

Florida 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 in 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 **Florida Space Grant** Consortium is a Designated Consortium funded at a level of **\$785,000** for fiscal year 2009

## PROGRAM GOALS

1. Enable students to pursue careers in the space program – whether through graduate, undergraduate, or Community College technical training.
2. Facilitate Space-Related Research Symposia for students, NSA engineers and FSGC awardees
3. Support NASA related interdisciplinary research projects emphasizing work-force development with undergraduate and graduate students.
4. Foster collaboration among NASA engineers, Florida university faculty and industry partners.
5. Provide undergraduate students with opportunities for interdisciplinary hands-on experiences in team-based student launch activities and student pay-load development programs to better understand STEM concepts as they relate to space exploration.
6. Provide opportunities for space-related undergraduate students and faculty at FSGC Affiliate teaching universities.
7. Contribute space-related resources and training to help increase the number of K-12 teachers who use space-related curricula resources to motivate more students to pursue advanced math and science courses.
8. Contribute space-related resources to help increase the number of citizens who are aware of how the application of math and science enable or enhance common activities, NASA's contributions to our standard of living (beyond Velcro®), and NASA's mission.
9. Positively influence public policy to strongly support Florida's continuing leadership interests in aerospace/space research, investment, exploration and commerce.

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

Allowed me to see the real world application of the textbook knowledge I absorb in school as well as opening doors to other internship opportunities. (Elizabeth Gillett - on 12/31/09, 2009 Space Grant Scholarship)

I enjoyed a second opportunity to work for NASA-MSFC through the Space Grant program. I was again reassured that working for NASA, a goal of mine since I was eight, was the thing I wanted to spend the rest of my life doing. It has impacted my education by increasing my desire to perform well and it has also given me a stronger background in applications of the materials learned in class. (Lindsay Greene - on 01/12/10, 2009 NASA Academy/Higher Education)

What I am working on helps me to realize there is more that NASA is doing instead of just sending shuttles into space but is also monitoring the atmosphere. This helps me open up to more fields that deal with aero engineering and makes me want to join this field even more (Bernadette Quijano - on 01/04/10, 2009 Space Grant Research Award, University of North Florida - Research Assistant)

It has helped me gain new experience in my field of study. I learned the technical side of Electrical Engineering and I also lead projects in the Engineering Department. Since then I have been able to apply my knowledge and skills in everything I do. Also thanks to the internship I (Michelle Tous - on 01/10/10, 2009 Space Grant Scholarship, NASA Intern at Crane Environmental - Intern)

It has helped me to pick a career path in control systems, especially satellite control systems. Also being apart of this program will allow me to get to know the future of NASA so I can help bring NASA closer to that goal either with better propulsion systems or better space vehicles. (Vincent Bell - on 01/01/10, 2009 Space Grant Research Award, Embry-Riddle Aeronautical University - Integrated Tutor Supervisor)

My internship provided me with real-life engineering experience. I was able to see how things are designed and built using a hands-on approach. I saw how costs directly impact how new products are designed and built, or if they are even cost-effective enough to built at all. I was able to design and build my own project as well, from the cost analysis all the way to production. As far as the impact on my education, my internship gave me a leg up on some of my classes in that I had learned things on the job that I had yet to learn in class. Overall it was a great experience that gave me real-life engineering experience to go alongside my education. (Paul Clark Jr - on 01/21/09, 2008 Space Grant Scholarship, 2009 Space Grant Scholarship)

I would not be able to fully focus on my degree. I might have stopped at Masters degree if not for FSG. I would have considered going back to school for PhD if it would be an option. I enjoy doing research and I am glad I was given this opportunity. (Nikolai

Kozlovski - on 07/10/09, 2007 Space Grant Fellowship, 2008 Space Grant Fellowship, 2009 Space Grant Fellowship, University of Central Florida - RA/TA)

## PROGRAM ACCOMPLISHMENTS

### Outcome #1 (employ and educate)

- 87 students significantly supported from FY09 funds
  - 39 in Fellowship & Scholarships
  - 48 in Higher Education/Research programs
- 21 students took next step in FY09 (SG participation supported from FY06-FY09 funds)
  - 9 graduated and are pursuing advanced STEM degrees
  - 4 accepted STEM positions with NASA contractors
  - 3 accepted STEM positions with industry
  - 2 accepted positions with NASA
  - 3 moved on to non-STEM fields

