



NASA New Jersey Space Grant Consortium 2019 Annual Meeting



National Space Grant Program

- **Created by Congress in 1988**
- **Funding by congressional appropriation**
- **52 Consortia (50 states + DC, PR, [Guam](#), [VI](#))**
- **Each state uses its funding to promote programs in STEM and aerospace**
- **Primary emphasis on higher education, research and fellowships**
- **Strong emphasis on diversity**
- **Over 25% of NASA's education budget**
- **The most successful education program in NASA in terms of students supported and STEM pipeline**



The Space Grant Network

- **Office of STEM Engagement at NASA HQ (AA: Mike Kincaid)**
- **Space Grant Office at NASA OSTEM (Manager: Joeletta Patrick, Deputy manager: Erica Alston)**
- **Consortia for Each State + DC, PR, VI, Guam**
- **National Space Grant Alliance**
 - **Advocacy organization formed by Space Grant consortia (all consortia pay annual dues)**
- **National Space Grant Foundation**
 - **Organization formed by Space Grant consortia to solicit donations, help organize conferences, and support states (NJ does not use it too much)**



Goals of New Jersey Space Grant



- **To establish a network of universities with interests and capabilities in aeronautics, space science and related STEM fields**
- **To develop interdisciplinary programs to further space science, aerospace and STEM education**
- **To foster research and development in New Jersey**
- **To promote a strong STEM education base from elementary through university levels**
- **To recruit and train U.S. citizens, especially women and underrepresented minorities, and persons with disabilities**



NJSGC Affiliates

- Astronomy Education Center at Raritan Valley Community Coll.
- Bloomfield College
- Brookdale Community College
- Essex County College
- Georgian Court University
- Liberty Science Center
- Medgar Evers Coll. (NYC) ??
- Middlesex County College
- New Jersey City Univ.
- Montclair State Univ ?
- New Jersey Institute of Technology
- Princeton University
- Ramapo College
- Rowan University
- Rutgers Camden
- Rutgers New Brunswick
- Rutgers Newark
- Seton Hall University
- Stockton University
- Stevens Institute of Technology
- The College of New Jersey
- Union County College
- William Paterson University
- All other institutions we deal with



Non-Affiliate Organizations

- **We work (sometimes) closely with the following institutions**
- **FAA**
- **NASA GISS (Goddard Institute of Space Studies) at New York City**
- **Princeton Plasma Physics Laboratory (not very active anymore)**
- **Open to working with more such institutions/labs**



NJSGC Administration

- **Haim Baruh, Director**
 - Office at Rutgers, spends 20% of time [often more] on NJSGC
- **Joseph S. Miles, Program Coordinator**
 - Spends half his time with NJSGC, other half as faculty member at Stevens. Office located at Stevens
- **Sherry Lam, Program Assistant**
 - Started April 8, 2019. Gradually taking over Aiesha's duties and also Qiming's, as Qiming gets ready to graduate
- **Leora Wenger, Webmaster (works from home)**
- **Also, student help, currently Qiming Guan (TA at RU)**



New Jersey Space Grant Consortium Programs

- **Programs in five main areas (as classified by NASA)**
 - **Primary Programs**
 - Research Infrastructure
 - Higher Education
 - Fellowships and NASA Internships
 - **Secondary Programs**
 - Pre-College
 - Informal Education
- **NASA requires all Space Grant programs to have 100% match, except fellowship programs**
- **U.S. citizenship (required by NASA) for all monetary award recipients**



New Jersey Space Grant Consortium **Research** Programs

- **Clustered research programs at universities (Rowan, TCNJ, NJIT-Ramapo, Rutgers, Seton Hall, Stevens)**
- **RiSE program: summer research for minority students (run by Graduate School at Rutgers)**
- **Community college research program (subcontracts with Middlesex CC, Brookdale CC, and Essex CC, open to more suggestions)**
- **Student travel to conferences**
- **Brought back minority graduate student bridge program**



New Jersey Space Grant Consortium Higher Education Programs

Name	Awar ds	Description
Course Development	1-2	\$4,000 per new course for salaries and supplies
Student Projects	10-12	Support of design projects and student clubs, such as AIAA student groups
College Bridge Programs	4	Attracting K-12 students to STEM. Programs at Rutgers, Liberty Sci Ctr, GCU, Stockton
Summer Development	1-2	Currently at Rutgers, primarily with EOF offices
NASA GISS	3	New mentoring initiative, smaller program
Rocketry and Ballooning	2-4	RockSat at Stevens (sounding rocket), MemSat at Rowan (new program), Space Club at Rutgers , Rocketry at Princeton
Co-op or Internships in Industry	1-2	\$6,000-8,000 per student doing the internship. None in 2018, 1 in summer 2019



New Jersey Space Grant Consortium **NASA Internship and Fellowship Programs**

Type	Stipend	No.	Details
Undergraduate Summer	\$4,500	14	9 weeks of research at a NJ university or research center. Statewide competition
Academic Year	\$2,000	30	Year long research in student's academic institution. Students selected by NJSGC campus representative
Graduate	\$5,000	3	Student must be a graduate student (new or entering grad school). This fellowship requires match
NASA Internships	\$6,000	2-3	NASA requires us to support interns at NASA centers. We are only supporting undergraduate students, as graduate stipends are high
Other NASA Opportunities	from NASA		NASA-funded internships and fellowships managed by a single web site: (intern.nasa.gov)

