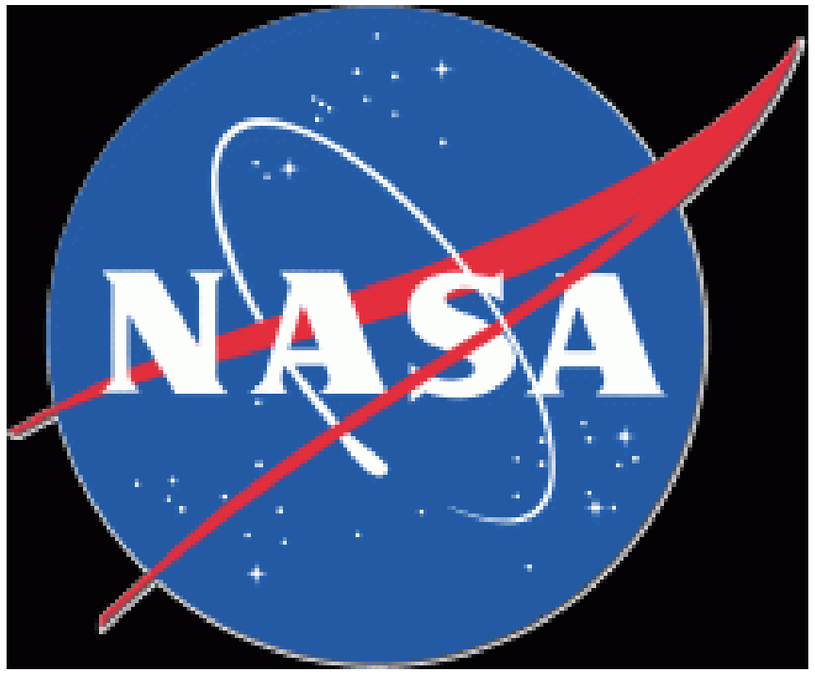


New Jersey Space Grant 2016 Fall Mid-Atlantic Meeting Activities and Future Outlook

Haim Baruh, Director
Joseph S. Miles, Program Coordinator

NJ Space Grant Consortium Staff

- Lead institution: Rutgers, New Brunswick
- Two offices: at Rutgers and at Stevens
- Haim Baruh, Director
  - Office at Rutgers, spends 25% of time [often more] on NJSGC
- Joseph S. Miles, Program Director
  - Spends half his time with NJSGC, other half as faculty member at Stevens, office located at Stevens
- Aiesha F. Long, Consultant (and Volunteer for Space Grant)
  - Transitioned to the Rutgers University Engineering Dean’s Office, full time
- Leora Wenger, Webmaster
  - Works from home

Summary of FY 2015 Activities

- Number of programs is presently 15, up from 7 programs six years ago
- Establishment of new contacts via congressional and other visits, four-year as well as community colleges, and at the Federal Aviation Administration
- Improvement of record with females and diversity record from prior years (5 year averages)
  - 33% Underrepresented minorities (28% NJ Target Goal)
  - 49% Females (45% NJ Target Goal)
  - Better distribution of our funding statewide

NJSGC Affiliates

- Astronomy Education Center at Raritan Valley Community College
- Bloomfield College
- Essex County College
- Georgian Court University
- Liberty Science Center
- Montclair State University
- NASA GISS at New York City
- New Jersey City University
- New Jersey Institute of Technology
- Princeton University
- Ramapo College
- Rowan University
- Rutgers University (New Brunswick, Newark and Camden)
- Rutgers Health & Biomedical Sciences (formerly UMDNJ)
- Seton Hall University
- Stevens Institute of Technology
- The College of New Jersey
- Union County College

NJSGC Non-Affiliate Partners

- Rutgers RiSE Program
- Federal Aviation Administration (now we have an organizational representative from them)

Consortium Composition

- 17 Affiliates: 14 Academic, 1 Government, 1 Planetarium, 1 Science Center

- Contacts with 5 Community Colleges to develop a Community College Program

- Active in National Space Grant Network (Secretary of ExComm, Aeronautics Working Group)