### **Fellowships and Scholarships**

Under FSGC's Space and Aeronautics Internship Program, we were able to place 24 student interns at the Kennedy Space Center and various industry connected with the Florida High Tech Corridor. 15 students interned at KSC and 9 students in industry such as 4 Frontiers, Lockheed Martin, Opsrey Biotechnics, PGT industries, Pall Aeropower Co, etc. Also, 6 students were supported by FSGC to the NASA Academy program. We were successful in increasing industry participation in our scholarship program.

- 39 students significantly supported from FY09 fellowship and scholarship
  - 24 Scholarships
  - 9 graduate fellows
  - 6 NASA Academy
- Funded 9 graduate fellows (3 under-represented minority and 1 disabled). – met our fellowship goal
- Funded 24scholars. 2 students were under-represented minorities. This fell way short of our goal. We have talked to KSC to change the way the mentors at KSC recruit the students. FSGC collects the applications and forwards them to KSC and industry. The mentors choose the students. To compensate for the lack of minorities under the scholarship program, we have aggressively worked with our affiliates to recruit more under-represented minorities through the undergraduate student program at smaller institutions (under Higher Education category) and the research program. Please see the numbers in those categories.

### **Higher Education**

Students from are working on senior design projects such as the design of a sub-orbital Hybrid Rocket, balloon payload, cubesat, Moon buggy, and NASA University Student Launch Initiative (USLI). Students from universities and community colleges are

working on student collaborative projects like the nano-satellite design competition, hybrid-rocket design competition and balloon launches. Details of our higher education programs are as follows:

Senior Design and Competitions; FSGC has supported 16 senior design projects involving 85 students at the Florida International University, Embry-Riddle Aeronautical University, University of Central Florida and Miami Dade College. In addition FSGC has supported teams from Embry-Riddle for the NASA/USLI competition and NASA Microgravity flight as well as a team from UCF for the Moonbuggy competition

Hybrid Rocket Competition: 25 students from 4 universities and 2 community colleges took part in this competition. The objective of the competition is to build and launch a hybrid powered rocket. There are two categories of competition to choose from. The first category consists of launching a hybrid rocket to the maximum altitude. The second category challenges the teams to fly their rocket closest to 2000 feet in altitude.

FUNSAT: The FUNSAT (Florida University SATellite) is a pico-satellite with a maximum mass of 1 Kg and the size of 10 x 10 x 10 cm<sup>3</sup>. The main objectives of this competition are promotion of an interdisciplinary project for systems engineering, supporting a test-bed for advanced technologies such as MEMS, and promoting advanced study and career development for Florida students in the field of aerospace. The competition will include the design, fabrication, and a possible launch into space for the winning design. In the conceptual design (first round), competitors will be provided with technical support by FSGC, NASA and space industries. The finalists will be fully supported for their detailed design and building of their FUNSAT, which are all material costs as well as a technical workshop at the Kennedy Space Center. 6 teams from 5 universities initially took part in the competition. 20 students from the 3 finalist teams presented their work at a conference in May. UCF was selected as the winner

Undergraduate Academy: The workshops, sponsored by FSGC, Space Florida, and Northrop Grumman, provide the building blocks necessary to advance education goals, as well as assist students entering the space / science workplace. Students are engaged in stimulating science and math activities as well as offer exciting opportunities to meet key employers and scientists from the Kennedy Space Center and Cape Canaveral Air Force Station (CCAFS) workforce. A challenging, workshop itinerary provides the students with real-world science and engineering projects. Under the supervision of Dr. Larry Chew (FSGC) and Mr. Bob Eppig (FSGC) they develop problem solving skills – a necessary function for cutting-edge technology and development. 48 students from 5 universities and 1 community college took part in the 5-day workshops

Student support at non-research institutions: In response to non-participation of students from universities away from the Kennedy Space Center in our KSC internship program, FSGC started a program to support students at these non-research institutions. We also were able to recruit minorities under this program. In 2009, we supported 10 students from 6 universities, including 3 minority serving institutions. **6 of the students were under-represented minorities.**

