LOUIS STOKES ALLIANCE CUNY FOR MINORITY PARTICIPATION

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2010 Urban University Conference at Brookhaven National Laboratory

Established in 1947 on Long Island, Upton, New York, Brookhaven is a multi-program national laboratory operated by Brookhaven Science Associates for the U.S. Department of Energy (DOE). Six Nobel Prizes have been awarded for discoveries made at the Lab.

Brookhaven has a staff of approximately 3,000 scientists, engineers, technicians and support staff and over 4,000 guest researchers annually.

Brookhaven National Laboratory's role for the DOE is to produce excellent science and advanced technology with the cooperation, support, and appropriate involvement of our scientific and local communities.

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.

National Science Foundation,
Louis Stokes Alliance for Minority Participation

New York City Alliance News
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The New York City Louis Stokes Alliance for Minority Participation is funded under a cooperative agreement with the National Science Foundation.

Seminar Series: The Role of Science in Everyday Life

Science in Everyday Life is a student enrichment program that aims to explore various scientific concepts and explain them in a relaxed seminar style format, which will make clear their importance to everyday events. Starting in September 2009 and running for eight consecutive Saturday afternoons through November 2009, Science in Everyday Life has provided a way for students having both scientific and non-scientific backgrounds to embrace scientific concepts by participating in discussions with graduate students in various disciplines.

The program's objective was to enhance student understanding of scientific topics, by allowing advanced peer researchers to guide students through the fundamentals of these topics, presenting them in a more understandable and accessible way. The necessity for a science literacy program like this is identified in the STEM objectives (www.stemedcoalition.org) as to "...support new and innovative initiatives to encourage more of our best and brightest students, especially those from underrepresented or disadvantaged groups, to study in STEM fields."

The initial set of seminars focused on the areas of Neurobiology, Civil, Mechanical, Electrical and Computer Engineering, Cancer Genetics and Microscopy. These topics were introduced to students in a manner that was accessible and applicable to real world problem solving. Through emphasizing fundamentals in biology, mathematics, chemistry and engineering, the series seek to strengthen and enhance the critical thinking abilities of students and science literacy of students. Audience members ranged from high school students to doctoral candidates.

The series was able to conduct a unique seminar experience for its attendees in that the audience was able to comment and ask questions throughout the presentation. These questions ranged from the basic concepts presented to the more complex topics in the field. Audience members were able express their interest in the presenter's topic and demonstrate how that theory influenced other areas of science. At the end of most talks the audience would explore the implications of this research presented on humankind.

Science in Everyday Life is a collaboration of the NYC Louis Stoke Alliance and the City College Black Male Leadership and Mentoring Program, and is directed by Alexandria Wise and Richard Able. Richard and Alexandria are Doctoral students at the CUNY Graduate Center and conduct research in Biochemistry and Neuroscience respectively, at the City College.

The series will continue in the Spring of 2010. For more information and an updated schedule send inquiries to ampcc@ccny.cuny.edu, SUBJECT SCIENCE IN EVERYDAY LIFE.

LSAMP Phase IV - Integrated Research Strategies

The Integrated Research Strategies of LSAMP Phase IV across CUNY seeks to engage the LSAMP Research Faculty Mentors to form the core of faculty participants in the Integrated Research Strategies. Engaged faculty will be involved in developing CUNY wide discipline specific approaches to integrate research strategies into first year STEM coursework that should lead to research being an integral component of the CUNY STEM experience. The integration of research into the introductory STEM curriculum will develop a synergy between introductory science courses and those experiences that lead students to select research and research related educational and career pathways.

To date, eighteen faculty members have participated in the program, and come from a variety of disciplines and schools. Each section enrolls a minimum of 20 students such that at the end of Phase IV, 100 courses would have utilized the approach, and a minimum of 2000 students would have participated. We anticipate the participating campuses/faculty to embrace the approach as was described above in Phase I. To date, we see high participation from the faculty in the community colleges and comprehensive colleges of the Alliance. Activities include:

- Information Session for Faculty
- Faculty Workshop on the Integrated Research Strategies
- Urban University Conference Participation/Presentation
- Summer Course Development
- Course Implementation
- Journal Publication/Dissemination at National Conferences

Structure of Integrated Research Strategies Program

- The approach will be centered on the augmentation of the recitation/lecture or workshop mode of instruction in STEM classes with a weekly two-hour collaborative research oriented workshop. With a focus on the collaborations CUNY undergraduate students can achieve together in learning teams what they might not achieve as individuals.
- Twenty faculty members (five cohorts) will be selected each year to work with LSAMP Phase 4 to design, implement and test strategies that integrate research and critical thinking activities into the introductory STEM courses.
- Teaching/learning communities of groups of faculty throughout CUNY who are teaching in those content disciplines from which students are most likely to be drawn to an early undergraduate research experience.
- STEM clusters of students participating in research oriented learning teams in a workshop setting across the university.
- Teaching assistants/scholars to provide the positive interactive environment that characterizes a successful workshop.
- Workshops will provide the opportunity for the continuous sharing of knowledge within the workshop environment and within an electronic community.

