Annually, hordes of LSAMP students present research findings at conferences, nation-wide. National, regional, State and local symposia, including, disciplinary conferences are becoming common place for LSAMP student presenters. The growing upsurge is, undoubtedly, related to increased focus on rigorous research activities for LSAMP students during summer months and academic terms at all 40 LSAMP Alliances.

Recent symposia in the New York City-LSAMP (pictured below), Tennessee-LSAMP, and the Puerto Rico-LSAMP, Interdisciplinary Scientific Meeting (PRISM), just to name a few, are a small representative sample of conference participation in LSAMP. In the latter case, PRISM is the island-wide STEM scientific meeting for undergraduate and graduate research students in Puerto Rico. It has steadily grown in participation from 120, to a record breaking 500 plus presentations in March 2011. PRISM is rotated through the Puerto Rico Alliance membership and provides vertical integration of the educational pipeline by bringing together secondary school teachers, undergraduate students from all major jurisdiction institutions of higher education and graduate students from all disciplines. Meeting agendas at alliance conferences always focus on the professionalization elements of the national LSAMP Program Model. Snohomish Indian, Jeremy Rude, sums up the first place prize for his presentation at a recent AISES Conference, this way, ----“This experience has increased my confidence and motivation as a professional student. The mentor/mentee relationship was especially beneficial for me in achieving these skills.” These students are enrolling in graduate programs in increasing numbers. For example, University of Connecticut electrical engineering student Christian Osorio has been accepted into doctoral programs in three universities and awaiting word for acceptances from program directors at Harvard and RPI. Many LSAMP students like him are achieving great success and moving forward to graduate and professional schools.

Indeed, greater and greater numbers of minority participants are showing their "metal" from rigorous academic, social and professionalization integration experiences in the LSAMP Program. Baccalaureate degree production in 2010 is approaching 28,000 STEM in the LSAMP Program (refer to degree production tables in this volume of the magazine). The widespread impact of LSAMP on higher education as indicated by individual alliances in this magazine has been tremendous. We invite you to read more exciting news, including, metrics, highlights, accomplishments and project specific items, for each alliance, in this edition of the LSAMP Magazine.
Subra Suresh was sworn in as the Thirteenth Director of the National Science Foundation (NSF) on October 18, 2010. Previously, Suresh, 54, served as Dean of the Engineering School and Vannevar Bush Professor of Engineering at the Massachusetts Institute of Technology (MIT).

A mechanical engineer who later became interested in materials science and biology, Suresh has done pioneering work studying the biomechanics of blood cells under the influence of diseases such as malaria.

Suresh earned a bachelor’s degree from the Indian Institute of Technology Madras in 1977, a master’s degree from Iowa State University in 1979, and a doctorate from MIT in 1981. Following post-doctoral research from 1981 to 1983 at the University of California Berkeley and the Lawrence Berkeley National Laboratory, he joined Brown University as an assistant professor and was promoted to full professor in 1989. He joined MIT in 1993 as the R.P. Simmons Professor of Materials Science and Engineering and held joint faculty appointments in the Departments of Mechanical Engineering and Biological Engineering, as well as the Division of Health Sciences and Technology. From 2000 to 2006, Suresh served as the Head of the MIT Department of Materials Science and Engineering.

Suresh was formally nominated by President Obama to become the new NSF Director on June 8, 2010.

“I am proud that such experienced and committed individuals have agreed to take on these important roles in my administration. I look forward to working with them in the coming months and year.” President Barack Obama

Suresh is the author of more than 220 research articles in international journals, coeditor of five books, and co-inventor on more than 12 U.S. and international patents. More than 100 students, postdoctoral associates, and research scientists have trained in his research group, and many now occupy prominent positions in academia, industry and governments around the world. He is author or co-author of several books, including Fatigue of Materials and Thin Film Materials — widely used in materials science engineering.

“Through his invigorating leadership, Dean Suresh has led MIT’s School of Engineering while pursuing his own remarkable research portfolio at the intersection of the life sciences and engineering. In keeping with MIT’s long tradition of national service he will bring this same breadth of knowledge and vision to the National Science Foundation.” MIT Provost Rafael Reif
Like most college seniors, University of Connecticut Electrical Engineering major Christian Osario is in a quandary about his future. But unlike most, he faces a plethora of positive options. So far, he’s been accepted into engineering doctoral programs at the University of Michigan, the University of Illinois at Urbana-Champaign, and Stanford University, as well as the Rensselaer Polytechnic Institute (RPI) International Scholars master’s program. He’s still waiting to hear from the doctoral programs at Harvard and RPI.

“It’s kind of amazing that I’m in this position,” Osario says, a bit of wonder creeping into his voice. “I never could have expected this.”

Graduate school wasn’t in the plans when Osario came to UConn, where the in-state tuition was a big draw for this high-school standout. He grew up in Connecticut, moving back and forth between the city of Waterbury and the town of Torrington—both largely working-class areas. He spent much of his childhood in a single-parent home headed by his mother, who came to the United States from Costa Rica shortly before Christian was born. He credits her with steering him in the right direction.

When Osario first enrolled at UConn, he was invited to be part of the Louis Stokes Alliance for Minority Participation (LSAMP) program. Funded by the National Science Foundation the LSAMP Scholar’s program supports students from historically underrepresented populations in their pursuit of degrees in the fields of science, technology, engineering, and mathematics (STEM). Facing a scheduling conflict between the marching band and LSAMP, Osario wanted to follow the music, but his mother marched him straight toward LSAMP. “I’m really glad she did,” he acknowledges. “She’s a very smart woman.”

LSAMP Program Coordinator Joy Erickson admits that she feared for Osario when she first met him because he was so confident in his abilities. She thought that he, like many, would have a rude awakening when he took on the rigors of the engineering program. But not Osario. “He proved me wrong!” she says. “Christian is genuinely gifted.”

The admiration is mutual. “Joy has been a big help,” Osario says. “She wrote my letters of recommendation because she knows me well. She encouraged me to apply. She has also sent a lot of fellowships my way.”

Those fellowships not only provided needed financial assistance, but they also led Osario to discover how much he enjoys research. The summer after his sophomore year, he worked as a research assistant for Dr. Shengli Zhou in UConn’s Underwater Sensor Networks Laboratory studying underwater communication. From there, he went on to work in the Nanoelectronics Laboratory on campus. Under the supervision of Dr. Ali Gokirmak, he is currently researching solar cells made with nano crystalline silicon. He will be giving a poster presentation on his research in April for the Materials Research Society (MRS).

“LSAMP helped me in a lot of ways,” Osario continues. The annual LSAMP Symposium, for example, gave him an idea of what to look for in graduate schools and what to expect when applying, making the whole process easier. “I wish I had taken their advice on time management,” he jokes, confessing that he ended up sending in applications just under the wire.
### STEM Bachelor Degree Report
#### Disciplines by Race/Ethnicity

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Black or African American</th>
<th>Hispanic or Latino</th>
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<th>Native Hawaiian or Pacific Islander</th>
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<td><strong>27825</strong></td>
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### STEM Bachelor Degree Report
#### Gender by Race/Ethnicity

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<thead>
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<th>Black or African American</th>
<th>Hispanic or Latino</th>
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### STEM Full-Time Enrollment Report
#### Disciplines by Race/Ethnicity

<table>
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<th>Discipline</th>
<th>Black or African American</th>
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<th>Native Hawaiian or Pacific Islander</th>
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Joint Annual Meeting 2010

Opening Plenary Dinner

Louis Stokes Alliances for Minority Participation
Joint Annual Meeting 2010

LSAMP Breakout Sessions
Alabama

Alabama LSAMP held its annual Bridge to the Doctorate Winter Conference at The University of Alabama at Birmingham (UAB) in January. Conference participants included 50 science, technology, engineering and mathematics (STEM) faculty and students from four Alabama BD cohort sites; Auburn University, Tuskegee University, The University of Alabama, and UAB. Twenty nine students made oral presentations of their STEM research and responded to students and mentors questions. The conference provided an opportunity for students in STEM areas from different campuses to network and research collaborations.

Jaquice Hughes. UAB civil engineering student, was awarded the Civil Engineering Study Away Program Scholarship and inducted into Chi Epsilon, the Engineering Honor Society in 2010.

TaShundra Jones. UAB civil engineering student, received a certificate in Construction Engineering Management for participation in classes and research activities last summer in Cairo, Egypt. In addition she won 2nd Place in the Poster Competition at the Alabama Water Resources Conference held September 8-10, 2010.

Antonio McInnis. Oakwood University mathematics student, won a medal and cash award for research presented at the 2010 Annual Biomedical Research Conference for Minority Students.

Vincent Spellman. Oakwood University biology student, won a medal and cash award for research presented at the 2010 Annual Biomedical Research Conference for Minority Students.

Glenn Terrell. UAB civil engineering student, has been accepted for participation in the 2011 International Scholar Laureate Program. The program involves travel to China as part of the Engineering Delegation for 10 days. In addition, he traveled to London, England with a group of students studying the European economic system for eight days and is scheduled to take the Sustainable Engineering Certification program taught by UAB Engineering faculty in Cairo, Egypt in July, 2011 for six weeks.

Candace Watson. UAB civil engineering student, presented her research at the Air and Waste Management Association conference May 8-15, 2010, in Beijing, China. In addition, she presented research at the IUAPPA World Clean Air Congress Conference September 12-15, 2010, in Vancouver British Columbia, Canada and served as part of a delegation of students representing Minority Access June 2-14, 2010, in Beijing, Shanghai, Guilin, and Hong Kong. She was a recipient of the 2010 Air and Waste Management Graduate Student Scholarship, recipient of the 2010 Chi Epsilon Civil Engineering Honor Society District Scholarship and was awarded a certificate for UAB School of Engineering Outstanding Graduate Student.

Arkansas

The Second Spring Research Conference of the Arkansas Louis Stokes Alliance for Minority Participation was held on April 23-24, 2010 at Philander Smith College in Little Rock, AR. Ms. Shakira Petit of the Promise Academy High School in Harlem, NY presented her research experience in Antarctica. There were fourteen (14) student poster presentations and one (1) oral student presentation.

Several ARK-LSAMP students participated in summer research internships in the summer of 2010. James Houston (UALR) completed an internship with Hewlett Packard.

The ARK-LSAMP held the Pre-First Year Summer Institute in 2010 for Cohort III on the campus of Arkansas State University-Jonesboro from June 20-July 30, 2010 for students from all Alliance institution sites. There were forty-two (42) student participants and ten (10) STEM student mentors. There were also tours of STEM facilities where a major highlight of the summer institute included a tour of STEM departments at the University of Alabama-Huntsville with Dr. Emanuel Waddell and his student team. Students were also afforded the opportunity to visit the United States Space and Rocket Center in Huntsville and re-
received mentoring information from Dr. Ruth Jones, a NASA physicist in the area.

**California**

**Lisandro Maya-Ramos**, B.S. Human Biology, UC San Diego, won the prestigious Gilliam Fellowship for Advanced Study by the Howard Hughes Medical Institute. The $250,000 fellowship will support Maya-Ramos in his graduate education at UC San Francisco, where he is enrolled in the MD/Ph.D. program Fall 2010.

**Jennifer Guerrero**, B.S. Chemical Engineering, UCLA, has won a National Science Foundation Pre-Doctoral Fellowship to support her Ph.D. program at UC Santa Barbara.

**Arturo Vargas**, Mathematics major, UC Irvine won Best Poster Award for mathematical modeling at the SACNAS 2010 National Conference, Anaheim, CA for his research, “A New Perspective on Cellular Automata for Modeling Forest Fires.” UC Riverside engineering major **Martha Sosa** won Best Poster Award in Engineering also at SACNAS National Conference for “Validating Mass Transfer-Limited Systems for Studying Endothelial Signaling Pathways.”

**Ruben Diaz**, Engineering Senior, UC Santa Barbara won a Best Poster Award at the National 2010 SACNAS Conference in Anaheim, CA. Also receiving poster awards at SACNAS were **Demetrius DiMucci** and **Jonathan Okerblom** of UC San Diego and **Carla Del Los Santos, Donez Horton-Bailey** and **Desiree Tax** of UC Santa Cruz.

**Joshua Munoz** and **Matias Altman**, UC San Diego, have won the 2010-11 HENAAC Scholarship. **David Lluncor**, Senior, Computer Science, has received a NACME Cisco Scholarship.

**Sergio Sandoval**, UC San Diego BD Fellow and Ph.D. Candidate, has won a $35,000 Siebel Scholars Award to support his final year of doctoral studies. Sandoval is working in the laboratory of Dr. Andrew Kummel at UCSD’s Moores Cancer Center.

**California State LSAMP**

The following CSU-LSAMP students received the NSF Graduate Research Fellowship Award for Fall 2010:

**Christian Espinoza (San Jose State)** Christian is currently working on his Ph.D. in Materials Engineering at the Univ. of Illinois at Urbana-Champaign.

**Aaron Ramirez (CSU Bakersfield)** Aaron is currently working on his Ph.D. in Biology at UC, Berkeley.

**Norma Vazquez (CSU Monterey Bay)** Norma began working on her Ph.D. in Ecology at Oregon State University in Fall 2010.

**Amelia Yzaguirre (CSU Fullerton)** Amelia began work on her Ph.D. in Math at the University of Toronto.

The following LSAMP students also received national awards in 2009-2010:

**Alexis Hall (CSU Monterey Bay)** received the NSF MESAS (Marine Ecosystem Sustainability in the Arctic and Subarctic) Fellowship ($30,000 per year for three years, tuition, health insurance, and research funding) to attend the University of Alaska Fairbanks.

**Adan Romero (CSU Monterey Bay)** received a Medtronic Graduate Fellowship ($30,240 stipend, tuition, and health insurance) to attend MIT.

**Colorado LSAMP**

The CSU-SACNAS chapter was awarded the Role Model Chapter of Year at the National SACNAS conference for the third consecutive year. Each year, the SACNAS Chapter Committee honors a number of chapters for their outstanding level of achievement in public service, mentoring, leadership, and/or community outreach. The CSU-SACNAS chapter was the first of its kind to be established in the state of Colorado.

**Wai K. Allen**, student at Fort Lewis College, received the 2010 Association for Women Geoscientists (AWG) Outstanding Student award. Ms. Allen was also a recipient of the Amoco Minority Scholarship for 2009.

**Florida – Georgia**

**FIU**

**Octavio Oliva**, a senior Mechanical Engineering major at Florida International University, was awarded the 2010 Shaw Industries Award and Scholarship at the 22nd Annual HENAAC Conference 2010, in Orlando, FL.

**Emma Lopez**, a senior Environmental Engineering major at Florida International University, received the Study Abroad Scholarship-Summer 2010, to conduct a service research study in the Peruvian Amazon.
For three weeks she was conducting research, and worked on a project; consisting of constructing three rain water harvesting tanks in the schools of three different communities of Rio Orosa.

**USF**

Robert Donatto - Junior in Electrical Engineering at the University of South Florida, was the recipient of a national undergraduate scholarship from the U.S. Department of Homeland Security (DHS).

**FSCJ**

Chelsea Partridge attending Florida State College at Jacksonville was selected to participate in the National Aeronautics and Space Administration’s (NASA) Residential Internship of NASA’s Interdisciplinary National Science Program Incorporating Research and Education Experience (INSPIRE) Project. Her residential internship was conducted at the Kennedy Space Center for summer 2010.

**Illinois**

Eight ILSAMP undergraduates were selected to participate with their faculty mentors in International Research activities. Olivia Holman, Jameka McElroy and Brittaney Walton had a Barbados Summer research experience. Three students (Macario Cervantes, Marianela Perales, and Erica Watkins) had the opportunity to engage in research on heavy ion collisions in A Large Ion Collider Experiment (ALICE) located at CERN in Geneva, Switzerland. Two students (Steven Campbell and Terrance Fisher) conducted research in Johannesburg, West Africa.

**Indiana**

Rhoda Owolabi a May 2010 biology graduate of Indiana University Purdue University-Indianapolis campus was a recipient of the 2010 Woodrow Wilson Indiana Teaching Fellowship. The Woodrow Wilson program at IUPUI aims to prepare exemplary secondary teachers in science (Life Science, Chemistry, Earth Space Science, Physics, and Physical Sciences), mathematics, and technology to serve diverse learners in urban settings. The Fellows attend a secondary school-based, graduate-level, teacher education program that is complemented by intensive mentoring during the pre-service year and throughout the first three years of teaching.

**Islands of Opportunity**

Two Islands of Opportunity Alliance-LSAMP scholars were nationally recognized on C-SPAN by State of Hawaii Congresswoman Mazie Hirono. The scholars attended and presented their research projects at the Bridge to Doctorates Poster Session on the Hill Conference in Washington D.C. in July of 2010. The IOA-LSAMP Project received an e-mail from Congresswoman Hirono’s office in late November notifying the project of her support of H. Res 1654, which would designate the week of April 11, 2011 as Undergraduate Research Week. The two native Hawaiian scholars, Mr. Nakoa Goo, of the University of Hawaii at Hilo and Ms. Hau-nani Kane, representing the University of Hawaii at Manoa, were recognized during the Congresswoman’s support statement on C-SPAN.

**LSAMP Student News**

Mechie Nkengla received her Doctorate in Mathematics. Mechie attended UIC as an undergrad and took the Emerging Scholars Mathematics Workshops offered by the Alliance for Minority Participation at UIC.

ILSAMP students and Professor with University of Johannesburg Inorganic Chemistry students & Faculty

Five students and two faculty mentors participated in the FaST program at Argonne National Laboratory. Dr. Xueqing Tang supervised two students in the FaST program.

Guadalupe Rodriguez of DePaul, University is being published along with her faculty advisor, and lab partners in a prestigious journal, Endocrinology. The article “Gene Expression Profiling Reveals Cyp26b1 to be an Activin Regulated Gene Involved in Ovarian Grandulosa Cell Proliferation” is in press.

The new Chancellor of the Community Colleges of Chicago is Cheryl Hyman, a graduate of the ILSAMP program.
Kentucky-West Virginia

Kyla Ross, KSU LSAMP research student received first place at the Undergraduate Research Competition for Agricultural Science Posters, 96th Annual meeting of Kentucky Academy of Science, November 13, 2010, Western Kentucky University, Bowling Green, KY.

Louisiana

Polite Stewart, a Southern University physics/chemistry major, 16 year old junior, attended the International School of Solid State Physics course. This was a week-long course consisting of young scientists and students from around the world. The aim of the course is to present state-of-the-art and future perspectives for materials applied to the production and storage of renewable and sustainable energy. Only 150 students were part of the event, sponsored by Italian Ministry of Education, University and Scientific Research, Materials Research Society, European Materials Research Society, and the Sicilian Regional Government.

Louisiana State University Bridge to the Doctorate (BD) graduated its first BD scholars in July 2009. Ursula White received the Ph.D. in Biological Sciences and Wakeel Idewu received the doctor of philosophy in Civil Engineering. In the spring 2010, Raphyel O. Rosby and Latoya T. Paul received the Ph.D. in Biological Sciences.

North Carolina

Calvin Phelps, B.S. Aerospace Engineering, NC State University, May 2009, was elected NSBE National Chair at the annual NSBE Convention held in Toronto, Canada March 31 – April 4, 2010. NSBE is the largest student run organization in the world. The National Chair is the top student leader who is responsible for all programs and activities that support the total student membership of 33,000.

Jordan Otiz, a senior Mechanical Engineering major at North Carolina A&T State University was named a National Action Council for Minority Engineering (NACME) Scholar. NACME is responsible for more than $4 million in scholarships awarded annually to underrepresented minority students.

International study abroad activities during this reporting period included an internship, summer study abroad activities, and academic year study abroad activities for NCLSAMP students. In addition, activities included the following:

A NCLSAMP student from Winston-Salem State University participated in international study this past summer with the Mission of Good Hope in South Africa.

NCLSAMP student at UNC-Pembroke has been accepted for an internship with the Organization for Tropical Studies (OTS) Native American and Pacific Islander Research Experience (NAPIRE) at Las Cruces Biological Station in Costa Rica. The student is a former Transfer fellow and will work with Dr. Frank Camacho, at the University of Guam. The research will involve determination of the fish variability throughout stream locations.

A NCLSAMP student at NCA&T received financial support while participating in a study abroad experience in Ghana for the fall 2009 semester.

Oklahoma

Cammi Valdez was invited as one of 77 US students to attend the 2010 Nobel Laureate Conference in Germany and as one of three US students to attend the Euroscience Conference in Italy. Cammi is a student at Harvard University and a graduate of Southwestern Oklahoma State University.

Four scholars were awarded NSF Graduate Research Fellowships to continue graduate studies.

Tomica Blocker received her Bachelor of Science degree from Langston University and was selected to participate in the OSU Bridge to the Doctorate Program to pursue a graduate degree in Zoology.

Brandon Brooks received his Bachelor of Science degree from Oklahoma State University and will continue at the University of California-Berkeley in the area of microbiology.

Erica Brown received her Bachelor of Science degree from the University of Oklahoma. She will con-
continue her biomedical research at Duke University.

Leethanial Brumfield, III received his Bachelor of Science degree from Langston University and will continue his graduate studies at the University of North Carolina in the area of biology and chemistry.

Two scholars have been recipients of the Goldwater Scholarship, Erica Brown, University of Oklahoma, and Lydia Meador, Oklahoma State University. In addition, two scholars have received the Udall Scholarship to continue studies in environmental issues, Lauren White and Alicia Hallmark, both from Oklahoma State University.

Cassandra Camp, Oklahoma State University, biology major, was chosen to participate in the Native American and Pacific Islander Research Experience in Costa Rica. She was able to live in the rain forest and work on a research project that benefits the local communities.

A total of four students were selected to participate as Faculty and Student Teams (FaST) at Brookhaven National Labs in Long Island, New York. Northeastern State University Campus Coordinator, Dr. Jody Buckhultz, along with two scholars, Eric Butson and Anthony Wellman, conducted research in electron transfer of solar photovoltaic cells. Both scholars are chemistry majors at Northeastern State University. Oklahoma State University faculty mentor, Dr. Gilbert John, led Justina Bradley, Langston University microbiology major and Daniel Nichols, Oklahoma State University microbiology major in research on the study of the formation of palladium nano-particle formation by Clostridium and the reduction of azo dyes.

Fifteen scholars traveled to 18 countries for study abroad and research experiences. One scholar conducted research in three countries (Honduras, Kenya, and Philippines). Other countries were: Italy, Canada, Costa Rica, France, Brazil, Egypt, Africa, Antarctica, and Nicaragua.

Pacific Northwest

Four seniors at Oregon State University were recognized for their outstanding leadership and science. Ms. Melissa Sales was awarded a $1000 scholarship from the Oregon Section Institute of Food Technologists. Ms. Eva Arndt received a travel scholarship to attend Society for Wetland Scientist convention during the summer of 2010. Ms. Laura Magaña won 3rd place in the Undergraduate Oral Research Division II for Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS). Mr. Cody Mitchell-Chavez was awarded the American Public Works Association (APWA) Scholarship for a Geomatics student with a commitment to public service.

Washington State University students Rafael Hernandez, a junior in Mechanical Engineering, and Shantel Martinez, a junior in the biosciences, were selected to be recipients of the 2010-11 Auvil Scholars Fellowship. Auvil awards are competitive scholarships intended to further undergraduate student research.

University of Washington students have experienced a number of stellar successes. Ms. Klondy Canales received the DuPont Award for her outstanding research presentation in microbiology from the SACNAS National Conference. Ms. Alexandra Hernandez, a Chemistry major, has been named as a UNCF-Merck Undergraduate Fellow.

Boise State University student, J.G McCall, completed a summer undergraduate research placement with Dr. Anne Goodchild at the University of Washington’s Civil Engineering Department. He will be listed as a co-author on a published paper about their work on freight transportation.

Peach State

Jonathan Jones, Biochemical Engineering major from the University of Georgia, was awarded the Coca-Cola Scholarship in May 2009. In addition, he was accepted into the REU Cellular Bioengineering program where he conducted science and engineering research at Rutgers in the summer of 2010.

Jorris Alford, Math major from Savannah State University, was awarded 2nd place for poster presentation in Physical Sciences and Mathematics at the 2009 Annual Biomedical Research Conference for Minority Students (ABRCMS) held in Phoenix, AZ, November 4-7, 2009.

Ruth Pamela Tilus, Biology major from Savannah State University was awarded 2nd place for poster presentation in the Biological Sciences in the 2009 HBCU-UP National Conference held in Washington, DC, October 29 – November 1, 2009.
**Rosemary Alva** a former Peach State LSAMP scholar received a HBCU STEM Fellowship and is currently pursuing a graduate degree in Environmental Engineering at the New Jersey Institute of Technology.

Four students from FVSU (**Mabya Nyannor, Heather Hill, Clarissa Harris, and Ebony Davis**) won presentation awards at the Sixty-Seven Annual Joint Meeting of Beta Kappa Chi National Scientific Honor Society (BKX) and the National Institute of Science (NIS) held in New Orleans, LA March 24-29, 2010.

