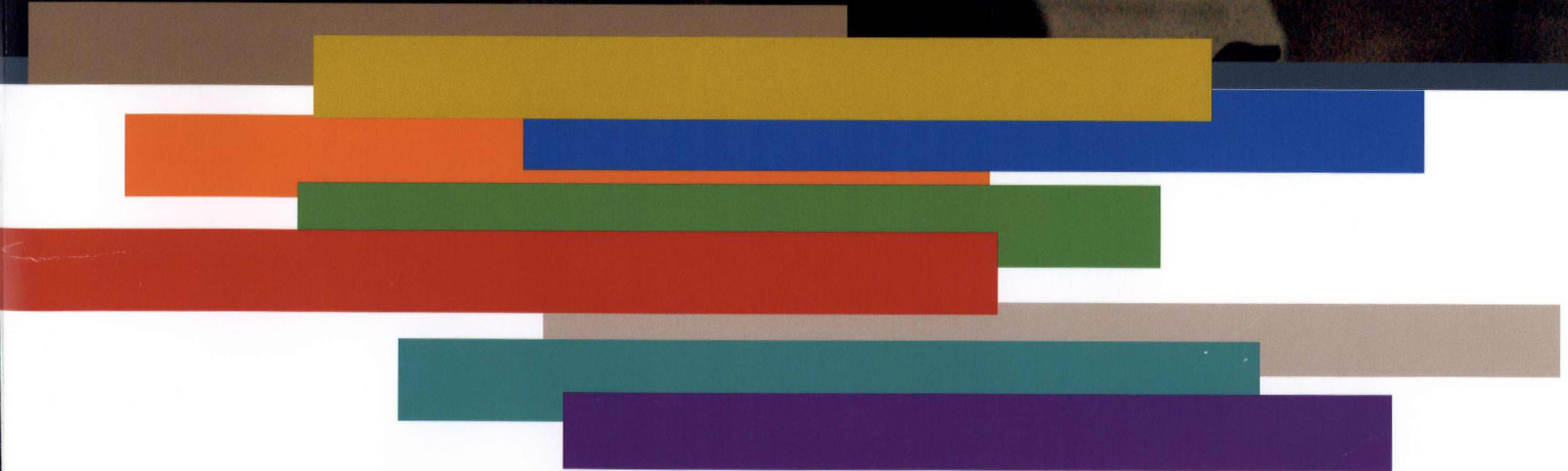
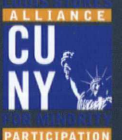


NEW YORK CITY LOUIS STOKES ALLIANCE

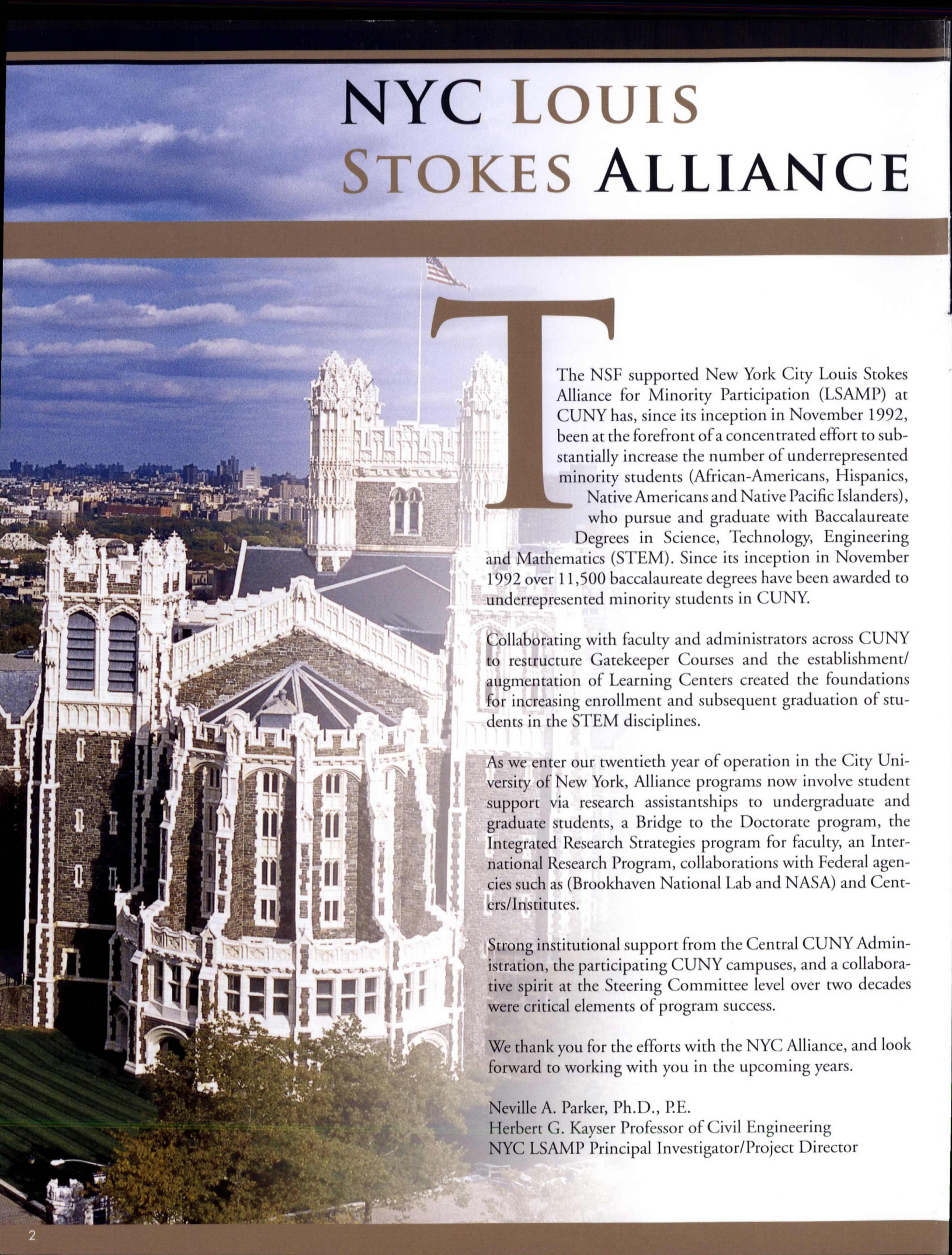


IMPACT STATEMENT

1992-2012



NYC LOUIS STOKES ALLIANCE



The NSF supported New York City Louis Stokes Alliance for Minority Participation (LSAMP) at CUNY has, since its inception in November 1992, been at the forefront of a concentrated effort to substantially increase the number of underrepresented minority students (African-Americans, Hispanics, Native Americans and Native Pacific Islanders), who pursue and graduate with Baccalaureate Degrees in Science, Technology, Engineering and Mathematics (STEM). Since its inception in November 1992 over 11,500 baccalaureate degrees have been awarded to underrepresented minority students in CUNY.

Collaborating with faculty and administrators across CUNY to restructure Gatekeeper Courses and the establishment/augmentation of Learning Centers created the foundations for increasing enrollment and subsequent graduation of students in the STEM disciplines.

As we enter our twentieth year of operation in the City University of New York, Alliance programs now involve student support via research assistantships to undergraduate and graduate students, a Bridge to the Doctorate program, the Integrated Research Strategies program for faculty, an International Research Program, collaborations with Federal agencies such as (Brookhaven National Lab and NASA) and Centers/Institutes.

Strong institutional support from the Central CUNY Administration, the participating CUNY campuses, and a collaborative spirit at the Steering Committee level over two decades were critical elements of program success.

We thank you for the efforts with the NYC Alliance, and look forward to working with you in the upcoming years.

Neville A. Parker, Ph.D., P.E.
Herbert G. Kayser Professor of Civil Engineering
NYC LSAMP Principal Investigator/Project Director

NYC LOUIS STOKES ALLIANCE

THE CITY UNIVERSITY OF NEW YORK

The City University of New York, (CUNY), is the nation's largest urban university, comprised of 11 senior colleges, 6 community colleges, a graduate school, a law school and a medical school. CUNY serves more than 243,000 degree-credit students and confers over 35,000 degrees each year. In Fall 2010, 228,484 undergraduate students were enrolled in degree credit courses (91,264 at the six community colleges). At CUNY's Senior and Community Colleges the student body is 26% White, 27% Black, 29% Hispanic, 17.7% Asian and 0.3% American Indian/Native Alaskan. Over fifty seven percent (57%) were Pell Grant Recipients, thirty eight percent (38%) had a household income of less than \$20,000, and 31.8% worked more than 20 hours per week. Many attend part time (33.9%) and 44.2% were the first generation in college. Over 34,500 were first-time Freshmen.

THE NEW YORK CITY LOUIS STOKES ALLIANCE for Minority Participation (NYC LSAMP) in Science, Technology, Engineering and Mathematics (STEM) has spearheaded the increase in CUNY's annual baccalaureate degree production among underrepresented groups (African-American, Hispanic, Native American and Pacific Islanders). From inception in the 1991/1992 academic year, the Alliance member campuses of the City University of New York have graduated over 11,500 underrepresented minority students with baccalaureate degrees in STEM.

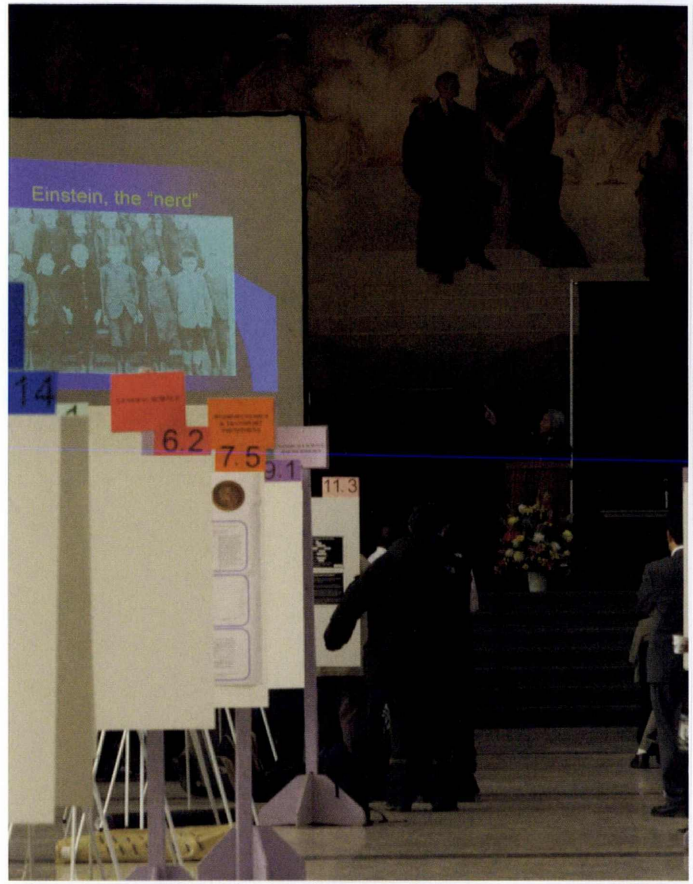
Now in its twentieth year (2011-2012), the NYC LSAMP involves 17 of CUNY's 18 academic campuses, including the Graduate School and University Center (GSUC).

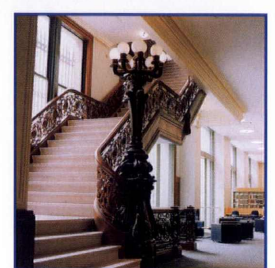
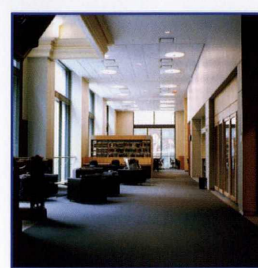
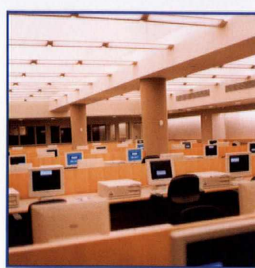


NYC LOUIS STOKES ALLIANCE

Program Sustainability/Cost Sharing

From 1993-2010, University contributions totaled over \$27M. Support from foundations and other agencies totaled over \$4.5M. Additional resources have been contributed in direct summer support to students in the form of stipends, travel and accommodation at Department of Energy National Laboratories and other research universities and agencies throughout the country. CUNY contributions to the LSAMP project in Phase I, II, III and IV averaged over \$1.5M per annum.





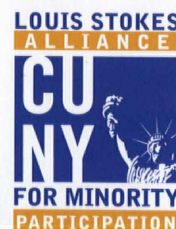
BRIDGE TO THE DOCTORATE

“The Bridge to the Doctorate program will provide the necessary incentive to enable the New York City LSAMP program to build the critical mass needed to remain catalytic, recruiting and retaining top LSAMP Research Scholar graduates to pursue graduate studies through to completion of the Ph.D.”

Dr. Neville A. Parker, NYC LSAMP Project Director, Herbert G. Keiser Professor.



The objectives of this Bridge to the Doctorate program is to entice newly minted LSAMP STEM graduates to forego the immediate rewards of the workplace and embark on an extended journey that would provide the long-term gratification of a research/academic career. A unique and distinguished intellectual partnership, The Graduate Center is the doctorate-granting institution for The City University of New York (CUNY). Here, 4,000 students and 1,600 faculty join in the shared enterprise of exploring and expanding the boundaries of knowledge within 32 doctoral programs in the humanities, social sciences and sciences. More than a third of the rated Ph.D. programs rank among the country's top 20.