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, La Guardia 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

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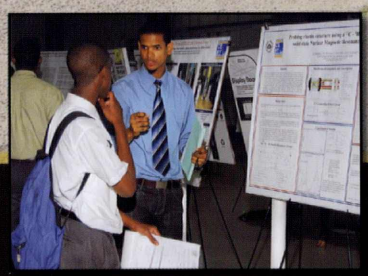
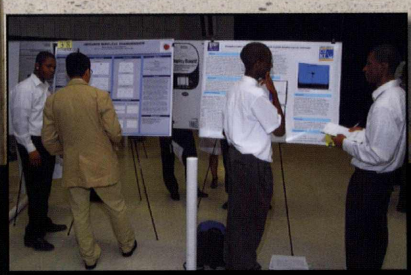
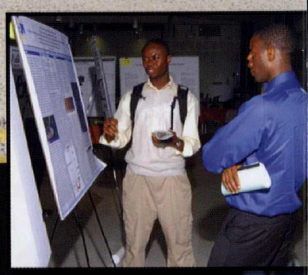
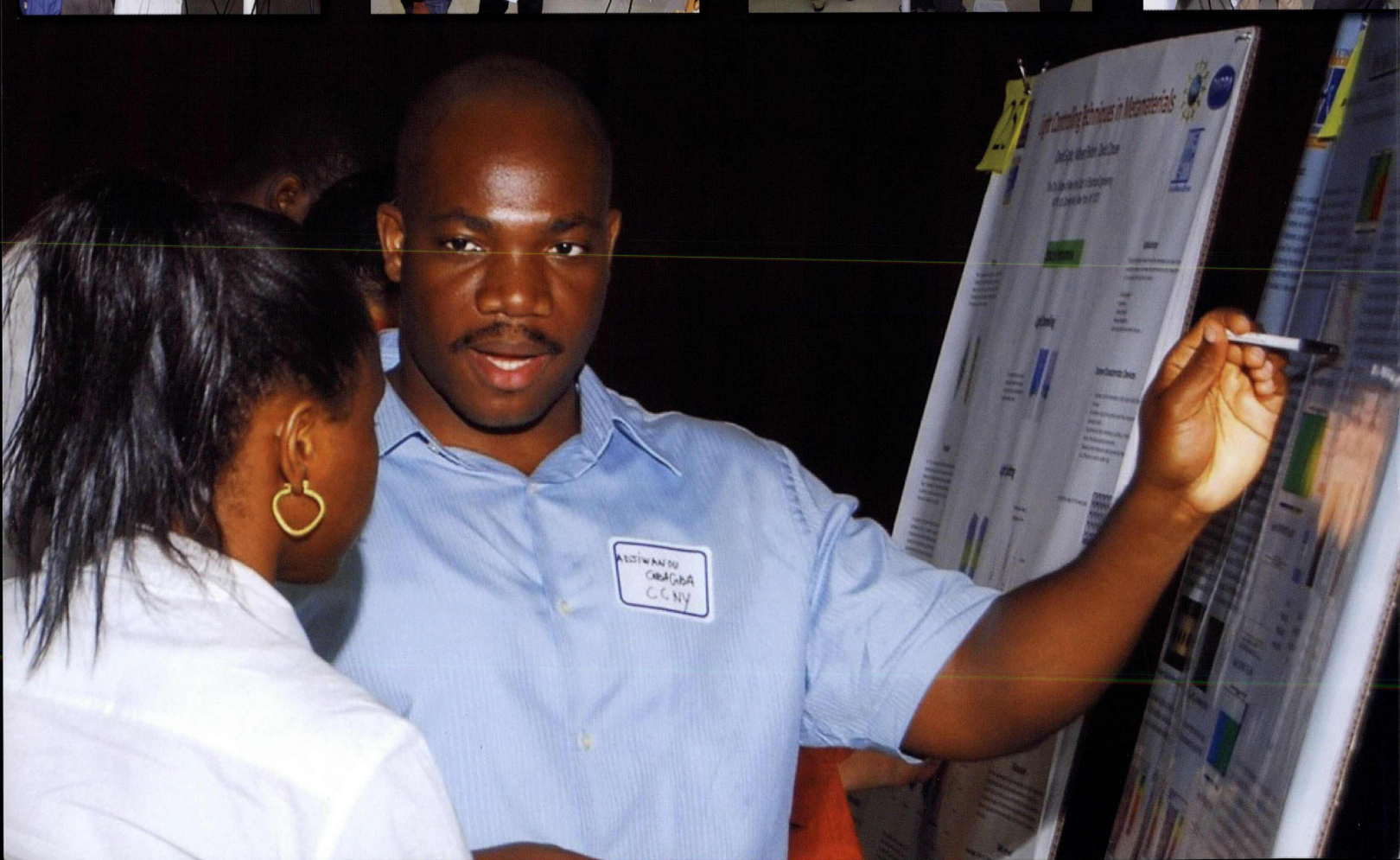
Summer 2009 Poster Session
at Kingsborough Community College