**Philadelphia**

For her work as former President, *Phí Θe θa ta Kappa Rho Upsilon chapter*, Community College of Philadelphia, **Kianna Richardson** received a Phi Theta Kappa Honor Society’s 2010 *Chapter President Hall of Honor* award during its 23rd Middle States Regional Convention, February 12-14, 2010 at Ocean Place Resort in Long Branch, NJ. *Phí Θe θa ta Kappa* is the international honor society of two-year colleges and academic programs, particularly community colleges and junior colleges. Ms. Richardson is currently a senior at Drexel University studying Nutrition.

**Gerardo E. Tolentino,** BS degree, Chemical Engineering, New Jersey Institute of Technology was accepted by the Universidad Autonoma de Guadalajara-School of Medicine.

To date, twenty-eight Philadelphia AMP graduates have received their Ph.D. degrees which includes three of our Bridge to the Doctorate students: **Dr. Quincy Brown**, Ph.D. Computer Science, Drexel University, August 2009 (Cohort III) was employed by Bowie State University as an Assistant Professor, Computer Science in August 2010; **Dr. Maryse Williams White**, M.S., University of Delaware, Ph.D. Agricultural Engineering, Pennsylvania State University, June 2010 (Cohort I) completed officer training and is now serving in the U.S. Air Force; **Dr. Yolanda Williams-Bey**, Ph.D., Biological Sciences, Drexel University, June 2010 who was also formerly a Community College of Philadelphia AMP student is currently a Postdoctoral Associate, National Institute of Allergy and Infectious Diseases (NIAID) and Intramural Research Training Award (IRTA) recipient at the National Institute of Health.

**Puerto Rico**

In the summer of 2010, Wilmer **Adorno Martínez** participated in Research Experience for Undergraduate Students (REU) at the School of Engineering and Applied Science, Harvard University under the supervision of Dr. Philseok Kim who is a postdoctoral fellow in the group of Prof. Joanna Aizenberg, well-known for biomimetics and bonomineralization. He was trained in the use of a *Denton e-beam evaporator*, **Sharon e-beam evaporator**, and Supra and Ultra SEM. The SEM was used as a qualitative tool for the analysis of the electro-chemical growth of nanofiber on their nanostructure and as a quantitative tool for dimensional analysis. The focus of the research experience was to train Wilmer optimization and imaging techniques for nanostructures. This exceptional research experience in Harvard provided Wilmer Adorno Martínez an outstanding experience in scientific research in the areas of nanotechnology, materials science and electrochemistry. Wilmer’s work in Harvard was so outstanding that Dr. Philseok Kim had this to say in his recommendation letter.

**South Carolina**

The National Organization of Black Chemists and Chemical Engineers (NOBCChE) awarded a SC State University student first place for a presentation she delivered on a SC State study that is researching early detection and prevention methods for Alzheimer’s disease. Junior chemistry major **Kaliah Jackson** competed for and received the award at the NOBCChE 2010 Southeast Regional Meeting, held in Atlanta, Ga. Her presentation was titled “Gold Nanoparticles as Inhibitors of Amyloid Aggregation in Alzheimer’s Disease.”

**Cheryl Gomillion,** Clemson University who will be granted the PhD in BioEngineering at Clemson this coming December, has been offered an NIH Post-doctoral NRSA Training Fellowship at the University of Connecticut, School of Dental Medicine. She would be working with Dr. Liisa Kuhn and Dr. Jon Goldberg in the Reconstructive Sciences Department, to tentatively start January 7, 2011.
State University of New York

**Jude Safo** (Material Science), SUNY LSAMP and Bridge to the Doctorate at Stony Brook won the National Science Foundation Graduate Research Fellowship.

**Maria Rodolis** (Life Sciences), SUNY LSAMP at SUNY New Paltz, won the National Science Foundation Graduate Research Fellowship.

**Elizabeth Millings** (Chemistry), SUNY LSAMP at Stony Brook, won a Merck Fellowship and a National Science Foundation Graduate Research Fellowship honorable mention.

Tennessee

Four Vanderbilt University Level One TLSAMP students won first place in the National Society of Black Engineers Region III Academic Technical Bowl Competition. The Vanderbilt NSBE chapter won first place in the Academic Technical Bowl Competition in Atlanta, Ga., November 6-8, 2009, during the NSBE Region III Fall Conference. The Vanderbilt team of **Kyle McMillan** (Mechanical Engineering Graduate, May 2010), **Gyanba Davis** (Chemical Engineering Junior), **Derrick Pugh** (Civil Engineering Senior) and **Douglas Dobbins-Carlock** (Mechanical Engineering Senior) received complimentary registration and a travel stipend to compete in the National NSBE Technical Bowl Competition in Toronto, Canada. The Vanderbilt NSBE chapter was named Small Chapter of the Year for Region III. All Vanderbilt NSBE members are Level One TLSAMP members.

**Rikita Bonner**, **Aaron Williams**, and **Loreal Spear** traveled to Wiesbaden, Germany for a ten week internship with the United States Army Corp of Engineers. As interns, these students worked with the Construction Division of the European District. Miss Bonner will receive her B.S. degree in Architectural Engineering in December 2010 and plans to continue her studies toward a Ph.D. in Architectural Engineering in building structural systems design. Mr. Williams is scheduled to earn B.S. degrees in both Civil and Architectural Engineering in May 2011. Miss Spear will graduate with a B.S. degree in Civil Engineering in May 2011 as well.

Texas A&M University

Former UGR Scholar, **Jessica Dowden Mooney**, was selected as a 2010 Bridge to Doctorate (BTD) Fellow at the University of Texas, Arlington majoring in biomedical engineering. Jessica’s tenure in the LSAMP UGR program spanned three years and numerous accomplishments, including a first place award in TAMUS LSAMP Annual Symposium poster competition.

Former UGR Scholar and LSAMP International REU participant, **Justin Wilkerson**, was awarded the NSF Graduate Research Fellowship to study in aerospace engineering. The NSF GRFP awards are very competitive; only 2,000 are given from a pool for more than 12,000 applicants.

University System of Maryland

**Benyam Kinde** (Biological Sciences) was invited to attend the summer 2010 Meeting of Nobel Laureates in Germany as a young researcher. Also, he was selected as **valedictorian** of the Class of 2010 at the University of Maryland, Baltimore County, and he began his M.D./Ph.D. program at Harvard-MIT in fall 2010.

**Jamal Molin** (Computer Engineering) was recognized as a member of the **National College Athlete Honor Society**.

**Nathaniel Kim** (Chemistry) received the prestigious Goldwater Scholarship.

Fifty-three students were inducted into the **Golden Key International Honor Society**.

Seventeen students were inducted into **The Honor Society of Phi Kappa Phi**.

Nine students were nominated for induction into the **Phi Beta Kappa Society**.

The following 10 students received awards for their research presentations during the Annual Biomedical Research Conference for Minority Students (ABRCMS) held in Phoenix, Arizona in November 2009:

**Nwamaka Dike** (Biochemistry & Molecular Biology) - Microbiological Sciences (poster)

**Sai Sachin Divakaruni** (Biological Sciences) Biochemical Sciences (poster)

**Kedy Edme** (Chemistry) - Biochemical Sciences (poster)

**Lydia Grmai** (Biochemistry & Molecular Biology) Cell Biological Sciences (oral)
Upstate

2010 LSAMP Scholar Florencia Parades (Cornell University) won second place for the engineering undergraduate poster competition at 2010 HENAAC. The intent of this competition was to give students the opportunity to display their research accomplishments and receive recognition for their scholarly investigation or scientific study.

Theodore Glave (Clarkson University) presented research at the NSBE Regional Conference and took second place. Four LSAMP students from Clarkson competed in the NSBE Technical Bowl, and made it into the finals.

Washington/Baltimore/Hampton Roads

Kafayat Olayinka was featured in the October 15, 2009, Diverse Issue on Higher Education THE SUCCESS IMPERATIVE academic story that reviewed the successes of pre-college program such as the Gateway Academic Program (GAP), which helped post-secondary and at-risk students with Math deficits overcome their basic math problems and prepared them to enter college as full-fledged freshman.

At the HBCU-UP National Conference, the following students from the WBHR-LSAMP Program won numerous 1st place awards:

- Biological Sciences Oral Presentation - Benjamin Ozokwere, University of the District of Columbia
- Chemistry and Chemical Sciences Poster Presentation - Charlee McLean, Morgan State University; Oral Presentation - Ramond DeVaughn, University of the District of Columbia
- Computer Sciences Oral Presentation - Ruth Agada, Bowie State University
- Ecology and Environmental Sciences Poster Presentation - Melissa Pinnard, Morgan State University
- Mathematics Poster Presentation - Bolanie Sallasam, Howard University
- Nanoscience Oral Presentation - Abdul Raji, Morgan State University
- Physics Poster Presentation - Shawna Jones, Hampton University
- Technology and Engineering Poster Presentation - Kenneth King and Amy Onekaba, Virginia State University.

Two Bridge to the Doctorate students received their PhD degrees in May, 2010:
- April Eleyna McLauchlin, Ph.D., Genetics and Human Genetics, B.S., University of North Carolina, Chapel Hill, 2003.
  Present Position: First Year Medical Student, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.
  Present Position: Research Assistant, Biomedical Research Institute, Rockville, Maryland.

Wisconsin

Keith Jackson - WiscAMP AEP and UW-Madison student participated in an engineering summer abroad program in China. Kevin Patterson - WiscAMP AEP and UW-Platteville student spent a semester in Fiji studying Marine Biology.
LSAMP Award History

1991

Alabama
Dr. Louis Dale
The University of Alabama at Birmingham

California
Dr. Michael V. Drake
The University of California, Irvine

Mississippi
Dr. Abdul K. Mohamed
Jackson State University

Puerto Rico
Dr. Manuel Gomez
The University of Puerto Rico

Texas A&M
Dr. Karan L. Watson
Texas A&M University

WAESO
Dr. Antonio Garcia
Arizona State University

1992

Florida-Georgia
Dr. Ralph W. Turner
Florida A&M University

New York City
Dr. Neville A. Parker
City College of New York

North Carolina
Dr. Linda T. Adams
North Carolina A&T State University

South Carolina
Dr. George E. Cooper
South Carolina State University

University of Texas System
Dr. Benjamin C. Flores
The University of Texas at El Paso

1993

California State
Dr. Joseph Sheley
California State University

Illinois
Dr. Sandra Westbrooks
Chicago State University

New Mexico
Dr. Waded Cruzado-Salas
New Mexico State University

Washington/Baltimore Hampton Roads
Dr. Alvin Thorton
Howard University

1994

All Nations
Dr. Luana Ross
Salish Kootenai College

Oklahoma State
Dr. Mark E. Payton
Oklahoma State University

Philadelphia
Dr. Mark Greenberg
Drexel University

1995

Louisiana
Dr. Diola Bisagayoko
Southern University and A&M College

University System of Maryland
Dr. Freeman A. Hrabowski
The University of Maryland-Baltimore County

Tennessee
Dr. Melvin N. Johnson
Tennessee State University
LSAMP Award History

1996

Colorado

Dr. Rick Miranda
Colorado State University

SUNY

Dr. David Ferguson
State University of New York-Stony Brook

1997

Georgia

Dr. Carlton E. Brown
Clark Atlanta University

Houston

Dr. John Bear
The University of Houston

1998

North Star

Dr. Marcus Martin
The University of Virginia

Upstate

Dr. Mary E. Benjamin
University of Arkansas-Pine Bluff

Virginia-North Carolina

Dr. Steven J. Diner
Chancellor Rutgers-Newark

2000

Northeast

Dr. John Cunningham
The University of Massachusetts-Amherst

Pacific

Dr. Herb Schroeder
University of Alaska-Anchorage

2001

Indiana

Dr. Beverly Davenport Sypher
Purdue University

2002

Michigan

Dr. Mary Sue Coleman
The University of Michigan

Peach State

Dr. Michael F. Adams
The University of Georgia

Wisconsin

Dr. Paul Dehara
The University of Wisconsin-Madison

2004

Islands of Opportunity

Dr. Donald Straney
The University of Hawaii at Hilo

Kentucky-West Virginia

Dr. Lee T. Todd, Jr.
The University of Kentucky

Urban Massachusetts

Dr. Wingston Langley
The University of Massachusetts-Boston

2006

North Star

Dr. Robert J. Jones
The University of Minnesota, Twin Cities

Upstate

Dr. Eric C. Spina
Syracuse University

Virginia-North Carolina

Dr. Marcus Martin
The University of Virginia

2007

Arkansas

Dr. Mary E. Benjamin
University of Arkansas-Pine Bluff

Garden State

Dr. Steven J. Diner
Chancellor Rutgers-Newark

Pacific Northwest

Dr. Phyllis M. Wise
University of Washington

2008

Louis Stokes Alliances for Minority Participation
For all ALSAMP students.

Increase the achievement bar.

Learning opportunities and involvement in national and local organizations.

Attracting and retaining minority students,

Private institutions and research universities.

Majority institutions, public and private institutions, research universities, and teaching institutions.

Black Colleges/Universities, 1890.

Graduate School.

Highly qualified minority students.

Faculty, while the research institutions have the opportunity to work with, identify and recruit highly qualified minority students seeking to attend graduate school.

The diversity of the Alliance - Historically Black Colleges/Universities, majority institutions, public and private institutions and research and teaching institutions - boast a new era of cooperation as the Alliance seeks to maximize learning opportunities and increase the achievement bar for all ALSAMP students.

Graduate School Preparation

Faculty Mentored Research

Peer and Faculty Mentoring

ALSAMP Governing Board

Career Fair and Advisement

Summer Internship Program

Bridge to the Doctorate Program

Summer Bridge Program for Incoming Freshmen

Student Participation in Professional Conferences and Seminars

Undergraduate Scholarship Program

Peer Study Groups

Leading minority students in science, technology, engineering and mathematics (STEM) fields. The interaction of ALSAMP students and faculty and the facilities are advantageous for all. The undergraduate institutions benefit from having their students participate in research experiences with research faculty, while the research institutions have the opportunity to work with, identify and recruit highly qualified minority students seeking to attend graduate school.

The diversity of the Alliance - Historically Black Colleges/Universities, majority institutions, public and private institutions and research and teaching institutions - boast a new era of cooperation as the Alliance seeks to maximize learning opportunities and increase the achievement bar for all ALSAMP students.

ALSAMP
Alabama Louis Stokes Alliance for Minority Participation

Lead Institution
The University of Alabama at Birmingham
Dr. Louis Dale, Principal Investigator
drancel@uab.edu
Phone: 205-934-8762 • Fax: 205-934-1650
e-mail: ldale@uab.edu • cbraswel@uab.edu

Partner Institutions
Alabama A&M University
Dr. Jacqueline Johnson, Site Coordinator
cellphone: (256) 372-5713 • Fax: (256) 372-5840
jau.johnson@email.aamu.edu

Alabama State University
Dr. Carl Pettis, Site Coordinator
cellphone: (334) 229-4484/4465 • Fax: (334) 229-4902
cppettis@alsu.edu
Mr. Elijah Nyairo, Co-Site Coordinator
cellphone: (334) 229-6923 • Fax: (334) 229-4902
enyairo@alsu.edu

Auburn University
Dr. Overtoun M. Jenda, Site Coordinator
cellphone: (334) 844-4184 • Fax: (334) 844-4445
jendaov@auburn.edu

Miles College
Dr. James Langie, Site Coordinator
cellphone: (205) 929-1554 • Fax: (205) 929-1550
cwoods@miles.edu

Oakwood University
Dr. Kenneth LaiHing, Site Coordinator
cellphone: (205) 726-7112 • Fax: (205) 726-7111
laihing@oakwood.edu

Stillman College
Dr. Mary Jane Krotzer, Site Coordinator
cellphone: (205) 366-8929 • Fax: (205) 366-8942
mkrotzer@stillman.edu

Talladega College
Dr. Silas Edet, Site Coordinator
cellphone: (256) 761-6300 • Fax: (256) 362-1090
sbedet@talladega.edu

Tuskegee University
Dr. Herman Windham, Site Coordinator
cellphone: (334) 727-8556 • Fax: (334) 725-2348
windham@tuskegee.edu

The University of Alabama
Dr. Viola L. Acoff, Site Coordinator
cellphone: (205) 348-3761 • Fax: (205) 348-2164
vaco@eng.ua.edu

The University of Alabama in Huntsville
Dr. Emanuel Waddell, Site Coordinator
cellphone: (256) 824-6925 • Fax: (256) 824-6230
emanuel.waddell@uah.edu

The University of South Alabama
Dr. Alexandra Stenson, Site Coordinator
cellphone: (251) 460-7432 • Fax: (251) 460-7359
astenson@jaguar1.usouthal.edu
Alabama Louis Stokes Alliance for Minority Participation (ALSAMP) began in 1991 with nine institutions with a combined underrepresented minority science, technology, engineering and mathematic (STEM) enrollment of 4,549 and a combined underrepresented minority annual STEM bachelor’s degree production of 473. Today, the alliance includes 12 institutions with a combined underrepresented minority STEM enrollment of 7,069 and a combined underrepresented minority annual bachelor’s degree production of 1,397. In a state where opportunities for minorities were limited 20 years ago, the alliance has been the key that has opened the doors of opportunity for countless minority STEM students. The alliance is the only statewide organization with the single goal of increasing the quality and quantity of underrepresented minorities at all educational levels.

- Combined, ALSAMP institutions have awarded 16,108 STEM bachelor’s degrees to underrepresented minority students in Alabama since its inception.
- ALSAMP has students involved in international research activities in Australia, Egypt, Ecuador and Scotland. Moreover, ALSAMP is a partner in an effort to implement a US-Africa Advanced Study Institute and Workshop Series in Mathematical Sciences.
- ALSAMP students earning Ph.D. Degrees has increase from 15 in 1999 to 35 in 2010.
- Each ALSAMP institution has established connections with one or more community colleges.
- ALSAMP STEM students participated in the 2010 LSAMP Research Conference on Capitol Hill.
- ALSAMP held the first nationwide LSAMP student research conference in Alabama in 1993 and the first summer bridge program in 1992 and has held summer bridge programs and annual research conferences since that time.
- ALSAMP in collaboration with the LSAMP PIs publishes the LSAMP and the BD magazines.

**Alabama LSAMP Minority STEM Impact Data**

**BD Program Students Summary**

<table>
<thead>
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<th>Cohort</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
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<td>Number of Students in Cohort</td>
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<td>12</td>
<td>13</td>
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<td>Completed or entered, Ph. D. Programs</td>
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<tr>
<td>In the workforce or still in school</td>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>18</td>
</tr>
</tbody>
</table>
Since 1994, the All Nations LSAMP has been dedicated to increasing the Science, Technology, Engineering & Mathematics (STEM) opportunities for Native American students. Our partners consist of 24 Tribal Colleges & Universities and 10 Mainstream Colleges and Universities across 13 States. Each partner institution has a program liaison dedicated to recruiting, advising, retaining, and mentoring promising Native American students within the STEM disciplines.

Alliance Highlights

- Twenty-nine AMP Scholar AS STEM degree graduates transferred into a BS STEM degree program.
- AMP Scholars presented research at the 2009 national AISES and the 2010 national AIHEC student conferences.

Steve Dupuis, Co-PI & Program Director
steve_dupuis@skc.edu
Phone: (406) 275-4996

Zetra Wheeler, Co-PI & Program Manager
zeta_wheeler@skc.edu
Phone: (406) 275-4998

All Nations LSAMP
Salish Kootenai College
PO Box 70
58138 US Hwy 93
Pablo, Montana, 59855
Fax: (406) 275-4807
www.anamp.org

Alliance Partners

Montana
- Blackfeet Community College
- Chief Dull Knife College
- Fort Belknap College
- Fort Peck Community College
- Little Big Horn College
- Montana State University - Bozeman
- Montana State University - Northern
- Rocky Mountain College
- Salish Kootenai College
- Stone Child College
- University of Montana

South Dakota
- Oglala Lakota College
- Sisseton Wahpeton College
- South Dakota School of Mines & Technology

North Dakota
- Fort Berthold Community College
- North Dakota State University
- Sitting Bull College
- United Tribes Technical College

New Mexico
- Dine College
- Navajo Technical College
- Southwestern Indian Polytechnic Institute

Idaho
- University of Idaho

Michigan
- Central Michigan University
- Keweenaw Bay Ojibwa Community College
- Saginaw Chippewa Tribal College

Minnesota
- Fond du Lac Tribal College

Washington
- Heritage University
- Northwest Indian College
- Western Washington University

Wisconsin
- College of Menominee Nation
- Lac Courte Oreilles Ojibwa Community College

Kentucky
- Comanche Nation College

SCIENCE • TECHNOLOGY • ENGINEERING • MATHEMATICS
The All Nations Louis Stokes Alliance for Minority Participation (ANLSAMP) program is the only Alliance focusing on the Native American (NA) undergraduate students in the science, technology, engineering, and mathematics (STEM) disciplines. The United States continues to fall short in graduating enough STEM professionals to meet this nation’s growing demand, especially NA and other under-represented minorities (URM). To help address this continuing national crisis, the ANLSAMP will continue to improve and grow the pipeline for NA and other URM STEM students through its established network of collaborating partner institutions.

**Alliance Impacts**

- The ANLSAMP has produced 1,246 Native American STEM graduates since 1994, in addition to 4,734 additional URM.

- Enrollment within the various phases of the ANLSAMP program as fluctuated; however, there is a solid increasing trend the last three years.
ARK-LSAMP students from the two 2-year colleges, Pulaski Technical College (Famus Bradford, Cornell Cornelius, Steven Caradine and Kevin Holloway) and Southeast Arkansas College (McKinnely Bentley) transferred to Arkansas State University, University of Arkansas, Fayetteville and University of Arkansas-Little Rock, 4-year institutions within the Alliance.

ARK-LSAMP received ten percent matching funds ($70,000) from the Arkansas Science and Technology Authority (ASTA) to continue to support sophomore students across the Alliance. Additionally, ARK-LSAMP received another $30,000 from ASTA-ASSET I to support junior and senior students and will receive another $96,000 in December 2010 to support additional junior and senior students to work with scientists who are conducting research on the ASSET II NSF-funded inter-institutional research projects.

Coordinating Council Members for the Arkansas Louis Stokes Alliance for Minority Participation (ARK-LSAMP):

**University of Arkansas at Pine Bluff (lead institution)**
Dr. Anissa E. Buckner  
E-mail: bucknera@uapb.edu  
Phone: (870) 575-7113  
Fax: (870) 575-4602

**Arkansas State University**
Dr. Ellis Benjamin  
E-mail: ellisbenjamin@astate.edu  
Phone: (870) 972-3268  
Fax: (870) 972-3089

**Philander Smith College**
Dr. Frank James  
Email: fjames@philander.edu  
Phone: (501) 370-5216  
Fax: (501) 370-5399

**Pulaski Technical College**
Dr. Ben Rains  
E-mail: brains@pulaskitech.edu  
Phone: (501) 812-2268  
Fax: (501) 812-2704

**Southeast Arkansas College**
Dr. Kaleybra Morehead  
E-mail: kmorehead@seark.edu  
Phone: (870) 543-5963  
Fax: (870) 543-5963

**University of Arkansas, Fayetteville**
Mr. Thomas Carter, III  
E-mail: tic@uark.edu  
Phone: (479) 575-5346  
Fax: (479) 575-7744

**University of Arkansas at Little Rock**
Dr. Janet Lanza/ Dr. Jim Winter  
Email: jxlanza@ualr.edu/ jdwinter@ualr.edu  
Phone: (501) 569-3500  
Fax: (501) 569-3271

**University of Arkansas at Monticello**
Dr. Marvin Fawley  
E-mail: fawleym@uamont.edu  
Phone: (870) 460-1165  
Fax: (870) 460-1316

The ARK-LSAMP web page address is:  www.ark-lsamp.org.

Students at a poster session and speaking with the guest lecturer, Mrs. Shakira Petit, at the Second ARK-LSAMP Spring Research Conference hosted by Philander Smith College.
The Arkansas Louis Stokes Alliance for Minority Participation (ARK-LSAMP) is composed of eight colleges and universities all located within the state of Arkansas sharing a commitment to help increase the pool of Science, Technology, Engineering and Mathematics (STEM) graduates in Arkansas' workforce and in the nation. The Alliance is strengthened by its commonality and by its diversity. There are seven public and one private institution including two 2-year community colleges, one 4-year college and five universities.

The participating institutions are: Arkansas State University (ASU); Philander Smith College (PSC); Pulaski Technical College (PTC); Southeast Arkansas College (SEARK); University of Arkansas, Fayetteville (UAF); University of Arkansas at Little Rock (UALR); University of Arkansas at Monticello (UAM); and University of Arkansas at Pine Bluff (UAPB), the lead institution.

The expected outcome of this new and much needed Alliance is to help Arkansas join other states in the region and in the national initiative to strengthen America’s competitiveness in science, technology, engineering and mathematics. This is being achieved through a well-coordinated set of educational, research and training enrichment activities on each campus resulting from collaborative engagement in planning for curricula enhancement, internships, guest lecturers, attendance and presentations at professional meetings, and other STEM related activities.