BRIDGE TO THE DOCTORATE



Bridge to the Doctorate Cohorts

A series of activities were designed and implemented to ensure the transition to doctoral programs (Cohort 1-8). These activities serve to create a learning community of scholars across the campuses given the fact that the participating students take courses and conduct research at different campuses. Senior LSAMP Scholars are allowed to participate in Bridge activities and are encouraged to apply directly to doctoral programs nationally and to compete for Graduate Research fellowships. Bridge scholars act as peer mentors and role models to undergraduate LSAMP Scholars. Workshops on science and engineering presentations, writing workshops, the transition to graduate school, and survival skills in graduate school are conducted by LSAMP Doctoral students and Bridge Scholars. Bridge Scholars (Cohorts 1-8) come from a variety of disciplines, have graduated from ten BA/BS degree granting units of CUNY, with five graduating from non-CUNY schools.

Bridge to the Doctorate Students in Doctoral Programs at CUNY and NON-CUNY Institutions

Doctoral Institution	# of BTD Scholars
Arizona State University	1
Colorado State University	1
Cornell University	1
CUNY Graduate Center	26
Duke University	1
Harvard University	1
Howard University	1
John Hopkins University	1
Michigan State University	1
Morehouse School of Medicine	1
Oregon State University	1
Princeton University	1
Roosevelt University	1
Rutgers University	1
Stanford University	1
SUNY Stony Brook	3
Univ of California Berkley	1
Univ of California Davis	1
Univ of California Los Angeles	1
University of Connecticut	1
University of Florida	1
University of Maryland	1
University of Michigan	1
University of South Florida	2
Virginia Tech	1
Washington State University	1

BRIDGE TO THE DOCTORATE

Major Outcomes: Bridge to the Doctorate Cohorts

- Fifty-two (52%) Bridge to the Doctorate Scholars (Cohort 1-8) have gained acceptances to Doctoral programs
- Twenty-six (27%) Bridge Scholars were accepted into doctoral programs at the Graduate Center.
- Twenty-four (25%) Bridge Scholars matriculated into Doctoral Programs outside of CUNY.
- Twelve Bridge to the Doctorate Scholars are currently receiving/received AGEP support to pursue doctoral study.
- Three Bridge Scholars have successfully obtained NSF Graduate Research Fellowship Awards.
- One Bridge Scholar received the Ford Foundation Doctoral Fellowship
- Forty Bridge Scholars started their studies at a Community College or graduated from a Comprehensive College of CUNY.
- Twenty-one Bridge to the Doctorate Scholars started studies at a Community College.
- Over forty faculty members participated as Bridge to the Doctorate mentors.
- Seven Bridge Mentors are directors of research Institutes or Centers at CUNY.
- 23.5 % of the Bridge to the Doctorate Scholars were in Computer Science and Mathematics
- 32 % of the Bridge to the Doctorate Scholars were in the Engineering disciplines
- 24 % of the Bridge to the Doctorate Scholars were in the Natural or Life Sciences
- 18.5 % of the Bridge to the Doctorate Scholars were in the Physical Sciences

2011 LEIBNIZ IN THE CITY
UNION UNIVERSITY CONFERENCE SERIES
"Innovating Research"
April 14-15, 2011
The City College of New York

the
City College
of New York

LSAMP focus on Graduate Education (1997-2011)

Over thirty current or former LSAMP Graduate Scholars are currently enrolled in doctoral programs at the Graduate Center. From 1999-2011, thirty-six (36) LSAMP Graduate Scholars successfully completed their doctoral degrees. Fifteen (15) are currently pursuing careers in academia. The NYC LSAMP serves as a conduit to doctoral degrees and an academic career via collaborations and leveraging of resources with programs, Institutes and Centers within the City University of New York (CUNY) and in the New York City area. The LSAMP Bridge Scholars in CUNY are not based at any one campus site as the Graduate Center is the primary institution that grants the Doctoral degree in CUNY. Thirty-three BTM scholars have been accepted to doctoral programs at NON-CUNY Institutions.

BRIDGE TO THE DOCTORATE

"Traversing 'the Bridge' Quickly"

ROBIN WALKER

"The Bridge to the Doctorate is not a master's degree program." In effect, this means the primary objective is to quickly make each Bridge student viably competitive to matriculate into a doctoral program, which will afford more students the opportunity to participate in the Bridge to the Doctorate program. An auxiliary effect of the program may be attaining a master's degree in a Science, Technology, Engineering, or Mathematics (STEM) discipline; however, the focus is helping students excel during their transition state between bachelor's degree and doctoral program. One such student who is an example of this is Ms. Robin Walker.

Robin Walker has shown an innate ability to vertically transition. She began her college career at Kingsborough Community College, where she attained her A.S. degree in biology. From there, she transferred to Medgar Evers College — a four-year institution — to pursue her

B.S. degree, also, in biology in 2005. After attaining her bachelor's degree, Robin gained acceptance into the Bridge to the Doctorate program and performed research at Hunter College.

After only one semester in the Bridge program, Robin was ready to make another vertical transition to the doctoral program in Plant Sciences at the University of Connecticut. At University of Connecticut, Professor Gerald Berkowitz, Ph.D., who specializes in molecular biology of plant ion channels, photosynthesis, plant-water relations, mentors her.

Robin stated, "My mentor guides me in the path of my research topic and allows me to fish out information from previous protocols that will assist me in my [current] work. He meets with me daily to discuss my research [goals], and we discuss what classes I need to take to assist me in my research area. All of this will prepare me for what I will decide to do later on down

the road."

Robin is "fascinated" with plants and she is researching the effects of pathogens on plant immune systems. She hypothesized, "If I know the full details of the mechanisms, then I can genetically boost the plant's immunity against all types of pathogens, keeping our plant population alive and maintaining the balance of the ecosystem, which [in turn] keeps the human population healthy."

Robin Walker is dedicated to her research, but she is equally dedicated to community outreach. On October 20, 2006, she presented her research at a University of Connecticut science showcase entitled STRONG-CT, which is an acronym for Science and Technology Reaching Out to New Generations in Connecticut.

Due to her ability to quickly traverse from the Bridge program to the doctoral program at University of Connecticut, Robin will undoubtedly reach her ultimate goal in academia.



"Finding a Way Around Turbulence"

OLUSEGUN GOYEA



A good mentor can help students avoid turbulence during their academic careers, however in the case of Bridge to the Doctorate scholar

Olusegun Goyea, his mentor is bringing him face-to-face with turbulence. Working with Dr. Charles B. Watkins, Professor of Mechanical Engineer at City College, Goyea is researching the interactions of shock-expansion waves with vortices in turbulent airflows.

Turbulence felt by aircrafts can result from several atmospheric conditions: the pressure disparity between the upper and lower wing surfaces or from flying in the vicinity of inclement weather. When aircraft cannot recover from turbulent flow fields, excessive drag is often experienced

or a crash and subsequent loss of life may ensue.

Olusegun Goyea's research involves simulating shock-expansion waves as they travel and reflect through a shock tube at varying temperature and pressure gradients. Goyea stated his preliminary research could help engineers gain "the fundamental understanding of the physics involved in shock wave interactions, [which is] necessary for the development of future supersonic and hypersonic transport aircraft."

He said, "My research is applicable in the areas of space vehicle and aircraft design, and operational stability for both military and commercial use. I am studying the aerodynamics of fast moving objects and their interactions with different air-flow conditions."

When Goyea is not investigating turbulence, he and his mentor find ways to al-

leviate it. "Dr. Watkins provides advice in my class selection, direction in tackling various research difficulties, helps me to establish resourceful contacts in my area of study, and provides funding for my minor academic expenses," said Goyea of the many forms of assistance provided by his research mentor.

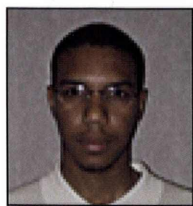
Aside from his current research, he has published several research papers and participation as a protégé and research assistant in the Significant Opportunity in Atmospheric Research and Science (SOARS) program for three summers at the National Center for Atmospheric Research in Boulder, Colorado.

Olusegun Goyea began his academic career at Borough of Manhattan Community, where he graduated in 2001. He transferred to City College and received his BE (2005), and he is now pursuing his master's degree in Mechanical Engineering.

BRIDGE TO THE DOCTORATE

"Partnership of the Minds"

CARLOS SILVERA BATISTA



In any academic discipline, especially in the fields related to science and mathematics, working in a collaborative collective helps to divide the labor and to assist in the generation and interpretation of ideas. No one knows this better than Carlos Silvera Batista, who is a budding engineer and Bridge to the Doctorate scholar at the City College of New York, working in the Kretzschmar Group. The group is comprised of graduate and undergraduate students from City College, the CUNY Graduate Center, Bucknell University, and KTH (the Royal Institute of Technology) in Stockholm, Sweden.

Dr. Ilona Kretzschmar, a professor in the Department of Chemical Engineering at CCNY, leads this group; and she has worked very closely with Carlos from the start of his research with the group, which is concerned with the modifica-

"Electric Inspiration"

OLUWATOSIN OGUNWUYI

While most young girls her age were playing with dolls, Oluwatosin Ogunwuyi was rapt in learning how to fiddle with the electronic devices in her household. Although her current research in satellite remote sensing is more complex, her intrinsic affinity for electrical devices began very simply as a child. "I was always fascinated by electrical devices, and as a child I loved to help my dad set up the appliances, such as the VCR, the stereos, and the computer," said Oluwatosin. "I always saw the world as an electrical system; even the human body processes signals using veins, blood, neurons, and the brain in a similar way to electrical systems, which use wires, currents, and batteries."

Oluwatosin has always been engrossed and enthused by the "creative potential that is available through the study of Electrical Engineering." She attained her

tion and assembly of nanoparticles (microscopic particles measured in nanometers). "The group is covering four major research areas: nanoparticles films, three-dimensional nanoparticle assembly, electrochemical modification of nanoparticle surfaces, and nanoparticles as templates." One of the real world applications of this research could potentially be "the creation of catalytic membranes that would remove indoor contaminants from a building's ambient air. This would ameliorate public health problems, such as asthma, which are related to the "Sick Building Syndrome."

Carlos Silvera received his bachelor's degree in Chemical Engineering from City College in February of 2006. He stated, "I am interested in Chemical Engineering because it is an area where Physics, Chemistry, Math, and Engineering fuse to give solutions to many contemporaneous problems."

Prof. Kretzschmar's contribution to Carlos' development as a scientist encompasses a wide range of skills, from Bachelor of Science degree in Electrical Engineering from City College and is now pursuing her master's degree in Electrical Engineering at the same institution.

She is afforded the luxury of having two mentors, Professors Barry Gross and Fred Moshary, to steer her in her research efforts. Her mentors have expertise in Remote Sensing and Photonics, and they help her to develop her programming skills and systems analyses techniques.

In her research, she is developing cost-effective methods for people to quantify and characterize population and other environmental aspects of their community, such as air pollution. This research is especially useful in poorer neighborhoods that have excessive air pollution and increased incidences of asthma and respiratory diseases, because it will now be feasible to quantify and characterize the ambient air to assess the level and type of pollutants in the air. Commu-

SELECTED PROFILES 2003-2010

dimentary lab techniques to presenting his research to understanding the fundamentals of writing a scientific paper. Together, they have authored an article entitled "Two-dimensional Micro- and Nanoparticle Monolayer Films," slated for publishing in a refereed journal and selected for an oral presentation at the Junior Scientist Conference 2006 in Vienna, Austria. In addition, he was able to present his research at the Nanoscale Science and Engineering Center (NSCE) annual meeting in April of 2006.

"[Prof. Kretzschmar] has contributed a lot to the advancement of my career... When applying to graduate school, she helped me prepare the application package and encouraged me throughout the process. She has followed and tracked my academic progress very closely to make sure that I could get into the [schools of my choice]." Carlos gained acceptance into two doctoral programs in Chemical Engineering at Cornell University and the University of Florida, opting to pursue his doctoral studies at the University of Florida.

nity leaders and activists can then take this hard data to Congress, or other legislators, to enact environmental policy changes in their neighborhoods, as opposed to simply speculating that the pollution may be hazardous to health.

Oluwatosin believes that research has helped her to develop many tools and skill sets that will have continued use throughout her career in academia and beyond. She is honored to have received the Bridge to the Doctorate fellowship because it allows her to allocate her time and effort to developing sound academic and research skills, and provides an opportunity to network with peers and scholars, distinguished professors, and researchers at leading industrial facilities.

Most importantly, Oluwatosin hopes to one day inspire the younger generation of scientists to pursue their passion for electronics as she continues to pursue her own.

NATALIE DASTAS



Natalie Dastas is a second year M.A. student at Brooklyn College (CUNY) pursuing a graduate degree in Geology. She has been a Bridge

to Doctorate program since January 2010.

Natalie concluded her undergraduate studies at Brooklyn College in the fall of 2009; completing a B.S. in Geology and a B.A. in Earth Science Education. Natalie plans on continuing her study of geology to the Doctoral level and become actively involved in research. Her current

area of research is within palynology. Her thesis research involves the study of various microfossils preserved within sedimentary deposits located in Arkansas. One major research goal is the identification and correlation of microfossils to the ages of the sedimentary sequences in which they are found.