Programs in FY 2015

- Community College Programs at 5 Community Colleges
- Expansion of undergraduate and graduate research clusters (Rowan, TCNJ, NJIT-Ramapo, Seton Hall, Rutgers, and Stevens)
- Bridge Programs: K-12 to college, entering college students, and college to graduate school programs
- Partners in Science at Liberty Science Center (6 students)
- Increase in academic year fellowships to 30 for FY2016 (has become our most popular program)
- Expansion of academic institutions receiving fellowships
- Development of the B.S. degree in aerospace engineering at Rutgers
  - Inaugural class on Introduction to Aerospace Engineering taught by Haim Baruh

Programs in FY 2015

- RiSE Program – Research in Science and Engineering – Summer internship program for minorities at Rutgers University
- NJIT & Ramapo College bridge program
- Design (Senior) project support
- Maintaining industry-supported internships (presently involved with two companies and in talks with Lockheed-Martin)
- Federal Aviation Administration (finally the right contact after years of attempts)
- Considering reinstating travel support to students for conferences to make presentations
- Over 80 direct funded undergraduate and graduate students; 90% go to graduate school or are employed in STEM

Programs in FY 2015

- Rock On in 2010 – Rock SAT in 2011 to 2016
- NASA – GISS Program, where teams of K-12 and college students work on research and robotics projects (2-4 students)
- Rutgers TARGET (The Academy at Rutgers for Girls in Engineering and Technology) for high school females (15 students)
- In-Service Teacher Training at Astronomy Center Education (ACE at RVCC)
- Pre-Service Teacher Training at Rutgers
- Raritan Valley Community College Planetarium
- Liberty Science Center Planetarium

Conferences and Workshops

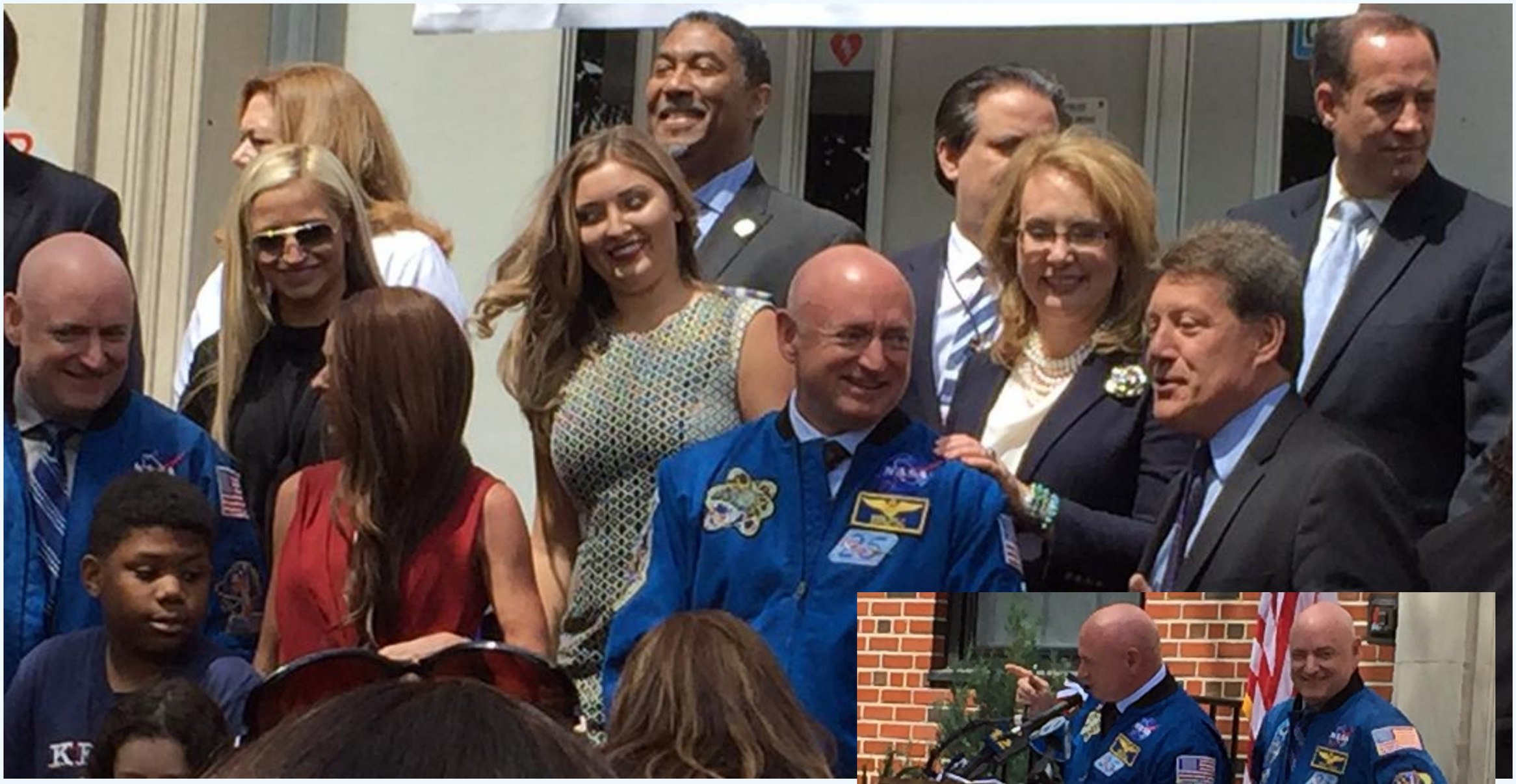
- Mentoring and Diversity Workshop for Graduate Students – April 2016
  - Roosevelt Johnson was keynote speaker
- Academic Year Fellowship Poster Session – April 2016
  - 25 college students from 14 different academic institutions presented their research
- New York City NASA GISS Program – August 2016
  - 3 sponsored students presented their robotics research at a poster session
- Summer Research Conference and Poster Session – August 2016
  - 15 undergraduates from six different academic institutions presented their research with a talk and a poster session
- RiSE (Research in Science and Engineering) Program at Rutgers - August 2016
  - Five NJSGC-funded students made presentations at a one-day symposium
- Community College Teacher Conference – Fall 2016