ARK-LSAMP Pre-First Year Summer Institute students touring the research facilities at the University of Alabama-Huntsville, the U.S. Space and Rocket Center in Huntsville, AL and visiting with NASA physicist, Dr. Ruth Jones, a graduate of the University of Arkansas at Pine Bluff.
Since 1990-91, the California LSAMP has made substantial contributions to increases in minority B.S. degree completion and continuation on to graduate school. Through synergistic partnerships, our UC sites offer summer and academic year research experiences, faculty mentoring, academic excellence workshops, activities fostering academic socialization and professional development, exposure to STEM career pathways, and an annual systemwide symposium.

Top Alliance Accomplishments:

1. UC Systemwide awarded 1,708 B.S. STEM degrees to URM students in 2010.

2. NSF Awarded Bridge to the Doctorate funding for Cohort VI at UC Santa Cruz; strong retention success for Cohort V at UC Santa Barbara.
   20 BD Fellows completed Ph.D.s at UCLA, UCI, UCSD, and UCD.

3. Statewide Undergraduate Research Symposium hosted by lead campus UC Irvine, convened 150 UC faculty, students, and program staff for student/research centered weekend in February 2010.

UNIVERSITY OF CALIFORNIA
LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

CALIFORNIA LSAMP PARTNERS

UC BERKELEY
CARLOS FERNANDEZ-PELLO, PH.D.
FACULTY DIRECTOR
Department of Mechanical Engineering and Associate Dean, Graduate Division
grendean.support@berkeley.edu

DIANA LIZARRAGA, M.A.
CAMP COORDINATOR
Professional Development Programs
daliana@berkeley.edu

UC DAVIS
LOBI M. LUBIN, PH.D.
FACULTY DIRECTOR
Department of Physics
lmlubin@ucdavis.edu

GAIL MARTINEZ, PH.D.
CAMP COORDINATOR
Assistant Vice Provost, Undergraduate Studies, Offices of the Chancellor and Provost
gmartinez@ucdavis.edu

UC LOS ANGELES
TAMA HASSON, PH.D.
FACULTY DIRECTOR
Adjunct Associate Professor, Integrative Biology and Physiology Department
Undergraduate Research Center	lama@ibiology.ucla.edu

RICHARD L. WEISS, PH.D.
FACULTY CO-DIRECTOR
Department of Chemistry and Biochemistry
weiss@chem.ucla.edu

UC SANTA CRUZ
THEODORE HOLMAN, PH.D.
FACULTY DIRECTOR
Department of Chemistry and Biochemistry
tholman@chemistry.ucsc.edu

MALIKA BELL, M.S.
CAMP COORDINATOR
Minority Science Programs
malika@biology.ucsc.edu

UC IRVINE
DEREK DUNN-RANKIN, PH.D.
FACULTY DIRECTOR
Chair, Department of Mechanical and Aerospace Engineering
ddunnran@uci.edu

KIKA FRIEND, M.A.
CAMP COORDINATOR
Rockwell Engineering Center
kika@uci.edu

UC RIVERSIDE
RICHARD CARDULLO, PH.D.
FACULTY DIRECTOR
Life Sciences Divisional Dean, Professor of Biology
richard.cardullo@ucr.edu

CHRISTOPHER OLVERA, PH.D.
CAMP COORDINATOR
Academic Advising Center, College of Natural and Agricultural Sciences
christopher.olvera@ucr.edu

UC SANTA BARBARA
GLENN E. BELTZ, PH.D.
FACULTY DIRECTOR
Associate Dean for Academic Affairs, College of Engineering
beltz@engineering.ucsb.edu

DOROTHY PAK, PH.D.
CAMP CO-COORDINATOR
Material Research Laboratory
pak@mrl.ucsb.edu

JULIE STANDISH, PH.D.
CAMP CO-COORDINATOR
Material Research Laboratory
standish@mrl.ucsb.edu

UC SAN DIEGO
DAVID M. ARTIS, PH.D.
PROGRAM DIRECTOR
Academic Enrichment Programs
dartis@ucsd.edu

JACQUELINE AZIZE-BREWER, PH.D.
CAMP COORDINATOR
jaczie@ucsd.edu

CALIFORNIA LSAMP—a Cooperative Agreement with the National Science Foundation

UNIVERSITY OF CALIFORNIA LSAMP LEADERSHIP

Michael V. Drake, M.D., Chancellor, UC Irvine, Statewide P.I.

Project Managers:
Derek Dunn-Rankin, Ph.D., The Henry Samueli School of Engineering

Marjorie DeMartino, M.F.A., UC Irvine Center for Educational Partnerships

Lead Campus: University of California, Irvine
e-mail: dmartino@uci.edu • www.california-lsamp.uci.edu

NSF-HRD Grant #0603239
Impact Statement

The University of California Louis Stokes Alliance for Minority Participation (CAMP) has steadfastly focused on recruitment, retention and degree completion for underrepresented minority students in STEM since inception in 1990-91. The UCI Chancellor has continuously served as Principal Investigator, ensuring institutional commitment to LSAMP. The University of California has invested a 2:1 ratio of support to NSF funding, representing unparalleled institutionalization.

For 20 years, the program has provided the tools and support for minority students to overcome persistent barriers, particularly for women and first-generation students. The result of our vision and goals is a 178% increase in B.S. degrees granted, from 615 in baseline year to 1,708 in 2010. Minority STEM enrollment increased 182% from 3,806 in baseline year to 10,745 in 2010.

Over time, CAMP has become the University’s premier systemwide program to raise academic performance and full participation in university life for URM students. The program has significantly impacted the culture of the university. Academic socialization together with professionalization is embedded in all student development activities, fostering a sense of belonging to the scientific community and strengthening retention.

Faculty mentored laboratory research has resulted in increased student connectivity to the discipline, subject mastery, and a strong propensity to prepare for graduate school. At least 40% of alumni continue on to graduate school. More than 4,500 students have received research support. More than 500 UC faculty have served as mentors.

CAMP’s effectiveness is attributed to sustained commitment from our STEM deans, faculty, and staff, supported by the University’s top-level leadership. The Alliance has fostered local, regional, and national synergistic relationships that enable an effective infrastructure within California higher education.

CAMP students are now assistant and associate professors at institutions in California and across the nation. Our community college partnerships for transfer success further expand opportunity for minority students to transition smoothly to the UC. In 2009 621 URM STEM transfers enrolled in UC. Results of our shared work are disseminated to all stakeholders through multimedia formats. The California Alliance has marshaled resources throughout a very large state and a very large university system that values diversity and excellence.

Our efforts demonstrate an investment in the future of our state and the nation. Our results are reflected in an increasingly diverse workforce.

Celebrating 20 Years of Student Achievement
In Partnership with the National Science Foundation

Minority STEM B.S. Degrees are up 178% from 1990-91.

UC Minority STEM enrollment is up 182% from 1990-91.

UC Minority STEM M.S. Degrees granted are up 129% in 2010.

Minority STEM Ph.D. Degrees are up 74% in 2010.
CSU-LSAMP served 2,948 students, including 2,670 students from underrepresented groups. 466 CSU-LSAMP students engaged in research, 538 attended conferences, 43 participated in international activities, and 687 participated in other graduate school preparation activities.

The California State University Louis Stokes Alliance for Minority Participation, with NSF support, was initiated in 1994 to serve as a comprehensive, statewide program dedicated to broadening participation in STEM disciplines. The Alliance includes 22 campuses of the California State University (CSU), the largest university system of public higher education in the world, located in one of the most populous and most diverse states in the nation.

CSU-LSAMP supported activities include: mentored research, academic advising and career counseling, conference participation, math and science summer bridge programs, AY math and science academic excellence workshops, international activities, scholarship support, and a variety of graduate school preparation activities.

Corey Baker (Cal State LA, BD-6 Cohort) presented a poster at the NSF Poster Session on the Hill on July 22, 2010. Iesha Miller (CSU Sacramento) 2009-2010 CSU-LSAMP Scholar and four other CSU-LSAMP students participated in an Internship at hospitals in Thailand.
Looking Back and Looking Forward: The LSAMP program provided the California State University (CSU) an opportunity to develop a unified and comprehensive system-wide effort to improve its retention, graduation and post-baccalaureate placement of underrepresented students in STEM. Prior to 1994 (pre-LSAMP), a number of the CSU campuses had STEM support programs in place, but most of these programs focused on specific disciplines and there was little communication of best practices among the campuses. LSAMP provided the opportunity to expand, coordinate and leverage the expertise and resources of the campuses through the creation of a system-wide Alliance dedicated to broadening participation in STEM. In 1992-1993, the benchmark year, the campuses of the CSU awarded 750 STEM BA/BS degrees to students from underrepresented minority (URM) groups. In 2009-2010, the CSU awarded 1,840 STEM baccalaureate degrees to URM students. While it is certainly the case that increased enrollments and changes in demographics over this time period contributed to this 147% increase in URM-STEM degree production, it is also absolutely the case that LSAMP contributed substantially to this accomplishment. For example, longitudinal studies have consistently demonstrated that retention and graduation rates of LSAMP URM participants are over two times greater than those of non-LSAMP students majoring in STEM. Importantly, the LSAMP Program, through its different emphases in each of its “phases/levels” has provided a strategic framework for the CSU’s development and institutionalization of effective practices at progressively higher stages in the STEM pathway, from entry at the lower division or transfer level to advancement to graduate study. Therefore, the CSU looks forward to continued participation in LSAMP and to the Program’s leadership in future efforts to broaden participation in STEM.

CSU-LSAMP Statewide Office:
6000 J Street, SQU 534, Sacramento, CA 95826  (916) 278-3838  Fax: (916) 278-3854

Joseph Sheley, PI
Provost and VPAA
CSU Sacramento
sheleyj@csus.edu

Juanita Barrena, Co-PI/PD
Professor of Biology
CSU Sacramento
jbarrena@csus.edu

Nicole Campos
Project Manager
California State LSAMP
campos@csus.edu

43 CSU-LSAMP students engaged in international activities in 2009-2010, including a week-long internship in Thai hospitals, a three-week visit to the Medical University of Innsbruck, and a summer long research program in Brazil.

Left: Alyssa Jimenez and Karina Kangas (San Diego State). October 2010 SACNAS Poster Award Winners.

Right: Rebecca Cano (CSU Channel Islands) traveled, over Spring Break 2010, to a field research station in La Manzanilla, Jalisco, Mexico, to learn about issues in Mexican conservation and the long term monitoring program of the area’s mangrove systems.

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Professor of Biology
CSU Sacramento
jbarrena@csus.edu

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Student News

The following CSU-LSAMP students received the NSF Graduate Research Fellowship Award for Fall 2010:

- **Christian Espinoza (San Jose State)**
  Christian is currently working on his Ph.D. in Materials Engineering at the Univ. of Illinois at Urbana-Champaign.

- **Aaron Ramirez (CSU Bakersfield)**
  Aaron is currently working on his Ph.D. in Biology at UC, Berkeley.

- **Norma Vazquez (CSU Monterey Bay)**
  Norma began working on her Ph.D. in Ecology at Oregon State University in Fall 2010.

- **Amelia Yzaguirre (CSU Fullerton)**
  Amelia began work on her Ph.D. in Math at the University of Toronto.

The following LSAMP students also received national awards in 2009-2010:

- **Alexis Hall (CSU Monterey Bay)**
  Alexis received the NSF MESAS (Marine Ecosystem Sustainability in the Arctic and Subarctic) Fellowship ($30,000 per year for three years, tuition, health insurance, and research funding) to attend the University of Alaska Fairbanks.

- **Adan Romero (CSU Monterey Bay)**
  Adan received a Medtronic Graduate Fellowship ($30,240 stipend, tuition, and health insurance) to attend MIT.

More Student/Alumni news:

- **Dr. Eduardo Montoya (CSU Bakersfield)**
  Eduardo joined the mathematics faculty at California State University, Bakersfield in September 2009 for a tenure-track appointment. He received his Ph.D. in statistics from UC Santa Barbara in August 2009.

- **Cindy Bick (San Jose State)**
  Cindy was selected as one of the fellows at University of Michigan Frontiers Master’s Program in Ecology and Evolutionary Biology (an NSF 1st grant award #1038099).
ACCOMPLISHMENTS

- CO-AMP welcomed Northeastern Junior College (NJC) as a partner institution
- Colorado State University’s SACNAS Chapter was awarded the 2009 Role Model Chapter of the Year for Outstanding Leadership and Governance
Impact

Linking diverse students to educational opportunities in Science, Technology, Engineering, and Mathematics!

Changing students’ lives through quality education in Colorado

An innovative consortium between twelve institutions of higher education that increases the quality of education for underrepresented minorities in STEM fields and builds the infrastructure for collaborative programs and activities.

Issue

The nation's underrepresented STEM students have made gains in college enrollment and the number of degrees they have earned in recent years, but the gap between them and non-minority students on all educational levels remains glaring. Since CO-AMP’s inception in 1995, it has integrated minority students into college life; initiated early STEM advising and mentoring; provided support for students’ needs at partner institutions; and increased communication with numerous corporations, governmental agencies, professional membership organizations, and community members. These partnerships and collaborations continue to provide insight into the ever-changing direction of technology and offer career opportunities and internships to underrepresented minority students. Collaboration with the Office of Tropical Studies (OTS) at Duke University and NSF is being successful and provides exciting international research opportunities for underrepresented students.

National Science Foundation’s Response

In 1995, the Colorado Alliance for Minority Participation was awarded Phase I funding from the National Science Foundation to establish the LSAMP program in Colorado. From NSF’s vision of a national program to increase the number of underrepresented students in STEM fields, the following CO-AMP goals have been implemented:

- facilitate smooth student transitions from high school to college; from 2-year to 4-year institutions; from academic to professional careers or graduate school
- provide undergraduate research information and opportunities to develop professional skills, critical thinking, and hands-on experiences through research
- recruit underrepresented minorities to increase the number of high school students and associate degree transfer students into baccalaureate degree STEM programs
- provide retention programs for academic tutoring, workshops, faculty and peer mentoring, stipends, and minority conference attendance

In addition, CO-AMP has established partnerships with four tribal nations: Jicarilla Apache, Navajo Nation, Southern Ute Indian, and Ute Mountain Ute, including collaborations with numerous corporations, governmental agencies, professional membership organizations, and community members. These partnerships and collaborations continue to provide insight into the ever-changing direction of technology and offer career opportunities and internships to underrepresented minority students. Collaboration with the Office of Tropical Studies (OTS) at Duke University and NSF continues to be successful and provides exciting international research opportunities for underrepresented students.

Impact

Data show that CO-AMP programming has significantly helped participants make profound and successful changes. Over the life of the CO-AMP program, the number of underrepresented minority students enrolled in STEM programs of partner institutions rose from 1,922 students to 3,529 students enrolled (an 84% increase). Likewise, the number of underrepresented minority students earning a Bachelor's degree grew from 215 to 407 (89% increase). Since its inception, CO-AMP has established numerous programs and activities at partner institutions that have now institutionalized many of them. CO-AMP has achieved a high-level of systemic change for URM STEM students in Colorado!

In addition to graduation and enrollment data, participant feedback tells how CO-AMP programs are making a difference and generating overwhelming academic achievement.

• “I have hope for my future, to make positive changes in my life, to achieve success in a career.”
• “Without support from CO-AMP, I would not have graduated. My mentor was my lifeline.”
• “Through CO-AMP I learned that I can compete with other students on the same level. We had more in common than we had differences.”

The Bottom Line

- CO-AMP fills a critical gap by delivering programs to underrepresented students in STEM fields.
- No other entity in Colorado has assembled the number of higher education institutions to collaborate on coordinated programs for underrepresented minority students in STEM fields.
- CO-AMP has become an academic leader in Colorado for coordinated efforts in minority STEM education programming.

By the Numbers

CO-AMP Report Card since 1995-96:
- 89% Increase in UREP STEM degrees awarded
- 84% Increase in UREP undergraduate minority STEM enrollment

STEM B.S. degrees awarded to CO-AMP students since 1995-96 by ethnic breakdown:
- 240% Increase in number of African American students graduating in STEM fields
- 76% Increase in number of Hispanic students graduating in STEM fields
- 64% Increase in number of Native American and multi-race students graduating in STEM fields

2009-2010 CO-AMP Report

The CO-AMP 2009-2010 Report is available by request. It highlights immediate and long-term outcomes and explains the programming offered at each partner institution.

www.coamp.colostate.edu

Louis Stokes Alliances for Minority Participation
FGLSAMP is funded by a grant award through the National Science Foundation (NSF), guided by a framework developed by NSF. The Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) utilizes a holistic approach to influence increasing numbers of underrepresented minorities earning degrees in science, technology, engineering, and mathematics (STEM) disciplines with a commitment of significantly increasing the production of baccalaureate degrees.

FGLSAMP is also committed to STEM graduate education and has received funding for the LSAMP Bridge to the Doctorate program (BD) that provides two years of funding for LSAMP scholars that pursue the STEM Ph.D. The BD provides a generous stipend of $30,000/yr for the students first two years in addition to cost of education support.

FGLSAMP Model

Research
Graduate Mentors
Professional Development
Mentoring
Academic Enhancement
Graduate School Prep

Resources
Research Experience for Undergraduates
National Labs
Bridge to the Doctorate
Graduate Fellowship
Graduate Institutions

Contact
Ralph W. Turner,
Project Director
ralph.turner@famu.edu

Byron Greene,
Project Manager
jackson.greene@famu.edu

FGLSAMP Central Office
1540 South Adams Street, Suite A
Tallahassee, FL 32307
(850) 561-2467
FLORIDA GEORGIA Louis Stokes Alliance for Minority Participation

PROGRAM IMPACT

The impact of FGLSAMP upon the academic experience of participating students has to-date yielded significant positive results. Students that participate in the FGLSAMP program have a higher propensity to progress within the academic pipeline; remain in their selected STEM major; and persist toward the B.S. degree. Since its inception more than 1,300 FGLSAMP participants have been awarded the STEM B.S. degree. To gain a greater understanding of program effectiveness of upon retention and graduation rates, 4 alliance institutions (Florida A&M University, Albany State University, Bethune-Cookman University, and Florida International University) have been designated as primarily undergraduate degree producing institutions (due to the large number of students supported by FGLSAMP) in an effort to capture the impact of the FGLSAMP Model upon the following areas:

Progression - along the academic pipeline; Persistence -within STEM curriculums; Graduation

Listed below are the 2008 progression and persistence rates:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Progression- within academic continuum</th>
<th>Persistence to the baccalaureate degree</th>
<th>Persistence in STEM disciplines</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASU</td>
<td>92%</td>
<td>94%</td>
<td>87%</td>
</tr>
<tr>
<td>BCU</td>
<td>87%</td>
<td>90%</td>
<td>83%</td>
</tr>
<tr>
<td>FAMU</td>
<td>91%</td>
<td>93%</td>
<td>88%</td>
</tr>
<tr>
<td>FIU</td>
<td>88%</td>
<td>90%</td>
<td>86%</td>
</tr>
</tbody>
</table>

Underrepresented Minorities in STEM

Minorities in STEM disciplines at FGLSAMP institutions:

<table>
<thead>
<tr>
<th>Year</th>
<th>B.S. Recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>416</td>
</tr>
<tr>
<td>2008</td>
<td>2,222</td>
</tr>
</tbody>
</table>

The number of FGLSAMP student participants (including associate members) has also grown significantly:

<table>
<thead>
<tr>
<th>Year</th>
<th>FGLSAMP Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>410</td>
</tr>
<tr>
<td>2009</td>
<td>1,806</td>
</tr>
</tbody>
</table>

Number of students participating in research experiences:

<table>
<thead>
<tr>
<th>Internship Year</th>
<th>No. of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2003</td>
<td>167</td>
</tr>
<tr>
<td>2003-2004</td>
<td>175</td>
</tr>
<tr>
<td>2004-2005</td>
<td>183</td>
</tr>
<tr>
<td>2005-2006</td>
<td>194</td>
</tr>
<tr>
<td>2006-2007</td>
<td>211</td>
</tr>
<tr>
<td>2007-2008</td>
<td>231</td>
</tr>
<tr>
<td>2008-2009</td>
<td>247</td>
</tr>
<tr>
<td><strong>Average Annual Internships</strong></td>
<td><strong>201</strong></td>
</tr>
<tr>
<td><strong>Total number of Internships</strong></td>
<td><strong>1408</strong></td>
</tr>
</tbody>
</table>
Garden State LSAMP Phase 1

Dr. Alexander Gates, Executive Director / Co-PI GS-LSAMP

Dr. Louis Beaugris of Kean and Dr. A. James Hicks, Director of NSF LSAMP

The Rutgers-Newark GS-LSAMP in its second year is designing programming throughout the alliance member college that:

• provide early research and enrichment experiences in STEM fields
• sustain teaching and mentoring opportunities on many of the gateway courses, as well as upper-level courses;
• provide personalized interactions with LSAMP students and faculty mentors beginning in the students’ first year; and
• provide professional and/or graduate development opportunities.

ALLIANCE PARTNERS

Bloomfield College
Josephine.Cohn@bloomfieldcollege.edu
Essex County College
lyov@essex.edu
Fairleigh Dickinson University
mclary@fdu.edu
Kean University
jetonye@kean.edu
Montclair State University
prosainte@mail.montclair.edu
New Jersey City University
smontgomery@njcu.edu
Rutgers-New Brunswick
scott@biology.rutgers.edu
Rutgers-Newark
agates@andromeda.rutgers.edu
William Patterson University NJ
fullerstanley@wpunj.edu

Rutgers University-Newark is the proud leader in the NSF Funded program to enhance the success of students in STEM (Science, Technology, Engineering and Math) fields. The program will create a learning community in STEM that includes effective help with challenging classes, research opportunities, internships, employment opportunities, possible international experiences, possible financial aid for graduate school and career opportunities. The program extends well beyond the confines of Rutgers and is recognized nationally for its success in helping students graduate in STEM fields and continuing into rewarding careers. The GS-LSAMP program emphasizes activities designed to enhance graduate school preparedness, interventions for community college transfer students, and expanding opportunities for student engagement in research activities.
Garden State LSAMP Impact

The Rutgers- Newark GS-LSAMP launched in year 2009 is continuing to grow in excess of 780 GS-LSAMP participants with greater projections through the spring 2011 semester. The alliance sponsored a STEM Career Conference March 26, 2010 with an emphasis on both job readiness and securing stem research internships.

We are pleased to report that there was a high level of interest in research internships in the first year of LSAMP programming. A confluence of successful funding efforts from NSF and the US Dept of Agriculture resulted in the facilitation and funding of almost 80 undergraduate STEM research projects and internships in the summer of 2010. Activities ranged from computer science modeling, organic chemistry synthesis to GIS/GPS mapping, Biochemistry and Molecular Biology at the NJMS-UH Cancer Center, Plant Biology at the Gateway National Reserve, General Biology DNA sequence at Cambridge University, England, Chemistry with an interest in synthesis of metal nanoclusters and Environmental Studies/Geology with the Conserve Wildlife Foundation of New Jersey to community outreach, in a wide variety of settings ranging from the lab to the farm to local parks. Many of these efforts have continued into fall 2010. GS-LSAMP Students are being groomed for poster session presentations at our upcoming annual STEM Career Conference as well as an annual Student Research Symposium to be held at one of the alliance member colleges.

Fairleigh Dickinson University (FDU) GS-LSAMP students participated in a research project on the thickness of barnacle shells from two water bodies in New Jersey. One water body, the Hackensack River which flows through the Metropolitan campus of FDU, is polluted and recently has been found to contain shellfish that have shells that are thinner than normal which makes them brittle and easy to break. LSAMP students from FDU collected barnacles from this water body and compared them with barnacles from another water body in Old Bridge New Jersey, Laurence Harbor (the control). The students cleaned the barnacles, identified them to species, removed them from rocks and or mussel shells and measured and weighed them before taking them to the Meadowlands Environmental Research Institute (MERI) of the New Jersey Meadowlands Commission (NJMC) for calcium analysis.

Research Opportunities-Students this year have been provided with information and numerous opportunities on how to take part in research activities both on and off campus. In the upcoming year, we will expand the number of presentations that showcase research. Additional presentations will be given by LSAMP students who have recently taken part in these on/off campus research activities and by faculty members interested in working with these students. Students who are ready will offer presentations at our annual Student Research Symposium at William Patterson University on April 17, 2011.

Spring 2010 GS-LSAMP graduates are entering stem doctoral programs at Stony Brook University, Brown University, Rutgers New Brunswick, and Columbia University. Congratulations to Ryan Rebozo of Rutgers New Brunswick School of Environmental and Biological Sciences, 2010 as our first accepted GS-LSAMP graduate accepted into the LSAMP Bridges to the Doctorate program at Drexel University.
STEM Scholarship has its privileges at the Georgia Louis Stokes Alliance for Minority Participation

Our scholars:

- Gain research exposure, experience and competency in laboratories
- Attend, present and place at research symposia (national and LSAMP)
- Tutoring and tutor opportunities
- Lead and participate in STEM major and national organization clubs
- Gain access to research and internship opportunities
- Have opportunities for community service and field trip learning experiences
- Receive faculty mentors

Visit the GA LSAMP website
http://programs.cau.edu/galsamp
Georgia Louis Stokes Alliance for Minority Participation

Impact

The Georgia LSAMP has realized many accomplishments throughout the life of its existence. The alliance is committed to strengthen the quality and quantity of underrepresented minorities in STEM research fields with advanced degrees. Through the support of the National Science Foundation LSAMP grant, scholars at Atlanta Metropolitan College, Clark Atlanta University, Georgia State University, Morehouse College and Paine College are successfully matriculating as STEM majors and preparing for advance degrees in STEM fields. The alliance has accomplished the following:

- Established two symposia (Fall and Spring) provided the opportunity for over 70 scholars to present orally and poster-wise their research findings.