Results from the study could lead to a potential discovery linked to the Cretaceous-Tertiary boundary event. Conducting research has allowed Natalie to build on her skills in the lab, sharpen her general knowledge in her major and of the sciences in general, as well allowed her to network with other professionals.

In the summer of 2010, Natalie com-

pleted a study abroad research program in Cartagena, Colombia. The program focused on conducting environmentally based research within communities of La Boquilla in Cartagena. "Participating in this program has allowed me to grow as a researcher and as an individual and has helped me to adapt to my surroundings; it has also opened my eyes to the endless possibilities of research overseas. I have developed leadership and communication skills as well as added to my laboratory experience and techniques. In Geology and within any discipline of science, there is no limit to the things you can learn, new discoveries are made everyday and I would like to be a part of that."

"The Practical uses of Computer Science"

JOSE PEREZ



To some, science is complicated, abstract and often meaningless jargon unless there is some understandable benefit or tangible "real-

world" application. Jose Perez, a Bridge to the Doctorate researcher, knows this reality all too well. He is researching linear programming with Professor Akira Kawaguchi, an expert in database and transaction processing systems, at City College.

"Linear programming is a mathematical method of solving practical problems (as in the allocation of resources) by means of linear functions where the variables involved are subject to constraints." Most people do not understand linear programming, but they understand some of the simple and practical problems it can remedy.

"The diet problem is an example of a real-world application of linear programming because obesity is a prevalent issue in society," stated Jose. "The goal of

the diet problem is to find the cheapest combination of foods that will satisfy all the daily nutritional requirements of a person. The problem is formulated as a linear program where the objective is to minimize cost and meet constraints, which require that nutritional needs be satisfied. The constraints regulate the number of calories and amounts of vitamins, minerals, fats, sodium and cholesterol in the diet."

Another example is the transportation problem. "The goal of a transportation problem is to ship quantities of a material from a set of supply points to a set of demand points at minimal cost. This can simply be viewed as trucks moving goods throughout the United States; however, it also extends to network problems, in particular when information is sent via the Internet and it is necessary to find the quickest path with the less traffic, which represents fewer costs."

Jose Perez is excited about his research because it is multidisciplinary, similar to his major Computer Science. He said, "This field is interesting for its great correlation with other areas of science. The use of computers and information systems are vital for the advancement of all areas of science."

After obtaining his A.A. degree from Hostos Community College in 2003, he went on to receive his B.S. in Computer Science from City College in 2005, and now is pursuing an M.S. in the same discipline. On working with his mentor Dr. Kawaguchi, Jose asserts, "His extensive expertise allows him to give me detailed inside information and examples on the research problem being studied. He also gives me academic advice and informs me of current opportunities for professional development in my field."

One of these opportunities was an internship at Oak Ridge National Laboratory, which Jose took part in last summer. Jose and his mentor will have a paper entitled "Linear Programming for Database Environment" published in May of 2007. The paper will appear in the 4th International Conference on Informatics in Control, Automation and Robotics (ICINCO'07) Angers, France.

Jose Perez has demonstrated that his highly technical research is relevant to solving practical contemporary problems, and he is looking forward to doing the research that will provide these answers.

ADINA BOYCE



Adina Boyce is a second year Transportation Engineering graduate student pursuing a PhD at the University of California Davis. Since becoming a

LSAMP scholar in 2005 and a Bridge to Doctorate Fellow in 2008, her research has continuously focused on sustainable methods in Transportation. Through these programs, she has participated in several summer research experiences at

the University of California-Berkeley, Georgia Institute of Technology and at the Universidade Federal do Ceará in Fortaleza, Brazil.

Ms. Boyce believes that renewable energy infrastructure planning is important because it has great potential to diversify transportation fuel and energy sources and to reduce greenhouse gas emissions. Most production and delivery infrastructures of this emerging system are not in place yet, which presents an opportunity for incorporating risk management directly into the strategic planning of the

supply chains. Her current research focuses on the development of a biomass-based renewable energy infrastructure systems with an emphasis on its economic viability, system reliability and robustness, and environmental impacts. She hopes to develop methods for disruption management of renewable energy supply chain systems against recurrent supply/demand fluctuation and non-recurrent disasters, with an objective of achieving system security and efficiency. She holds both a BE and ME in Civil Engineering from the City College of New York-CUNY.

"Chemistry: A Formula for Achievement"

ADRIANA VELA



Understanding the mechanisms that drive chemical and physiological reactions in living organisms is essential to research and is one of

the reasons Adriana Vela, a Bridge to the Doctorate Scholar, has decided to pursue Chemistry. Adriana received her B.S. degree in Chemistry and a minor in Mathematics from the Honors Program at the College of Staten Island (CSI) in 2005. Currently, she is pursuing her Master's degree in Chemistry at Brooklyn College.

An avid researcher since 2003, she has participated in several research projects one of which was centered on the biopatterning of nanoparticles. Her current research project involving proteins and Nuclear Magnetic Resonance (NMR) is performed under the guidance of Dr. Ruth E. Stark, Professor of Chemistry at CSI. This research group is comprised of both graduate and undergraduate students majoring in Chemistry and Biology, and their research delves into "Molecular Biophysics (Protein Structure and Dynamics, Glyceride Digestion and Transport, and Plant Biopolymers)

and Nuclear Magnetic Resonance Spectroscopy Technologies," states Professor Stark. "We have close and effective collaborations with research groups in New York Metro, other areas in the U.S. and overseas."

Dr. Stark's area of expertise is in Molecular Biophysics and she has fostered an enthusiasm for this area of study in Adriana. "Dr. Stark introduced me to the intriguing field of Molecular Biophysics...she has challenged me to learn experiments that detect protein structure, taught me how to communicate scientific material and provided [me] the freedom to explore," said Adriana Vela. "Dr. Stark has provided an enriching start to my career and has never imposed a career path upon me; instead, she has guided and supported my choices as I have made them."

She also added, "Dr. Stark is the true definition of a mentor... [Her] patience, knowledge and warmth make her a wonderful person to work with!"

Together they are researching the structural and functional aspects of Liver Fatty Acid-Binding Proteins (LFABP) through NMR spectroscopy, computational modeling, and fluorescence energy transfer assays. In mammalian cells, fatty acids are physiologically essential mol-

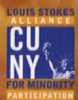
ecules needed for energy storage and delivery, synthesis of membrane lipids and intracellular signal transduction. "Fatty acid-binding proteins are small water-soluble proteins with well-characterized binding specificities and affinities for hydrophobic ligands (a molecule, group or ion that binds non-covalently to another molecule) but incompletely understood physiological function."

Fatty-Acid Binding Proteins (FABP) are named after the tissue in which they are found and isolated, such as heart, liver, and small intestine. FABP are speculated to function in the transport of fatty acids from the cell membrane to cellular organelles. Adriana is researching to elucidate the structure and mechanisms behind LFABP and to "understand how a malfunction in these proteins can lead to certain diseases."

Adriana Vela knows that her formula for achievement will come through continued research and academic progress, and she has been accepted into three exceptional doctoral programs: Molecular Biophysics and Biochemistry at Yale University, Biochemistry at Albert Einstein College of Medicine at Yeshiva University, and Biophysics, Structural Biology and Biomathematics at Mount Sinai School of Medicine.

URBAN UNIVERSITY CONFERENCE SERIES

2010 Urban University Conference



April 23-24, 2010
Brookhaven National Laboratory

Scheduled Activities:
Undergraduate Research Symposium
Best Practices Symposium
'Transitions' 2010
Science, Technology and Graduate School Expo

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For more information:
Call: 212-650-8854
nyc-amp.cuny.edu

For more information visit our website:
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2009 Urban University Conference



May 1-2, 2009
The College of Staten Island
2800 Victory Boulevard

Scheduled Activities:
Undergraduate Research Symposium
Best Practices Symposium
'Transitions' 2009
Science, Technology and Graduate School Expo

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2008 URBAN UNIVERSITY CONFERENCE

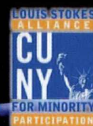
Scheduled Activities:
Undergraduate Research Symposium
Best Practices Symposium
'Transitions' 2008
Science, Technology and Graduate School Expo

Friday, April 11th
& Saturday, April 12th

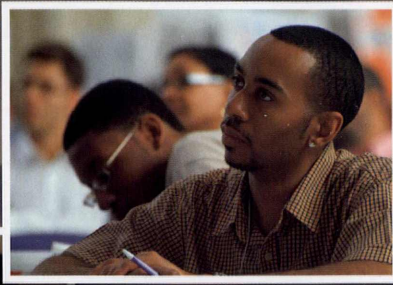
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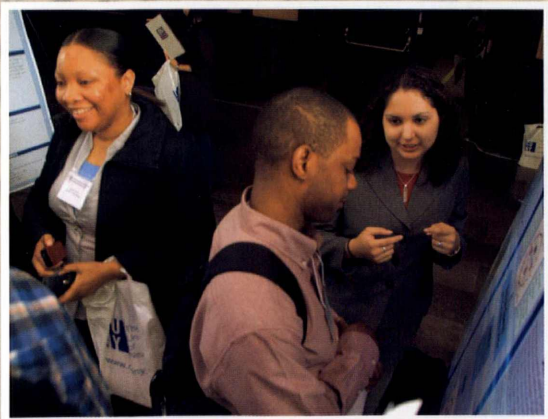
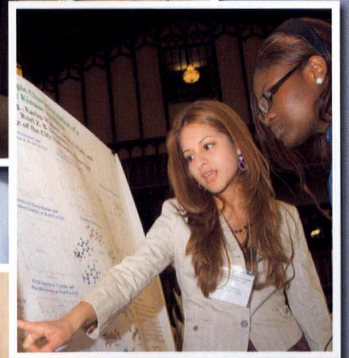
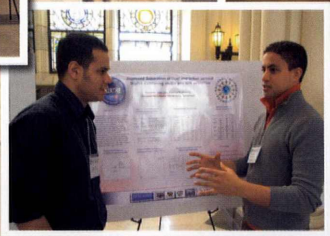
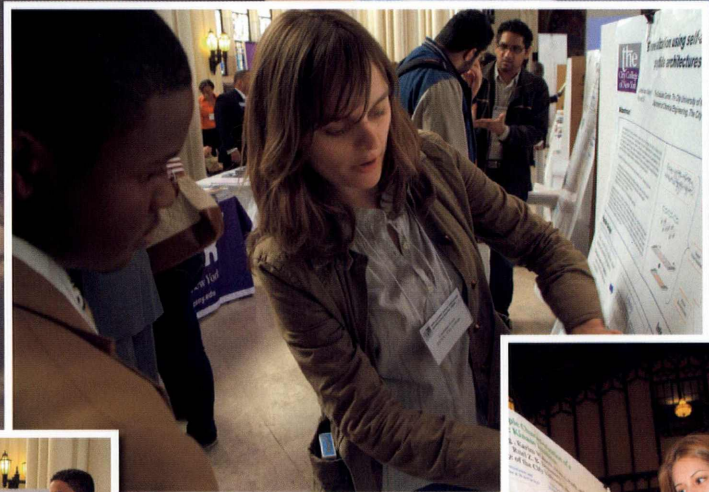
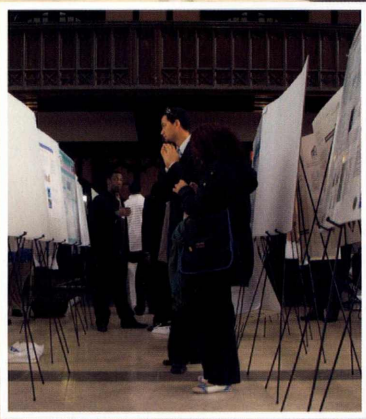
For more information visit our website:
nyc-amp.cuny.edu or call 212-650-8854



URBAN UNIVERSITY CONFERENCE SERIES



The New York City Louis Stokes Alliance for Minority Participation in Science (NYC LSAMP) held its 14th Annual Urban University Conference at the City College in 2011. Urban University events include, poster sessions by Student Research Scholars, Best Practice Symposiums, and Graduate Education/Technology Expos with exhibitors from Academic, Industry and Agency settings.



**Urban University
Conference 1998-2008**
Over 5,600 Conference Attendees
Over 1,500 Poster Presentations

URBAN UNIVERSITY CONFERENCE SERIES

Restructuring Gatekeeper Courses in calculus, chemistry, and physics, with an emphasis on collaborative learning, a non-competitive approach to problem solving, and workshops conducted by specially trained peer tutors. From 2000-2010, over 150,000 students enrolled in such courses. Collaborative learning approaches and workshops continue across the university in the STEM disciplines.



Abstract

in addition to be trained... to prepare a data matrix for analysis of covariance structure (MVC) Philosophy in 9/12 RI. Data and method used.

Methods applied for analysis.

The analysis will be carried out using Linear Algebra (MATLAB) in the Spring 2010 semester.

Step 1: The data is imported from the website 'The Data'... the primary for seminar was to convert the text file into a numerical matrix file in order to further analyze the data.

Step 2: I have preprocessed the data to some extent... is the preprocessing? Preprocessing is a method used to avoid dimensional data in a matrix. Preprocessing can be viewed as any mathematical manipulation of the data prior to the primary analysis. This is preprocessing as well? Preprocessing is very important because it is used to remove or reduce irrelevant sources of variation (either random or systematic) for which the test being used as the primary method may not be able to account for. Additionally, it may be used to identify the preprocessing will change the data which will affect both a qualitative or quantitative analysis on the results. Finally, preprocessing levels are divided into two basic types:

Sample Preprocessing Tasks

1) Variable Preprocessing Tasks

2) Variable Preprocessing Tasks

Step 3: I had to read several papers on Linear Algebra - systems of linear equations, vector and matrix manipulation of systems of linear equations, operations on matrices and measures of matrices. I am taking the Linear Algebra course during the Spring 2010 semester and am working with Dr. Nagarkar on a regular basis on this using MATLAB. MATLAB has been used as the primary computer and I have received a manual for learning MATLAB.