Interactions with NASA Education Leadership

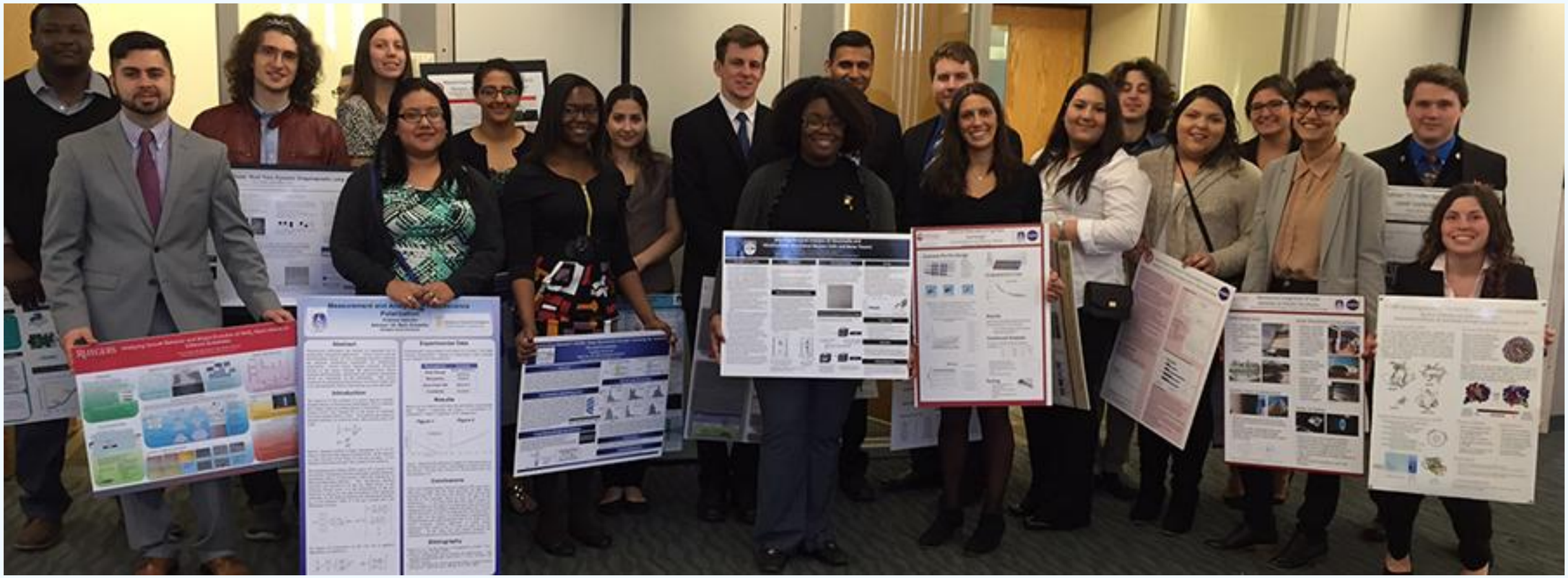
- Diversity and Mentoring Workshop Organized by the Rutgers Graduate School
  - NJSGC co-sponsored
  - Presentations by student mentors and Q&A
  - Roosevelt Johnson as keynote speaker
- Honoring Astronauts Scott and Mark Kelly by Their Hometown of West Orange, NJ
  - NASA Associate Administrator Don James and NJSGC team were in attendance