- Established the “Summer 2010 Research Symposium” for scholars to gain additional exposure to research.

- Two scholars participated in the Summer Research Symposium and presented their research at the LSAMP National PI/PD Meeting and Student Poster Session at the Rayburn Hours Office Building in Washington, D.C.

- GA LSAMP scholars are conducting research with mentors during the academic year.

- Thirty four (34) of the 79 GA LSAMP supported scholars in 2009 – 2010 conducted research and presented the results during the academic year.

- Atlanta Metropolitan College (the community college partner) and the CAU Program Manager attended the University of Alabama, Birmingham’s 2009 Workshop on Best Practices for the Recruitment and Transition of Engineering and Science Students from Community Colleges to Four-Year Institutions, October 4 – 6, 2009.
Every year, NASA accepts hundreds of submissions from student groups around the nation. The best fourteen proposals are invited to test their projects on NASA’s facilities where they can take advantage of state of the art equipment. H-LSAMP students from Texas State University were among the winners. This honor reflects the hard work and genuine dedication of the group led by H-LSAMP scholar and Texas State University electrical engineering student, Christina Vasquez. Vasquez founded the Austin Space Aces group in 2006 and has been making headway as the leader ever since. Nathan Robson (H-LSAMP scholar, electrical engineering major at Texas State) and Mark Prado (electrical engineering major at Texas State) helped develop the research and served on the flight team during the Houston experiment.
COMMUNITY COLLEGES:
San Jacinto College not only involves its students in research and runs a robotics summer camp, but they now run PLTL workshops.

Above: The Houston-Louis Stokes Alliance for Minority Participation has had long-lasting impact on its partner institutions. Students such as Nick (top left) not only won national recognition with organizations such as MEAS, but have moved into the PhD with help from the BD program. Students have learned they can push themselves further than expected, such as in the obstacle challenge they face at Texas State. Students have learned to give back, such as the work done with the Harris Summer Camp for minority middle school students.

Houston Community College has established the West Houston Science Center, and has leveraged LSAMP and Homeland Security to provide research and financial support for undergraduates.

HIGH SCHOOL OUTREACH:
H-LSAMP connections have raised over $30,000 in funds from outside sources to do active recruiting.

ELEMENTARY AND MIDDLE SCHOOL OUTREACH:
H-LSAMP has partnerships and linked programs such as Globe, the Bernard Harris Summer Camp and over 50 other programs into a unified recruitment pipeline.

STUDENT RESEARCH:
Along with national conferences, students in H-LSAMP have published peer reviewed papers in engineering, chemistry, physics, biology, and computer sciences.

STRUCTURAL CHANGES:
H-LSAMP institutions have dedicated space for the H-LSAMP program. These include the SEP building at UH, the CLC at Texas State, the SA at UHD, and the H-LSAMP lab at TSU.

OUTCOMES:
9,152 UREP STEM Degrees
~50% of level one students go to graduate or professional school.

<table>
<thead>
<tr>
<th>DISCIPLINE</th>
<th>H-LSAMP</th>
<th>NATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>133%</td>
<td>25%</td>
</tr>
<tr>
<td>Computer Science</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Engineering</td>
<td>166%</td>
<td>29%</td>
</tr>
<tr>
<td>Geosciences</td>
<td>60%</td>
<td>66%</td>
</tr>
<tr>
<td>Life/Biological Sciences</td>
<td>45%</td>
<td>49%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>29%</td>
<td>28%</td>
</tr>
<tr>
<td>Physics/Astronomy</td>
<td>275%</td>
<td>46%</td>
</tr>
<tr>
<td>Total All Disciplines</td>
<td>69%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Comparison of H-LSAMP UREP STEM Degrees during 1998-1999 vs. all LSAMP programs over the same funding period excluding H-LSAMP.
ILSAMP was awarded a supplement by the NSF to support the research experiences of 25 Illinois LSAMP participants at Argonne National Laboratory (ANL) and the Lawrence Berkeley National Laboratory (LBNL) during the summer 2010. The research fellows consisted of 7 faculty from Chicago State University, Governors State University and the Illinois Institute of Technology and 18 undergraduates from Illinois Alliance institutions. The participants obtained research experiences as a part of the Faculty and Student Teams (FaST) Program, which is a direct result of the interagency Cooperative Agreement between DOE and NSF. Since the inception of the agreement, 44 faculty and 113 undergraduate students from Illinois LSAMP have participated in FaST research projects.

The Twelfth Annual Illinois LSAMP Student Research Symposium was held at the Hilton Hotel Suites and Drury Lane Convention Center in Oak Brook, Illinois, with more than 350 students, faculty and staff participating. The theme was “International Partnerships to Bridge the Global Divide.” The conference, which included workshops, poster and oral presentations, luncheon and dinner banquets, provided participants from the Alliance institutions an opportunity to come together in camaraderie to share results of research, compare notes, relate experiences, and to develop closer relationships. Dr. Rick Kittles, Scientific Director, African Ancestry, Inc. and Associate Professor in the Department of Medicine at the University of Chicago, and Dr. Hazel Symonette, Senior Policy and Program Development Specialist at the University of Wisconsin-Madison, gave the keynote addresses. One of the highlights of the conference was the surprise visit by Dr. Walter Massey and his wife Shirley. Dr. Massey, the ninth Director of the National Science Foundation, former president of Morehouse College and current president of the School of the Art Institute of Chicago, gave well received remarks of inspiration to the assemblage.
III. An essential aspect of the ILSAMP strategy is to increase the number of underrepresented minority students who major and graduate in STEM disciplines. Originally the program consisted of six universities within the city of Chicago. During the first five year period of the program (see Chart I), baccalaureate degrees awarded increased by 60% (from 228 STEM degrees during the baseline year to 366 by year 5). It soon became obvious that we could reach a greater number of underrepresented minority students with an increase in the number institutions within the Alliance. Coming together in a statewide coalition, the ILSAMP institutions have supported students through undergraduate studies and prepared them to be successful in graduate school or in STEM professions. The activities employed by ILSAMP have proved successful. During the second five year period of the project, degree production increased by 26% (from 366 to 463). During the third five year period, there was an 11% increase in degree production (from 463 to 515) and the first year of the fourth period we realized an increase of 6% (from 515 to 547). ILSAMP has certainly had a positive impact on the number of underrepresented minority STEM degrees.

IV. One of the most successful accomplishments of the Alliance is the development of a viable cooperative from a very diverse group of institutions. Previous to the ILSAMP there was little programmatic relationship between these different public, private, and religious institutions in urban and rural settings. ILSAMP originally consisted of six (6) universities within the city of Chicago. Today the Alliance is composed of eight (8) comprehensive universities throughout the state of Illinois (Chicago State University - CSU, DePaul University - DPU, Illinois Institute of Technology - IIT, Northeastern Illinois University - NEIU, University of Illinois at Chicago - UIC, Illinois State University - ISU, Southern Illinois University at Edwardsville - SIUE, and Southern Illinois University at Carbondale - SIUC), one senior institution (Governors State University - GSU) and nine community colleges. This configuration enables the Alliance to reach a larger and more diverse student population and provides access to more research opportunities for undergraduate students and access to more graduate schools. These institutional additions set the stage to provide a broader vision and more complete and comprehensive planning. We have developed partnerships, relationships, and friendships that are unprecedented considering the diverse nature of our various institutions, our missions, and our student clientele. These relationships have grown stronger producing more cooperative activities over time.

V. With an increasing number of students beginning their academic careers at two-year colleges, strategies were developed that addressed the needs of these students. ILSAMP developed articulation agreements and collaborative programs with several local community colleges. Community colleges have developed programs in association with the senior colleges with which they are closely affiliated. The purpose of these programs is to increase the number of students transferring to senior colleges in STEM areas. For example: Olive-Harvey College (OHC), Kennedy-King College (KKC) and Harold Washington College (HWC) have developed programs with Chicago State University; Wilber Wright College (WWC), Malcolm X College (MXC) and Richard Daley College (RDC) have worked closely with University of Illinois Chicago; and Harry Truman College (HTC), Saint Augustin College (SAC) and MXC have developed projects with Northeastern Illinois University. ILSAMP has shown that collaborative efforts can make a difference.
LSAMP Indiana is an alliance of eight university campuses in Indiana that have set up programs to improve the retention and graduation of students in science, technology, engineering, and mathematics (STEM) fields. The goal of LSAMP Indiana is to improve the number of degrees awarded to ethnic minority students currently underrepresented in STEM fields. Participants of the program will develop research skills, enhance their scientific knowledge, and form strong connections with faculty and students in their chosen field, and as a result, will be encouraged to successfully complete degree programs in these disciplines.

LSAMP Indiana Activities:
- Undergraduate Research
- Summer Bridge Programs (STEM Academic Boot Camp)
- Peer and Faculty Mentoring
- Student Internships
- Academic and Financial Support
- NASA Academic Year Collaboration
- Weekly Tutoring Program
- Graduate School Preparation Workshops
- Annual LSAMP Conference
- Local and National Conference Presentations

Website: http://www.purdue.edu/lsamp
This has been an exciting year for the Louis Stokes Alliance for Minority Participation (LSAMP) Indiana. We are currently in our fourth year of our Phase II project, making LSAMP Indiana over 8 years old. Many of our earlier LSAMP students have entered and graduated from graduate school, perpetuating the legacy of the program and its support for students on our campuses. Our programs span across the state of Indiana, supporting students by providing academic enrichment, undergraduate research opportunities, professional development, and faculty mentoring. We have directly supported over 400 students since 2002. Additionally, many more have attended our workshops, tutoring sessions, and conferences. We have built a network of undergraduate and graduate students, faculty, staff and administrators with a common goal of increasing the number of students from underrepresented minority populations, graduating with baccalaureate degrees in science, technology, engineering, and mathematics. Our programs provide a collaborative level of support using graduate students, faculty, and staff to inspire our students to enter graduate school and careers in STEM. The success of our program is shown in the table below:

<table>
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<tr>
<th>Year</th>
<th>Native American</th>
<th>African American</th>
<th>Hispanic American</th>
<th>More Than One Race Reported</th>
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<td>83</td>
<td>43</td>
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<tr>
<td>01-02</td>
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<td></td>
</tr>
<tr>
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<td>94</td>
<td>39</td>
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<td>142</td>
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<tr>
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<tr>
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<td>15</td>
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<tr>
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<td>11</td>
<td>120</td>
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<tr>
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<tr>
<td>08-09</td>
<td>9</td>
<td>124</td>
<td>85</td>
<td>4</td>
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<tr>
<td>09-10</td>
<td>17</td>
<td>127</td>
<td>134</td>
<td>19</td>
<td>297</td>
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The Islands of Opportunity Alliance - LSAMP

Louis Stokes for Minority Program

Project Information (Summary)
The Islands of Opportunity Alliance LSAMP Project is led by the University of Hawai‘i at Hilo. The Alliance works collaboratively with 17 institutions in Hawai‘i and throughout the Pacific region to increase the quantity of underrepresented minority students receiving baccalaureate degrees in science, technology, engineering and math. To achieve this goal, IOA-LSAMP partners have initiated a comprehensive effort that includes:

- Research Experience Opportunities
- Academic Support Programs
- Outreach and Recruitment
- Professional Conferences
- Summer Bridge Programs
- Retention Efforts
- Community Projects

IOA-LSAMP Student Conference
- Hosted by UH Hilo
- Over 200 attendees presented research
- STEM related field excursions

2010 Bridge to Doctorates Poster Session on the Hill Conference in D.C.
- Two undergraduate scholars attended and presented research
- Scholars were nationally recognized by Congresswoman Mazie Hirono

2009-2010 Research & Internship Projects
- Over forty LSAMP STEM Scholars participated in research and internship experiences in Hawai‘i and throughout the Pacific
- Laboratory and Field experience

Senior Personnel
Principal Investigator
Dr. Donald Straney
1 (808) 974-4444 / 1 (808) 933-3304 (Fax)
dstraney@hawaii.edu
200 W. Kawili Street
Hilo, Hawaii 96720

Project Director
Dr. Daniel Brown
1 (808) 974-7468 / 1 (808) 974-7610 (Fax)
dbrown@hawaii.edu

Project Manager
Ms. Joanna Calanilla
1 (808) 974-7601 / 1 (808) 974-7610 (Fax)
ioalsamp@hawaii.edu

Website Address
http://www.uhh.hawaii.edu/affiliates/ioalsamp

ALLIANCE INSTITUTIONS
Chaminade University
Dr. Helen Turner
hturner@chaminade.edu

University of Hawai‘i at Hilo
Delilka Bertelmann
kapeconde@hawaii.edu

College of the Marshall Islands
Dr. Don Hess
emilhess@yahoo.com

Hawaii Pacific University
Roland Jenkins
rjenkins@hpu.edu

University of Hawai‘i at Manoa
Daniel Lyon
lj@hawaii.edu

University of Hawaii at West Oahu
Colleen McNamara-FSM
Brian Lynch
bryan@hawaii.edu

University of Guam
Claudia Velasquez
velasquezgui@yahoo.com

American Samoa Community College
Dr. Kenneth Belle
kenneth_belle_dps@yahoo.com

Guam Community College
Michelle Santos
michelle.santos@guamcc.edu

Hawaii Community College
Laura Brezinsky
laura@hawaii.edu

Kauai Community College
Brian Yamamoto
brian@hawaii.edu

Molokai Community College
Kahele Dukelow
kahele@hawaii.edu

Hilo Community College
Erica Lacro
lacro@hawaii.edu

Loewa Community College
James Oda
joda@hawaii.edu

Palau Community College
Vernice Vini
vernicey@yahoo.com

Kapilina Community College
Robert Franco
rfranco@hawaii.edu

Northern Marianas College
Dr. Alfredo Torres
alfredo@fmnrcnet.edu

Windward Community College
Dave Krupp
krupp@hawaii.edu
The Islands of Opportunity Alliance-Louis Stokes for Minority Participation Program was established in 2007 as a network of 19 postsecondary institutions located in Hawaii and throughout the Pacific. Current data show that the Alliance is meeting all its goals and objectives by providing educational and academic support for underrepresented minority students interested in STEM. During the first four years the project has succeeded in increasing the numbers of URM students declaring STEM majors at the four-year universities within the IOA from 1,552 in 2005 to 2,050 in 2009, a 32.1% increase. During 2006-2009, the graduation rates of URM students with baccalaureate degrees in STEM have gone from 208 to 377, representing an 81.2% increase. With two more years of data to be collected before the completion of the five year IOA project, it is highly likely that the program will meet its primary objective of a 100% increase in URM STEM graduates.

The overall goal of the Alliance is to increase the number of underrepresented minority students graduating with baccalaureate degrees in STEM fields.

**Project Objectives:**
- The recruitment of underrepresented minority community college students into STEM baccalaureate degree programs within the IOA universities;
- Providing research and internship experiences for students pursuing baccalaureate degrees in STEM disciplines;
- Promoting retention and progression rates among students by creating a scholarly learning community;
- Improving instruction in STEM courses through faculty development and tutoring support

**2009 IOA-LSAMP Project Activities:**
Partners within the Alliance continue to successfully meet project objectives by providing participant scholars with access to educational and academic resources. Proposed LSAMP activities for 2009 included:
- Research and Internship opportunities;
- Outreach Activities; and
- Academic support (tutoring and mentoring)

**UH Manoa:** A total of eight students were involved in research projects with professors on the UH Manoa campus. LSAMP scholars participated in academic advising sessions, culturally based huaka‘i (excursions), and tutoring sessions. During the spring of 2010 representatives from the IOA-LSAMP program at UH Manoa attended the Alaska Native Science and Engineering Program’s Dissemination conference in Anchorage, Alaska.

**UH Hilo:** A total of thirty students were involved in research projects with professors on the UH Hilo campus. During Year 4, scholars attended workshops, lectures, conferences, tutoring and academic advising sessions. During spring break 2010 Keaholoa STEM scholars went on their annual huaka‘i (excursion) to the island of Molokai. The intention of the huaka‘i is to allow scholars to gain hands on experience working in a different community and introduce scholars to the different resources and research projects that are occurring on the different Hawaiian Islands.

**Maui Community College:** A total of two students were involved with internships and worked on research projects. In February of 2010 LSAMP scholars form Maui Community College interested in transferring to the University of Hawaii at Manoa and the University of Hawaii at Hilo, attended huaka‘i (excursions) to both campuses to network with scholars, professors and campus programs.

**Palau Community College:** Palau Community College continued its mission in implementing a STEM Disciplines Program at the institution. The objective of the program is to improve strategies for recruitment, instruction, applied laboratory and research experiences, and mentoring. Palau continued to work on establishing an articulation agreement with the Marine Science and Environmental Studies programs at the University of Hawaii at Hilo. The STEM Disciplines Program at Palau Community College is geared toward transferring two-year graduates into STEM baccalaureate degree programs within the Islands of Opportunity Alliance universities.

**College of Marshall Islands:** The College of the Marshall Islands offered its STEM students’ academic support in the form of tutoring. A total of six students worked as tutors and/or lab assistants to provide assistance to developmental mathematics students. Tutoring services at the college is focused on supporting students taking classes in the STEM ‘gateway’ courses, including, mathematics and science.
KY-WV LSAMP in action-------

West Virginia University

AFRICAN AMERICAN ARTS & HERITAGE ACADEMY (AAAHA)
The AAAHA Academy offers students 13 to 18 years of age one week of concentrated study each year in the discipline of their choice at the West Virginia University campus in Morgantown. This year the Academy offered the 42 participants a supplemental series of activities focusing on the connection of the arts to STEM disciplines, with the goal of impacting the students with the interrelatedness of academic disciplines, the importance of STEM disciplines to artistic endeavors, and encouraging them to keep their options open as they explore career opportunities.

University of Kentucky

LSAMP Seminar Course - In place of the UK Success Institute workshop series of Years 1 – 3, a 1-credit restricted seminar course was designed using student focus group input and offered during the fall 2009 and spring 2010 semesters. Some curriculum topics included: Effective Study Habits, Research 101, Professional Communications, Finding Your Niche, Budgets & Finance, Building your network, Smart Goals, Career Decisions, Presentation Skills and Rules for Long Term Success.

http://kywvamp.uky.edu
Alliance Impact

The primary emphasis, guidance, and direction to participating institutions is on recruiting, retaining, and graduating Burgeoning Population (Historically Underrepresented Groups) STEM students, and reach the goal of creating diverse campus environments. Graduate study is encouraged to qualified students. Additionally, there is emphasis on creating a supportive community of reciprocally helpful students, staff, and faculty. In addition to having a strong effect on students, the KY-WV LSAMP also emphasizes creating a vision for the staff, faculty, and the institutions participating in the KY-WV LSAMP. The KY-WV LSAMP continues to work determinedly on improving the conventional STEM education systems and the capacity of the systems to meet student needs, as well as the success rate of the students within it.

1. KY-WV LSAMP has served as a source of academic support for several students who have confronted social, educational, and/or economic barriers to careers in STEM disciplines. The benchmark for our alliance just four years ago was a collective graduation quantity of 128 baccalaureate STEM degrees conferred at the eight degree granting institutions within our alliance. Year-five of our Alliance and our WebAmp reports inform us that the eight institutions now enjoy 672 baccalaureates in the STEM fields awarded to our Burgeoning Population students. This is an increase of 525% to date by the KY-WV LSAMP institutions. We believe that the LSAMP activities across campuses have had a positive impact on STEM education in Kentucky and West Virginia.

2. KY-WV LSAMP has worked to contribute to improved retention and graduation of individuals who have confronted social, educational, or economic barriers to careers in the STEM disciplines. Each of the eight degree granting institutions has worked to establish a sense of community by supporting a wide range of academic and financial support constructs as well as mentors, professors, and advisors to the 1,202 program activity participants in 14 activities just in 2010. Clearly, the future pipeline/pathway of students participating in KY-WV LSAMP activities is established.

3. The importance KY-WV LSAMP places on activities such as research assistance and tutoring, designed to improve student interest in and preparation for participation in current LSAMP projects as undergraduates, with the goal of improving total student progression throughput to STEM graduate school, is an operational tool in advancing this goal. Our primary emphasis remains focused on participating institutions retaining and graduating STEM students with baccalaureate degrees in STEM. To that end, the KY-WV LSAMP supported 140 level-one scholars during the 2010 school term.

4. KY-WV LSAMP High School Bridge activities to undergraduate study and ongoing Supplemental Academic Support Activities are highly effective tools in recruiting, and retaining undergraduate level students at the Alliance’s institutional sites and serving as a conduit for undergraduate level STEM study. Additionally, the KY-WV LSAMP pre-college bridge initiatives have compelled conversations with the leadership in both states about approaches to codify STEM pre-college education and training.
Students participating in the LS-LAMP program are immersed in the LS-LAMP 10-Strand Systemic Mentoring Model (visit www.ls-lamp.org)


LS-LAMP ALLIANCE HIGHLIGHTS

- Thirteen (13) STEM Ph.D. degrees were awarded in 2009-10 to LS-LAMP scholars who graduated (with a BS in STEM) from LS-LAMP institutions.

- SUBR and SUNO students and faculty participated in the Faculty and Student Teams (FaST) program. The FaST participants were engaged in active research at two Department of Energy (DoE) laboratories [Argonne and Brookhaven National Laboratories]. Other STEM scholars in LS-LAMP participated in summer research across the country in industry, national labs, and at colleges and universities.

LOUIS STOKES – LOUISIANA ALLIANCE FOR MINORITY PARTICIPATION (LS-LAMP)

Statewide Management Office
SOUTHERN UNIVERSITY AND A&M COLLEGE
P.O. Box 9274
Baton Rouge, Louisiana 70813
Ph: (225) 771-2777  Fax: (225) 771-2311
www.ls-lamp.org
The Louis Stokes Louisiana Alliance for Minority Participation (LS-LAMP) is a comprehensive, statewide, coordinated program aimed at substantially increasing the number and quality of minority students enrolling in and completing baccalaureate degrees in science, technology, engineering, and mathematics (STEM) and subsequently going on to pursue graduate studies in STEM disciplines. LS-LAMP consists of eleven institutions and one research facility with Southern University and A&M College as the lead institution.

During the 15 years (1995-2010) of its operation, LS-LAMP has had a transformative impact on Louisiana STEM education overall and on minority STEM education in particular. This success was achieved through the adoption and institutionalization of the 10-Strand Systemic Mentoring Model at all LS-LAMP partner institutions. The LS-LAMP Strategic Implementation Plan (SIP) ([http://www.phys.subr.edu/TA/ls-lamp/sip.pdf](http://www.phys.subr.edu/TA/ls-lamp/sip.pdf)) provides a clear, comprehensive and detailed roadmap for the achievement of the goals of LS-LAMP. Enhancement of institutional infrastructure, curriculum reform, institutionalization of LS-LAMP and the acquisition of external funding for the continuation of LS-LAMP beyond NSF support are additional accompanying activities.

Salient results of LS-LAMP activities are provided below.

Financial support: Supplemented by funding from state, industry and private sources, financial support was provided to students in the form of research stipends and book awards. As a result, the students were able to devote significantly more time to their studies by eliminating or reducing the amount of time spent on off-campus jobs since LS-LAMP has awarded financial support to 7,960 undergraduate students pursuing STEM BS degrees.

Research Participation: At the undergraduate level this is a critical and mandatory activity of LS-LAMP. It is the single largest cause of the significantly increased transition and success of LS-LAMP alumni to STEM graduate schools and their pursuit of graduate STEM degrees. Since 2000, a total of 2,417 undergraduate students have conducted summer research at universities, national labs and in industry through paid research internships.

Conference Participation: This is a critical activity for LS-LAMP scholars who regularly attend conferences and present the results of their research. Presentation of their research is the culmination of a series of steps designed to promote research and research oriented careers for LS-LAMP scholars. Since 2000, a total of 2,928 LS-LAMP scholars have attended state and national conferences and made poster or oral presentations of their research findings.

Guidance to Graduate School: In addition to research experience and conference participation, all LS-LAMP scholars are expected to participate in activities such as GRE preparation, graduate school site visits, professional development through seminars/workshops, and the enhancement of computer and technological skills. All these activities contribute toward the preparation for a smooth transition to graduate school. Since 2000, more than 1,224 LS-LAMP scholars have transitioned to graduate school to pursue Masters or Ph.D. degrees in STEM. The Bridge to Doctorate is an LS-LAMP activity which provides financial support to LS-LAMP alumni from all over the country to pursue a Ph.D. in a STEM discipline at Louisiana State University, the LS-LAMP bridge institution. A major impact of LS-LAMP has been the dramatic increase in the number of minorities receiving a Ph.D. in STEM. Over the last five years, a total of 52 LS-LAMP alumni have been awarded a STEM Ph.D. with 17 and 14 degrees, respectively, in 2009 and 2010.