## Research Infrastructure

- Florida Space Research Program: In 2009, FSGC and Space Florida funded 22 space research and education grants under the Florida Space Research Program (FSRP) totaling of \$453,191 in funding to selected recipients. The FSRP combines both Federal and State funds for projects that diversify Florida's space industry and research efforts, while also supporting aerospace workforce development statewide. The program is comprised of three categories – The Space Education & Training Program, Space Exploration & Spaceport Technical Development, and Space-Based Research and Payload Development. The State of Florida and Space Florida have been significant contributors to the Florida Space Research Program for five years. Space Florida contributed \$62,500 to the 2009 program. The FSRP 2009 awardees include eight Florida universities: the University of North Florida, Florida State University, University of Florida, University of Central Florida, Florida Institute of Technology, Embry Riddle Aeronautical University, Florida Gulf Coast University, Florida International University, and two additional Florida educational entities – The Astronaut Memorial Foundation's Teacher Connect program and the Jacksonville based 'Tekna-Theos' group. A total of 50 proposals were received. Each submission was independently evaluated by a team of experienced professionals from Kennedy Space Center, other NASA centers and Grant Consortia located throughout the U.S. A joint press release on the research program was picked up by a number of media outlets across the State. In 2009 73 students were directly funded through 22 research grants. **20 students were under-represented minorities.**
- ASTREC: FSGC is an industry advisory board member for Advanced Space Technologies Research & Engineering Center (ASREC). ASTREC is an Industry/University Cooperative Research Center (I/UCRC) sponsored by the National Science Foundation program to develop a long-term partnership between academia, industry, and government. ASTREC is a university consortium comprised of the lead university, University of Florida (FSGC Affiliate) and the site university, North Carolina State University (NC Space Grant affiliate). The mission of the ASTREC is to advance, develop and promote research into the principles and technology of responsive, cost efficient satellite systems through research, development, education, and technology exchange among academic, industry, and government entities. Along with FSGC the other members of the ASTREC Industry Board are Space Florida, Harris Corporation, Lockheed Martin, CISCO, NASA-LaRC, Institute for Human and Machine Cognition (IHMC), National Reconnaissance Office, Air Force Research Laboratory, Space and Missile Defense Command, and the Advanced Vehicle Research Center.

## Outcome 2 (Educate and Engage)

### **Pre-college programs**

**CPET – Teacher Training Programs:** Under this program, the FSGC teamed up with its affiliate the University of Florida (UF) to conduct workshops for teachers from limited-resource schools in five counties in the State of Florida ie. Alachua, Broward, Collier, Marion and Palm Beach Counties. The teacher workshops was conducted by UF's Center for Pre-collegiate Education and Training (CPET) and was funded in part by a grant received by CPET from the Howard Hughes Medical Institute (HHMI) through the latter's Interdisciplinary Center for Ongoing Research/Education (ICORE) Partnership. FSGC provided the stipend for 25 teachers from a grant from the GE Foundation, without which most of them could not have come for the workshop. The theme for the 2009 program was *Emerging Pathogens*, an area of cutting-edge and active research with 'real world' implications for Florida residents. Teachers performed hands-on research with scientists involved in the identification, understanding, and management of emerging pathogens; received information and material on current issues; incorporated these ideas into classroom-ready modules; and presented the results of their experiences to colleagues at professional meetings.

**Digital Solutions for the Classroom:** Under this program FSGC will teamed up with its affiliate the Astronauts Memorial Foundation to conduct 4 technology education workshops for Florida's K-12 teachers. This program was in partnership with two Florida School Districts, Tampa's Lowry Park Zoo, and the Jacksonville Zoo and Gardens. This program consisted of four two-day technology training workshops with an emphasis on digital technologies training for at 16 participants per event for a total of 64 educators. All four classes were taught at a different location to a different group of educators. One workshop was held at the Tampa Lowry Park Zoo, one workshop at the Jacksonville Zoo and Gardens, and two workshops at two different Florida resource poor School districts which have a high percentage of students receiving free and reduced lunches. FSGC, through the GE Foundation, covered the tuition cost for 64 Florida Educators to take the DSC course with no cost to participants' schools or the Florida School Districts whatsoever.