Diversity and Mentoring Workshop at Rutgers

Honoring the Kelly Brothers (May 2016)



NJSGC 2016 Academic Year Fellowship Poster Session

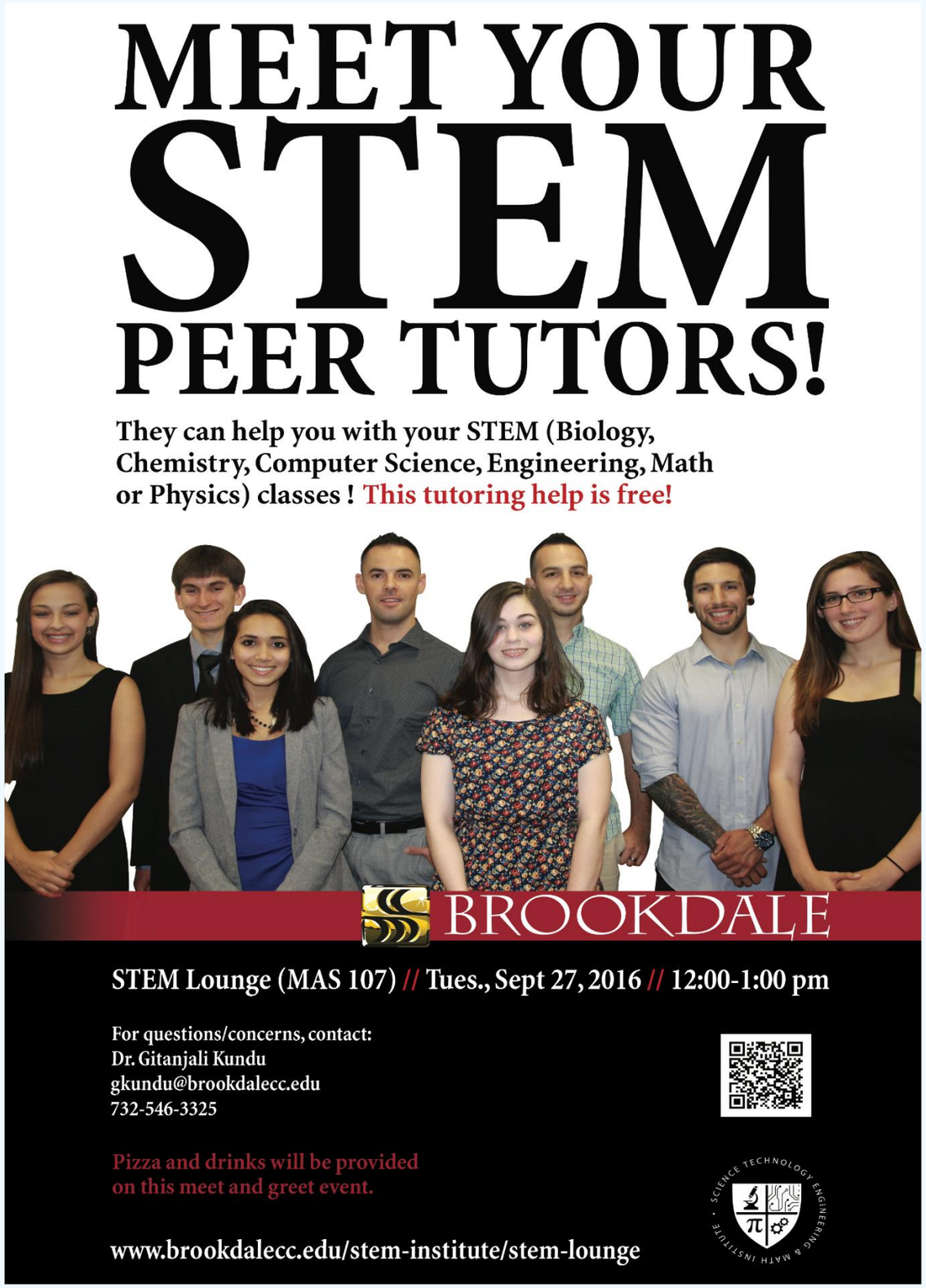


NJSGC 2016 Summer Fellowship Conference and Poster Session

New Initiatives for FY2016

- As funding levels increased in FY2016, we are expanding the programs we scaled back in 2013 and 2014
- Federal Aviation Administration: Student projects and possibly internships
- Transitioning some of the community college programs into the base award
- Developing programs at our newest affiliates: Montclair State University and Rutgers Newark

An Example of Our Support of Community Colleges



Peer Tutoring at Essex County College

Division of Biology & Chemistry

ECS Peer Tutoring Program at ECC:

PURPOSE –
To encourage minority female students to carry out programs in the science, technology, engineering, or mathematics (STEM) areas.

MISSIONS –
•Providing students with tools to help them succeed in their biology and chemistry courses.
•Establish an environment where students can learn in small groups and also learn how to work as a team.
•Develop problem-solving abilities.
•Increase understanding of science content.

ACCOMPLISHMENTS –
•Promoting retention, persistence, and graduation.
•Improve Student's Performance.
•Increase completion rates, and decrease attrition.

Starting Chemistry Peer Tutoring February 1st, 2016

Where:
2nd Floor, Blue Area, Division of Biology & Chemistry

When: Peer Tutors are available Monday through Saturday. Come and get help from our top Peer Tutors from EC!

Summer Program at NASA GISS

Students in this program created two robots over the course of a six to eight week period under the leadership of Profs. Miles and Thangam. Both robots then competed against each other, and with two former champion robots, in an arena at Stevens Institute of Technology.