Step 4: I intend to use the preprocessing tasks to process and analyze the collected data. We worked with our mentor, Dr. Lincoln Nagarkar, primary instructor of Linear Algebra, and Dr. William Hoar, associate professor in the statistics and bioanalysis about the data.

Materials

1) MATLAB

2) MATLAB

3) MATLAB

4) MATLAB

5) MATLAB

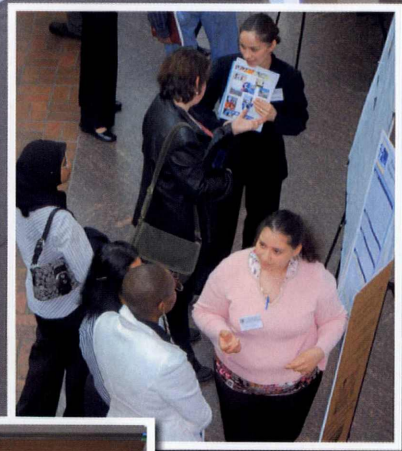
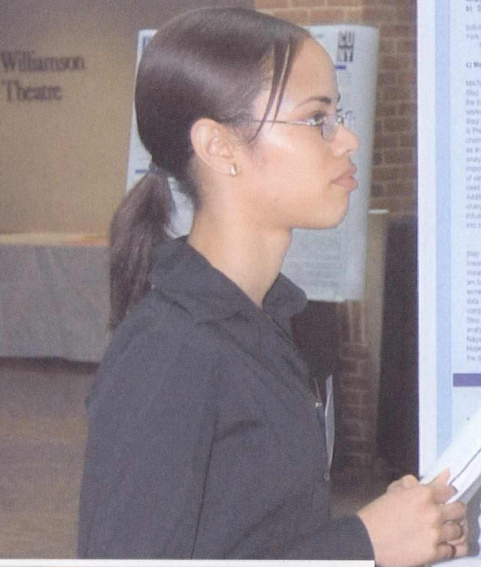
6) MATLAB

7) MATLAB

8) MATLAB

9) MATLAB

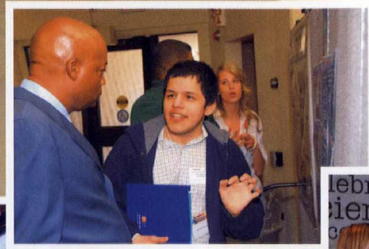
10) MATLAB



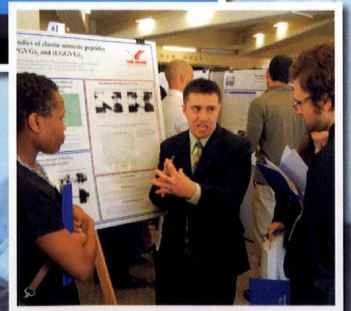
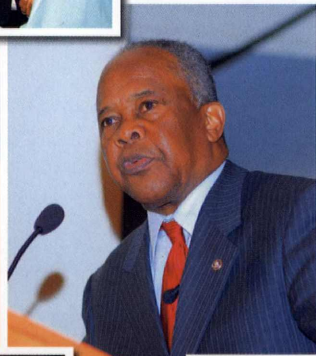
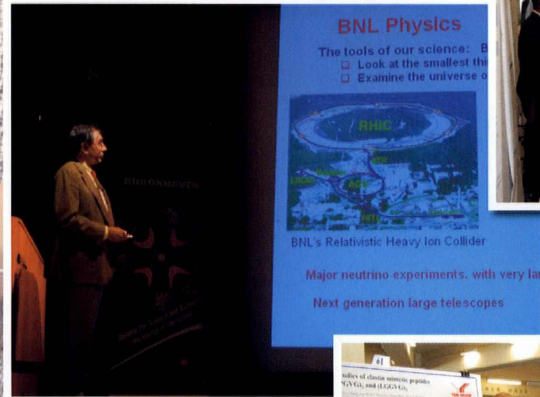
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For more information visit our website:
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URBAN UNIVERSITY CONFERENCE SERIES



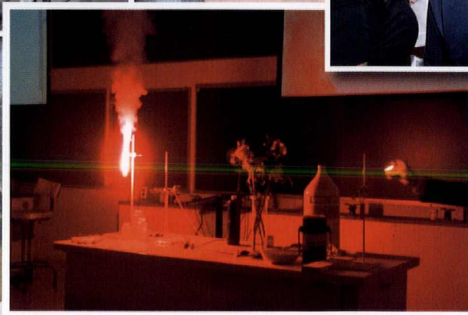
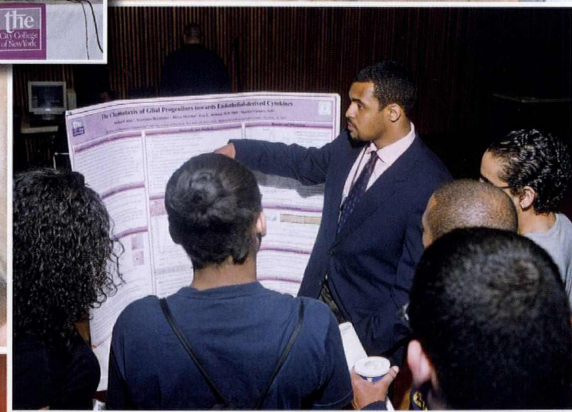
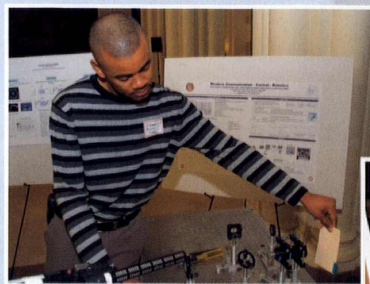
Science and Mathematics Learning Centers which support students in STEM studies at the partner NYC LSAMP campuses. They serve as the hub of all campus based Alliance activities and provide students with a “home base”, which is often lacking in a commuter university. Learning center activities account for a significant amount of the enrichment, peer tutoring, workshop activities, and academic and career advisement for STEM students. The learning centers are now sustained by CUNY campus support, and are integral components in sustaining STEM enrollment on the campuses.

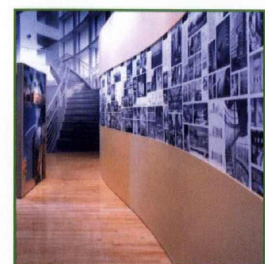
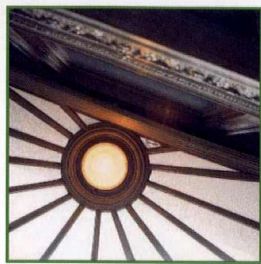
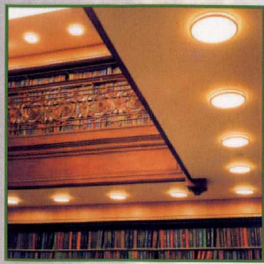


URBAN UNIVERSITY CONFERENCE SERIES

'Transitions'

The addition of 'Bridge' programs within the Alliance structures has allowed us to create the Saturday component of the UU Series called 'Transitions', a program run by the Bridge participants geared towards the middle and high school grades. This year will be the first year in which the Bridge To Teaching Scholars participate, focusing on Informal Science and Math Education.





BRIDGE TO THE DOCTORATE RETREAT

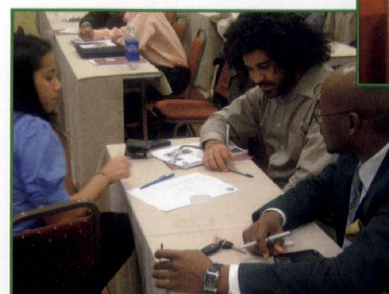
Bridge Retreat-Inter LSAMP Bridge Network Building

The Bridge to the Doctorate Retreat is held in January each year, and is a forum for frank, honest and uninhibited interactions, networking, panel discussions/professional development, and student and faculty research presentations.

Students and faculty from twenty-four institutions have participated in the three retreats held in 2009, 2010 and 2011. The NYC Alliance, the SUNY Alliance, the Florida-Georgia Alliance and the Greater Philadelphia Alliance have participated each year.

The NYC Bridge Scholars pursuing Doctoral degrees at Non-CUNY institutions are an integral component of the retreat as well as faculty from neighboring LSAMP institutions (University of Florida and the University of South Florida).

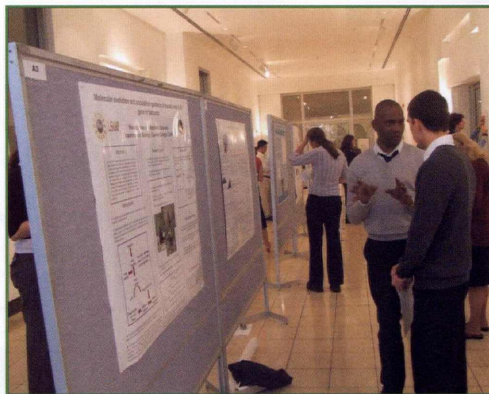
The 2011 Retreat had a focus on the Biological and Marine Sciences and Fellowship Opportunities. The National GEM Consortium participated for the first time in 2011.



BRIDGE TO THE DOCTORATE RETREAT

Participating Institutions

Brooklyn College
California State University, Fresno
Chicago State University
City College of New York
College of Staten Island
CUNY Graduate Center
Delaware State University
Drexel University
Florida Gulf Coast University
Hunter College
Lehman College
Queens College
SUNY Stony Brook
Temple University
University of Connecticut
University of Florida, Gainesville
University of Maryland, College Park
University of South Florida
University of Pennsylvania
University of the Virgin Islands
Stanford University
University of California-Davis
John Jay College
The National GEM Consortium



The Retreat was a special event for me. A family atmosphere was the signature which made the difference between this event and any other I have attended in the past. Amazing opportunity to network. I felt privileged to have access to such a selected group of people with common interests (professionally, personally, academically). The program update and the international experience panels were successful in making me realize the importance of the international or global impact of all of our work.

-Clara Neito-Wire, CUNY Graduate Center-City College

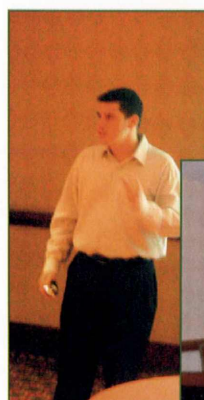
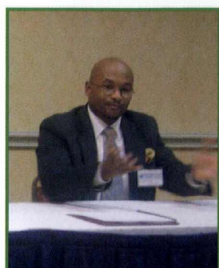


BRIDGE TO THE DOCTORATE RETREAT



Panel Discussions

Transition to Doctoral Study
Choosing the Doctoral Thesis Mentor and the Thesis Committee
The International Experience
Global Engineering
Global Citizen-Cartagena Model
Funding: Preparing the Fellowship Applications
Publications and Presentations at National Professional Society Meetings
The First Level/Qualifying Examinations
The Second Exam/Advancement to Candidacy
The Exit Strategy-Thesis Writing and Defense
What Next? The Job Market? Post Doctoral Training?
The First Appointment
BTD Networks/ProjectSTEM.net
Entrepreneurship Activities
BTD Robotics@CUNY

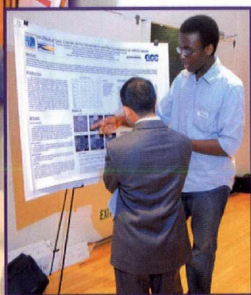
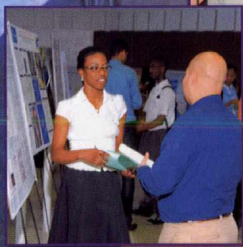


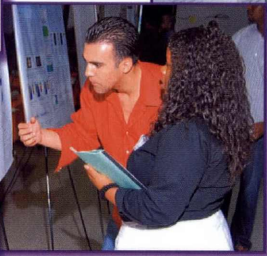
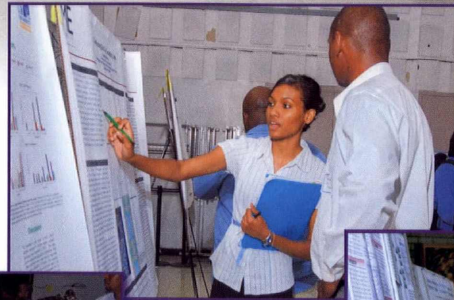
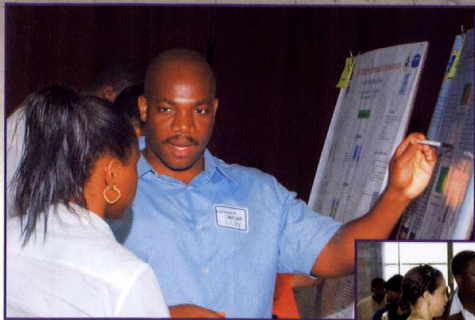
NYC ALLIANCE SUMMER RESEARCH

The LSAMP Summer Research Experience is designed to give undergraduate students new to the LSAMP program an intensive research experience similar to the traditional REU. Over 35 students are accepted each summer. The program was designed to 1) increase exposure of the LSAMP students to a professional research setting, 2) provide resources to help strengthen their scientific writing and presentation skills 3) and 4) allowed for the training of a cohort of LSAMP Graduate students in designing, managing and evaluating the Summer Undergraduate Research Experience. In addition to conducting research in their respective laboratories, students attended weekly seminars that included topics such as graduate school preparation, research ethics, and data analysis.