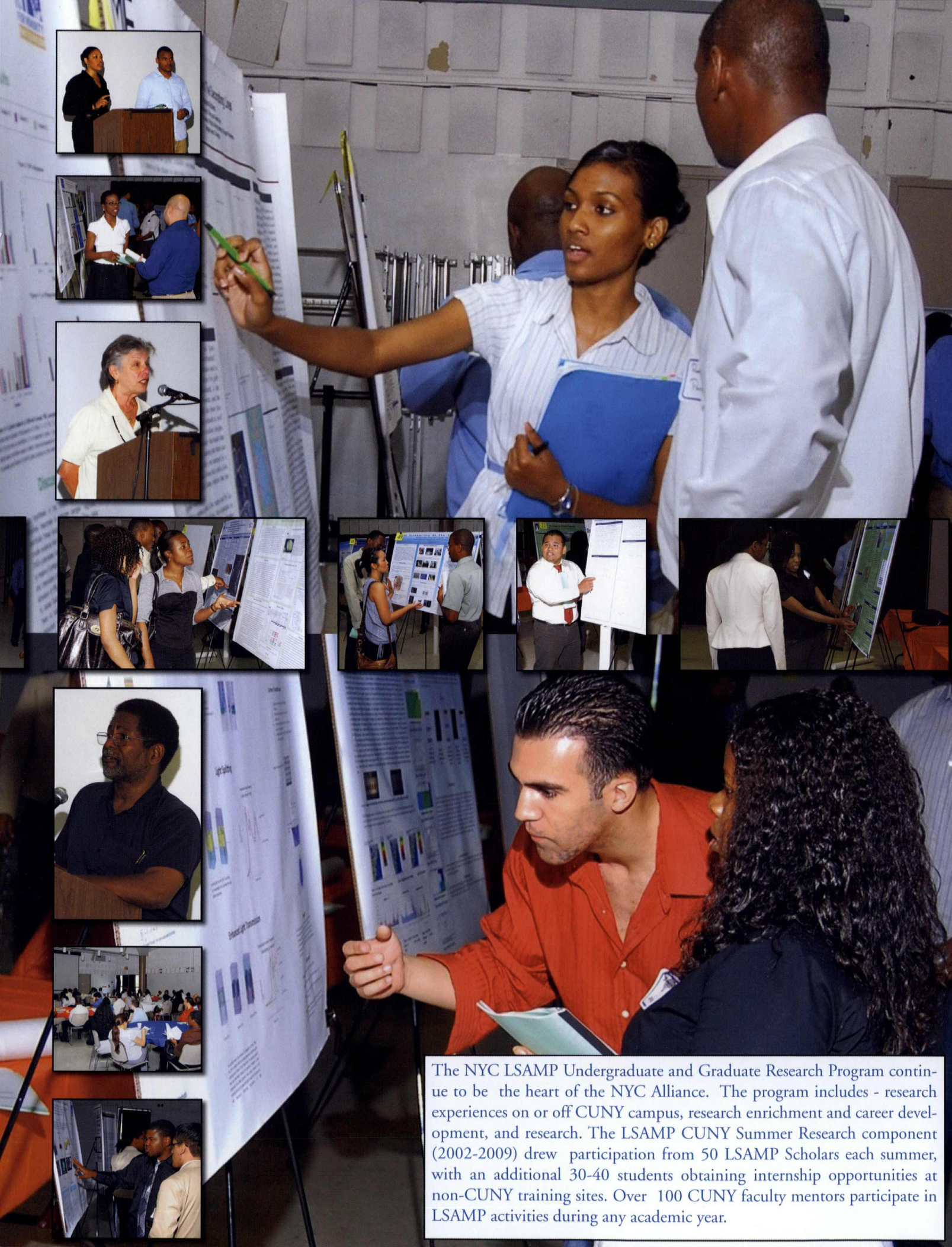
KINGSBOROUGH
COMMUNITY COLLEGE











The NYC LSAMP Undergraduate and Graduate Research Program continue 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 (2002-2009) 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.