**Train the Trainer Teacher Training Program:** In collaboration with the GE Foundation and local School Districts, FSGC conducted seven 3-day workshops in 6 Florida counties involving 165 teachers (65 elementary, 75 middle, and 25 high school). The strategy was to set up a model to show teachers how to teach science through investigation instead of being told step by step. Examples of activities were investigation of activity, phases of the moon etc. The teachers were given a kit that they could use with the activities.

## Outcome 3 (Engage and Inspire)

- Orlando Science Center – A number of OSC Science Festivals, where each school were given a KABOOM! Auditorium Show; Three(3) Digital Planet presentations in school's Media Center; Five (5) In-classroom workshops led by our trained OSC Educators; and their choice of an OSC Family Fun Night

(Physical Science, Natural Science, Lower or Upper Level Math, Human or Animal Gross Out and Astronomy).

- **Starry Nights:** The FSGC in partnership with the University of Florida Astronomy Department, Museum of Natural History in Gainesville, the Alachua Astronomy Club, and the Gran Telescopio Canarias at the Canary Island in Spain held an Astronomy event called Starry Nights in celebration of the International Year of Astronomy on September 25, 2009. This night of inter-planetary adventure gave visitors a chance to speak with expert astronomers, learn about the tools they use and see rocks from space. Attendees build their own telescope (galileoscopes), talked to an astronomer, met an astronaut, won door prizes and other free gifts. There were 3000 attendees for the event
- **Yuri's Night:** Yuri's Night is an international celebration held on April 12 every year to commemorate the **first human in space**, Yuri Gagarin on April 12, 1961, and the **first Space Shuttle launch** on April 12, 1981. This year, FSGC along with Kennedy Space Center Visitor Complex, Jet Blue, Space X and the Astronaut Scholarship Foundation sponsored this event at the Astronaut Hall of Fame on April 10, 2010. There were 350 participants registered for this event. The attendees experience exhibits dedicated to our nation's astronauts, including the world's largest collection of personal memorabilia and realistic **astronaut training simulators**, including a chance to land the space shuttle and a spin on the Multi-Axis Trainer. FSGC Director, Dr. Jaydeep Mukherjee made 2 presentations using the Science on a Sphere display

## PROGRAM CONTRIBUTIONS TO PART MEASURES

- **Longitudinal Tracking:**  
Total awards = 126; Fellowships/Scholarship=39, Higher Education/Research Infrastructure=87; 31 of the total awards represents underrepresented minority funding.

87 students significantly supported from FY09 funds

- 39 in Fellowship & Scholarships
- 48 in Higher Education/Research programs

During the FY09 program year 9 graduated and are pursuing advanced STEM degrees, 4 accepted STEM positions with NASA contractors, 3 accepted STEM positions with industry, 2 accepted positions with NASA, and 3 moved on to non-STEM fields.

For all students that were significantly supported in the period spanning FY06-FY09, 16 graduated and are pursuing advanced STEM degrees, 5 accepted STEM positions with NASA contractors, 7 accepted STEM positions with industry, 2 accepted

positions with NASA, 1 accepted a STEM position in academia, and 3 moved on to non-STEM fields. The remaining students have not yet received the degree that they were pursuing while they received their Space Grant award.

Percentage of students whom have taken their next step and have been successfully tracked through their next step vs last year of SG support.

- 100% for 2006
- 100% for 2007
- 100% for 2008
- 100% for 2009

- Course Development: N/A
  
- Matching Funds: (Total: \$800.5K): Required Matching is \$585K. Matching Ratio is 1.39
  - Lead Institution: \$150K
  - Affiliates: \$159K
  - State Government: \$59.5K
  - Industry: \$372K
  - Other: \$60K
  
- Minority-Serving Institutions:

We have worked closely with 2 institutions in Dade County, Florida International University and Miami Dade College. We have supported 12 senior design teams involving 44 students at the Miami Dade College. The students were very excited to be a part of a NASA sponsored project since this was their first contact with NASA. We also supported 2 senior design teams involving 10 students at FIU and also supported a number of students at FIU. In December, we invited 16 students from the University of Miami and Florida International University to participate in a 5 day workshop at the Kennedy Space Center Visitor Complex. These students got a chance to meet with KSC engineers and scientists, toured KSC labs and launched a payload in a weather balloon. Again, students from South Florida do get a lot of exposure of NASA and hence the decision to have a special project for these students. In addition, we have supported a couple of students in FAMU on research projects. We were able to support just one student from Bethune Cookman University. This university does not have any engineering departments and we can only draw students from the Computer Science Dept. FSGC is collaborating with a couple of faculty from the Computer Science dept. at Bethune Cookman University on education proposals