NJSGC FY 2016 Budget

	FY 2016	Percentages
Fellowships	145,000	25.4%
Research	84,000	14.7%
Higher Education	123,000	21.7%
Pre-College	25,000	4.4%
Informal Education	6,435	1.1%
Operating	117,700	20.7%
Overhead (26.5% MTDC)	68,865	12.0%
Total	570,000	

We will relied on carryover funds in prior years to smooth out the cutbacks of 2013-2015 so as not to loose affiliations

NJSGC Diversity Initiatives and Results

- Exceeded minority and female average targets over the last five years
  Minority 32.4% (Target 28%) Female 46.6% (Target 45%)
- Collaborative efforts include
  - Contacts with community colleges for diversity programs implementation
  - Renewing contact with The Federal Aviation Administration in Pamona, New Jersey (they were very impressed with the national Space Grant Network and our diversity efforts)
  - Minority graduate student (RiSE) development and bridge programs
  - Success in attracting minority students to graduate fellowships
  - STEM enrichment programs for entering college students

Improvements Needed

- Additional sources of funding to support the Consortium Community College Program
- Upgrade from a Program Grant State to a Designated State
  - Discussions initiated with NASA leadership during the 2016 Transition Meeting
- Encouraging affiliate representatives to publicize programs more aggressively at their institutions

Summary and Overall Outlook for the Future

- Increase in activity level with increased funding
- Absorbing Community College Program into the Base Award
- Continuous work on encouraging alliances and affiliations, as well as expanding the network
- Improvements in programs and diversity
- We are ready and eager to receive Designated Status