Below are some of the comments and aspects of the program that were highly rated by the students:

- interactions with the graduate student
- writing feedback from the graduate students was found useful
- liked the presentation of diversity of research from other participants
- improved presentation skills and writing skills
- practicing their research presentation
- improved their organizing skills
- able to interact with other students from different disciplines
- good preparation for graduate school
- became more confident with speaking in front of others



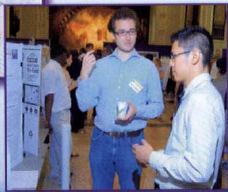
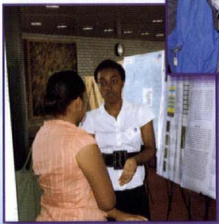
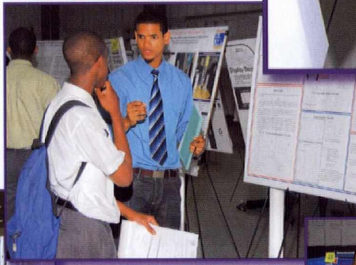
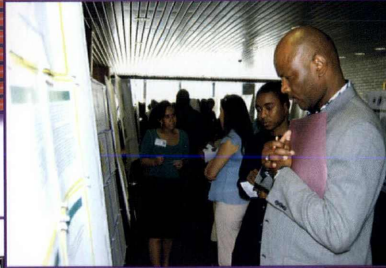
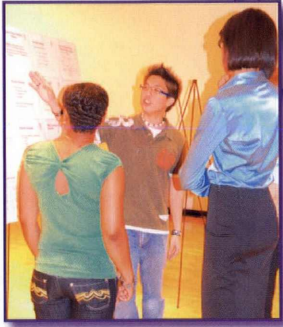


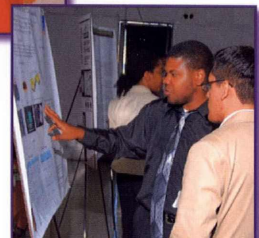
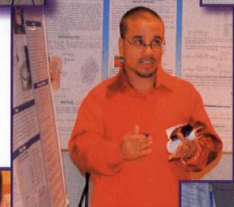
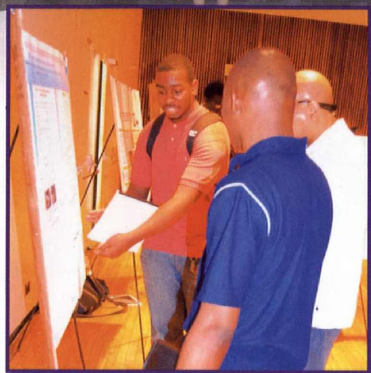
LSAMP Research Assistantship Program

The NYC LSAMP Undergraduate and Graduate Research Program, continues to be the heart of the NYC Alliance. The program includes - research experiences on or off CUNY campus, research enrichment and career development, and research. The LSAMP CUNY Summer Research component (2002-2011) drew participation from 50 LSAMP Scholars each summer, with an additional 30-40 students obtaining internship opportunities at non-CUNY training sites. Over 100 CUNY faculty mentors participate in LSAMP activities during any academic year. For the 2002-2011 academic year, over 1200 LSAMP research scholarships were offered via CUNY institutional support.

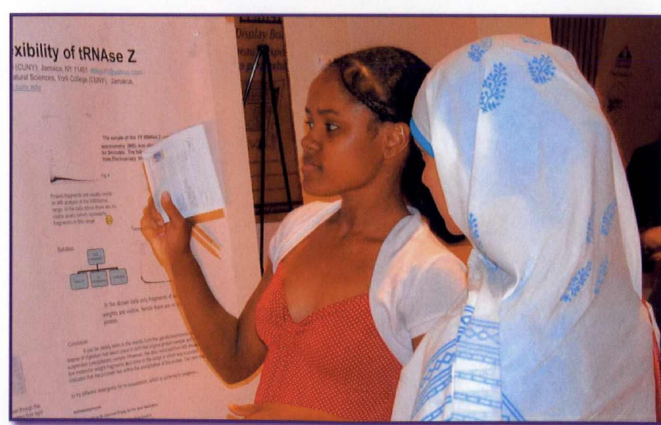


NYC ALLIANCE SUMMER RESEARCH



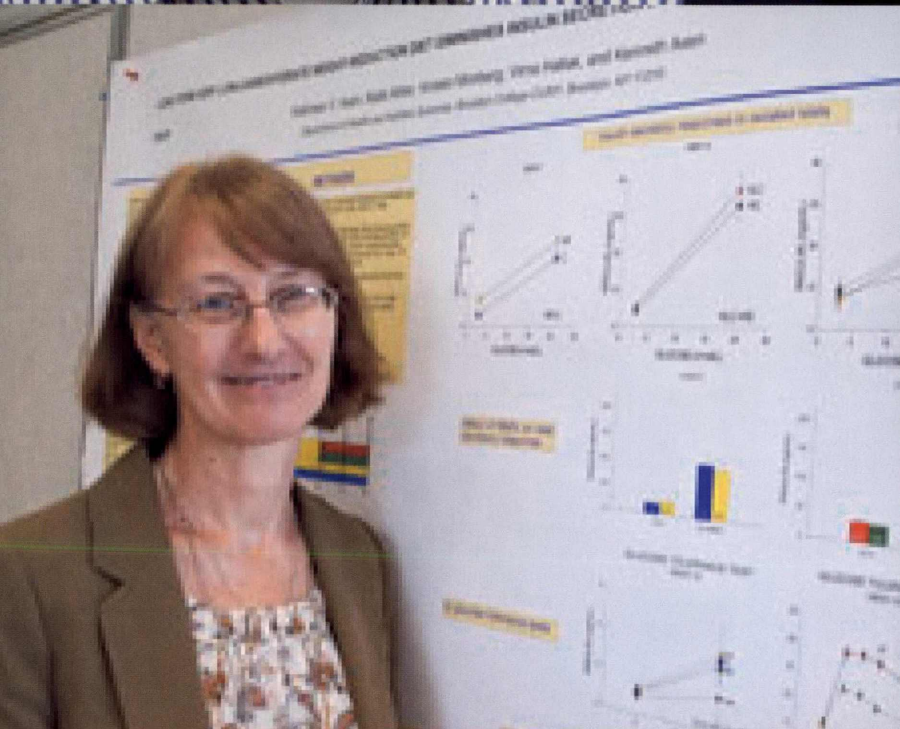
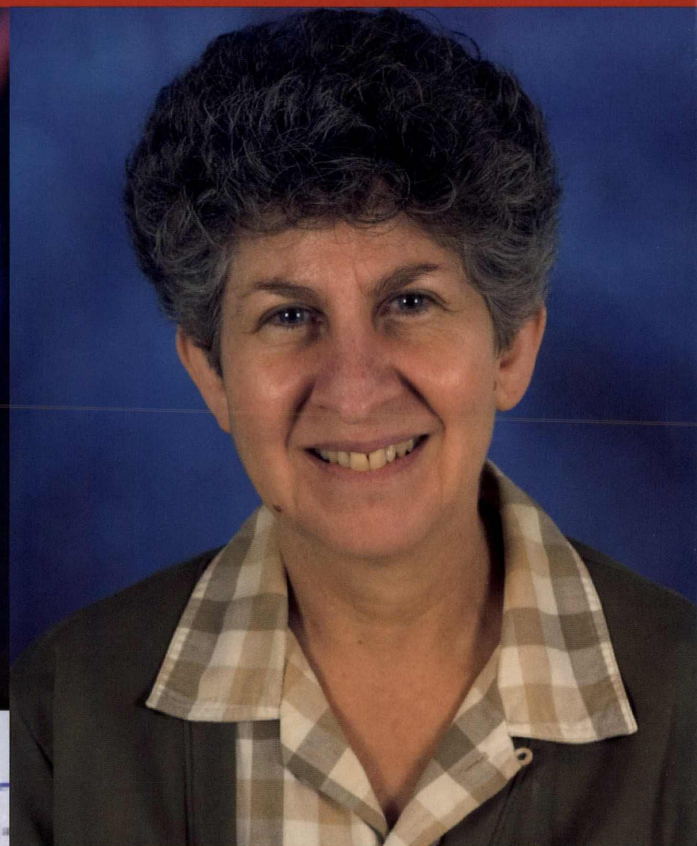


NYC ALLIANCE SUMMER RESEARCH

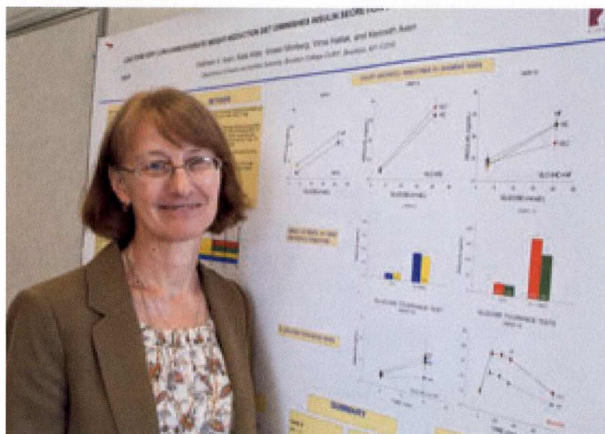


NYC ALLIANCE FACULTY PROFILES

The Alliance Peer and Faculty Mentoring Programs have led to an atmosphere for the development of mentoring relationships throughout CUNY. Peer tutors are one of the key elements in STEM course restructuring and faculty mentors are crucial in keeping students in STEM to the baccalaureate level and beyond. The Annual Urban University Series brings together CUNY faculty, students and partners, and focuses on mentoring. It is the culmination of four Borough wide meetings that are held during the academic year, bringing together students, faculty, and mentors to explore current research topics, professional development and the mentoring process.



Professor Axen Scores NIH Grant to Study Obese Rats



Brooklyn, N.Y.—Kathleen Axen, professor of health and nutrition sciences, is the most recent Brooklyn College recipient of a grant from the National Institutes of Health. The four-year grant, totaling \$471,000, will allow Axen to continue her research on the metabolic effects of very low-carbohydrate weight-reduction diets in obese rats.

“Having an NIH review deem your project worthy and judge your record to be strong enough to fund is very satisfying,” says Axen. “This recognition makes me very happy.”

Her research compares three different groups of Sprague-Dawley rats that were fattened for eight weeks before going on a diet program.

Owing to the larger size of its organisms, the rat is used in quantitative research of body size and obesity. Although they belong to the same species as the brown rat, Sprague-Dawley rats have been bred for experimental purposes since the beginning of the 19th century. Featuring a white coat and red eyes, they are commonly known as albino or lab rats.

Of Axen’s three control groups, one continues on a high-calorie and high-fat diet; the other two groups are subject to weight-reduction programs with isocaloric (same calorie count) diets for four to eight more weeks. But while the second group is under a high-carbohydrate program with low fat, the third is under a low-carbohydrate diet with greater fat intake.

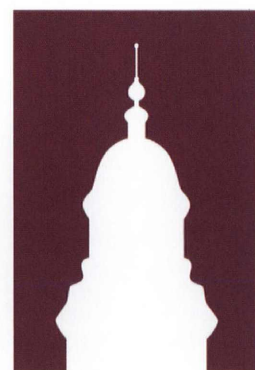
One of Axen’s preliminary conclusions is that, contrary to popular belief, a high-carbohydrate diet helps rats—and, it is hoped, other mammals, including humans—from becoming insulin deficient, a precursory condition to diabetes. But her research needs to determine the diet program’s effects beyond the eight weeks.

“This award has great meaning to me both financially and as recognition of my level of scientific research,” said Axen during the poster exhibition on Faculty Day in May. “I will have money to do more—purchase more supplies and some equipment, and even pay a part-time technician.”

Before obtaining this grant, Axen’s research was funded with grants that often required her to pay out of pocket for supplies. The NIH grant will allow her to get doctoral candidates and postdoctoral students to assist her.

“Both the undergraduate and graduate students who have been helping me over the years are wonderful workers, but their time is limited. I’d have to train a new group each year, sometimes every semester, and I have to physically be there to supervise them.” *Reprinted with permission of Brooklyn College*

BROOKLYN



COLLEGE

NYC ALLIANCE FACULTY PROFILES

City Tech Receives NASA Grant: The Sky is Not the Limit



Gaffar Gailani

The National Aeronautics and Space Administration (NASA) Office of Education Integration Division of Minority University Research and Education Program has awarded City Tech a Curriculum Improvement Partnership Award for the Integration of Research into the Undergraduate Curriculum (CIPAIR) for a project entitled Achieving Proficiency in Engineering Research and STEM Education through NASA Initiatives. The project will be led by Dr. Gaffar Gailani of the Department of Mechanical Engineering Technology (MET). Team members include Dr. Sidi Berri, MET Chair, Dr. Reginald Blake, Physics, and Dr. Nieves Angulo of the Mathematics Department at Hostos Community College (CUNY).