Amount allocated for fellowships is determined by NASA (25% of budget)



Other New Jersey Space Grant Consortium Programs (secondary)

- **Pre-College**

- K-12 math and science teacher training (in service, as well as pre-service teachers)
- Supporting programs at Raritan Valley CC, Rutgers, new aviation program in 2018 at Hunterdon County Airport

- **Informal Education**

- For the general public
- Primarily planetarium support
- We have supported Liberty Science Center, Raritan Valley CC, and Rowan

- **50th Anniversary of Moon Landing**

- Programs at LSC, Princeton, Rowan, and Rutgers
- Funding still available for opportunities



Diversity and Reporting Mandates

- **NJSGC is mandated to spend its student support in a proportion that reflects the diversity of New Jersey higher education students**
- **New statistics for New Jersey of 37% (was 28% before)**
- **We need to track of all students who receive major awards (>\$2,000 or >160 hours)**
 - **NASA wants not only gender and racial diversity, they also want geographic diversity, as well as programs for the disabled (we currently have no programs for the disabled)**
 - **We keep statistics on congressional districts of students to inform elected representatives**



NJSGC Diversity Statistics (for students who receive stipends)

Year	Minority	Target	Female	Target
FY2010	24.4%	29	35.6	45
FY2011	23.8	29	42.5	45
FY2012	32.3	29	45.2	45
FY2013	31.6	29	44.3	45
FY2014	33.3	29	48.9	45
FY2015	27.6	29	44.7	45
FY2016	28.4	29	41.3	45
FY2017	28.6	29	47.6	45
FY2018		37		45



Match Requirements

- **Every NJSGC program (except fellowships) requires match - at least one-to-one**
- **Match certification and reporting requirements by Rutgers**
 - **Rutgers stricter than other universities**
 - **Match requirement is treated like cost share**
 - **Cost share can be actual dollars or in-kind**
 - **Match description must be realistic**



NJSGC Match Procedures

Activity	Match Description	\$\$	In-kind
Programmatic elements	Each program individually matched	Yes	Yes
Invoices (<\$5,000)	Submit NJSGC match form or indicate match on invoice	Yes	Yes
Subawards (>\$5,000)	All invoices must show cost share, with final invoice giving total cost share	Yes	Depends
Student stipends	Each program individually matched	Yes	No
Administrative expenses	Affiliate representative participation letter	No	Yes
Overhead (indirect cost)	Reduction of overhead rate: From 53% to 26.5% by Rutgers	Yes	No

All NJSGC programs except fellowships must have match



Items that Count as Match (Cost Share)

- Expenses incurred by (or shared by) your institution or other organization
- Waived indirect costs
- Faculty release time
- Faculty volunteer or travel time
- If NJSGC funding is a fraction of your program budget, your entire budget can count as match



Match Certification

- **We will send you faculty match certification forms (for all five years of 2015-2019 grant) soon**
- **NJSGC is strict in requesting match and in getting match certification letters**
 - **We require a description of match BEFORE and AFTER the award is completed**
- **At least 100% programmatic match, also match from supervisory activities of faculty involved**
- **Sub-awards can list indirect cost waiver as additional match**
- **Invoices from a subaward must include cost share amount**
 - **Final invoice must include total cost share**



NASA News

- **NASA administrator confirmed last year**
 - Jim Bridenstine, was Congressman from Oklahoma, he was interested in Space Grant
 - Has been getting good reviews from Congress and rank-and-file
- **Office of Education is now called Office of STEM Engagement (OSTEM)**
 - New AA, Mike Kincaid, doing very well
 - Space Grant Budget is increasing
- **Manager of Space Grant Program: Joeletta Patrick**
 - Deputy Manager: Dr. Erica Alston
 - Both doing very well, very responsive to our needs



Changes in Space Grant Office

- **Ms. Patrick also directs the Minority University Research and Education (MUREP) program at NASA OE**
- **NASA OE has four major programs: Space Grant, EPSCoR (NJ does not qualify), MUREP, plus SEAP (STEM Engagement and Accountability Project)**
- **Ms. Patrick is interested in increasing collaboration among different programs in OE**
- **For example, to get Space Grant more involved with MUREP and getting MSIs (minority serving institutions) involved**



NJ Activities for Moon Landing 50th Anniversary (July 19, 2019)

- **Professor Rob Stengel (Princeton), who worked at NASA during the Apollo years, will be doing lectures**
- **Rowan will have a special day with invited astronaut**
- **Liberty Science Center will do an evening program the Friday before the anniversary**
- **Rutgers will have a program for K-12 students on campus at day of anniversary**
- **Open to ideas from our affiliates**
- **We ordered balloons with Moon pictures on them, we will inform you when they arrive**