## IMPROVEMENTS MADE IN THE PAST YEAR

We have heavily emphasized student participation in our research program. As a result, in 2009 73 students were directly funded through 22 research grants. 20 students were under-represented minorities. Since we were having difficulties in recruiting students

from the smaller institutions for internships at KSC, we started a program to support students at these institutions which are not research oriented and also located far from the Kennedy Space Center. We also were able to recruit minorities under this program. In 2009, we supported 10 students from 6 universities, including 3 minority serving institutions. 6 of the students were under-represented minorities

## PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

**Bethune-Cookman University** (4-year college awarding exclusively baccalaureate degrees): Bethune-Cookman University is a historically Black, United Methodist Church-related college offering baccalaureate degrees.

**Embry-Riddle Aeronautical University** (University awarding baccalaureate and master's degrees): Embry-Riddle Aeronautical University, a private university, teaches the science, practice, and business of the world of aviation and aerospace.

**Eckerd College** (4-year college awarding exclusively baccalaureate degrees): Eckerd College is a private, coeducational college of liberal arts and sciences. Eckerd College is one of only 40 schools listed in Loren Pope's *Colleges That Change Lives*. In 2003, Eckerd was named one of 13 Institutions of Excellence in the First College Year by the Policy Center on the First Year of College. Eckerd College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award the Bachelor of Arts and Bachelor of Science degrees.

**Florida Atlantic University** (University awarding degrees up through the Ph.D): Florida Atlantic University is the first public university in southeast Florida and the first in America designed for upper division students only. FAU is earning a reputation as a top research institution in areas ranging from biomedicine and biotechnology to ocean engineering and coastline security.

**Brevard Community College** (Community/Junior College awarding associate degrees): Situated on Florida's Space Coast, BCC has four integrated campuses – in Cocoa, Melbourne, Palm Bay and Titusville – an aerospace program at the Kennedy Space Center and a Virtual campus. An accredited institution, BCC is recognized as one of America's leading community colleges for quality in instruction, organization, and its innovative and leading-edge programs. It was one of the first community colleges in the country to offer the AA degree online.

**Florida Gulf Coast University** (4-year college awarding baccalaureate and graduate degrees): FGCU, a member of the State University System of Florida, is a comprehensive university created to address the educational needs of the rapidly growing Southwest Florida population. Florida Gulf Coast University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award associate, baccalaureate, master's, and doctoral degrees. In addition, the university is actively

seeking accreditation for the undergraduate engineering programs in the U.A. Whitaker School of Engineering, its Bachelor of Science in Social Work, its Bachelor of Science in Resort and Hospitality Management, and its Bachelor of Science in Clinical Laboratory Science.

**Florida Institute of Technology** (University awarding degrees up through the Ph.D): Florida Institute of Technology is an independent technological university that provides quality education, furthers knowledge through basic and applied research, and serves the diverse needs of our local, state, national and international constituencies. FIT is the only independent, technological university in the Southeast, A Barron's Guide "Best Buy" in College Education, listed among America's best colleges in U.S. News & World Report and named one of the nation's top 13 technological institutions in the Fiske Guide to Colleges.

**Florida International University** (University awarding baccalaureate and master's degrees, Hispanic Serving Institute): Florida International University is Miami-Dade County's first public, four-year university. FIU is ranked first in the nation among four-year colleges for awarding bachelor's and master's degrees to Hispanic students in the 2008 survey conducted by the Hispanic Outlook in Higher Education Magazine. FIU is the youngest university to have been awarded a chapter of Phi Beta Kappa, the nation's oldest and most distinguished academic honor society.

**Florida State University** (University awarding degrees up through the Ph.D): Florida State University's 16 colleges offer more than 300 undergraduate, graduate, doctoral, professional and specialist degree programs, including medicine and law, covering a vast array of disciplines critical to society today. FSU is a comprehensive, residential and coeducational institution of over 33,000 students located in Tallahassee, Florida.