Grants Catalyzed By LS-LAMP: A significant result of LS-LAMP activities was a quantum increase in external funding at LS-LAMP partner institutions. Grants equaling more than 26 million dollars were awarded to LS-LAMP partner institutions; they were catalyzed by LS-LAMP in one form or another.

The above results clearly demonstrate the significant positive impact of LS-LAMP on minority participation in STEM higher education which has occurred over the last 15 years in spite of the effect of natural disasters like hurricanes Katrina and Rita and drastic cuts in State funding for higher education.
The MI-LSAMP Plan

The Michigan Louis Stokes Alliance for Minority Participation teams four of the State of Michigan’s universities in an effort to increase the number of underrepresented minority students earning baccalaureate degrees in STEM disciplines. Key programs developed to achieve this goal include: Pre-First Year Summer Programs at all four institutions, research initiatives such as the Summer Undergraduate Research Academy (residential and commuter), All Student Research Symposium, and comprehensive student support delivery systems. An additional goal of the MI-LSAMP is to institutionalize successful programs and initiatives.

Principal Investigator
Dr. Mary Sue Coleman, Principal Investigator and President, University of Michigan, Office of the President, 2074 Fleming Administration Building, 603 Thompson Street, Ann Arbor, MI 48109-1340 (734) 764-6270, (734) 936-3529 (Fax) marysuec@umich.edu

Project Director
Dr. Levi T. Thompson, Project Director, Richard Balzhiser Professor of Chemical Engineering and Director, Hydrogen Energy Technology Laboratory, University of Michigan, 3026 H. H. Dow Building, 2300 Hayward Street, Ann Arbor, MI 48109-2136 (734) 936-2015, (734) 763-0459 (Fax), ltt@umich.edu

Michigan State University - Dr. Thomas F. Wolff
Co-Principal Investigator and Associate Dean for Undergraduate Studies, College of Engineering, (517) 355-5128 wolff@egr.msu.edu

Wayne State University - Dr. Gerald Thompkins
Co-Principal Investigator and Associate Dean for Student Affairs College of Engineering, (313) 577-3780 thompkin@eng.wayne.edu

Western Michigan University - Dr. Edmund Tsang
Co-principal Investigator and Associate Dean for Undergraduate Programs and Assessment, College of Engineering and Applied Sciences, (269) 276-3249, edmund.tsang@wmich.edu

Administrative Contact - Dr. Elaine M. Dowell - Alliance Program Administrator, (734) 936-3635, morne@umich.edu

MI-LSAMP Website
http://www.engin.umich.edu/students/mi-lsamp/

A Western Michigan University - Michael Foster, Pastor Hurtado and Wade Briggs participants in the 2010 Pre First-Year Summer Program.
B Wayne State University - 2010 Summer Undergraduate Research Academy Closing Ceremony – Eutopia Murff (Chemical Engineering Student) and guest.
C University of Michigan - 2010 All Student Day participants.
D Michigan State University - MI-LSAMP students participate in the Academic Success Workshop conducted by Terrance Green.
With a grant from the National Science Foundation, the Michigan Louis Stokes Alliance for Minority Participation (MI-LSAMP) was initiated in 2005. The MI-LSAMP partners the University of Michigan, Michigan State University, Wayne State University and Western Michigan in an effort to significantly increase the number of underrepresented minority students earning baccalaureate degrees in the fields of science, technology, engineering and mathematics (STEM) and prepare them for entry into graduate programs. These partners are "flagship" institutions in the State of Michigan and represent the diversity of public doctoral research extensive institutions in the nation. During phase one (2005-2010) the MI-LSAMP implemented the following:

**Pre-First Year Summer Programs (PFYSPs)**
Three new Pre-First Year Summer Programs were implemented on the campuses of Michigan State University, Wayne State University, and Western Michigan University. One program was revived at the University of Michigan and one non-NSF funded PFYSP was piloted at the Atlanta University Center/Dual Degree in Engineering Program (AUC/DDEP). The University of Michigan is a partner in the AUC/DDEP. According to the external evaluation conducted by SAMPI (Science and Mathematics Program Improvement), students saw a significant value in the programs as a way to give them a “head start” on their college career. The vast majority of the students stated that they would recommend the programs to a friend. The PFYSPs appeared to have some impact on students’ plans for attending graduate school. Follow-up interviews were conducted with 21 students who participated in a PFYSP at some point between 2006 and 2010. Eleven (52%) of these students stated that they had plans for graduate school in a STEM field.

**Summer Undergraduate Research Academy (SURA)**
The SURA was designed to provide a comprehensive research experience for students. Through this program students experienced a multidisciplinary introduction to research during the summer with the option of continuing their research during the academic year. Through telephone interview students identified many benefits that they received from participating in the SURA including: developing discipline, learning to meet deadlines, improving public speaking skills, getting a “heads-up” on the future, receiving recommendation letters from faculty, learning work skills, getting better prepared for class and becoming more independent.

**Alliance Wide Student Programs**
The two alliance wide programs, the All Student Day during the Pre-First Year Summer Programs and the All Student Research Symposium, provided an excellent means for students from the various programs to meet and interact with each other. Upper level MI-LSAMP Scholars assisted in planning and facilitating both programs.

**Undergraduate STEM Degrees**
The students who participated in the Pre-First Year Summer Programs during phase one will graduate in 2011 and 2012. Phase two will provide the opportunity to determine the number of MI-LSAMP students who obtained a bachelor’s degree in a STEM field and pursued a graduate degree.
Louis Stokes Mississippi Alliance for Minority Participation

Celebrating 18 Years of Increasing Minority Degrees in Science, Technology, Engineering and Mathematics

Alcorn State University
Dr. Troy Stewart, Sr.
Site Coordinator
1000 ASU Drive, #780,
Alcorn State, MS 38906
601-877-6440 – troy@alcorn.edu

Hinds Community College
Marquise Loving
Site Coordinator
P.O. Box 1100, Raymond, Mississippi 39154
601-987-8751 – MLloving@hindscc.edu

Jackson State University
Drs. Ashton Hamme & Glake Hill
Site Coordinators
P.O. Box 18119, Jackson, MS 39217
601-979-3713 – ashton.hamme@jsums.edu
601-979-1699 – glakeh@ccmis.us

Mississippi State University
Dr. Tommy Stevenson
Site Coordinator
P.O. Box 9544, MSU, MS 39762
662-325-8449 – tommy@engr.msstate.edu

Mississippi Valley State University
Dr. Joseph Wahome
Site Coordinator
14000 Hwy 82 West, Itta Bena, MS 38941
662-254-3384 – wahome@mvsu.edu

Tougaloo College
Dr. Linden Haynes
Site Coordinator
P.O. Box 157, Tougaloo, MS 38677
601-977-7892 – lhaynes@tougaloo.edu

University of Mississippi
Dr. Don Cole
Site Coordinator
P.O. Box 157, University, MS 38677
662-915-1379 – dcole@olemiss.edu

University of Southern Mississippi
André Heath
Site Coordinator
P.O. Box 5137, Hattiesburg, MS 39406
601-266-6593 – andre.heath@usm.edu

Alcorn State University
Luella Jones
Kristopher Williams
Delta State University
Elizabeth Muruki
Ashley Tanner
Jackson State University
Joshua Echison
Ameera Haamid
Mississippi Valley State University
Khriissaundra S. Journey
DeMarcus M. Thomas
Mississippi State University
Vanessa Daniels
Willie Brown
Tougaloo College
Roderick McDowell
Rukiya Umoja
The University of Mississippi
Ashley Britten
Chigozie Udengha
University of Southern Mississippi
LaShonda Bell
Jeleia Brown
The Louis Stokes Mississippi Alliance for Minority Participation (LSMAMP) is a consortium of six (6) state supported universities (Alcorn State University, Jackson State University, Mississippi State University, Mississippi Valley State University, University of Mississippi and the University of Southern Mississippi,) one private institution (Tougaloo College) and one community college (Hinds Community College.) LSMAMP was one of the first six alliances funded by the National Science Foundation (NSF) in 1991. The impact of LSMAMP in Mississippi has been dramatic and profound. During the years of the program, the number of underrepresented minority (UREP) STEM students enrolled in the State of Mississippi’s institutions of higher learning increased by 106%; more than double the rate of majority STEM students at 42%. In terms of degree production, the increase over the period from 1990 to 2008 has been a phenomenal 118.7%.

Figure 1 below show the enrollment trend and cumulative graduation rate from 1992 to 2008 for MAMP institutions. LSMAMP has graduated a total of 9,058 BS minority students in STEM.

Other noteworthy accomplishments include the following:

- The number of UREP students earning STEM PhD degrees in Mississippi increased from five (5) at the beginning of the LSMAMP program in 1991 to 36 in 2010.
- LSMAMP students participated in international research activities or conference presentations in China, Taiwan, Poland, India, Germany, France, Portugal, South Africa, Costa Rica, Japan, Sweden, Guatemala and Belize.
- LSMAMP has been organizing an annual research symposium for the last fifteen (15) years, and lately has expanded to integrate the NSF CREST and PREM programs in a joint symposium.
- Since its inception, all LSMAMP alliance institutions have held yearly Summer Bridge programs for incoming freshman STEM majors.
Expanding Student Horizons

New Mexico AMP’s Core Programs

The **Integrated Learning Communities** aid the transition of students who are not calculus-ready to university studies and the study of engineering to ensure that they develop a strong foundation in mathematics, writing, and problem-solving skills, and a conceptual understanding of professional ethics and engineering design and analysis.

The **Bridge to the Doctorate** program provides academic, financial, and research support through the first two years of graduate study and encourages professional development and progression to the Ph.D.

**Undergraduate Research Assistantships**, available on several campuses statewide, support students in faculty-mentored research projects and provide training for research presentation and preparation for internships, graduate school, and/or the workforce.

The **Student Research Conference** brings together students and faculty from New Mexico’s colleges and universities as well as students and teachers from the New Mexico Math Engineering, Science Achievement, Inc., program (NM MESA), providing an opportunity for students to present research, gain presentation experience, network with other students and faculty, and participate in workshops and panels.

A total of 7,285 STEM degrees have been awarded over the life of the New Mexico AMP program. In 2009-2010, 41% of STEM degrees were awarded to underrepresented students.

New Mexico AMP University Partners

**Eastern New Mexico University**
Brian Pasko, Ph.D.
575-562-2367
Brian.Pasko@enmu.edu

**New Mexico Highlands University**
A. Michele Auzenne
Program Manager
575-646-1847
amp@nmsu.edu

**New Mexico State University**
A. Michele Auzenne
Program Manager
575-646-1847
amp@nmsu.edu

**New Mexico Institute of Mining and Technology**
Allison Costello
575-366-2560
acostello@admin.nmt.edu

**University of New Mexico**
Laura Crossey, Ph.D.
505-277-5349
lcrossey@unm.edu

**Western New Mexico University**
Zenaido (Tres) Camacho
575-538-6251
camacho@wnmu.edu

The NM AMP Statewide Alliance includes seven universities and 21 community colleges.

NEW MEXICO AMP
ALLIANCE FOR MINORITY PARTICIPATION
Institutional Resources:

Physical Resources: In 1999, through leveraged corporate and private foundation donations, New Mexico AMP has helped to establish two computer labs at New Mexico State University and one at the Las Cruces Court Youth Center, now a charter school. The William and Flora Hewlett Professional Development and Success Center was also established at New Mexico State University in 2008, providing a permanent STEM-focused student support center.

Curriculum Development: In 2007, the Integrated Learning Communities (ILC) project was established as a component of Statewide Initiatives:

In February 2000, the New Mexico Commission on Higher Education (CHE — now referred to as the New Mexico Higher Education Department) invited New Mexico AMP to host the first “New Mexico Student Persistence and Retention Summit” in tandem with the long-standing New Mexico Assessment Association (NMAA) Conference. The effort established a statewide forum for the discussion of student persistence and retention issues and sharing of best practices. As a result, the NMAA Conference and the Student Persistence and Retention Summit have been permanently combined in 2001. Now known as the New Mexico Higher Education Assessment and Retention (NM HEAR) Conference, the event has taken place each February.

From 1993 to 1999, the Alliance also participated with the New Mexico CHE to establish and disseminate statewide articulation agreements; the “general core” and several discipline-specific transfer modules remain in use throughout the state.

New Mexico AMP was granted statutory status by the New Mexico Legislature in 2007, establishing the Alliance as a permanent line item in the NMSU budget request to the New Mexico State Legislature to support STEM student achievement in New Mexico. Supporting long-term sustainability, this designation allows the Alliance to receive state funding as well as gifts, grants, and donations from public or private sources.

Leadership Development:

New Mexico AMP has provided professional development opportunities to a number of individuals in New Mexico who have now risen to leadership positions within their respective institutions. They include Ricardo B. Jacquez, Dean of Engineering at New Mexico State University; Anthony Sena, Provost at Northern New Mexico College; Bernadette Montoya, Interim Vice President for Student Success and past Associate Vice President of Enrollment Management; and Phyllis Baca, the newly appointed Co-director/community college for New Mexico AMP; Director of the New Mexico STEM Statewide Initiative; and Co-chair of the General Articulation/Transfer Task Force with New Mexico HED. Each of these individuals became involved in the Alliance as faculty members, serving for many years as Institutional Coordinators (Sena, Montoya, and Baca) and as the New Mexico AMP PI and Director (Jacquez), allowing them to explore and develop approaches to student support and development. These individuals are now in positions of leadership, allowing them to impact institutional practices and policies in these critical areas.

Program Funding: Over the lifetime of the program, New Mexico AMP has leveraged $23 million in direct program funding and $95,000 in equipment and in-kind contributions, significantly impacting student experiences in STEM learning and professional development; faculty and teacher development and training; and direct student funding through research assistantships, scholarships, and research and travel support.

New Mexico AMP has impacted STEM education and achievement in the state of New Mexico through statewide actions, leadership development, and contributions to institutional resources.

New Mexico AMP has impacted the lives of thousands of New Mexico students. Degree production has more than doubled, and the representation of underrepresented students among STEM degree recipients has increased from 24% to 41%.
The NYC Louis Stokes Alliance for Minority Participation (NYC-LSAMP) is an alliance of 18 CUNY Colleges and the CUNY Graduate Center. The Alliance goal is to substantially increase the number of underrepresented minority students who pursue and graduate with Baccalaureate Degrees in Science, Technology, Engineering, and Mathematics (STEM).

The NSF supported NYC Louis Stokes Alliance for Minority Participation (NYC-LSAMP) at CUNY has, since its inception in November 1992, been at the forefront of a concerted effort to increase annual minority STEM enrollment and graduation in the City University of New York. Since 1992, over 11,500 baccalaureate degrees have been awarded. The Alliance provides academic scholarship support to CUNY students majoring in the STEM disciplines, making research an integral part of STEM education in New York City.

LSAMP Program Activities Include:

- Collaborative Learning Approach to STEM Education
- Restructured Gatekeeper Courses in Chemistry, Physics and Mathematics
- Curriculum Coordination and Articulation across the City University of New York
- Faculty Research Initiation and Articulation Program
- Research Assistantships and Teaching Opportunities for LSAMP Scholars
- Undergraduate and Graduate Research Fellowships
- Peer and Faculty Mentoring
- Science and Engineering Learning Centers at CUNY campuses
- The Urban University Series Conference
- NASA Summer and Academic Year Collaborations
- Brookhaven National Labs Summer Participation for Community College Students
- Bridge to the Doctorate
Highlights and accomplishments of 2009-2010
September 1, 2009-August 31, 2010

Alliance: New York City Louis Stokes Alliance
Principal Investigator: Dr. Neville A. Parker

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.

The Bridge to the Doctorate Retreat
It is held in January each year, and is envisioned as a forum for frank, honest and uninhibited interactions, networking, panel discussions/professional development, and student and faculty research presentations. Students and faculty from eighteen institutions have participated in the two retreats held in 2009 and 2010. Four LSAMP programs with Bridge to the Doctorate programs have participated each year. Bridge Scholars pursuing Doctoral degrees 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 2010 Retreat had a focus on Materials Research, Environmental Engineering and the International Experience.

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

The retreat had over seventy participants in 2010, up from forty in 2009. Twenty-one of the presenters were doctoral students, eighteen were at the masters level and five were undergraduate students.
NCLSAMP Central Office
North Carolina A&T State University
Dr. Linda Adams, Principal Investigator
Ph: (336) 334-7965, Fax (336) 334-7136
ltadams@ncat.edu

Dr. Marcia F. Williams, Co-Principal Investigator
Ph: (336) 334-7589, Fax (336) 334-7540
marcia@ncat.edu

Dr. Dawn Murphy, Program Manager
Ph: (336) 285-4248 Fax (336) 334-7540
dmurphy@ncat.edu

Ms. Kristie Johnson, Program Assistant
Ph: (336) 334-7589, Fax (336) 334-7540
kjohnso1@ncat.edu

Partner Institutions:
Fayetteville State University
Dr. Daniel Okunbor, Principal Investigator
Ph: (910) 672-2104, Fax (910) 672-1083
diokunbor@unc.fsu.edu

Ms. Evita Alston, Program Coordinator
Ph: (910) 672-2256 Fax (910) 672-2473
ealston2@unfsu.edu

North Carolina Central University
Dr. Saundra DeLauder, Principal Investigator
Ph: (919) 530-6456, Fax (919) 530-7082
sdelaude@nccu.edu

North Carolina State University
Dr. Tony Mitchell, Principal Investigator
Ph: (919) 515-3264, Fax (919) 515-8702
tmitchel@eos.ncsu.edu

University of North Carolina at Chapel Hill
Dr. Patricia Pukkila, Principal Investigator
Ph: (919) 966-5576, Fax (919) 962-1548
pukkila@unc.edu

Dr. Nalin Parikh, Campus Coordinator
Ph: (919) 962-7160, Fax (919) 962-0480
nparikh@physics.unc.edu

University of North Carolina at Charlotte
Dr. Billy Hill, Principal Investigator
Ph: (704) 687-2092, Fax (704) 687-3914
bjhill@email.uncc.edu

Mrs. Jodi Turner, Campus Coordinator
Ph: (704) 687-2065, Fax (704) 687-3914

University of North Carolina at Pembroke
Dr. Velinda Woriax, Principal Investigator
Ph: (910) 521-6567/6245, Fax: (910) 521-6649
velinda.woriax@uncp.edu

Ms. Valarie Deese, Campus Coordinator
Ph: (910) 521-6741, Fax: (910) 521-5755
valarie.deese@uncp.edu

Winston-Salem State University
Dr. Elva Jones, Principal Investigator
Ph: (336) 750-2485, Fax: (336) 750-2499
jonese@wssu.edu
One of the oldest alliances in the country, the North Carolina Louis Stokes Alliance for Minority Participation (NCLSAMP) is comprised of eight constituent institutions of the University of North Carolina System. The statistics below reflect the impact that the program has made in North Carolina:

- 18,134 Bachelor’s degrees (76% African American, 11% Hispanic/Latino, 8% Pacific Islander, 5% Native American), 3456 Master’s degrees (74% African American, 13% Hispanic/Latino, 11% Pacific Islander, 2% Native American), and 628 Ph.D.s (52% African American, 21% Hispanic/Latino, 19% Pacific Islander, 8% Native American) have been conferred to underrepresented students at NCLSAMP institutions.

- 145 underrepresented students received graduate support. 49 received funding through the Bridge to the Doctorate Fellowship program.

- 6,766 underrepresented underrepresented students received direct support through the NCLSAMP. The chart below provides a breakout of percentages by STEM major.

- 1,908 faculty have from NCLSAMP institutions have participated in the program. Of those, 61% were African American, 6% were Hispanic/Latino, and 1% were Native American.

- 6,115 NCLSAMP students participated in research activities at NCLSAMP institutions and other campuses and laboratories.

- 8 NCLSAMP faculty and student (FaST) teams have participated in summer research at Brookhaven National Laboratory, the Lawrence L. Livermore National Laboratory and Argonne National Laboratory.
The North Star STEM Alliance is a partnership of 16 Minnesota colleges and universities and two community organizations—the Science Museum of Minnesota and the Minnesota High Tech Association—committed to supporting multicultural students toward earning bachelor’s degrees in STEM—science, technology, engineering and mathematics.

In this fourth year of our first phase of the LSAMP program, we are growing substantially by engaging many more students in undergraduate research; establishing first-year cohorts, peer mentors, and study groups within partner institutions; and providing programs which prepare students for graduate school.

Learn more about us at www.northstarstem.org
Progress Update

Steady Growth in Engagement and Degrees

Student engagement, participation in research, and the number of graduates have all risen steadily in the first three years of Minnesota’s LSAMP. More students are becoming leaders of cohort programs, thereby establishing strong role models for newer students. Student chapters of national professional societies also play a major role in student engagement.

Undergraduate Research

The number of North Star STEM Alliance students carrying out undergraduate research in 2009-10 grew to 60 students, an increase of 160% over the prior year. Each spring students present posters at our alliance-wide Student Research Symposium.

Student Achievements

University of Minnesota-Twin Cities neuroscience senior Arif Hamid received the Outstanding Undergraduate poster award at the 2009 American Chemical Society Midwest Regional Conference, one of ten chosen among 6,000 posters.

James Rodriguez, a senior in biomedical engineering, re-established a vibrant Society of Hispanic Professional Engineers student chapter at UM-Twin Cities in 2009-2010. The chapter also hosted Region 6 SHPE meeting that same year. In addition, he was a peer mentor and organized the biweekly North Star gatherings and First Year programs. In May, 2010 James was recognized with the President’s community service award, a University of Minnesota system-wide honor.

Lucas Caretta, a sophomore in materials science and engineering at the UM-Twin Cities, won Best Poster at the 2010 Society of Hispanic Professional Engineers annual conference in Cincinnati, Ohio.

Learn more about us at www.northstarstem.org
Providing undergraduate research opportunities and Networking experiences

The Northeast LSAMP hosts two annual Alliance-wide opportunities for students to learn about research and graduate school opportunities as well as facilitate their engagement in a community of STEM scholars.

The Northeast LSAMP is:

University of Massachusetts Amherst
John Cunningham, PI
413.545.2554 (p)
413.577.3980 (f)
jcunningham@provost.umass.edu
Susan Bronstein, PD
413.545.5742 (p)
413.545.4576 (f)
sbronstein@acad.umass.edu

Worcester Polytechnic Institute
NaTonia Trammell, Campus PI
508.831.5796 (p)
ntrammell@wpi.edu

Northeastern University
Susan Powers-Lee, Campus PI
617.373.4741 (p)
s.powers-lee@neu.edu
Richard Harris, Campus Co-PI
617.373.5904
r.harris@coe.neu.edu

University of Connecticut
Suman Singha, Campus PI
860.486.3619
suman.singa@uconn.edu

University of Rhode Island
Harold Knickle, Campus PI
401.874.2678
knickeh@egr.uri.edu
The Northeast LSAMP is the first Alliance approved in the New England area. The NELSAMP is a diverse Alliance of 5 research institutions (3 public land grant and 2 private) spanning 3 states, attracting students reflective of each institution’s mission.

As we begin our 10th year we reflect on the contribution of the LSAMP program which is demonstrated in the table below.

<table>
<thead>
<tr>
<th>Northeast LSAMP Enrollment</th>
<th>Northeast LSAMP Degrees Conferred</th>
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<td>Baseline</td>
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Alliance-wide events are offered to NELSAMP students annually. A fall event, in collaboration with a graduate school fair, provides upper class students a venue to present their research. A Student Leadership Conference is held in the spring to give first and second year students the opportunity to network with their peers from other Alliance institutions and to learn about the various options and opportunities available.

Northeast LSAMP has developed programs and strategies that address campus needs while contributing to the sharing of best practices throughout the Alliance. As a result the following have become institutionalized on Alliance campuses:

- **Bridge Programs** have brought middle and high school students to Alliance institutions thereby exposing them to opportunities in STEM disciplines that they would otherwise be unaware of. Working collaborative with educators in the community resulted in the recruitment and encouragement of LSAMP-eligible students participating in the Bridge programs. The Bridge programs have increased the number of LSAMP students entering STEM disciplines reflected in improved graduation and retention rates.

- **All Northeast LSAMP campuses** can now boast about their offices of undergraduate research. The presence of LSAMP on our respective Alliance campuses generated activities designed to highlight the benefit of undergraduate research. As a result many more students are now engaged in research activities, they are all assisted in finding these opportunities through these now permanently established offices. Research Experiences for Undergraduates (REUs) are highlighted for LSAMP students; the Northeast Alliance has been able to prioritize the participation of Northeast LSAMP students giving students the opportunity to experience the variety of institutions represented in this Alliance.