City Tech is proud to have won NASA support for this project which will aid the development of analytical and re-

search skills of undergraduate students, attract minority students to STEM fields, increase student transfer rates into graduate school, and expand research opportunities for faculty and students at NASA. "As soon as you mention NASA, students will start paying attention," said Dr. Gailani. The project will support the revision of three courses at City Tech: Engineering Simulation, Materials Testing Lab, and Computer Applications in Mechanical Engineering and two courses at Hostos Community College (HCC): Differential Equations and Linear Algebra to incorporate NASA-relevant material. Two new multidisciplinary courses will be created—Introduction to Research Management and Special Topics in Remote Sensing. The HCC engineering programs most often transfer students to City College (CUNY) but this project will give HCC students an oppor-

tunity to attend City Tech engineering technology programs as well by this alignment of curriculum.

The grant also includes a well-designed research component that will support ten summer internships per year. Partnerships will be built with NASA centers including Goddard Space Flight Center, Marshall Space Flight Center and National Biomedical Space Research Institute at Morehouse School of Medicine. "Students are excited" states Dr. Gailani, "but don't know exactly what NASA is doing; these opportunities are a big move in the right direction for students to be the future workforce of NASA and NASA-related industries."

A local partnership is also planned with the New York City Research Initiative (NYCRI). Sponsored by the NASA Education Office, NYCRI has a summer research institute where teams of high school students, undergraduate students and faculty work with graduate students alongside lead scientists of NASA-funded projects at the universities within a 50 mile radius of NYC or at the Goddard Institute for Space Studies (GISS) under the mentorship of GISS scientists. City Tech will leverage assistance from the Louis Stokes Alliance for Minority Participation (LSAMP) program to support student internships.

This NASA award is a welcome addition to recent grants focusing on strengthening City Tech's STEM initiatives, with a focus on combining curriculum development, student research and internship opportunities. We look forward to seeking more support from other federal agencies for STEM projects that involve students in research.

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NYC ALLIANCE FACULTY PROFILES

Dr. William Tramontano: From Professor to Provost

After three successful years as Lehman College's Dean of Natural and Social Sciences, Dr. William Tramontano, an exceptional educator and proven researcher in the biological and plant sciences, was appointed to the position of Acting Provost and Vice President of Academic Affairs for the 2006-07 academic year.

Dr. Tramontano's commitment to excellence as an educator traces back over two decades ago to Manhattan College and the College of Mt. St. Vincent, both located in the Riverdale section of the Bronx, where he was a Full Professor of Biology and served multiple terms as Chair of the Biology Department. There, he received several notable awards, such as the Distinguished LaSallian Educator award in 2002. His research expertise in manipulating the cell cycle of legume roots and experimentation to create novel herbicides attracted funding from both the National Institutes of Health (NIH) and the Pew Foundation.

Seeing the necessity for younger students to gain undergraduate research experiences, Dr. Tramontano developed two undergraduate biological sciences programs with support from the Howard Hughes Medical Institute.

He has demonstrated a willingness to guide students in their academic endeavors: by providing counsel on professional development, establishing research opportunities for nascent scientists, and writing recommendation letters for students applying to dental, medical and graduate schools. Even now with the ever-increasing duties attributed to his position as Provost and Vice President, Dr.

Tramontano has managed to maintain his dedicated approach to helping students succeed.



"The LSAMP program at Lehman College is opportunity, opportunity for both students and faculty!" contended Dr. Tramontano, the LSAMP Steering Committee for Lehman College. "At an institution like Lehman College, research, teaching and learning are all highly valued and the LSAMP program

has been a positive force on our campus, both in the laboratory and the classroom. Faculty, especially those who mentor undergraduates in research, participate in one of the purest forms of teaching. In my roles as Dean, Acting Provost and AMP Steering Committee member, I have championed the inclusion of a basic research component in all curricula, and we are grateful for the support that the LSAMP program provides at all levels of study."

Dr. Tramontano is now the Provost of Brooklyn College and serves as a steering committee representative for Brooklyn College.



City College Science Dean Ruth Stark Named AAAS Fellow

Dr. Ruth Stark, acting dean of science, The City College of New York, and director, CUNY Institute for Macromolecular Assemblies.

Dr. Ruth Stark, acting dean of science at The City College of New York, has been elected a fellow of the American Association for the Advancement of Science (AAAS). She is one of 503 AAAS members elevated to this rank because of their scientifically and/or socially distinguished efforts to advance science or its applications.

Dean Stark is being recognized for her distinguished contributions to molecular biophysics, particularly NMR (nuclear magnetic resonance) studies of complex biomolecules, and creation of a professional network linking NMR with complementary techniques. AAAS will bestow a certificate and rosette pin upon her and the other honorees February 19 during its annual meeting in Washington.

In the laboratory, Dean Stark draws upon her training in physical chemistry, NMR spectroscopy and molecular biophysics to study biologically significant natural materials and their macromolecular assemblies. Her investigations have included examination of: molecular structure and development of biopolymers that protect fruits and vegetables; proteins that regulate lipid metabolism, and melanin pigments that contribute to antifungal drug resistance.

Studying these biopolymer systems frequently requires the development of novel chemical and spectroscopic strategies. The work is conducted through her research team, the Stark group, which has 13 members ranging from post-docs to high school students, and the CUNY Institute for Macromolecular Assemblies (MMA). This institute brings together 250 researchers on eight CUNY campuses to address fundamental and applied questions at the frontier of life science research.

To date, Dean Stark has been awarded approximately \$15 million in research grants from the National Institutes of Health, National Science Foundation, U.S. Department of Agriculture and the U.S. – Israel Binational Research and Development Fund. She has had 93 papers published in refereed journals.

In addition to directing the MMA, Dean Stark serves on the NMR operations committee for the New York Structural Biology Center, which she helped establish, and has served on the editorial board of the journal "Solid State NMR." Beginning in 2003, she initiated two NSF sponsored research coordination networks that now include 95 worldwide research teams sharing expertise for the elucidation of molecular structure in non-crystalline biological solids such as membrane-bound receptor proteins, pharmaceutical formulations and polymeric plant and soil materials.

A member of the chemistry department, where she holds the rank of distinguished professor, Dean Stark joined the CCNY faculty in 2007 from College of Staten Island, where she had taught since 1985. From 1979 to 1985, she was an assistant professor of chemistry at Amherst College in Massachusetts. She earned her Ph.D. in physical chemistry from University of California at San Diego and holds a bachelor's degree in chemistry from Cornell University. *Reprinted with permission of City College*

NYC ALLIANCE FACULTY PROFILES

Lehman College Professor Developing New Tools to Study Evolution

BRONX, N.Y.—What do family trees have to do with creating new flu vaccines?

Everything, according to Lehman College Mathematics and Computer Science Prof. Katherine St. John. She's working on a grant from the National Science Foundation (NSF) to develop new tools that will help model evolutionary changes, like those taking place in the flu virus.

"Each year, 36,000 people in the U.S. die because of the flu," says Prof. St. John, "but scientists understand that the flu virus continues to evolve and that next year's strain will be different. They build phylogenetic trees to anticipate what that next round of flu will look like."

Just like a family's genealogy, these trees show shared ancestry—the common links—among various biological groups. Working with 12 of her undergraduate students, Prof. St. John will develop new mathematical and computational tools that will enable scientists to compare, optimize, and visualize the various trees.

"If I have 50 different animals, then the number of possible trees tracing their ancestry would be more than the number of atoms in the observable universe," she explains. Her goal is to use innovative math techniques to understand what such a space with all those trees would look like. That would improve a search engine's ability to find the right information. This research has implications not only for understanding more about the underlying changes that take place from one flu season to the next but also for analyzing character evolution, gene expression, and many areas of conservation biology.

The \$221,150 grant is provided through the American Recovery and Reinvestment Act of 2009. Undergraduates working with Prof. St. John are funded through that grant, as well as through the Louis Stokes Alliance for Minority Participation program, an NSF program that seeks to increase the quality and quantity of students successfully completing science, technology, engineering, and mathematics baccalaureate degree programs.

A graduate of Smith College, Prof. St. John holds a master's degree from Johns Hopkins University and a doctorate from the University of California, Los Angeles. She joined the Lehman faculty in 1999. A senior college of The City University of New York, Lehman currently enrolls more than 12,000 students and offers over 100 undergraduate and graduate programs.



LEHMAN
COLLEGE

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NYC ALLIANCE FACULTY PROFILES



'I Want Every Single Student to Succeed'

Dr. Sadie Bragg, Senior Vice President/Provost of Academic Affairs and Professor of Mathematics at BMCC, is being awarded the prestigious American Mathematical Association of Two-Year Colleges (AMATYC) award for 2010.

Actively involved in mathematics education at local, state and national levels, Dr. Bragg has served on committees including the Advisory Board to the Education and Human Resources Directorate of the National Science Foundation (NSF), where she served on the writing team for the NSF document, *Shaping the Future*. She also chaired the NSF report, *The Integral Role of Two-Year Colleges in the Science and Mathematics Preparation of Prospective Teachers*.

"I wasn't really representing myself; I was representing two-year colleges," says Dr. Bragg, who served as a president of AMATYC, was actively involved in creating AMATYC's strategic documents, *Crossroads* and *Beyond Crossroads*, and has brought professional development to math instructors at the two-year college level nationwide, through AMATYC's Project ACCESS.

Bragg has also led two-year colleges into a global dialogue through the International Congress of Mathematics Education (ICME). Partnering with George Ekol, a math educator from Uganda, Bragg co-chaired the DG 23 Discussion Group and presented at the ICME conference in Monterey, Mexico in 2008.

Much of this work Dr. Bragg accomplished in concert with other math professionals, including Dr. Susan Wood, Vice Chancellor for Academic Services and Research, Virginia's Community Colleges; as well as Dr. Marilyn Mays, Executive Dean, North Lake College; Philip Mahler, Professor of Mathematics at Middlesex Community College, Boston, MA, who nominated Dr. Bragg for this award; and Dr. Rikki Blair, AMATYC's current Past President, all of whom, like Bragg, served on several national mathematics committees, such as the United States National Commission on Mathematics Instruction. "I sat on the shoulders of many giants," she says. "We worked, and continue to work, as a team." *Reprinted with permission of Borough of Manhattan Community College*

The Management and Leadership structures have been constructed to ensure that LSAMP represents a cooperative effort of participating institutions, and functions systemically. The LSAMP has established a number of models and an operations manual. It includes a Management Chart, the LSAMP Campus, Learning Center, Research Assistant and Activity Coordinator models. The models are essential units of the LSAMP. They guide the interactions and duties of the participants and core activities, and promote a systemic comprehensive approach that supports the LSAMP mission and goals.

GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE



International experiences continue to be invaluable in broadening horizons and shaping careers. Since 2008, over 65 LSAMP participants have traveled to Sweden, France, Germany, Austria, China, Singapore, Colombia, Costa Rica, Brazil, Vietnam, The Netherlands, Togo, Ecuador, The Dominican Republic, Sri Lanka, Mexico, Ghana, South Africa and Ethiopia building on the theme from the 2008 Urban University Conference Series, 'Explorations and Discovery'.

GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

Austria



Austria has been an amazing opportunity for me to further develop knowledge and skills that will propel me into PhD studies and career in science and engineering. This program has strengthened my global experience and enriched my view to the outside world.

~Abdelhamid Jnane, Bridge Scholar-City College

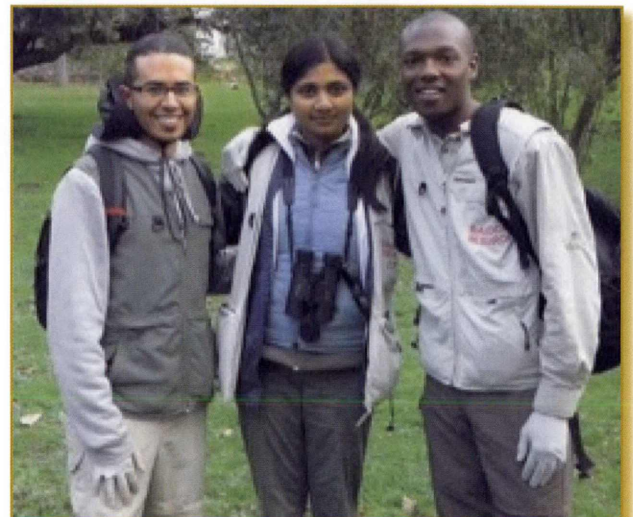


In the last four years, over fifty LSAMP Scholars have traveled to Austria, Brazil, Germany, China, Colombia, Costa Rica, Ecuador, Ethiopia, France, Ghana, the Netherlands, Italy, Mexico, South Africa, Sweden, Singapore, and Togo to conduct research. Integrating a Study Abroad or International Research experience into undergraduate and graduate training can be invaluable.

All in all, being away from home and learning how to function and think as a scientist has really changed me. The study abroad experience was especially good because it allows one to see other cultures and people of the world. This experience is sure to take me far and I have already gained so much from it.