NJSGC Activities in the Past Year

- We are gradually spending our carryover funds
- All programs running smoothly, except industry internships
 - Less interest from industry to cost share
 - We have one arrangement with industry for summer 2019
- Large numbers of applicants for fellowship programs
 - For summer 2019, 40 applicants for 14 slots



NJSGC Activities in the Past Year

- Submitted successful reports to NASA and proposal for FY2019 funding
 - Proposal is accepted, awaiting Rutgers bureaucracy
 - Augmentation proposal in process
- We will renew all sub-awards once Rutgers bureaucracy allows us to spend money
- Need help from you in encouraging your student to respond to tracking surveys



NJSGC Activities in the Past Year

- Involved in national Space Grant network (executive council secretary, aeronautics subcommittee chair, transition meeting)
- Visited congressional offices in D.C.
- Attended two national conferences (D.C., Vt.)
- Some progress with FAA
 - Haim doing research with two students on separation standards for aircraft
 - If any of you work with FAA, let's see if we can increase collaboration



NJSGC Activities in the Past Year

- **Academic year poster session today**
- **Summer fellowship conference and poster session was held in August 2018, where fellows made presentations**
- **Stockton joined and William Paterson wants to join**
- **Successful teacher education program on aviation at Alexandria Field**
- **Increase in student rocketry group activities, two groups at Rutgers, one at Princeton, looking to grow**
- **New outreach program at Rutgers Newark**
- **New outreach program and student spacecraft experiments at Stockton**



NJSGC Activities in the Past Year

- **Community College Grant ended in Fall 2017**
 - **\$500K total funding - program has been discontinued**
 - **We worked with five community colleges - Atlantic Cape, Brookdale, Middlesex, Union, Essex**
 - **Also with Rowan and with Rutgers**
 - **We are using carryover funds from base award to fund the five community colleges at \$20,000 apiece**
 - **So far, awarded (working on) contracts to Middlesex, Brookdale, and Essex**



Budget Issues

- **Good news on budget**
- AA Kincaid heard our complaints about having two tiers and not being able to apply for the higher tier
- Starting in FY2020, every state gets same funding - NJ funding to increase by at least \$100,000
- Starting in FY2020, there will likely be competitions for additional funding
- There may be competitions for additional funding in FY2019, as OSTEM still has funds left in Space Grant program



More Good News on Budget

- **Space Grant has consistently been funded by Congress higher than the president's request**
- **FY2019 allocation is \$44M, increased by 10% over FY2018**
- **We are trying for \$50M for FY2020**
- **Need to keep pressure on our elected representatives for support of Space Grant**
- **We changed budget cycle for grant to end on March 14 (instead of April 30)**
 - **Since new grant comes in earlier, we can renew your sub awards in a more timely fashion**



NJSGC Funding Summary (in thousands)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Base award	430	430	430	430	430	430	300	300	570	536
Augment congress	230	185	None	None	None	None	270	270	0	45
Competition	185	None	Did not win	None	500	Did not win	None	None	None	?
Total NJ Funding	845	615	430	430	930	430	570	570	570	581
National	46MM	42MM	40MM	40MM	40MM	40MM	40MM	40MM	40MM	44MM

Starting in 2020, fiscal year begins on March 15



FY2018 Expenditure Estimates

Essentially the same as FY2017

Program Name	Base	Carryover	Total	Percent
Fellowships	142,500	0	142,500	21.1%
Research	111,000	50,000	161,000	23.9%
Higher Education	122,000	12,000	134,000	19.9%
Pre-College	20,000	18,000	38,000	5.6%
Informal Education	6,500	2,600	9,100	1.4%
Operating Expenses	110,605	11,400	122,005	18.1%
Overhead (26.5%)	57,395	10,000	67,395	10.0%
Total	570,000	104,000	674,000	100%



Budget and Accounting Issues

- **At end of summer 2015, we had a carryover funds of about \$300K**
- **Our budget cycle was moved to May 1 (from August), giving us double funding for Summer 2015**
- **Most of our programs are run during the summer**
- **We are spending the carryover funds slowly**
- **Still problems with the accounting system at Rutgers**
- **Rate at which payments are made, rate at which NASA is billed, incorrect account balances, cryptic reports**



Future Activities and Challenges

- **Community Colleges**
 - It has been difficult to find match from community colleges
- **Review of Space Grant**
 - One of the issues that has not been resolved
 - Each state will be reviewed, as well as the national program (OSTEM is working on this)
 - We will likely need even more data from you - please cooperate when the time comes



Future Activities and Challenges

- **Student projects**
 - **NASA wants hands-on projects (interested in CubeSats and projects across state lines)**
 - **We currently are not very strong in this area, (even though we have grown)**
- **Reaching our new diversity statistics**
 - **Open to programs that are intended for minority students**
- **Maintaining enthusiasm level of affiliates**
- **Reporting requirements are stricter - please respond promptly when Joe Miles contacts you**



Thank You

- We are **ALWAYS** open to new ideas
- Space Grant is continuously evolving
- We need to be flexible and aggressive, as well as maintain our enthusiasm
- Thank you for your support
- We are all doing good and valuable work by funding future scientists and engineers (quote from Dr. Bill Garrard, previous director of Minnesota SGC)