- **LSAMP Scholars** participate in seminars on their campus supporting retention in their STEM discipline. Tutoring and Supplemental Instruction is available on all campuses.
OKLAHOMA ALLIANCE
Oklahoma State University, 408 Scott Hall, Stillwater, OK 74078
WWW.OK-LSAMP.OKSTATE.EDU   OKAMP@OKSTATE.EDU
405.744.6710, 405.744.7820, fax: 405.744.4202

CAMERON U
Frank White
580.551.2881
fwhite@cameron.edu

EAST CENTRAL U
Carl Rutledge
580.559.5392
crutledge@mac.com

LANGSTON U
Sharon Lewis
405.466.3316
salewis@lunet.edu

NORTHWESTERN State U
Timothy Maharry
580.327.8583
tjmaharry@nwosu.edu

OKLAHOMA STATE U
Camille Deyong
405.744.6710
camille.deyong@okstate.edu

SOUTHEASTERN OK State U
Tim Patton
580.745.2284
tpatton@se.edu

U OF CENTRAL OKLAHOMA
Gregory Wilson
405.974.3497
gwilson@uco.edu

U OF OKLAHOMA
P. Simin Pulat
405.325.1069
pulat@ou.edu

SOUTHWESTERN OK State U
Tim Hubin
580.774.3026
tim.hubin@swosu.edu

U OF TULSA
J.C. Diaz
918.631.2228
diaz@ufalsa.edu

OK-LSAMP ADMINISTRATION
Rosemary Hayes, Evaluator
Kay Porter, Manager
Fara Williams, Coordinator

Mark Payton, Ph.D.
PI/Director

16 years =
8,461 URM
STEM degrees
Oklahoma began its association with the National Science Foundation and the Louis Stokes Alliance for Minority Participation in 1994. Currently, there are 11 institutions of higher education, including three research universities, one HBCU, one private institution and seven regional universities forming the alliance. Three of the institutions have the highest Native American enrollments in the nation. During the past 16 years, the OK-LSAMP program has achieved goals, graduated students in the STEM disciplines, and provided opportunities that would not have been available to a number of scholars.

In 1994 Oklahoma began with a baseline of 214 minority graduates in the STEM disciplines. Since then, nearly 9,000 minority scholars have received degrees from institutions in the Oklahoma Alliance. Alliance institutions awarded over 900 degrees in STEM fields to minorities and under-represented individuals during 2009-2010. In addition, Oklahoma has been awarded four Bridge to the Doctorate Cohorts. These 48 Fellows have completed or are expected to complete Master of Science and/or Doctor of Philosophy degrees at either Oklahoma State University or the University of Oklahoma.

The Oklahoma Alliance has held 16 Research Symposia giving scholars opportunities to present their research. Attendance at the Symposium has shown a steady increase over time, and attendance has more than doubled in the last three years to approximately 200 scholars, faculty, and special guests. Additional opportunities have been made available for scholars to present research at state and national conferences in their research disciplines.

The Alliance can boast of having scholars who have been accepted into graduate programs at institutions such as Harvard University, Stanford University, Carnegie Mellon University, and the University of California-Berkeley. Scholars from the Alliance have been selected to attend the 2010 Nobel Laureate Conference in Germany and the Euroscience Open Forum in Torino, Italy. They also have been selected as Udall and Goldwater Scholarship recipients. Several scholars have been awarded NSF Graduate Research Fellowships to continue their research at the graduate level. Several of our graduates have taken faculty positions and postdoctoral positions after completing their graduate education.

The 11 Oklahoma Alliance institutions are also preparing scholars for international internships and employment. The number of scholars conducting international research continues to increase. During the past year, 15 scholars conducted various research activities in 18 different countries.

OK-LSAMP has initiated a Pursuing Higher Degrees (PHD) Camp for scholars. The camp was designed based on the model from the University of California-Berkeley. The PHD Camp provided 44 Alliance scholars with opportunities to learn “tricks and tips” for graduate school admission.

Oklahoma scholars are creating publications for peer reviewed journals and being recognized for their academic, research, and community service projects and successes.
University of Alaska Anchorage

Pacific (Alaska) Alliance Strategies

**Pre-College: empowerment & excitement around STEM careers**
- Computer building with biology, chemistry, physics, and trigonometry

**High School to University Summer Bridge: Building a strong foundation for academic and professional achievement**
- Internships with calculus preparation

**Undergraduate Retention: Fostering an engaged academic learning community**
- Learning Community
- Co-enrollment: students attend class in teams
- Team building
- Group study
- Advising
- Scholarships
- Internships
- Faculty & Peer Mentoring
- Supporting community
- Professional mentoring
- Graduate student mentoring
- Hands on Research
- Service learning

**Graduate School**
- Peer mentoring & co-enrollment
- Workshops for presentations and technical papers
- Organized study groups
- Collaborative experiences
- Faculty cross-cultural training
- Faculty mentoring
- Internships
- National & international conferences
- Grant writing experience
- Graduate research and undergraduate research
- Equipment funding
- Workshop for Teaching Assistant (TA) instruction

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**University of Alaska Anchorage**
Dr. Herb Schroeder, (907) 786-1860
herb@uaa.alaska.edu

**University of Alaska Fairbanks**
Dr. Tom Clausen, (907) 474-5512
ftlpc@uaf.edu

Building a National Model for Excellence in Native American Higher Education Programs
Impact Statement

In 2001 we were awarded our first LSAMP grant. We had 22 students engaged through the Alaska Native Science & Engineering Program (ANSEP). During the 2009-2010 academic year we had 700+ ANSEP students in Alaska. 400 of these are in grades 6 through 12, 300 are enrolled in STEM BS degrees at the University of Alaska and there are 21 students in graduate school. We have had 168 Native STEM BS graduates in Alaska since 2002. We have organized the Indigenous Alliance for Engineering & Science Education to disseminate the ANSEP model across the nation. The Indigenous Alliance has grown to an organization of 12 higher education institutions in 9 states. To support our work we have raised in excess of $30 million from private industry, philanthropic organizations, and state and federal agencies. Our partners have provided $6.5 million for a 13,000 square foot building to house ANSEP on the campus at the University of Alaska Anchorage and they have also provided $4.4 million for an endowed chair for ANSEP so that Native students will have a faculty advocate in perpetuity.

Our FY 2010 budget is approximately $3.4 million with $1.4 million from the State of Alaska general fund base. The funding from the State general fund base institutionalizes staff originally funded through LSAMP during Phase 1 and 2. It also provides support for the ANSEP Pre-College component. Dr. Schroeder has been honored to receive the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM), the National Action Council for Minorities in Engineering (NACME) Reginald Jones Founders Award, and the Alaska Federation of Natives Denali Award, the top award bestowed upon a non-Native by the Federation.
PACIFIC NORTHWEST
LOUIS STOKES ALLIANCE

http://depts.washington.edu/omad/lsamp

Colleges and universities in the three-state region of Idaho, Oregon, and Washington launched the Pacific Northwest Louis Stokes Alliance for Minority Participation (PNW LSAMP) in September of 2009. PNW LSAMP includes educators and advocates from science centers, pre-college programs, community colleges and four-year institutions. Partners have agreed to leverage their resources, establish new relationships and strengthen existing relationships to increase the number of degrees earned by underrepresented minority (URM) students in science, technology, engineering and mathematics (STEM) majors.

Alliance activities include:

- Mentoring programs
- Tutoring and academic enrichment
- Orientation and Summer Bridge Program
- One-on-one interaction with STEM faculty and professionals who conduct cutting-edge research
- Career building and life skill seminars
- Summer internship and research opportunities
- Career and graduate school preparation
- Providing opportunities to present research at state and national conferences

Alliance partners spent the first year actively establishing student support centers, faculty advisory committees and strengthening relationships with STEM diversity partners across the three-state region. The coordination of existing programs with new LSAMP-funded activity has been a significant priority for all partners. The first annual research conference was held in February on the University of Washington campus. The conference included sessions on best practices in mentoring, community building for students and preparing for undergraduate research.

ALLIANCE PARTNER WEB SITES

Boise State University
http://academics.boisestate.edu/undergraduate/lsamp/

Oregon State University
http://lsamp.oregonstate.edu/

Portland State University
http://www.pdx.edu/lsamp/

Washington State University
www.cea.wsu.edu/lsamp

Lead Institution
University of Washington
Interim President Phyllis Wise
Principal Investigator
301 Gerberding Hall
Box 351237
Seattle, WA 98195

Sheila Edwards Lange
Project Director
203.543.2441
vpomad@uw.edu

Stephanie Gardiner
Campus Coordinator
206.685.3422
lsamp@uw.edu

Alliance Partners

Boise State University
Provost Martin Schimpf
Co-Principal Investigator

Emily Flores
Campus Coordinator
208.426.1701
emilyflores@boisestate.edu

Oregon State University
Provost Sabah Randhawa
Co-Principal Investigator

Marleigh Luster Perez
Campus Coordinator
541.737.4663
marleigh.luster@oregonstate.edu

Portland State University
Provost Roy Koch
Co-Principal Investigator

Lorna Tran
Campus Coordinator
503.725.2422
lorna.tran@pdx.edu

Washington State University
Provost Warwick Bayley
Co-Principal Investigator

Yadira Paredes
Campus Coordinator
509.335.0452
yparedes@wsu.edu
Pacific Northwest Louis Stokes Alliance for Minority Participation  
Impact 2009-2011

As one of the National Science Foundation’s newest alliances, the Pacific Northwest Louis Stokes Alliance for Minority Participation (PNW LSAMP) is proud of its impact on institutional capacity for broadening participation, student success in STEM, and collaborative relationships among and within member campuses. PNW LSAMP launched in fall of 2009 and spent much of the first year building staff, establishing LSAMP campus centers, identifying student participants and team-building for all the partners. As it enters the second year, alliance priorities include increasing communication, strengthening community college engagement, leveraging funding and partner relationships, and connecting with other diversity programs in the region.

**Institutional Capacity**
As the PNW LSAMP partners began their work, they encountered a number of institutional barriers to broadening participation in STEM. Barriers included lack of knowledge about best practices, lack of consistency in data collection about underrepresented (UR) student access and success in STEM, inadequate staffing or resources dedicated to broadening participation, lack of coordination among STEM diversity programs, tenuous relationships with pre-college and admissions programs, and inconsistent engagement with faculty. The infrastructure demanded by the LSAMP model has enabled each participating campus to address these barriers and build institutional capacity to broaden participation in STEM.

**Student Success**
The LSAMP model has also enabled participating campuses to enhance student success. Identification of UR students with an interest in STEM at the point of entry to college has provided staff with a way of tracking student progress toward a degree in STEM. Students are now consistently provided with information about undergraduate research, academic support resources and opportunities to explore STEM careers. Students from all campuses participated in a community-building in STEM retreat and developed their own list of strategies and priorities for PNW LSAMP campuses to initiate. Five students from PNW LSAMP campuses have been selected to participate in the Emerging Researchers National (ERN) Conference in STEM to be held in Washington, DC in February. LSAMP students have won prestigious awards on their respective campuses and are consistently invited to present their work at national conferences.

**Collaborative Relationships**
The collaborative relationships that have been established within and among participating campuses have been one of the most exciting outcomes of the alliance. Students from Boise State University and participating community colleges spent a summer conducting research at the University of Washington. A STEM diversity advocate from Oregon State University will lead a best practices workshop on the Boise State University campus. The faculty advisory boards on each of the participating campuses have been instrumental in writing REU supplements to support LSAMP students. These relationships have enabled LSAMP partners to leverage the funding provided by NSF to serve greater numbers of students.
Major Accomplishments of Phase I, Year IV

- Coordinated the 4th Annual Fall Symposium and Research Conference on November 12 – 14, 2009 hosted at Fort Valley State University in Fort Valley, GA with over 350 registered participants
- Funded more than 100 summer and academic year undergraduate research opportunities throughout the Alliance during the 2009 – 2010 academic year
- Held two summer bridge programs in the summer of 2010: an incoming first year student program that targeted graduating seniors who were admitted to UGA and a transfer student program that targeted current LSAMP scholars who were transferring from a two-year college to a four-year college or university
- Provided funding for sixteen Peach State LSAMP students to participate in diverse study abroad programs in the summer of 2010 that exposed them to international STEM research activities in Argentina, Costa Rica, Dominican Republic, Ghana, Italy, Mexico, Nicaragua, and Panama
Peach State LSAMP, established in 2005, has the mission to significantly increase the number of underrepresented minority students completing baccalaureate degrees in the STEM disciplines. The Alliance is comprised of five University System of Georgia institutions including The University of Georgia (lead institution), Fort Valley State University, Savannah State University, Southern Polytechnic State University, and Georgia Perimeter College. These institutions have been successful in providing meaningful undergraduate research opportunities and academic support to STEM students, forming productive community relationships, and creating partnerships to further their mission. Through their collaborative Peach State LSAMP efforts, they have significantly advanced their academic objectives and collectively achieved greater outcomes than would have been achieved through their individual efforts.

In order to accomplish the mission, the Alliance offers the following activities and programs:

- Incoming First Year Student Bridge Programs
- Transfer Student Bridge Programs
- Peer Mentoring and Study Groups
- Tutoring and Academic Support
- Career and Academic Workshops
- Student Stipends and Research Scholarships
- Faculty Mentored Undergraduate Research
- Summer Internships
- Travel Awards for Attending Local and National Conferences
- Graduate School Preparation

Some highlights of the Alliance outcomes from 2005 to 2010 include:

- 1135 Directly Funded LSAMP Students
- 226 Sponsored On-Site Research Opportunities
- 59 Sponsored Off-site Research Opportunities
- 16 Sponsored International Research Opportunities
- 285 Career and Academic Workshops
- 481 Student Presentations at Conferences
- 15 Student Research Publications
- 81 Students to transfer to 4-year Colleges and Universities
- 88% Student Retention Rate
- 342 Student Graduates
- 47 Students Enrolled in STEM Graduate Programs
As a result of Philadelphia AMP’s efforts, a mechanism has been developed to catalyze changes in institutional, departmental, and organizational culture and the practices that have resulted in significant increases in recruitment, including 2-year – 4-year matriculation, retention, STEM degree production, and graduate school entry for underrepresented students, as well as for the benefit of all students.
The Philadelphia Alliance for Minority Participation has been responsible for the philosophical and strategic change in the productivity associated with the increase of underrepresented students majoring and graduating in STEM disciplines at the participating institutions and the larger higher education community in the region. The Alliance has taken what was a conversation of social inequity and made it an institutional challenge that created positive financial and professional advances in the diversification of STEM in the region. While each institution has developed a programmatic strategy to improve the quality of STEM on their respective campuses, a specific plan driven by research and data has engaged the higher education community, government agencies, the regional school districts and major corporate interests to support this increasingly diverse science and engineering talent pool.

The initial impact occurred at the institutional level. As we organized to facilitate the improvements in resources on campuses for underrepresented students, partner institutions reorganized their plans and operations utilizing the best practices of the regional partners. As a new Alliance from 1994 – 98, Philadelphia AMP focused on short term or non-permanent ways to increase its annual minority STEM degree production immediately. It set up infrastructure to monitor and manage activities that were mainly supported by AMP funds. These activities were primarily support services in nature and resided outside of the learning environment or classroom. In addition, recruitment at the pre-college level was emphasized. As a result, AMP drop-in centers were established, student support services realigned, and extensive tutorial services were provided through the AMP drop-in centers. By June 1999, the Alliance increased its minority STEM degree productivity from 201 degrees in 1994 to 475 degrees in 1999, thus achieving 81% of its 558 degree minority STEM degree production goal, and dramatically improving the retention rate of AMP minority STEM students. Based on the Alliance’s Fall 1994 freshman cohort study conducted in 1999, AMP minority STEM students were retained at a higher level (80%) than Non-AMP minority STEM students (40%) and than Non-minority STEM students (75%) over a four-year period. Additional analysis showed that the retention / graduation rate of AMP minority STEM students (74%) continued to exceed that of Non-AMP minority students (35%), and was similar to that of Non-minority students (72%) over a five-year period. The refinement of support programs and the success of the target population raised the interest of administrators and faculty that stimulated outreach to LSAMP administrators and created cross alliance collaboration.

During the mid-level years of its development from 1999 – 2004, the Alliance focused on long-term or permanent ways to maintain the initial increase in its annual minority STEM degree production over time. Its purpose was to increase retention and performance of students within the learning environment or classroom. Activities included curricular modifications, institutional reorganization, shifts in teaching practices and operational practices which were supported by the colleges/universities as part of their general operating costs. In addition, retention and articulation, especially from Community College of Philadelphia were emphasized. These efforts resulted in a sustained increase of the minority STEM B.S. degree productivity rate of 500+ degrees annually for eight years from 2000 - 2007. In addition, the Alliance increased the number of community college students involved in research, graduate school matriculation and doctoral STEM degree completion.

As a senior level Alliance from 2005-present, the Philadelphia AMP continues to integrate the cumulative knowledge base gained through its development to senior level Alliance status to further strengthen the institutionalization of best practices, the preparation and transition of students from community colleges to 4-year institutions and from 4-year institutions to graduate study, and the participation of students in national and international research experiences.

The following items characterize the impact of the Alliance in the region including:

- The request by the Governor of Pennsylvania to have the Project Director, Philadelphia AMP to be a member of the Governor’s Commission on STEM for the Commonwealth,
- The request of the Director of the Nuclear Regulatory Commission for the Project Director, Philadelphia AMP to become a member of the review team to develop programs nationally in the nuclear sciences and engineering with a specific emphasis on minority inclusion,
- The request of the Educational Advancement Alliance to develop criteria for the HBCU Graduate Fellowship which supports 41 HBCU graduates with tuition and fellowship funding in STEM in Delaware, Pennsylvania and New Jersey based on the NSF Bridge to the Doctorate Program,
- The productivity of the Alliance has generated 8,400+ minority STEM BS degree recipients, 1,800+ minority MS STEM degree recipients and well over 200 Ph.D. recipients in the last 16 years. As of June 2010, three Bridge to the Doctorate program graduates have received their Ph.D. degrees and moved on to professoriate, federal agency, and military appointments respectively. Nine additional students are on schedule to complete their doctoral degrees by June 2011.

If systemic change, synergistic collaboration and undergraduate and graduate degree production is a gauge of success, then the Greater Philadelphia Louis Stokes Alliance for Minority Participation has made a significant difference.
The Puerto Rico Louis Stokes Alliance for Minority Participation

www.pralsamp.org

SUSTAINED UNDERGRADUATE RESEARCH EXPERIENCES

DR. A. HICKS WITH PR-LSAMP AND BD FELLOWS IN PUERTO RICO

ROLE MODELING AND BRIDGING PROGRAM

PROMOTING ACADEMIC EXCELLENCE

The Annual Best Practices Conference on Teaching and Learning

The Annual Puerto Rico Interdisciplinary Scientific Conference

BRIDGE TO THE DOCTORATE INITIATIVE

Cohort VII BD Fellows Visit Cornell

Ex-BD Fellows participate at the USA Science & Technology Festival at the National Mall in DC

Cohort VIII BD fellows

Ex-BD Fellow from Cohort V serving as Role Model to High School Students

Coordinated by:

UPR-Resource Center for Science and Engineering

PI: Dr. Manuel Gomez
Co-PI: Dr. Ana Rita Mayol
(787) 764-8369
Email: mgomez@upr.edu
(787) 764-8369
Email: anaritamayol@gmail.com

University of Puerto Rico Participating Institutions

UPR-Aguadilla
Prof. Migdalia Sotomayor
(787)890-2681 x-226
msotomayor@yahoo.com

UPR-Mayaguez
Prof. Jeanette Santos
(787)832-4040 x-2398
jsantos@ece.uprm.edu

UPR-Arecibo
Dr. Maella Ramos
(787)878-2830
maellaramos2001@yahoo.com

UPR-Cayey
Prof. Belinda Roman
(787)738-2161 x-3205
Wild_germplasm@yahoo.com

UPR-Humacao
Dr. Beana Rodriguez
(787)850-9387
ilecoral@hotmail.com

UPR-Rio Piedras
Dr. Ivelisse Rubio
(787)764-0000 x-7243
iverubio@uprr.edu

UPR-Bayamon
Prof. Alex Sloan
(787)786-2385
stevensloan@hotmail.com

UPR-Ponce
Prof. Lizzette Roig
(787) 844-8181 x-2335
Quim@cutpo.upr.clu.edu

Inter American University

UIA-Bayamon
Prof. Rafael Canales
(787)279-1912 x-2115
rrcanales@bc.inter.edu

UIA-Metro
Dra. Rosa Brito
(787)250-1912 x-2142
rbrito@metro.inter.edu

Pontifical Catholic University

Prof. Carmen Asencio
(787)841-2000
casencio@pucpr.edu
The Puerto Rico Louis Stokes Alliance for Minority Participation

www.prlsamp.org

Fostering Institutional Change in the Past 20 Years

PR-LSAMP is one of the six “Grand AMPs”. It was created in 1991 as a collaborative venture of the main higher education institutions in Puerto Rico to increase the quantity and quality of minority and low-income college students who successfully complete a baccalaureate degree in science, technology, engineering, or mathematics (STEM), and continue on to complete a graduate degree in a STEM-related field. The alliance is composed of eleven major institutions of higher education that are well known for their strong commitment to academic excellence and for providing a learning environment conducive to retaining and graduating a significant number of undergraduate students in STEM careers.

PR-LSAMP has been the main generator of institutional change among all members of the alliance in creating a genuine culture of undergraduate research and mentoring, therefore improving undergraduate STEM education. Since its inception, a strong emphasis was placed in promoting mentored undergraduate research activities that have developed at different rates in all PR-LSAMP institutions. Prior to 1991 undergraduate research was limited, especially in areas such as mathematics and four-year institutions. PR-LSAMP became the building block for creating an undergraduate research scholarship and developed a culture of mentoring at different levels. At the present moment it is a common practice to include undergraduate research components in proposals and it has become a requirement in the STEM curriculum. PR-LSAMP implemented summer internships and research programs outside PR by establishing a network of partnerships with several programs such as SULI, SURF and FaST. The mentored undergraduate research activity has proven to be the most effective strategy to improve retention, increase the number of students who complete a BS degree in STEM fields and continue to pursue advanced degrees in these areas.

This initiative has been instrumental, especially in four-year colleges, as it has provided the opportunity and infrastructure for faculty members to develop and define their research work, develop new research areas and become active in obtaining external funds to further develop an active research activity at their institution. Over the past 20 years, PR-LSAMP institutions have increased the amount of additional funding to enhance, strengthen, and sustain STEM programs from $4.5M to $105.7M, a 23-fold increase.

PR-LSAMP has fostered the improvement of teaching and learning in the STEM fields by sponsoring activities and providing training where successful strategies in enhancing undergraduate academic performance in STEM fields are shared, such as the Annual Best Practices Conference on Teaching and Learning. Members of this community have the opportunity to adapt and implement these strategies in the classroom and laboratories at the undergraduate level, such as student-based and technology-based learning, thus improving the teaching-learning process for students. PR-LSAMP has catalyzed research education activities among all members of the alliance and has fostered a community of learners and researchers.

Over the past 20 years, PR-LSAMP has been dedicated to impact students at all the critical junctures of the pipeline, providing for seamless transitions in the K-16+ continuum. PR-LSAMP has offered Teacher Preparation Workshops in STEM disciplines, impacting 368 teachers; Precollege to College Bridging Program, impacting 1795 high school students; and Role Model Seminars, impacting more than 2000 high school and undergraduate students. In 2003 the Bridge to the Doctorate Program was incorporated among the PR-LSAMP initiatives and has been continuously funded for eight cohorts, impacting 94 first and second year graduate students. All these efforts have provided mentoring, role modeling and motivation for our students to strive for and maintain a standard of excellence in terms of their education and skills development. PR-LSAMP has been a major contributor in improving the quality of the new generation of well prepared Hispanic undergraduate and graduate students in STEM fields.

PR-LSAMP’s success and institutionalization of activities are predicated on a systemic, integrative approach that builds not only on the successes of the past twenty years, but also on the participating institutions’ on-going efforts to improve STEM education to ensure sustainability of efforts. As a result of these sustained efforts, PR-LSAMP institutions have: 1) increased the undergraduate STEM enrollment from 12,572 to 26,849, more than a twofold increase; 2) increased the annual BS degree production from 1,709 in 1991 to 2,828 in 2010 a significant contribution to the NSF goal of a diversified STEM workforce; 3) contributed to the national pool of Hispanic PhDs** in Natural Sciences, from 12.5% to 24%, and Engineering, from 18% to 21%; and 4) increased the number of PhD degrees awarded in STEM fields in the UPR System from 9 in 1991 to 52 in 2009, more than a five-fold increase.

**Source: NSF/NIH/USED/NEH/USDA/NASA, Survey of Earned Doctorates

Louis Stokes Alliances for Minority Participation 73
The LS-SCAMP is one of the oldest and most successful alliances established in the state of South Carolina. The LSSCAMP program is a collaborative effort between the National Science Foundation (NSF) and twelve institutions in South Carolina. The overall goal includes increasing the quality and quantity of underrepresented minority students who complete baccalaureate degrees in STEM disciplines and who successfully transition to pursue advanced graduate STEM degrees.