~Brad Reberio (first from left), Queens College

South Africa



GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

Environmental Monitoring And Assessment In Cartagena, Colombia

Universidad de San Buenaventura, Universidad de Cartagena, Cartagena, Colombia

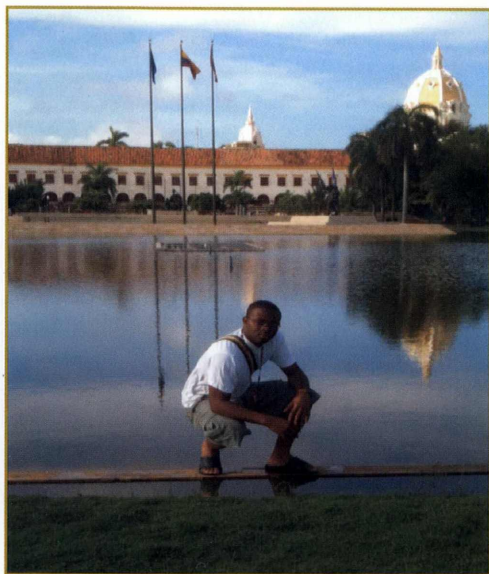
The initial general project objective is to produce environmental monitoring baseline data of water, soil, and aquatic food systems. The investigation of these systems will include analysis of parameters such as pH, dissolved oxygen, organic matter, chlorine, turbidity, nitrogen, phosphorus, soil porosity, soil water capacity, fecal coliform, mercury and iron.



Universidad De Cartagena, the Universidad De San Buenaventura at the closing ceremony.

PROGRAM ELEMENTS/STRUCTURE:

- LSAMP Scholars and students attending Universidad De Cartagena and the Universidad De San Buenaventura were selected to form the research team. A total of sixteen students were selected.
- All students (USB and CUNY) share a common housing arrangement for the ten week duration of the program to facilitate logistics, cultural exchange, research progress, a buddy system and language immersion.
- A resident supervisor/coordinator is present with the team for the duration of the summer program.
- Service Learning activities (once per week for ten weeks) working with the Pro Boquilla Foundation and a school in Manzanillo



We understood that even though this was an intercultural exchange, we were required to actually conduct research and which included more than laboratory and field work. This research also allowed us to develop our analytical skills by working in a laboratory, and give us a brief synopsis of what work after college will be like. In the end it gave me a feeling like research that we conducted will indirectly have an effect on the lifestyle of people in Cartagena.

-Akil Hutchingson, Brooklyn College



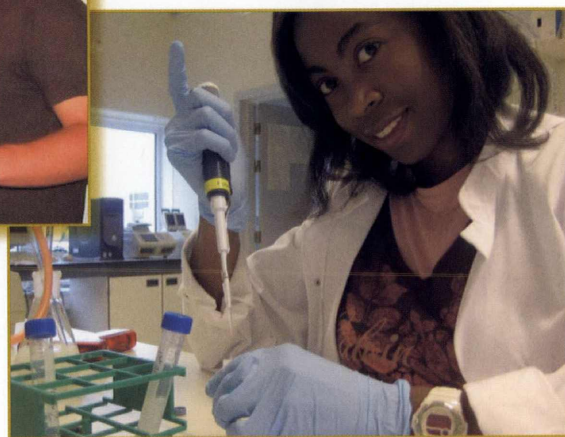
Resident Coordinator Dr. Diomaris Padilla conducting one of the Learning Seminars during the program.

GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

The Netherlands

Five Scholars travelled to the University of Maastricht, (the Netherlands) to conduct research in the Neurosciences. Doctoral Scholar Julie De la Cruz served as the on site coordinator and also conducted research. The School of Mental Health and Neuroscience (MHeNS) has its niche in the complex interplay between basic brain mechanisms, brain/neurocognitive function and psychopathology, with emphasis on prevalent psychiatric, neuropsychiatric and neurological conditions.



I am amazed that since this is an international school, everyone speaks English instead of Dutch. It makes communicating (as an English speaker) much easier. I also loved how passionate the Dutch are about their soccer. It was so much fun to watch the games wearing orange. I wish the Dutch had won, though.

One thing about Dutch labs that American labs should adopt is the lab day out. In the U.S., I barely know some people in my department because I never see them. In "Lab Day Out" we really got to know some people in lab and it was a great team building experience.

~Julie De La Cruz, (Doctoral Scholar-Queens College)

It was nice to work with a brilliant group of scientists who took me under their wings and sharpened my lab skills to a point that I feel confident in my ability to work in just about any lab.

~Alicia Barklay, (Lehman College)

At the end of the summer, all the LSAMP European summer students traveled to Stockholm, Sweden to join the six scholars at KTH and presented their summer research. The coordinator of the KTH collaboration is Professor Ilona Kretzschmar of the City College (second row, first from left). Doctoral candidate Julie De La Cruz (first row, third from right) coordinates the program at the University of Maastricht.



GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

Colombia

Research Objectives

La Boquilla and Manzanillo

Studies in both Boquilla and Manzanillo focused on soil quality of the seashore by measuring the pH, salinity, iron levels, and sanitation markers (fecal tests). In addition fish samples were collected and surveys of local fishermen to characterize the type of fish and quality of fish (mercury levels) impacted by the activities in both communities.

Zapatero

In Zapatero, potable water quality was assessed and compared to river/creek water, which is utilized when potable water (trucked in twice per week) is scarce. Water quality parameters such as nitrate, ammonia, phosphorus, iron, pH, and fecal coliform were measured. In a second study, an assessment of soil quality was conducted measuring parameters such as iron, pH, and fecal coliform levels to determine soil contamination due to leaky septic tanks or latrines.

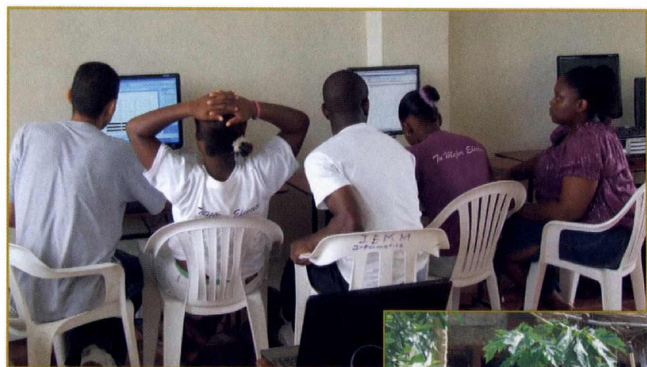
Tierra Baja and Puerto Rey

An assessment of soil quality was conducted measuring parameters such as iron, pH, and fecal coliform levels to determine soil contamination possibly due to leaky septic tanks or latrines.



Aside for my thirst for travel and adventure, the summer in Cartagena also satisfied my desires as a researcher. I was able to take a project full circle; taking samples from the field, to the lab, and then analyzing the implications on the environment. The program also taught me a lot about teamwork, and how to manage project with a multitude of other people, qualities I know will benefit me later on in my scientific career.

-Julius Edson, City College



GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

LSAMP CUNY Austria Collaborations

A total of fifteen students participated in the Special Two Week Seminar/Workshop held here at City College (see attached). Eight students from various disciplines at the University of Graz and TU-Graz participated as well as seven CUNY students. Complementing the City College based component, were five students to conduct research this summer

at the University of Graz and TU-Graz. Arrangements were also made for our students to attend two week Summer Courses held in the castles of Seggau. They had the possibility to attend courses in sustainable development and the workshops on transferable skills.

The City College, The University of Graz and Technical University of Graz
Two Week Intensive Seminar Course-Summer 2010
July 18 - August 1, 2010 at The City College of New York

SCIENCE AND SOCIETY - IN THE FUTURE

Course participants explored the role Science and Technology played in the future through a series of readings, lectures and discussions.

SEMINAR SPEAKERS

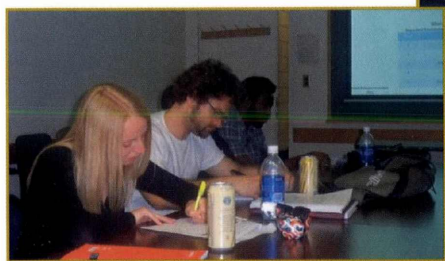
- Dr. Ilona Kretzschmar, Colloids and their Assembly-City College
- Dr. Stephen Redenti, Tissue Engineering/Stem Cells-Lehman College
- Dr. Steve Greenbaum, Batteries, Fuel Cells and Renewable Energy-Hunter College
- Dr. Raymond Tu, Soft Materials-Synthesis and Assembly-City College
- Dr. Neville Parker, Transportation in Context-City College
- Professor William Gibbons, Information Literacy-City College
- Dr. Katherine St. John, Bioinformatics-Lehman College
- Dr. Ruth Stark, Structural Biology Center-City College
- Charlie Corredor, Bridge Scholar-The Energy Institute-City College

SEMINAR PROGRAM DESCRIPTION

Eight students from the University of Graz and Eight students from the City University of New York participated in the program. Participants shared a common living arrangement at the Towers at the City College of New York.

TOURS

- The Urban Transportation Modeling and Simulation Center/CUNY-ITS
- The NY State Structural Biology Center
- Brookhaven National Lab



GLOBAL CITIZEN

THE INTERNATIONAL EXPERIENCE

Togo

With a trip to Togo, a developing country in West Africa, I had the opportunity to explore the impact and utilization of social network on developing countries and expand the NYC LSAMP's international reach. The objective was to investigate how the local university can use the new social networking tools to keep up with technology and collaborate with other universities in the US and Europe.

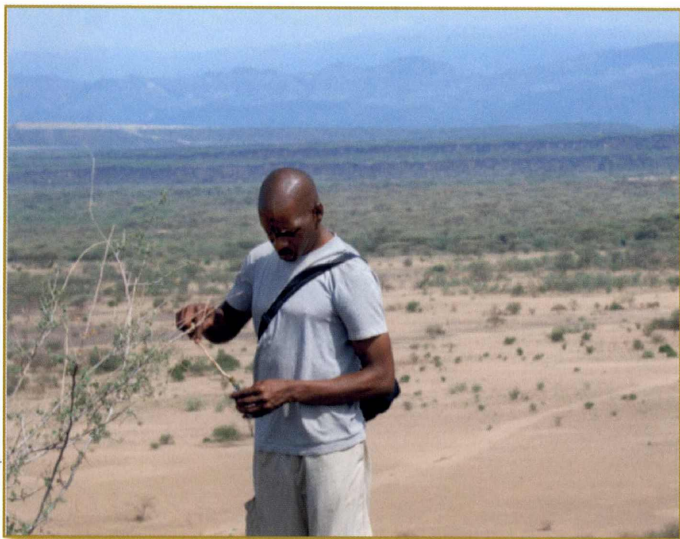
I focused on the computer science program CIC (Centre d'Informatique et de Calcul) because of the historical role technology has played in promoting economic and social growth in other parts of the world. In the upcoming months, we plan to develop a customized social network module for the expanding international LSAMP community, for Togo and for other countries cooperating with the LSAMP.

-Viho Kpade

Students studying and working in the computer lab at the CIC



Student entering the campus using the motorbike: popular mean of transportation



Ethiopia

Fieldwork is an opportunity to be up and close with your subject. The time spent in Ethiopia studying baboons along with my mentor and 3 other students was an educational experience that can't be matched. Being able to combine my work in class, the lab and then in the field was invaluable to my future.

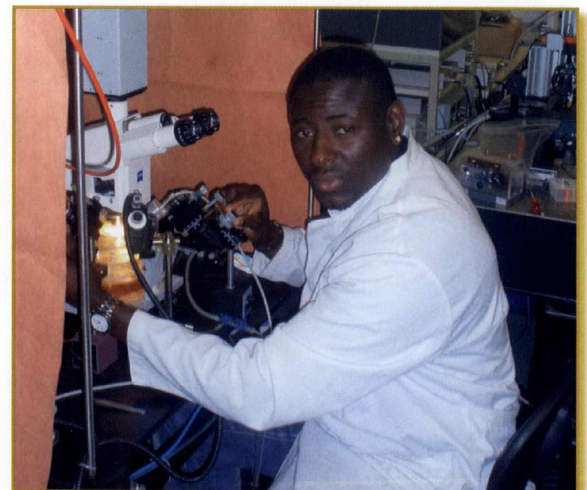
-Ronald Fikes

Germany

Neuron-Physiology Lab at George-August University (Max Plank) Goethite, Germany.

My six weeks stay was a great learning experience because I was learning a method that we were not familiar with in our lab (Electrophysiological recording from culture slices) and I saw myself learning another important method in Neuroscience research (preparation of primary neuron from Hippocampus). I am sure that my training would present a lot of opportunities, therefore choices, of collaboration on returning to New York. People say in Africa "If you want to go fast go alone....but if you want to go far go with the crowd."

