

CONSORTIUM: New Mexico Space Grant Consortium (NMSGC)
LEAD INSTITUTION: New Mexico State University
DIRECTOR: Dr. Patricia Hynes
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AFFILIATE MEMBERS:

- Academic: University of New Mexico, New Mexico Institute of Mining and Technology, Western New Mexico University, Dona Ana Community College, San Juan College, Southwestern Indian Polytechnic Institute
- Industry: Arianespace Inc., General Dynamics, Technology Venture Corporation, Franklin Covey, Digital Solutions, Jacobs Technology, Calculex, Las Cruces Bulletin, Las Cruces Sun News, Helping Hands Event Planning, Space News, Innovarium Ventures, Media Business Corporation, The Space Show
- Federal: White Sands Test Facility, White Sands Complex, AFRL Air Vehicles, NASA-Ames Research Center,
- State: New Mexico Spaceport Authority, New Mexico Farm & Ranch Heritage Museum
- Organizations: American Institute of Aeronautics & Astronautics, Space Development Foundation, X PRIZE Foundation, Association of Space Explorers, NM Mathematics Engineering Science Achievement, National Public Observatory

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 New Mexico Space Grant Consortium is a Designated Consortium funded at a level of \$590,000 from NASA with additional matching funds of \$140,000 for fiscal year 2007.

PROGRAM RELEVANCE TO NASA: Space Grant consortia build human capital and research expertise to support NASA programs and missions, expand NASA's expertise and educational networks, and bring knowledge and awareness of space to a broad range of constituents in every state. We continue to stay aware of how NASA progresses in each of its strategic areas. At the state level, we must be in touch with NASA programs in order to stay relevant to NASA at the state level. In New Mexico we are working to enable the growth of Space Commercialization, our students work with White Sands Missile Range and we hope to get them involved in the Crew Exploration Vehicle program, our students and faculty work with the multiple observatories here in New Mexico, our student and faculty work with NASA White Sands Test Facility consistently. We understand we must add value to relationships and programs we develop and collaborate with. New Mexico Space Grant:

- Builds human capital and research expertise to support NASA programs and missions through our Scholarship/Fellowship/Internship Programs, Reduced Gravity Flight Opportunities Program, Research Enhancement Program, ESMD Program, Gaining Retention and Achievement Student Program (GRASP), Statewide Spaceport America Student Launch Program, International Symposium for Personal and Commercial Spaceflight (SPCS) student intern program and the National Space Grant RockOn Program.
- Expands NASA's expertise and educational networks through our consortium affiliates. We are partners with the SEMMA Laboratory, the BEST and FIRST programs at the K-12 level. We collaborate with the field centers and industry to enable students to work at NASA facilities and with NASA contractors across the country. We are also continuously involved in promoting student teams to develop projects for the Student Microgravity Program.
- Fosters knowledge and collaborations across a broad range of constituents from New Mexico and across the globe through our public outreach programs including the IPSCS and the Leonard R. Sugerman Public Forum.

PROGRAM BENEFITS TO THE STATE: The State of New Mexico has a long, successful history in space-based research and education. NMSGC works to assure our citizens and workforce a way to benefit from space activities growing in the commercial sector in NM through our sponsorship of research, internships, capstone classes, new course development, recruitment and retention efforts related to STEM. The potential for economic benefits to accrue to New Mexico will depend in part on whether of our teachers, faculty, and students are given opportunities to learn to compete in the emerging space related industry coming to New Mexico. We are creating opportunities for students and faculty to become involved in the emerging space transportation business as we develop Spaceport America. Students are coming to New Mexico to work and to study because of Spaceport America. The goal of the statewide Spaceport America Student Launch Project is to eventually provide access to space to every school district and all research universities in the state. Research universities and community colleges will participate in the Space Grant RockOn Program and capstone projects. NMSGC created the International Symposium for Personal and Commercial Spaceflight which is rapidly becoming the premier human commercial space conference across the globe while growing opportunities for students in the process.

PROGRAM GOALS:

- Develop strong collaborative programs that clearly benefit NMSGC members and clients by leveraging the collective resources of the members.
- Create revenue opportunities by providing professional and educational services to the aerospace industry.
- NMSGC will be a clearing house for statewide space related expertise, information, facilities, and education.
- NMSGC will work with commercial and government organizations to leverage time, capabilities, equipment, and funding.
- NMSGC is part of an existing, larger, broader space related community that can effectively service the interests of academia, industry, education, and the public.
- NMSGC members will bring in diversified funding to support space related activities that meet identified needs.

PROGRAM ACCOMPLISHMENTS:

- Research Enhancement Program- 7 undergraduate students, 2 masters, and 1 Ph.D.
- Statewide Research Scholarship/Fellowship Program- 23 graduate awards and 10 undergraduate awards
- NASA Academies and Summer Internships- 6 undergraduate awards
- International Symposium for Personal Spaceflight Student Internship Program-1 undergraduate award
- Community College Scholarship Program- 32 community college awards
- Reduced Gravity Student Flight Opportunity Program- 5 undergraduate student participants
- NMSGC Student Research Colloquium- 10 student participants
- Space Grant RockOn Program- 5 student participants
- Education Enhancement Program- 6 undergraduate and 1 graduate student participants
- Aerospace Degree Programs at NMSU and NMIMT - 34 students enrolled
- GRASP (Gaining Retention and Achievement for Students Program) - 38 faculty and 761 students participants
- Southern New Mexico Academies for Young Scientists: Stone Age-to-Space Age - 366 fifth, sixth, and seventh graders participated
- BEST (Boosting Engineering, Science, and Technology) - Sixteen middle and high school teams competed
- X PRIZE CUP Education Day - 6,000 students and 210 teachers participated
- International Symposium on Personal Spaceflight - 355 participants, 50 students
- Leonard R Sugerman Public Forum- 70 participants

STUDENT ACCOMPLISHMENTS:

- Fellowship/Scholarship Program
 - 23 significant awards- all are still enrolled
 - 14 males & 9 females
 - 6 master students & 17 Ph.D. students
- Higher Education/Research Infrastructure
 - 5 significant awards- 4 still enrolled, 1 employed by NASA/JPL
 - 4 males & 1 female
 - 3 undergraduate students, 1 master student, 1 Ph.D. student
- Student anecdotes
 - Kyle Chavez, Mechanical Engineering student at New Mexico Institute of Mining and Technology and NMSGC intern at Marshall Space Flight Center said this; “I worked with a small team on In Situ Resource Utilization (ISRU), In Situ Fabrication and Repair (ISFR) and the Dust Management Project (DMP). Because of this positive experience I will be seeking future internship and career opportunities at NASA.”
 - Rebecca Armstrong, Physics and Aerospace Engineering student at New Mexico State University and summer intern at New Mexico Spaceport Authority said, “My internship this past summer has helped me in so many ways. I was tasked with compiling a policies and procedures manual for the New Mexico Spaceport. The internship also helped me to decide to change my major from Physics to Aerospace Engineering and Physics. Space is the greatest frontier and I can only pray that I will be at the forefront of it all.”

- Sharon Meidt, Physics student at the University of New Mexico said, “I submitted my first paper to the Astrophysics Journal, gave my first invited talk, and presented my research at the 211th American Astronomical Society meeting. None of this would have been possible without the NMSGC scholarship which has not only enabled me to pursue a research project that has yielded significant results but the prestige associated with the scholarship lends distinction to my endeavors. I feel certain that, working with Space Grant has brought me closer to establishing a successful career in astrophysics.”