design: 5-10 awards annually Team Competition: 5-10 awards annually Affiliate HE Program: 13 awards annually 2-4 course development initiatives supported annually Up to 75 students engaged in HE activities annually</p>
<p>Strategy 2.1.1: Link higher education students to hands-on experiences in the scientific and technical disciplines.</p>		
<p>Objective 2.2: Develop STEM courses that are aligned with NASA's research direction and corresponding Mission Directorates.</p>		
<p>Strategy 2.2.1: Develop sustainable interdisciplinary and/or distance learning courses that are focused on enriching students understanding of complex aerospace issues.</p>		
<p>Objective 2.3: Ensure competitive distribution of higher education funds.</p>	<p>Release an annual statewide call for proposals open to all Affiliates; Utilize a peer review system to select awards; Each proposal reviewed by 3 peers</p>	<p>Senior Design/ Team Competition: 3 Affiliates awarded; Affiliate HE Program: 13 Affiliates awarded</p>

¹⁷ Students that receive significant support from Space Grant (≥\$5,000 monetary award, ≥160 contact hours, or a combination of both) who self-report.

Goal 3 (Research Infrastructure): Strengthen NC's aerospace-related research infrastructure and capabilities.		
Objective 3.1: Provide startup funding to early career faculty at Affiliate institutions who are conducting interdisciplinary research that is directly aligned with NASA's Strategic Framework.	New Investigator Program (Y1, Y2, Y3)	Annually support 2-5 projects; 1-2 students engaged in each funded project (2-5 students)
Strategy 3.1.1: Faculty will establish and enhance his/her professional career through research.		
Objective 3.2: Encourage research collaborations between faculty at NC Space Grant Affiliate institutions and NASA Field Centers/aerospace industry/research facilities.	Affiliate Research Infrastructure Program (Y1, Y2, Y3)	Facilitate at least 1 collaborative project each year; Collaborative projects will engage at least 15-20 students annually
Objective 3.3: Ensure competitive distribution of research funds.	Release an annual statewide call for proposals open to Affiliates; Utilize a peer review system to select awards; Each proposal reviewed by 3 peers	New Investigator Program: 3 Affiliates awarded Affiliate RI Program: 13 Affiliates awarded
Goal 4 (Diversity): Deliver activities that facilitate NASA and National Space Grant College and Fellowship Program goal of involving women, underrepresented groups, and persons with disabilities in all NIFS, Higher Education and Research Infrastructure programs.		
Objective 4.1: Each academic year, provide a percentage of student awards to underrepresented minority and female students that meets or exceeds the diversity target as established by NASA.	Collaborate with Affiliate institutions to develop alliances with key minority groups and underrepresented populations to recruit students to participate in NCSG activities	57.4% ¹⁸ 32.6% ¹⁹
Strategy 4.1.1: Increase the participation of females.		
Strategy 4.1.2: Maintain appropriate participation of underrepresented minorities.		
Goal 5 (Precollege Education): To equip NC preservice/ inservice educators with innovative tools to inspire the future STEM workforce to pursue education and careers in STEM fields relevant to NASA, and to provide opportunities for student-focused programs for students throughout the precollege pipeline.		
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.	K-12 Professional Development Program (Y1, Y2, Y3)	Collectively serve 30-35 pre/in-service teachers Over 1,000 students will be reached annually
Strategy 5.1.1: Support K-12 professional development workshops to increase teacher education and training.		
Strategy 5.1.2: Provide opportunities for students to engage in programs and activities promoting participation in STEM and related careers.		

¹⁸ National Center for Education Statistics (2012), Table 245, "Total fall enrollment in degree-granting institutions, by attendance status, sex, and state or jurisdiction: 2010 and 2011."

¹⁹ National Center for Education Statistics (2012), Table 265, "Fall enrollment in degree-granting institutions, by race/ethnicity of student and state or jurisdiction: 2011."

<p>Objective 5.2: Ensure competitive distribution of Pre-college Education funds.</p>	<p>Release an annual statewide call for proposals open to Affiliates and STEM education organizations across the state; Utilize a peer review system to select awards; Each proposal reviewed by 3 peers</p>	<p>Annually support 2-4 professional development initiatives state-wide</p>
<p>Goal 6 (Informal Education): To increase interest in and understanding of NASA mission and STEM activities by inspiring and engaging individuals of all ages throughout NC.</p>		
<p>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 utilize NASA content.</p>	<p>NC Star Party (Y1, Y2, Y3) Informal Education and Public Outreach Program (Y1, Y2, Y3)</p>	<p>Collectively serve 20-25 formal/informal teachers Engage up to 5,000 participants in informal education activities</p>
<p>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.</p>		
<p>Strategy 6.1.3: Participate in statewide activities to disseminate NASA-related activities at informal venues and career/science fairs.</p>		
<p>Objective 6.2: Ensure competitive distribution of Informal Education Professional Development and Public Outreach funds.</p>	<p>Release an annual statewide call for proposals open to Affiliates and formal/informal educational groups; Utilize a peer review system to select awards; Each proposal reviewed by 3 peers</p>	<p>Annually support 2-4 collaborative informal education projects state-wide</p>
<p>Goal 7 (Consortium Management and Public Relations): To serve as an effective steward of Consortium resources and a strong partner for STEM programs by effectively leveraging NASA resources.</p>		
<p>Objective 7.1: Build and sustain effective strategic partnerships.</p>	<p>Partnership and resource development through engagement with public, private and nonprofit sectors</p>	<p>Add 4 educational and 5 industrial partners by 2018</p>
<p>Strategy 7.1.2: Network and partner with other Space Grant Consortia as appropriate.</p>	<p>Aircraft Readiness Workshop with Connecticut Space Grant</p>	<p>1 (CTSG)</p>

<p>Strategy 7.1.3: Network with NASA Headquarters and NASA Centers for program implementation</p>	<p>To find synergies with NASA Centers and Personnel, share award information for NIFS (students), NIPs (faculty), Senior Design/Team Competition (students), K-12 EPD (educators), and Informal Ed/PR (informal ed, nonprofit sectors); Invite NASA personnel to events (e.g., as expert speakers, judges, etc.)</p>	<p>4 NASA Space Centers (e.g., Langley, Kennedy, Marshall, Johnson)</p>
<p>Objective 7.3: Build upon and intensify NC Space Grant efforts for creating public awareness and visibility of NASA and NC Space Grant activities</p>	<p>Develop and maintain social media public outreach and awareness presence</p>	<p>Establish and maintain 4 social media tools</p>
<p>Strategy 7.3.1: Utilize web and social media tools to communicate NASA and NCSG opportunities and Affiliate activities to a broader audience</p>		