**Florida A&M University** (University awarding degrees up through the Ph.D.; Historically Black College or University). Florida A&M University offers 108 undergraduate degrees in 64 undergraduate programs and 60 graduate degrees in 32 graduate programs (includes 1 professional and 7 doctoral degrees) within its 12 Schools and Colleges. The doctor of philosophy is offered in the College of Pharmacy and Pharmaceutical Sciences, College of Education and FAMU/FSU College of Engineering.

**University of Central Florida – Lead University:** (University awarding degrees up through the Ph.D). UCF has 12 colleges, including the newly established College of Medicine, and College of Graduate Studies. More than 50,000 students attend classes on UCF's main campus and its 11 regional campuses located throughout Central Florida. UCF offers 223 degree programs, it has become an academic and research leader in numerous fields, such as optics, modeling and simulation, engineering and computer science, business administration, education, science, hospitality management and digital media

**University of Florida:** (University awarding degrees up through the Ph.D): The University of Florida is a major, public, comprehensive, land-grant, research university. The state's oldest, largest and most comprehensive university, Florida is among the nation's most academically diverse public universities. With more than 51,000 students, Florida is now

one of the five largest universities in the nation. It is one of only 17 public, land-grant universities that belongs to the Association of American Universities.

**University of Miami** (University awarding degrees up through the Ph.D): The University of Miami is the largest, most comprehensive private research university in the southeastern United States with a well-earned reputation for academic excellence. Nearly 15,000 undergraduate and graduate students from every state and more than 140 nations around the world call UM home during the academic semester. With more than 9,400 full- and part-time faculty and staff, UM is the second largest private employer in Miami-Dade County. The University's 12 colleges and schools, along with the Division of Continuing and International Education, offer 114 bachelor's, 104 master's, 57 doctoral and four professional areas of study.

**University of North Florida:** (University awarding baccalaureate and master's degrees): The University of North Florida is a comprehensive public urban university whose mission is to educate students through a broad array of undergraduate and select graduate programs. UNF cultivates a learning environment that supports intellectual curiosity, academic achievement, and personal growth. This goal is supported by a strong academic curriculum comprised of 56 undergraduate, 27 masters, and 3 doctoral degree programs in the liberal arts and professional fields.

**University of South Florida:** (University awarding degrees up through the Ph.D): The University of South Florida is the second largest university in the southeast and among the top 20 largest in the nation. It is one of the nation's top 63 public research universities and one of 39 community engaged public universities as designated by the Carnegie Foundation for the Advancement of Teaching. The University offers 219 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine.

**University of West Florida:** (University awarding baccalaureate and master's degrees): UWF is a member of the State University System of Florida. The university offers undergraduate degrees in 50 different areas with 107 specializations, master's degrees in 24 different areas with 56 specializations, two specialist degrees and a doctorate in education with seven specializations. Long celebrated for its caring, nurturing approach to helping

**Astronauts Memorial Foundation** (Private 501(c)(3) not-for-profit organization): The Astronauts Memorial Foundation honors and memorializes those astronauts who have sacrificed their lives for the nation and the space program by sponsoring the national Space Mirror Memorial, and by implementing innovative educational technology programs. AMF is a private, not-for-profit organization approved by NASA to build and maintain two major facilities at the John F. Kennedy Space Center's Visitor Complex.

**Kennedy Space Center** (Federal Center): KSC is the NASA center of excellence for launch and payload processing systems as well as the lead center for acquisition and management of expendable launch vehicle services and payload carriers. Located at the Cape Canaveral Spaceport in Florida, KSC handles the checkout, launch and landing of the Space Shuttle and its payloads.

**Orlando Science Center** (Science Museum): Orlando Science Center offers hands-on fun for all ages through engaging interactive exhibits, live programming, giant-screen films, school field trips and school-break camps.

**Space Florida** (State/Local Government): Space Florida is the public-private partnership responsible for promoting and developing Florida's aerospace industry. Space Florida was created by the Florida Legislature to sustain Florida's position as the global space leader. As declared in its mission statement, Space Florida drives State economic development across the global aerospace enterprise.