Lehman College Professor Developing New Tools to Study Evolution

LEHMAN COLLEGE

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 geneaology, 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.

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...at the Community College (con't from pg. 3)

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

- Thirty eight Bridge Scholars started their studies at a Community College or graduated from a Comprehensive College of CUNY
- Nineteen Bridge to the Doctorate Scholars started studies at a Community College

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

CUNY NEWS:

CUNY AROUND

LSAMP Mentor News

Associate Professor of Biology Juergen Polle received a subgrant award of about $931,000 as a partner in the National Alliance for Advanced Biofuels and Bioproducts. Polle is a recognized leader in the investigation of the potential of algal biomass as a future source of fuel.

A $941,014 award from the National Institutes of Health (NIH) to Assistant Professor of Physics Gregory Boutis for the project "Probing Dynamics of Water in Elastin by Q-Space Imaging and Multiple Quantum NMR."

A $296,881 award from the U.S. Department of Energy to Professor of Geology Constantin Crânganu to fund the project "Carbon Dioxide Sealing Capacity: Textural or Compositional Controls."

Alliance Partnership with Proyecto Access STEP Summer Program

A total of nine current Alliance participants and one Alum participated in the long standing summer partnership with the Proyecto Access STEP summer enrichment program. Four graduate students in the Alliance served as Instructors (see photo and profiles), and five undergraduates served as tutors/mentors to middle school and high school program participants.

(l-r) Reginald Dorcely, Kaliah Adams, Alicia Orellana, Sefton Bennett

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.

Does Mauby Really Work?

December 17, 2009
Interview with Kwame Amin

In the Caribbean nation of Trinidad and Tobago, people with high blood pressure have traditionally sought relief by eating a native plant called mauby. "Folk remedies are popular there," says Trinidad-born Kwame Amin, a second-semester science major at BMCC. "If you've got a health issue, people will always say, 'Drink this, eat that.'" But is there anything to these treatments? Do they really work?

Amin decided to find out. His efforts earned him a first-place showing in the chemical sciences division at this year's prestigious Biomedical Research Conference for Minority Students.

Taking a blackworm's pulse

Amin began his investigation last year under the supervision of Professor Brahmadeo Dewprashad of the Science Department. "A doctor in Trinidad had done a clinical study—with hypertensive patients—and found that there actually were chemical compounds in mauby that could lower blood pressure," he says. "Our goal was to expand on his study and confirm his findings."

Testing on humans or animals wasn't an option for Amin, so he and Dewprashad monitored mauby's effect on California blackworms, whose physiological responses are easy to observe with a microscope. "There was a distinct lowering of their pulse rate, just as the Trinidadian doctor had reported in humans," Amin says. "Our findings were consistent with his."

Return engagement

Amin had first taken part in the Biomedical Research Conference in 2008, but with no expectation that he would win. "Mostly I was there to observe the work of others, see how they presented it, and learn what I needed to do to improve my own work," he says. "I went back to BMCC, tidied up my research, collected more data—and, this year, I guess I impressed the judges."

Sweetening the victory was the fact that Amin won out against sophomore students from an array of Ph.D.-granting institutions, including several Ivy League colleges. Now in its ninth year, the Conference attracts nearly 2,800 individuals, including 1,500 undergraduates and 230 graduate and postdoctoral students.

"Winning First Prize shows that there is really no difference between our students and those at the top-ranked, 4-year schools," he says. "Professor Dewprashad demands a lot of his students and holds them to extremely high standards. We wound up beating out some very tough competition."

Events

The Medgar Evers College School of Science, Health and Technology in conjunction with the Schools of Continuing Education; Liberal Arts and Education; and Business will hold the 15th Annual Environmental Issues Conference The conference will take a comprehensive look at the impact of green initiatives on the academic process.

15th Annual Environmental Issues Conference
Saturday March 13, 2010
8:30 a.m. until 3:30 p.m.
1650 Bedford Avenue, Brooklyn, NY 11225
Founders Auditorium

2010 Urban University Conference

Frontiers in Science and Engineering

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

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