PROGRAM ACTIVITIES

- Summer Bridge Programs
- Undergraduate Research
- Graduate School Prep Workshops
- Mentoring Programs
- Scientific Seminars
- Research Courses
- Calculus Excellence Workshops
- Science and Engineering Research Conference
- Scholarships

LEAD INSTITUTION: South Carolina State University - Dr. George Cooper, PI (803) 536-7013, president@scsu.edu
Dr. Judith Salley, Executive Director, (803) 536-8513 djdsalley@scsu.edu

ALLIANCE PARTNERS: Allen University - Dr. Patrick Inyangetor, (803) 376-5700 pinyangetor@allenuniversity.edu
* Benedict College - Ms. Vivian Counts, (803) 705-4395 countsv@benedict.edu * Claflin University - Dr. Angela Peters, (803) 535-5447, angela.peters@claflin.edu * Clemson University – Ms. Susan Lasser (864) 656-5541, slasser@ces.clemson.edu
* College of Charleston – Ms. Christine Moore, (843) 953-4997, moorec@cofc.edu * Morris College – Dr. Radman Ali (803) 934-3266, rali@morris.edu * SC State University – Mr. Damian Clarke - (803) 536-8513, dclarke@scsu.edu * University of South Carolina - Dr. Michael Perkins - (803) 777-4177, perkins@engr.sc.edu * Voorhees College – Dr. Doris Ward (803) 780-1068, dward@voorhees.edu

TWO-YEAR TECHNICAL COLLEGES: Denmark Technical College – Ms. Teresa Mack (803) 793-5106, mackt@denmarktech.edu
* Midlands Technical College – Mr. Rick Bailey (803) 738-7618, baileyr@midlandstech.edu
* Orangeburg-Calhoun Technical College - Mr. Walt Tobin (803) 536-0311, tobin@octech.edu

http://scamp.scsu.edu
The Louis Stokes South Carolina for Minority Participation Program Impact Statement

The Louis Stokes South Carolina Alliance for Minority Participation Program (LS-SCAMP) has been effective in increasing the participation of underrepresented minority students in science, technology, engineering, and mathematic (STEM) disciplines. Established in 1992 with eight institutions and restructured in 2002, with South Carolina State University as the lead institution (SC State), LS-SCAMP consists of twelve South Carolina institutions including six Historically Black Colleges and Universities (HBCUs) [Benedict College, Claflin University, Voorhees College, Morris College, Allen University, and inclusive of SC State], three majority universities [Clemson University (Research I), the University of South Carolina (Research I), the College of Charleston], and three technical colleges: [Midlands Technical College, Denmark Technical College, and Orangeburg-Calhoun Technical College. Developed to remove the barriers that prevent full participation in STEM fields by minority individuals, the alliance is the longest serving and only program remaining in the state that motivates and trains undergraduate students to successfully achieve in fields where minorities are rare. While the initial eight institutions in 1992 had a combined STEM enrollment of 2,664 with an annual bachelor’s degree production of 257, the current alliance of twelve institutions has significantly increased both degree production and enrollment. Today, eighteen years later, 509 STEM bachelor’s degrees were awarded and 5,012 underrepresented minorities were enrolled at member institutions (see figures below for 2009). In addition, the alliance consistently produces 68% of all minority STEM degrees awarded in the state of South Carolina.

Successful Outcomes:

- LS-SCAMP partners have graduated a total of 8,069 minority students with bachelor’s degrees in STEM (1992-2009). This represents an average of 475 degrees per year.
- LS-SCAMP institutions enrolled a total of 66,214 students in STEM disciplines (1993-2009).

- SC State Legislature since 1994, provided $6.2 million dollars, to enhance and sustain program activities including scholarships, summer bridge programs, research internships, mentoring, a technical school research bridge and graduate school preparation workshops. Funds were vetoed for 2010.
- Quality and diverse research experiences were provided for 257 undergraduates to conduct cutting edge research at local, state, national and federal laboratories. Interns presented research findings at the annual Undergraduate Science and Engineering Conference held at Allen University in Columbia, SC.
- Successful summer bridge programs were held at four year institutions for 80 undergraduates and technical college students. Twelve technical college students completed the summer research bridge experiences that resulted in their successful transfer to four year alliance institutions. A total of 93 technical college students successfully transferred into four year institutions to pursue STEM bachelor’s degrees during the project year.

Summary

The LS-SCAMP alliance has made a positive impact in the state of South Carolina for over eighteen years. The state and nation continues to benefit from capacity building of a diverse STEM workforce. The majority of the program participants would not have received a bachelor’s degree or the opportunity to pursue a graduate education in STEM without the comprehensive network of resources the program provided.
State University of New York Louis Stokes Alliance for Minority Participation

The State University of New York Louis Stokes Alliance for Minority Participation (SUNY LSAMP), now in the last year of Phase III, continues to increase student enrollment, degree production, and entrancce to graduate school. Since 1996 SUNY LSAMP has increased underrepresented minority (UREP) science, technology, engineering, and mathematics (STEM) enrollment by 330 percent and increased UREP STEM bachelor’s degrees by 95.4 percent. Since 2006 we have added five Bridge to the Doctorate programs at Stony Brook University and the University at Buffalo.

SUNY LSAMP has:

- Identified best practices in five main areas of program implementation. We are presenting these results at conferences and preparing an article for publication.
- Acted as a resource to STEM departments about best practices for recruiting and retaining UREP STEM undergraduate and graduate students.
- Taken a leadership role in improved STEM pedagogy on our campuses.
- Continued to act as advocates on minority issues on our campuses.

Services Include:

- Scholarship and stipend support
- Workshops and tutoring in science, technology, engineering, and mathematics disciplines
- Mentoring programs that link faculty and staff to students
- Paid research and internship opportunities
- Opportunities for students to attend professional conferences and present the results of their research
- Assistance to students in preparing for and applying to graduate programs
- Innovative enrichment courses and program models
- Research and scholarship about UREP STEM issues
- Social, cultural, and community building activities
- Bridge to the Doctorate programs for LSAMP graduates

Dr. A. James Hicks (second from left) with Stony Brook LSAMP Bridge to the Doctorate students Jude Safo (NSFGRFP winner), Marc Laroque, and Chrisnel Lamy

David Ferguson, Project Director
Phone: (631) 632-9987 • E-mail: David.Ferguson@stonybrook.edu

Lucy Gluck, Project Administrator
Phone: (631) 632-9988 • E-mail: Lucille.Gluck@stonybrook.edu

Web Site: www.stonybrook.edu/sunylsamp

SUNY LSAMP Institutions

Albany Region • Christopher Fernando, Director • (518) 442-5196 • cfernando@uamail.albany.edu • University at Albany • Schenectady Community College

Binghamton Region • Peter Partell, Director • (607) 777-6212 • partell@binghamton.edu • University at Binghamton • Broome Community College • Tompkins Cortland Community College

Buffalo Region • Drexel Gidney and Letitia Thomas, Co-Directors • (716) 645-0963/(716) 645-3071 • gidney@eng.buffalo.edu • lthomas@buffalo.edu • University at Buffalo • Buffalo State College

Hudson Valley Region • Stacie Swingle Nunes, Director • (845) 257-2695 • nunesst@newpaltz.edu • College at New Paltz • Ulster County Community College

Long Island Region • David Ferguson and Henry Teoh, Co-Directors • (631) 632-8763/(516) 876-2753 • David.Ferguson@stonybrook.edu • hteoh@verizon.net • Stony Brook University • College at Old Westbury

Farmingdale State University • Nassau County Community College • Suffolk County Community College

Stony Brook University/SUNY is an affirmative action, equal opportunity educator and employer. 10110520
SUNY LSAMP has substantially increased UREP STEM enrollment and bachelor's degrees
Since 1997, 4939 UREP STEM students have received bachelor's degrees

SUNY LSAMP has played a key role securing funding for UREP STEM students and programs

SUNY LSAMP has produced first class scholars and researchers
Some awards won by Level 1 students include the: NSF Graduate Research Fellowship, Merck Fellowship, Association of Women Geologist Award, IBM Science Award, Citigroup Scholars, SUNY Chancellor’s Award for Academic Excellence, GEM Fellowship, NSF IGERT, NASA Jenkins Graduate Fellowship, Fulbright Fellowship, Math for America, New York Fellowship and Barry Goldwater Scholarship.

Some doctoral programs attended by SUNY LSAMP Level 1 students include: UC Berkeley, CUNY, Columbia, Northwestern, Howard, University of Maryland College Park, Tulane, SUNY Albany, Georgia State, University at Buffalo, Purdue, Stanford, Montana State, Albany College of Nanotechnology and Stony Brook.

Some institutions where SUNY LSAMP Level 1 students have received STEM doctorates include: Harvard, Albert Einstein, Stony Brook, University of Alabama and University of California and have become STEM faculty and researchers at NIH, CDC and BNL.

SUNY LSAMP has identified and disseminated best practices in UREP STEM education
Some articles and presentations by SUNY LSAMP include:
“Research on Student Support Services and Graduate Issues”, SUNY LSAMP Phase III Research Project
“State University of New York Louis Stokes Alliance for Minority Participation: Report on Best Practices”, ERIC online
“Best Practices in Retention of STEM Students”, Yes We Have: A Showcase of Successful Programs Dedicated to Educating Diverse STEM Students in SUNY and Beyond
“Designing a Program to Support UREP Students in Math and Computer Science”, International Conference of Mathematics Education in a Global Community

LOUIS STOKES ALLIANCES FOR MINORITY PARTICIPATION 77
The Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) emphasizes collaborative learning approaches, mentoring activities via faculty, staff, and upper level students, and hands-on research and internship experiences. Many students across the Alliance participate in these and other retention programs every year.

**HIGHLIGHTS**

- **Enrollment and Degree Productivity:** Enrollment across the alliance increased by 9% from Fall 2008 to Fall 2009. Middle Tennessee State University’s enrollment actually increased by 24%. During the same period, the degree productivity increased by 4%. Tennessee State University’s degrees increased by 19%.

- **Research Conference Participation:** A total of 236 faculty and students attended the 2009 Research Conference with 35 oral and poster presentations. This represents a 17% increase in attendees and a 21% increase in oral and poster presentations. President Melvin N. Johnson, TLSAMP Principal Investigator and Advisory Board Chair, delivered the keynote address. At the conference, TLSAMP received its second proclamation from the state of Tennessee for its success in graduating underrepresented STEM students. The proclamation was presented by State Senator Jim Tracy. The proclamation congratulated TLSAMP as an exemplary program that utilizes a collaborative approach to better prepare Tennessee’s workforce for careers in science, technology, engineering, and mathematics. TLSAMP was honored for producing 2131 underrepresented baccalaureate graduates between 2003 and 2008.

**PARTNER INSTITUTIONS**

- **Tennessee State University**
  Lonnie Sharpe Jr.
  615-963-1398
  sharpe@coe.tsuniv.edu

- **LeMoyne-Owen College**
  Delphia Harris
  901-435-1380
  DF_Harris@loc.edu

- **Middle Tennessee State University**
  Thomas Cheatham
  615-898-5508
  cheatham@mtsu.edu

- **University of Memphis**
  Henry Kurtz
  901-678-3067
  hkurtz@memphis.edu

- **University of Tennessee – Knoxville**
  Masood Parang
  865-974-2454
  mparang@utk.edu

- **Vanderbilt University**
  K. Arthur Overholser
  615-343-3773
  ka.overholser@vanderbilt.edu
The TLSAMP grant has made a tremendous impact on underrepresented undergraduate STEM education in the state of Tennessee. During the 2009-2010 year, a total of 345 bachelor’s degrees were awarded. Since our inception in 2002, TLSAMP has graduated approximately 3200 minority STEM students. Due to the positive collaborations among the members of the alliance and the impact TLSAMP has made across the state of Tennessee, Tennessee Technological University and East Tennessee State University have expressed interests in becoming partners of our alliance.

Tennessee State University has had a financial impact on 1384 level one students since the inception of the grant. Students have served as mentors and mentees. They have been supported to do academic year and summer research. Some have tutored other students and all have participated in professional development activities through seminars and our annual research conference. Financial aid has been awarded to some students with financial need. Tracking of these level one students show that approximately 40% of these graduates have enrolled in graduate school and the graduation rate is approximately 75%.

Vanderbilt University has provided over two million dollars a year in scholarships for level one TLSAMP students from external sources. Vanderbilt’s graduates have a strong record of success in gaining admission to graduate schools. During the 2009-2010 academic year at least 13 TLSAMP participants went on to graduate school at institutions including Clemson University, Cornell University, Duke University, the University of Michigan, the University of Southern California, and Vanderbilt University.

LeMoyne-Owen College has provided need-based financial assistance in the amount of $128,000. Level one TLSAMP students have benefited from research opportunities, travel to research conferences to present their work and to observe the presentations of others. This has contributed greatly to a growing level of professionalism and expertise among students.

Middle Tennessee State University’s College of Basic and Applied Sciences has been intentional in serving and helping minority STEM students. Through collaborative university partnerships more than 350 students have been provided with upwards of $375,000 to assist with student need, student research, and the Summer Bridge program.

The University of Memphis has increased its level of student participation. The number of students actively engaged in research has increased by 50% since fall 2009 and those actively seeking graduate programs in STEM have increased by 25% since the fall of 2009.

TLSAMP has played an influential role in the recruitment and retention of underrepresented students at the University of Tennessee - Knoxville (UTK) thorough academic enrichment programming in areas of conference participation, undergraduate research, and monthly student development seminars. TLSAMP at UTK has supported 66 students to attend professional conferences.
2010 TAMUS LSAMP Highlights

• Alliance wide, TAMUS LSAMP supported six (6) Study Abroad Experiences in civil engineering and tropical biology. Spain, Brazil and Costa Rica were the international experience locations.

• Community College STEM Conferences were hosted at two of the partner institutions. The conferences were aimed at increasing the quality and quantity of students successfully completing STEM degrees. Participants represented 14 Texas-area community colleges, including 107 students and 20 representatives.

Community College Outreach

Community College STEM Conferences inform, motivate, and prepare students for bachelor degrees and inform college advisors of critical aspects of the transfer infrastructure which by tradition have hindered underrepresented students from pursuing bachelor’s degrees.

International Experiences

TAMUS LSAMP provides students with the opportunity to enhance their core curriculum, technical and professional skills and capabilities, gain better understanding of different cultures, and engage in field research in their majors.

Undergraduate Research

Undergraduate research encourages students to pursue graduate degrees while providing an opportunity to enhance their academic experiences and professional skills through mentoring relationships with faculty.

Bridge to Doctorate (BTD) Fellowship Program

Aimed at increasing the quality and quantity of URM students successfully completing STEM graduate degrees, the BTD program fosters success in first-time graduate students by developing their readiness to meet the challenges of completing doctoral programs of study and for possible academic careers.

LEADERSHIP

Dr. Karan L. Watson
Principal Investigator
Texas A&M University
Provost and Executive Vice President for Academics
watson@tamu.edu

Dr. Karen L. Butler-Purry
Co-Principal Investigator & Project Director
Associate Vice-President for Graduate Studies
kibutler@tamu.edu
(979) 845-3631

Dr. Shannon D. Walton
Associate Director
shannon@tamu.edu
(979) 862-4315

Dr. Howard G. Adams
Community College STEM Conference
Dr. Karen Butler-Purry
Co-Principal Investigator
Dr. Kendall Harris
Co-Principal Investigator
Dr. Frank Pezold
Co-Principal Investigator

TEXAS A&M UNIVERSITY

Dr. Kendall Harris
Co-Principal Investigator
Dean of Engineering
ktharris@pvamu.edu
(936) 261-9956

Dr. Frank Pezold
Co-Principal Investigator
Dean of Science and Technology
frank.pezold@tamucc.edu
(361) 825-3655

TEXAS A&M UNIVERSITY

Dr. Karen L. Butler-Purry
Co-Principal Investigator
Dr. Kendall Harris
Co-Principal Investigator
Dr. Frank Pezold
Co-Principal Investigator

TEXAS A&M UNIVERSITY CORPUS CHRISTI

Dr. Frank Pezold
Co-Principal Investigator
Dean of Science and Technology
frank.pezold@tamucc.edu
(361) 825-3655

PRAIRIE VIEW A&M UNIVERSITY

Dr. Howard G. Adams
Community College STEM Conference

http://www.tamuslsamp.org

Louis Stokes Alliance for Minority Participation
The Texas A&M University System Louis Stokes Alliance for Minority Participation (TAMUS LSAMP) Program is a conglomerate of three (3) universities throughout the Texas A&M University System: Texas A&M University, Research I Institution; Prairie View A&M University, a Historically Black College and University (HBCU); and Texas A&M University – Corpus Christi, a Hispanic Serving Institution (HSI). The TAMUS LSAMP, currently in Phase IV, also includes Community College partners throughout the state of Texas and included Texas A&M University – Kingsville in Phases I and II. Since the inception of TAMUS LSAMP in 1991, as one of the first six LSAMPs funded by NSF, we have functioned as a key vehicle in enhancing retention and successful degree completion for underrepresented minority (URM) students in science, engineering and mathematics (SEM). Using a carefully conceived suite of opportunities, TAMUS LSAMP has demonstrated its impact across a range of academic success indicators, including advanced undergraduate enrichment, retention, and persistence of URM SEM students, supported instruction and peer teaching, peer and faculty mentorship, increased enrollment and BS degrees, research culture, and institutionalization of academically successful strategies as well as generalization to the larger university population (including non-URM students).

**Enrollment and Degree Completion**
For the three alliance institutions that have been involved in the project over the four Phases, total annual enrollment has increased from 2,782 to 4,882 in the face of formidable sentiments introduced by the 1996 Hopwood Decision. In addition, the number of URM SEM BS degrees awarded annually has doubled at the three alliance institutions. The number of URM SEM BS degrees awarded by the three alliance institutions over the life of the award, totals 9,578. Average first year freshmen continuation rates for UEM SEM students at the three institutions have improved to 75%.

**International Experiences**
A consensus has emerged among leaders in higher education, public policy and private sector that preparation for SEM fields should inculcate global competency. To that end, to assist our students in enhancing their technical and professional skills and capabilities, in addition to exposure to working with people of other cultures, we have supported international experiences for a select group of LSAMP students. To date, we have supported 22 students in powerful learning experiences in Spain, Brazil, Mexico, Costa Rica and Singapore. Also, two of our LSAMP students participated in the LSAMP supported International REU program in summer 2009, one in Europe and one in Brazil.

**Undergraduate Research**
Undergraduate research is utilized at all three institutions as a strategy to encourage students to pursue graduate degrees. A major component of Phases III and IV, approximately 375 participants have participated in faculty-mentored research, enhancing both their academic and professional skills while gaining the opportunity to participate in publication of research results, connecting them to the scientific community at large.

**Bridge to the Doctorate (BTD)**
Aimed at increasing the quality and quantity of URM students successfully completing STEM graduate degrees, the Bridge to the Doctorate program fosters academic success in first-time graduate students by developing their readiness to meet the challenges of completing doctoral programs of study and for possible academic careers in higher education. TAMUS LSAMP is currently hosting its 6th BTD (2010) cohort. In Cohort I, 90% of the Fellows completed doctoral degrees, with 40% currently serving in academia. Thirty-three percent of Cohort II, 16% of Cohort III, 58% of Cohort IV and 100% of Cohort V are currently pursuing doctoral degrees. Ten (10) of the TAMUS BTD participants have received PhDs.
The University of Texas System LSAMP has brought together the nine academic components of the University of Texas System in an effort to increase the number of underrepresented minority students enrolling in and graduating from baccalaureate programs in science, technology, engineering, and mathematics (STEM). An additional goal of the Alliance is to increase the number of underrepresented minority students in STEM graduate programs at UT System institutions.

Concluding Phase III, the number of underrepresented minority graduates in UT System STEM disciplines increased by 241% from the baseline value in 1992. The initial LSAMP program goal was set at 1,374 graduates. As of 2009, the total number of graduates has reached 2,004. We are proud of this statistic because the UT System has contributed to increasing the total number of underrepresented minorities receiving STEM degrees at the national level. Emphasis in Phase IV is on increasing the graduate opportunities for minority students at Alliance institutions, particularly at the Doctoral level. Additionally, the Alliance has dedicated itself to involving its Community College partners in all Phase IV activities.

Administration: UT El Paso (Lead Institution)
Benjamin C. Flores (PI) bflores@utep.edu (915)747-6961
Helmut Knaust (Co-PI) hknaust@utep.edu (915)747-7002
Ariana Arciero (Project Director) avarcer@utep.edu (915)747-8725

University Partners: UT Arlington Tuncay Aktosun aktosun@uta.edu (817)272-1545 * UT Austin Sarah Simmons s.l.simmons@mail.utexas.edu (512)232-9029 * UT Brownsville Guillermo Weber guillermo.weber@utb.edu (956)882-6641 * UT Dallas Juan Gonzalez jgonzal@utdallas.edu (972)883-2526 * UT Pan American Cristina Villalobos mcvilla@utpa.edu (956)381-2123 * UT Permian Basin Tracie Gibson gibson_t@utpb.edu (432)552-3266 * UT San Antonio Darrell Balderrama darrell.balderrama@utsa.edu (210)458-2697 * UT Tyler Steve Rainwater srainwater@utttyler.edu (903)566-7235

Community College Partners: Alamo Community College District Frank Perez fperez@alamo.edu * El Paso Community College Emil Michael emichael@epcc.edu * Howard College Erin MacKenzie emackenzie@howardcollege.edu * Midland College Thomas Ready tready@midland.edu * Odessa College Susan Crain scrain@odessa.edu

UT System LSAMP website: http://lsamp.utep.edu
For the past 18 years, the University of Texas System Louis Stokes Alliance for Minority Participation has been engaged in increasing the number and quality of underrepresented minority (URM) students earning baccalaureate, masters, and doctoral STEM degrees. The UT System Alliance, which is comprised of nine universities and five community colleges, has coalesced into a comprehensive effort that promotes and sustains a culture of broader participation in academia. As a result, the total enrollment of URM STEM students in all UT System universities grew from 8,367 in 1991 to 17,593 in Fall 2009. Likewise, the number of undergraduate STEM degrees awarded to underrepresented minorities has grown substantially from 564 in Fall 1991 to 2,004 in Fall 2009.

In its initial phase (1992-1997), the Alliance began as an initiative that primarily promoted the participation of underrepresented minority students in STEM baccalaureate programs at all nine UT System institutions, and to create partnerships with community colleges partnered to identify and recruit future STEM majors. Through combined multi-institutional efforts, there was a significant increase in the number of minority students who received four-year STEM degrees from 564 to 881 per year in a period of five years.

In its second phase (1997-2002), the Alliance shifted and expanded its activities to include graduate education. The Alliance began to implement practices that encouraged its graduates to pursue STEM graduate degrees at the master’s level. As a result the number of masters degrees awarded between 2000 and 2002 to underrepresented minorities grew from 96 to 135 per year.

In its third phase (2002-2007), the Alliance shifted its focus toward doctoral degree enrollment and attainment by underrepresented minority groups. In a period of five years, the number of Ph.D. degrees awarded to minorities increased from 15 to 33. This phase also introduced the Bridge to the Doctorate (BD) project which allowed the Alliance to support 34 Ph.D. bound students.

The current phase (2007-2012) of the Alliance has maintained the focus on doctoral degree enrollment but has also re-established the community college connection. Additionally, a new goal was established to include some of the UT LSAMP scholars in international travel opportunities following their research experiences. In Fall 2009 total URM enrollment in STEM bachelor’s, master’s, and doctoral programs, was at an all-time high of 18,692. In the same semester, 2254 URM students received STEM degrees. Of these 34 were Ph.D. degrees.

The UT LSAMP has made great strides in preparing high-quality STEM researchers that diversify the nation’s Higher Education and Industry sectors. Throughout its four phases, the effort has not only produced quality STEM degree recipients but has strengthened the Alliance at the highest level of leadership in the largest state in the contiguous U.S. A diverse team of dedicated staff, faculty, and administrators have allowed the Alliance to continue to meet the challenges of national, URM STEM education.
LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

University of Maryland, Baltimore County (UMBC)
University of Maryland, College Park (UMCP)
University of Maryland Eastern Shore (UMES)

The USM LSAMP is a comprehensive program designed to increase both the quantity and the quality of underrepresented minority (URM) and other students who receive B.S. degrees and are well prepared to pursue graduate degrees in STEM fields.

- STEM baccalaureate degrees were awarded to 7,863 URM students, 1995-2010.
- Distribution of the 4,259 URM STEM students enrolled for 2009-2010 indicates a healthy pipeline with 2,227 freshmen and sophomores and 2,032 juniors and seniors.

2009-2010 ALLIANCE HIGHLIGHTS:

- Many LSAMP students advance to the nation's top STEM graduate programs.
- 93 LSAMP alumni have been identified who have earned either STEM Ph.D. or M.D./Ph.D. degrees.
- Alliance institutions awarded 1,099 STEM master's degrees to URM students, 1995-2010.
- Alliance institutions awarded 300 STEM Ph.D. degrees to URM students, 1995-2010.
- The Alliance has had great success in educating undergraduates who are well-prepared to compete in both the STEM workforce and STEM graduate programs. 273 (74%) of the 369 USM LSAMP direct participants completed the year with cumulative grade point averages at or above 3.0 on a 4.0 scale, and 152 (41%) had cumulative averages at or above 3.5.
- Of the 78 direct participants who graduated, 29 (37%) were graduated with Latin Honors. 45 (58%) of the 78 direct participant graduates continued to graduate school; 9 (12%) entered STEM master's programs, and 36 (46%) entered doctoral programs.