-Soulemanne Diallo



NYC LOUIS STOKES ALLIANCE



Number of Graduates by Field:

STEM DEGREES AND STEM ENROLLMENT

	1991-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	1999-00
Baseline* Minority (BA/BS)	284	351	393	442	379	437	457	465	448
Expansion** Minority (BA/BS)	404	488	514	575	549	612	616	646	688
Baseline* Non-Minority (BA/BS)	442	461	536	443	509	510	515	509	520
Expansion** Non-Minority (BA/BS)	775	821	863	803	884	959	933	998	1128
Community College (AS)	110	98	156	96	76	186	195	181	178

Fall

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Minority Enrollment	4216	4905	5335	5788	6290	6391	6619	6807	6584
Non-Minority Enrollment	3195	3357	3714	3612	3579	3588	4019	3998	4731

Academic Performance Indicators:

INCREASES IN NYC AMP MINORITY STEM DATA

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01
Baseline* BA/BS Degrees	23.6%	38.4%	55.6%	33.5%	53.9%	60.9%	63.7%	57.7%	70.3%
Expansion** BA/BS Degrees	20.8%	27.2%	42.3%	35.9%	45.8%	52.5%	59.9%	70.3%	80.3%
Community College AS Degrees	-10.9%	41.8%	-12.7%	60.0%	61.2%	77.3%	64.5%	61.8%	30.3%

CUNY Full Time Enrollment and Graduates by Field:

	2008	2009	2010
CUNY Total Enrollment	98,667	103,510	107,597
STEM	13,380	14,197	14,993
Non-STEM	85,287	89,313	92,604
Minority in STEM	7,004	7,291	7,218
Non-Minority in STEM	6,376	6,906	7,775
Minority in Non-STEM	41,604	43,267	44,497
Non-Minority in NON-STEM	43,683	46,046	48,107



<u>2000-01</u>	<u>2001-02</u>	<u>2002-03</u>	<u>2003-04</u>	<u>2004-05</u>	<u>2005-06</u>	<u>2006-07</u>
508	502	593	511	588	473	515
755	761	852	690	722	633	621
622	573	565	599	544	534	530
1145	1276	1265	1164	1042	873	826
148	154	201	180	245	276	326
<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>
6976	6963	7669	7497	7797	7837	6283
8121	7702	7480	7172	6917	6533	5933

* Baseline: Brooklyn, City, Hunter, Lehman, Medgar Evers, and New York City Technical Colleges

** Expansion: Six Baseline Campuses; Baruch, Staten Island, Queens, and York Colleges



<u>2000-01</u>	<u>2001-02</u>	<u>2002-03</u>	<u>2003-04</u>	<u>2004-05</u>	<u>2005-06</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>
78.8%	76.8%	108.8%	79.9%	107%	66.5%	81%	101%	91%	106%
66.8%	88.4%	110.9%	70.8%	78.7%	56.6%	53.7%	76%	56%	76%
44.5%	40.0%	82.7%	63.6%	122.7%	151%	196%	217%	208%	232%



STEM DEGREES AND STEM ENROLLMENT

	<u>1991-92</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>
Baseline* Minority (BA/BS)	284	572	542	585
Expansion** Minority (BA/BS)	404	711	629	713
Expansion** Non-Minority (BA/BS)	775	914	939	1051
Community College (AS)	110	349	339	365
Fall	<u>1992</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
Minority Enrollment	4,216	7,004	7,291	7,218
Non-Minority Enrollment	3,195	6,376	6,906	7,775

NYC ALLIANCE COLLABORATIONS



Activity Coordinator positions at the participating NYC LSAMP campuses, have been institutionalized (beginning in 1997) as a significant component of the CUNY STEM pipeline. From 1997-2011, thirty-four (34) have obtained Masters degrees from CUNY. These positions have served as an effective pathway to graduate studies and a bridge to the Ph.D. From 2003-2011, twelve received MS degrees with ten continuing on to doctoral studies at University of Arizona (1), Cornell University (1), Yale University (1), the CUNY Graduate Center (4), Howard University (1), University of Arizona (1) and Colorado State University (1). Seven (current and past) are enrolled in doctoral programs at the CUNY Graduate Center. For the 2001-2011 period, twenty-three of the activity coordinators were NYC LSAMP Research Scholars and twenty-three have moved to doctoral programs. From inception, six have completed Ph.D. degrees, and three currently have tenure track faculty appointments at Hampton University, NYC College of Technology and Queensborough Community College.



NYC ALLIANCE COLLABORATIONS

Brookhaven Lab Partners with CUNY

Memorandum of Understanding Signed
at 2010 Urban University Conference



SELECTED OFFICE OF EDUCATION PROGRAMS

Community College Institute (CCI)

The United States Department of Energy (DOE) Community College Institutes are conducted at National Laboratories across the country.

Each offers an ten-week summer research and educational training experience for highly motivated community college students. The same general model, eligibility criteria, stipend, and application procedures apply to the programs at each laboratory.

Faculty and Student Teams (FaST)

The Department Of Energy's national program entitled the Faculty and Student Teams Program (FaST) offers faculty and student team appointments for the summer semester.

Selected faculty and student participants will be associated with members of the Brookhaven National Laboratory scientific and professional staff in an educational training program developed to give research experience in areas of chemistry, physics, engineering, biology, nuclear medicine, applied mathematics, high- and low-energy particle accelerators, and science writing.

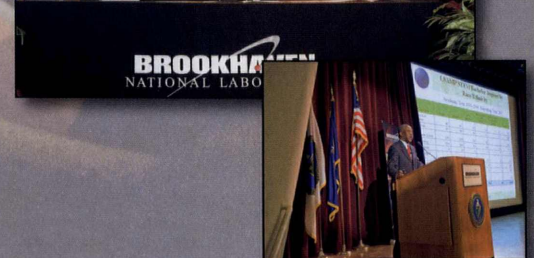
Science Undergraduate Laboratory Internship (SULI)

The U.S. Department of Energy (DOE) has established a national program titled the Science Undergraduate Laboratory Internship (SULI). Under it, Brookhaven National Laboratory (BNL) and other labs offer student appointments for spring, summer, and fall terms.

Participants will be associated with members of the scientific and professional staff in an educational program developed to give research experience in areas of chemistry, physics, engineering, biology, nuclear medicine, applied mathematics, high- and low-energy particle accelerators.

On April 23, BNL and CUNY signed a memorandum of understanding (MOU) to formalize their relationship and thus their opportunities to work collaboratively in solving major research challenges.

Facilities at BNL like the National Synchrotron Light Source (NSLS) and its successor-to-be, NSLS-II, the Center for Functional Nanomaterials (CFN), and the Relativistic Heavy Ion Collider (RHIC) will complement the CUNY research initiatives and its planned new 200,000-square-foot Advanced Science Research Center. At the Center, faculty will focus on photonics, nanotechnology, water and environmental sensing, structural biology and neuroscience — all areas of strength for BNL. Specific areas of collaboration will include work on the Smart Grid — a New York State initiative — as well as energy storage, optics, nano-self assembly, protein crystallography, ionic liquids, and transport of atmospheric contaminants.



NYC ALLIANCE COLLABORATIONS

NYC Alliance at the Community College

Community Colleges have been a crucial component of the NYC LSAMP from inception. LSAMP Partnerships with NASA GISS and Brookhaven National Labs have been vehicles that have provided excellent opportunities for student/faculty training. FAST teams and the CCI programs at BNL are utilized by faculty/students at the community colleges.

The City College School of Engineering maintains partnerships that promote the seamless transfer of students to the School of Engineering. These partnerships at Hostos CC, LaGuardia CC, Borough of Manhattan CC allows students to enroll in classes that transfer directly into the City College School of Engineering. In addition the TRACC program is a well developed program at CCNY specific to transfer students entering the school of engineering, and serves as a 'bridge' summer experience.

Community Colleges

Borough of Manhattan Community College
Bronx Community College
Hostos Community College.
Kingsborough Community College
LaGuardia Community College
Queensborough Community College

Comprehensive Colleges

Medgar Evers College
New York City College of Technology
College of Staten Island

Participation in NYC LSAMP Bridge to the Doctorate program by students from the community colleges in CUNY is very active:

- Forty Bridge Scholars started their studies at a Community College or graduated from a Comprehensive College of CUNY
- Twenty-one Bridge to the Doctorate Scholars started studies at a Community College

Snapshot: For the period Summer 2007 through Summer 2009:

- 162 students from Community Colleges and Comprehensive colleges were awarded LSAMP Research Scholarships
- 81 students from the six participating community colleges were awarded research fellowships
- 4 Faculty members conducted research with BNL Researchers as FAST Teams
- 11 students were members of FAST teams at Brookhaven National Labs

Alliance Partnership with Projecto Access STEP Summer Program-2009



A total of thirteen current Alliance participants and one Alum participated in the long standing summer partnership with the Projecto Access STEP summer enrichment program. In 2009, four graduate students in the Alliance served as Instructors (see above), and five undergraduates served as tutors/mentors to middle school and high school program participants.

The PROYECTO ACCESS STEP Program is a six week summer enrichment program that identifies high achieving middle school students with the potential to become engineers and scientists and reinforces these students in the pursuit of these fields. The objective of the program is the development of abstract reasoning skills and problem solving skills.

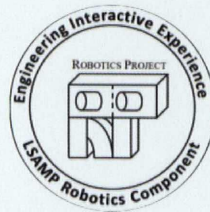
NYC ALLIANCE COLLABORATIONS

"I haven't done any research before, so I don't know what's going on out there. I like the way you force us, make us realize what's going to happen after college"

M. Ho

"I would like to thank you for being able to provide us with this interactive experience. It is an experience that I will always cherish and value greatly"

D. Arce



Standing: Xavier Aglamey (BCC), Denis Arce (LAGCC), Ariel Reyes (BMCC), Maria Ho (QCC), Kalair Ahmad (SUNY SCCC), Isirikoufoulou Sibabi (BCC), Nourou Alassani (BCC). Sitting: Nizar Mamouni (LAGCC), Armando Hernandez (CITYTECH), Rachel Nascimento-Lovell (QCC), Shiraz Macuff (LAGCC), Paula Viala (LAGCC). On the table: Explorer NXT 2.0, Forklift, DAX2010, Geigerbot.



The LSAMP Robotics Project

AT THE CCNY GROOVE SCHOOL OF ENGINEERING SUMMER RESEARCH OPPORTUNITY FOR TRANSFER STUDENTS 2010

The LSAMP Robotics Project main objective is to provide early access to research in engineering through our Engineering Interactive Experience model using robotics activities. We believe that introducing people to research is a delicate task and therefore we felt honored when we were invited to be part of CCNY's efforts in this task during the summer of 2010.

We provided the hands-on research component for the CCNY Summer Research Opportunity for Transfer Students program. Flavio Cabrera and Clara Nieto-Wire from the LSAMP Robotics Project designed a challenging Engineering Interactive Experience (EIE-summer 2010) where participants were exposed to introductory robotics issues which led them to choose an application to implement, document and present in a limited time frame.

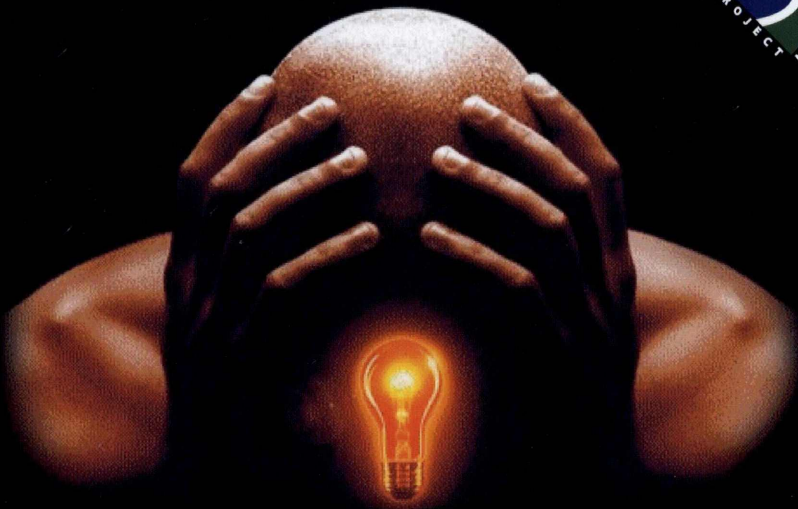
The participants were engineering transfer students from different CUNY and SUNY community colleges who were mixed in four groups to complete the EIE - summer 2010.

Selected projects included robotics applications in

- (i) airport security - The DAX2010: bomb disposal robot
- (ii) navigation and obstacle avoidance - Explorer NXT 2.0
- (iii) work environment safety - Forklift
- (iv) radioactive zone monitoring -Geigerbot: radiation, detection and mapping.

Each group successfully completed the EIE-summer 2010 and presented the corresponding robotics application research results plus demos during the final professional conference-like meeting on July 22, 2010. The participating transfer students were absolutely inspirational because of their dedication, talent and commitment to their projects.





MIND OF AN ENTREPRENEUR

The 1st Annual Fall 2010 Entrepreneurial Concept Competition (ECC) was a CUNY wide competition and new initiative of the Black Male Leadership and Mentoring Program at The City College of New York and the New York City Louis Stokes Alliance. The initiative serves to benefit the CUNY student body considering the global shift towards entrepreneurial thinking. Marketing efforts for the competition began in the Summer of 2010 and ended in mid-September 2010. In order to compete in ECC, students in good academic standing had to register their team via ProjectSTEM.net and then submit an abstract of their proposed idea/concept. After review, students were officially accepted and eligible to compete. Student teams which consist of between 1 and 4 current CUNY students participated in four two hour on campus workshops and learned how to prepare their business plans for a judging panel that play the role of potential business investors.

The ECC workshops were led by Mr. Garreth Williams, a graduate of Baruch College, with an MBA in Entrepreneurial Studies. Workshop topics included 1) constructing succinct and bold executive summaries, 2) business structure (chain of command), 3) marketing strategies, 4) S.W.O.T. analysis and 5) how to input and structure financial data. Business plans had a required length of six to nine pages including three financial statements.

A panel of five judges, consisting of both City College faculty and entrepreneurs evaluated the submitted business plans according to how closely the student teams met the criteria in each category. Following the business plan submission, Mr. Maurice Ashley (Chess Grandmaster and City College graduate) and Mr. Leland Hardy led a workshop/lunch on presenting or pitching their idea/concept.