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Alliance Institution Contacts:

UMBC, Lead
Cynthia M. Hill, Associate Provost
chill@umbc.edu
Phone: 410-455-2445
Fax: 410-455-1028

UMCP, Partner
Tamara N. Hamilton, Program Director
hamiltot@umd.edu
Phone: 301-405-3882
Fax: 301-314-9867

UMES, Partner
Charles Williams, VP, Academic Affairs
cwilliams@umes.edu
Phone: 410-651-6508
Fax: 410-651-6085
UNIVERSITY SYSTEM OF MARYLAND
LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION
IMPACT, 1995-2010

A MODEL FOR GROWTH AND EXCELLENCE IN STEM DEGREE PRODUCTION

The University System of Maryland (USM) Louis Stokes Alliance for Minority Participation (LSAMP) was launched in 1995 with funding from the National Science Foundation. Currently a senior-level alliance, the USM LSAMP has succeeded in broadening participation in the science, technology, engineering, and mathematics (STEM) disciplines by groups that historically have been underrepresented in STEM. With direction charted by the presidents of the partner institutions who serve on the Governing Board for the Alliance, the administrators, faculty members, and staff members at the partner institutions work together to identify and remove barriers to the academic success of underrepresented minority (URM) students in STEM. Numerous strategies are used, including Summer Bridge and other structured programs of support, scholarships, curriculum review and revision, identifying and replicating best practices, rigorous program evaluation, securing supplemental funding, among others. These efforts have resulted in significant increases in both the number and the percentage of undergraduate URM and other students who begin and complete STEM degree programs and are well-prepared to either enter the STEM workforce or continue to STEM graduate programs.

IMPROVED CAMPUS ENVIRONMENTS AND FACILITIES

The USM LSAMP has helped to foster campus environments at the partner institutions that facilitate the academic success of URM students in STEM fields. Increasingly, URM students have developed interests and enrolled in STEM degree programs. More such students have earned STEM degrees and entered STEM graduate programs and careers. As a result of a new focus on broadening participation in STEM, many more USM undergraduates have been provided opportunities to work with faculty mentors on cutting-edge research. There has been extensive construction and renovation of buildings and laboratories for STEM education and research on the campuses. Examples include the Information Technology and Engineering Building (2003) at UMBC, the Sarbanes Coastal Ecology Teaching and Research Center (2005) at UMES, and the Jeong Kim Engineering Building (2005) at UMCP. Additional construction and renovation projects are underway (e.g., new Physical Sciences Complex at UMCP to be completed July 1, 2013). STEM faculty, staff, and students have benefited from the improved campus environments and the expanded facilities.

URM STEM DEGREE PRODUCTION INCREASED SIGNIFICANTLY

In the baseline year of 1993-1994, the Alliance partner institutions awarded only 201 B.S. degrees to URM students in STEM fields. Significant increases were realized within the first five years (1995-2000), and the average number of degrees awarded annually to this population rose to 404, more than double the number awarded in the baseline year. The growth in degree production continued during subsequent funding cycles. An average of 566 degrees was awarded annually to URM STEM students during the 2000-2005 cycle, and an average of 602 degrees was awarded to this population annually during the 2005-2010 cycle.

CATALYST FOR ADDITIONAL STEM INITIATIVES AND SYNERGY

The Alliance has been a catalyst for a number of additional initiatives that broaden participation in STEM. Initiatives funded by NSF and other sources have built on the momentum created by the LSAMP. Proposals for many of these initiatives have included references to the USM LSAMP, and synergy among and between the LSAMP and other initiatives has been built into their designs and carried out during their implementation. A few examples include PROMISE: Maryland’s AGEP (NSF), ADVANCE (NSF), S-STEM (NSF), Robert Noyce Scholarship Program (NSF), Innovation through Institutional Integration (NSF), and there are many others. Funding for STEM initiatives also has been received from additional sources including NASA, NIBIB, NIH, NIEHS, HHMI, and many other government, industry, and foundation partners. In addition to achieving objectives and accomplishing goals that were planned regarding the target population, the existence of the USM LSAMP has resulted in a number of positive, yet unexpected outcomes. Particularly significant is that participation in STEM has been broadened for additional populations that previously had been both underserved and underrepresented.
Upstate LSAMP Highlights...

- Students in the Upstate Alliance participated in summer and academic year research across the country at national labs and colleges/universities. Many students were selected to present their research projects at conferences throughout the country.

- The Syracuse University LSAMP in partnership with the National Society of Black Engineers’ Syracuse Pre-collegiate Initiative chapter was awarded a Syracuse City School District Science Grant to host a LSAMP/NSBE Summer Science Camp. This camp was a one-week intense, overnight STEM camp for 40 under-represented middle and high school students hosted on the campus of Syracuse University. Students conducted laboratory work in the areas of environmental engineering/science, mathematics, and robotics.

- Rensselaer Polytechnic Institute hosted the 12th Annual Black Family Technology Awareness Day. Over 850 students and their parents were able to have hands on experiences with science and technology projects hosted by students and faculty.

- Diversity Programs in Engineering at Cornell University was recognized by Excelencia in Education as a 2010 finalist for “Examples of Excelencia at the Baccalaureate Level” at this year’s Celebración de Excelencia in Washington D.C.

Upstate LSAMP Scholar News...

- The Upstate Alliance had its second LSAMP student selected as a Bridge to the Doctorate Fellow. Ms. Camilla A. Nix, a graduate of the Syracuse University L.C. Smith College of Engineering and Computer Science, is currently enrolled as a Bridge fellow at Drexel University in Philadelphia, PA. She is a student in the School of Biomedical Engineering, Science and Health Systems (BIOMED) pursing a Doctorate in Biomedical Engineering.

- 2010 LSAMP Scholar Florencia Parades (Cornell University) won second place for the engineering undergraduate poster competition at 2010 HENAAC. The intent of this competition was to give students the opportunity to display their research accomplishments and receive recognition for their scholarly investigation or scientific study.

- Theodore Glave (Clarkson University) presented research at the NSBE Regional Conference and took second place. Four LSAMP students from Clarkson competed in the NSBE Technical Bowl, and made it into the finals.

Camilla A. Nix
Syracuse University
Upstate LSAMP Scholar
2010 Bridge to the Doctorate Fellow
Drexel University
Biomedical Engineering
The Upstate LSAMP Alliance

The Upstate Louis Stokes Alliance for Minority Participation (LSAMP) is dedicated to maximizing the potential and increasing the number of African American, Latino American and Native American (AALANA) students receiving bachelor degrees in the fields of science, technology, engineering and mathematics (STEM). This program supports student success by providing: funding, research and internship opportunities, academic enhancement, and mentoring services. The Upstate LSAMP alliance comprises seven institutions of higher education and together our goal is to increase the recruitment, retention, and graduation rates of both first-time freshmen and transfer students.

The Upstate Alliance institutions have benefitted greatly by being a part of the national LSAMP program. The LSAMP grant has allowed institutions to focus on diversifying our respective student bodies which in turn impacts the U.S. STEM workforce. At any given time during the academic year, over 200 students are directly participating in Upstate LSAMP programs and activities. In addition, more than 100 students have participated in summer and academic research opportunities. Having the LSAMP grant on our campuses has allowed us to begin the process of institutional transformation as it relates to underrepresented students and STEM education. Changes on campus, made possible by LSAMP funds, not only benefit LSAMP students, but also have a positive impact on students not affiliated with the program.

Selected Goals:

1. Increase the entry of underrepresented students as Upstate LSAMP scholars in STEM disciplines by 40% above the Fall 2005 rate by project completion.
   Comparing 2008-09 freshman minority STEM enrollment of 562 to the freshman minority STEM enrollment in Fall 2005 of 464 (before the LSAMP grant), there has been a 21% increase.

2. Increase the retention of Upstate LSAMP scholars in the STEM disciplines by 60% above the 3-year average rate of 1,179 by project completion.
   In 2007-08 the Upstate Alliance institutions had a full-time minority enrollment in the STEM disciplines of 1,743. This was a one-year snapshot of enrollment with a 47.8% increase over the original data in 2005.

Selected Areas of Focus:

Student Research:
Undergraduate student research is one of the most powerful predictors for student success in STEM education. Undergraduate research allows students to connect their coursework to practical laboratory applications, and students who participate in research early in their college careers are significantly more likely to be retained in STEM fields and pursue graduate study.

Faculty Mentoring:
The role of a faculty mentor is a mix of educator and advocate. Mentoring STEM students aids in improving their overall academic achievement, helps students make informed decisions about STEM baccalaureate and graduate study, and helps develop skills needed to enter a STEM career. LSAMP mentors set high expectations for achievement of LSAMP students while advocating for their success.
Urban Massachusetts Louis Stokes Alliance for Minority Participation

LEAD INSTITUTION
Winston Langley, Principal Investigator
617-287-6800, winston.langley@umb.edu

Marshall Milner, UMLSAMP Program Director
617-287-4057, marshall.milner@umb.edu

UMLSAMP Website in Development

University of Massachusetts Boston
100 Morrissey Boulevard
Boston, MA 02125-3393

ALLIANCE MEMBERS
University of Massachusetts Boston
Andrew Grosovsky, Co-PI
andrew.grosovsky@umb.edu

University of Massachusetts Dartmouth
Magali Carrera
508-999-8024, magali.carrera@umassd.edu

University of Massachusetts Lowell
Charlotte Mandell
978-934-3448, charlotte_mandell@uml.edu

Wentworth Institute of Technology
Sandra Pascal
617-989-4478, pascals@wit.edu

Bristol Community College
Peter Schuyler
508-678-2811, x2214, peter.schuyler@bristocc.edu

Bunker Hill Community College
Katherine Gustafson
617-228-2181, kgustafs@bhecc.mass.edu

Middlesex Community College
Darcy Orellana
781-280-3559, orellanad@middlesex.mass.edu

Roxbury Community College
Brenda Mercomes
617-541-5383, brendam@rcc.mass.edu

MISSION
The Urban Massachusetts Louis Stokes Alliance for Minority Participation (UMLSAMP) within its alliance of eight member institutions will increase the quality and quantity of underrepresented minority students completing baccalaureate degrees in science, technology, engineering, and mathematics (STEM) fields. The UMLSAMP students and faculty will collaborate with the vibrant 21st century industries in the state of Massachusetts to provide high quality technical and research training and career opportunities for regional and national competitive advantages.

Our program will seek and grow collaborations with PK-12 local school districts; nonprofit STEM related organizations, and corporations committed to effectively establish and support the ‘Pipeline’ of motivated young people who will attain their education and training in our state and in our and other institutions of higher learning.

ACTIVITIES, SERVICES, & PROGRAMS
- Learning Communities
- Summer Bridge Programs
- Research Skills Development
- Facilitated Study Groups
- Peer and Faculty Mentoring
- Practicing Professionals Coaching
- Career Fairs and Advisement
- Graduate School Preparation

ACCOMPLISHMENTS IN 2009 - 2010
- State STEM agency relationships enhanced for AMP workforce development programs
- Bioscience industrial contacts increased for national and global internships for AMP students
Impact Statement
Urban Massachusetts LSAMP Program 2009/2010

- **Focus** - provided a strategic focal point for alliance member interests, departments, and programs around the enrollment, retention, persistence, and postsecondary graduation of underrepresented in STEM students.

- **Development** - increased the awareness of the importance of STEM research skills development and career planning for community college as well as university students before they graduate through the use of intense Workshops and Bridge programs.

- **On-campus Research** - increased the number of campus based faculty mentored research experiences for community college as well as university students in university research labs.

- **Off-campus Research** - increased the number of off-campus scientist and researcher mentored experiences for community college as well as university students in research oriented corporations and other institutions.

- **LSAMP Services Innovations** – increased collaborations with public school districts, state government agencies, and international corporations for LSAMP K-12 ‘student pipeline’ development; for local and national undergraduate internships or workforce development; and for global industrial internships.
The Virginia/North Carolina Alliance

PARTNER INSTITUTIONS:

- Bennett College for Women
  Dr. Cristina Moreira
  336.517.2293
  cmoreira@bennett.edu

- Elizabeth City State University
  Dr. Ali Khan
  252.335.3242
  aakhan@mail.ecsu.edu

- George Mason University
  Dr. Bernard White
  703.993.1511
  bwhite@gmu.edu

- Johnson C. Smith University
  Dr. Sunil Gupta
  704.378.1154
  sgupta@jcsu.edu

- Saint Augustine’s College
  Dr. Gloria Payne
  919.516.4151
  gpayne@st-aug.edu

- University of Virginia
  Ms. Carolyn Vallas
  434.924.0614
  cv5d@virginia.edu

- Virginia Commonwealth University
  Dr. Rosalyn Hobson
  Ms. Leena Joseph
  804.828.1087
  josephi@vcu.edu

- Virginia Polytechnic Institute and State University
  Dr. Eric Williams
  540.231.5023
  erwilli3@vt.edu
  Dr. Jody Thompson
  jodyt@vt.edu

The Third Annual VA-NC Alliance Symposium, hosted by partner school Bennett College for Women, registered eighty-nine Alliance students and faculty for a variety of workshops and research presentations.

Partner institution Virginia Polytechnic Institute and State University welcomed over fifty Alliance students to the Third Annual Graduate School Preparation Retreat.

The VA-NC Alliance initiated a new summer research program in 2010. Twelve Alliance students spent eight intensive weeks in this collaboration with the University of Virginia’s Center for Chemistry of the Universe, and the Department of Systems and Information Engineering. Students collected data at the National Radio Astronomy Observatory in Green Bank, West Virginia.

Above, summer program students discuss their findings during a campus-wide summer research poster presentation session.

Below, summer program students & staff pose for a group photo at the top of the 485-foot tall Robert C. Byrd Telescope

VA-NC Alliance Management Team

- Principal Investigator: Dr. Marcus L. Martin, mlm8n@virginia.edu
- Co-Principal Investigator: Ms. Carolyn Vallas, cv5d@virginia.edu
- Program Director: Ms. Kristin L. Morgan, klm3q@virginia.edu
- Fiscal Administrator/Office Manager: Ms. Debra White, djt@virginia.edu
- Administrative Research Assistant: Ms. Shirley Cauley, smc2j@virginia.edu

The VA-NC Alliance is an alliance of eight partner institutions in Virginia and North Carolina increasing the number of underrepresented minorities earning STEM degrees by 2012. Through synergistic partnership the VA-NC Alliance offers summer bridge programs, summer research experiences, annual symposia, common reading experiences, mentoring, tutoring, and preparation for graduate school.

www.virginia.edu/amp
The Virginia/North Carolina Alliance

IMPACT

NSF and the VA-NC Alliance... making a difference!

Graduates:
The total number of STEM students graduating from VA-NC Alliance partner institutions increased approximately 20% from year one to year three.

Enrollment:
Enrollment of underrepresented minority students has increased in the Alliance, with particular success in mathematics compared to national trends in higher education.

Direct Participants:
The Alliance increased the number of its direct participants by over 136% from year one to year three with gains across all racial and ethnic groups.

Activities:
Attendance at Alliance annual events increased, including the Alliance Symposium and the Graduate School Preparation Retreat. The number of students participating in undergraduate research opportunities increased over 93% from year one to year three. During year three, partners distributed over 160 book stipends through the Alliance.

Results from a satisfaction survey showed that at least 65% or more Alliance students were satisfied with socialization into their discipline, feelings of belonging, and the ability to conduct independent research in their discipline. Ninety percent of students have discussed the Alliance with friends, and encouraged them to participate. Feedback from students indicates several particularly effective aspects of the program:

- assistance and peer advice for the graduate school application process and employment applications
- a great way for students to get experience at nationally recognized research facilities
- helps students remain competitive and academically focused by making available tutors, book stipends, and financial assistance with housing and other expenses
- the chance to experience collaborative research in multiple disciplines

www.virginia.edu/amp
Howard University is the lead institution among seven partners that are the recipients of a cooperative grant from the National Science Foundation to establish the Washington/Baltimore/Hampton Roads-Louis Stokes Alliance for Minority Participation Program (WBHR-LSAMP). Established in 1993, the program seeks to increase the number of minority students matriculating in and graduating from science, technology, engineering, and mathematics (STEM) disciplines.

The other partner institutions that comprise the WBHR-LSAMP Alliance are the partners (University of the District of Columbia (UDC), Hampton University (HaU), Morgan State University (MSU), Bowie State University (BSU), Norfolk State University (NSU), and Virginia State University (VSU). Dr. Alvin Thornton (Senior Advisor to the President for Academic Affairs) serves as the Principal Investigator for this project. Dr. Clarence M. Lee of Howard University serves as the Executive Director for the WBHR-LSAMP and Dr. William Gordon, also of Howard University, serves as the Alliance Coordinator. At each partner institution, the Provost and/or Vice President for Academic Affairs serve as the Co-Principal Investigators and a prominent STEM faculty member serves as the Project Coordinator.

Over the past 15 years, more than 60,500 minority students have enrolled in STEM fields at the WBHR Alliance. More than 15,000 students have graduated from these institutions with B.S. degrees in the STEM fields. In addition, we have accepted five classes of Bridge to the Doctorate students.

The WBHR-LSAMP Program has hosted 61 Bridge to the Doctorate (BD) students. These students earned bachelor’s degrees in engineering, mathematics, computer science, physics, chemistry, and the biological sciences and are matriculating toward Ph.D. degrees in mathematics, engineering, chemistry, physics, computer science, and the biological sciences. The BD Program is strongly linked to Howard’s Alliance for Graduate Education and the Professoriate (AGEP) and other funded programs.

Recent Accomplishments

- Most of the students enrolled in STEM programs within the WBHR Alliance now take advantage of summer internships at institutions within the WBHR-LSAMP Alliance, at other major research universities, national laboratories, and industrial laboratories. Heretofore, typically only honor students were involved in summer internship programs. Now with the building of the research infrastructure at all of the WBHR-Alliance institutions, most STEM students making satisfactory progress towards their B.S. degrees can expect to participate in at least one summer internship, and most students now are involved in an average of at least two summer internships.

- The WBHR-LSAMP Program has hosted 61 Bridge to the Doctorate (BD) students. These students earned bachelor’s degrees in engineering, mathematics, computer science, physics, chemistry, and the biological sciences and are matriculating toward Ph.D. degrees in mathematics, engineering, chemistry, physics, computer science, and the biological sciences. The BD Program is strongly linked to Howard’s Alliance for Graduate Education and the Professoriate (AGEP) and other funded programs.
The Washington/Baltimore/Hampton Roads - Louis Stokes Alliance for Minority Participation Program (WBHR LSAMP) was established in 1993 under a cooperative agreement through the Directorate for Education and Human Resources (EHR) of the National Science Foundation. Four HBCU partner institutions in the middle-Atlantic region of the nation formed a working alliance. These institutions included the University of the District of Columbia (UDC), Hampton University (HAU), Morgan State University (MSU), and Howard University (HU) serving as the lead institution. At the end of the first five years in 1999, the alliance had produced almost 3600 B.S. degrees in STEM fields. In 2000, an expanded alliance was formed with three additional HBCU partners including Bowie State University (BSU), Norfolk State University (NSU), and Virginia State University (VSU). This expanded alliance continued to focus on seeking to increase the number of underrepresented minorities who choose careers in STEM fields and to substantially increase the number of minority students earning B.S. degrees, and subsequently continue their education by pursuing M.S. and Ph.D. degrees in STEM disciplines. The Alliance continued to foster these goals and added an emphasis on working with community colleges and accommodating community college graduates as the expanded Alliance continued to operate through 2005.

From 2000-2005, the WBHR-LSAMP activities continued to build on the successes over the previous years to ensure: 1) a substantial impact on the rate of attendance in STEM graduate programs by program participants (Bridge to the Doctorate fellowship activity, graduate symposia, seminars and workshops, and research); 2) increased rate of graduation of underrepresented minorities at the baccalaureate and at Alliance member institutions; 3) institutionalizing best practices (peer mentorship, tutoring, and preparation for the GRE, tutoring in gate-keeping courses, curriculum development, increased faculty mentored research, facilitate the transfer of community college students into STEM areas, presentations at state, regional and national conferences); 4) increased emphasis on collaboration (partnerships with other NSF projects, partnerships with other sponsored programs, partnerships with national laboratories, private corporations; and 4) expanding opportunities for student engagement in international activities.

Based on the trendline data presented since 2000 (baseline year), there have been more than 10,000 minority students awarded the BS degree in STEM fields, 1178 MS degrees in STEM fields and 317 Ph.D. degrees by the WBHR-LSAMP Institutions making the WBHR-Alliance the largest producers of STEM degrees in the nation. Data collection and analysis of student performance and STEM-related activities have been institutionalized at all of the WBHR-LSAMP partner institutions. One of the lessons learned throughout the WBHR-Alliance has been the importance of implementing a comprehensive evaluation plan inclusive of qualitative and quantitative methodologies. We have improved our efforts to more accurately track STEM students once they graduate or leave the WBHR-LSAMP institutions. Previous efforts to track STEM students have been limited to their matriculation through undergraduate and graduate programs at respective institutions. We continue to enhance these efforts and institutionalize an online tracking system of STEM graduates from the WBHR-LSAMP Alliance Institutions. The potential uses of this information include the development of a database to promote networking and research collaboration among WBHR-LSAMP faculty, students, and alumni; a mechanism for disseminating information related to faculty openings at WBHR-LSAMP institutions; and, a resource for STEM students interested in identifying research mentors both within and outside of the WBHR-LSAMP Alliance.

Over the next five years, we expect to 1) increase research support and collaboration with other research institutions and thereby increase the percentage of STEM students going to graduate school from the current 30% to 40%; 2) improve retention of STEM students; 3) double the number of students matriculating in the WBHR-Alliance from community colleges; and 4) increase the number of WBHR-Alliance students participating in undergraduate international research experiences from the current approximately 20 students/year to more than 50 students/year by 2015. The WBHR-LSAMP will focus on program sustainability and intensified LSAMP activities to raise the graduation rate to 1,600 degrees per year in the STEM disciplines by 2015 (approximately 5% per year).
The LSAMP-Western Alliance to Expand Student Opportunities (WAESO) is now engaged in Phase IV of operations. After exceeding our goals of doubling the number of baccalaureate degrees per year within the STEM disciplines during Phases I, II and III, our goal for Phase IV is to once again, double the number of graduates within our region. WAESO will continue to increase the quality and quantity of underrepresented minority students receiving degrees in science, technology, engineering and mathematics throughout our region which includes institutions in Arizona, Colorado, New Mexico, western Texas (El Paso Community College), Nevada and Utah.

LSAMP - WAESO activities in which students participated include:
- peer study groups
- summer bridge programs
- faculty-directed undergraduate research projects
- graduate preparation institutes, mentoring, and research presentation

The Louis Stokes Alliance for Minority Participation Phase IV WAESO is a comprehensive, concerted, sequenced effort that uses LSAMP NSF and non-NSF funding for the undergraduate portion of the program, non-NSF funds to support pre-college students and partners with MGE@MSA to use AGEP NSF and non-NSF funds to help hundreds of graduate students and graduates of Ph.D. or Master level programs. We have found that faculty will seek out and mentor undergraduate students in successful academically enriching activities when case studies and strategies are provided and when both faculty and student are recognized for their efforts. More importantly, we have shown that the financial support for these activities can be modest in order to ensure large-scale institutionalization and for sustaining the momentum of LSAMP for Phase IV.
WAESO LSAMP Impact Statement

Progress on Primary Mission: Expanding the U.S. Science, Technology, Engineering and Mathematics Workforce. During our current LSAMP project award period, we consistently experienced an increase in STEM B.S. degrees awarded to underrepresented minority (URM) students. At the end of year 1, we reported 1,376 BS degrees awarded to URM STEM students, which is an increase over our baseline value of 1,315. At the end of year 2 we increased the rate to 1,591 annually of STEM BS degrees awarded to URM students. This is an increase of 21% above initial the baseline value after only 2 years. In year 3, we increased this graduation rate again to 1,940 STEM BS degrees awarded annually to URM students. This is an increase of 48% over the baseline value after 3 years. In year 4, we increased the graduation rate once again to 2,323 URM STEM baccalaureates annually. This is an increase of 69% over the baseline value. Comparing STEM BS degrees earned in WAESO with the most recent national data available (Science and Engineering Indicators 2010 Arlington, VA (NSB 10-01) | January 2010, http://www.nsf.gov/statistics/seind10/appendix.htm) shows that our alliance is now responsible for 8% of the degrees awarded nationally to Hispanics and 11% of the degrees awarded nationally to American Indians in engineering, physical sciences, mathematical sciences, computer science, biological science, and agricultural sciences. The annual rate of increase in the fields of engineering, physical sciences, mathematical sciences, computer science, biological science, and agricultural sciences for African Americans, American Indians, and Hispanics has been approximately 5%, 2% and 14% respectively for the past four years that data is available. Our alliance exceeded the national rate of increase with an overall 48% increase at the end of our third year.

External Recognitions. The success of WAESO has been recognized with awards, prizes, and grants in a number of quarters over all of our NSF funding periods. For example, WAESO co-Project Directors have won the following awards: Distinguished Scientist Award from the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS); Fellow, Frederick J. Berger and James H. McGraw Awards from the American Society for Engineering Education (ASEE) for “major contributions to the advancement of engineering technology education”; NSF’s Lifetime Achievement Award; the Charles A. Dana Foundation Award for Pioneering Achievement in Education ($50,000); and the American Indian Science and Engineering Society (AISES) Ely Parker Award. Our LSAMP and its allied projects at the pre-college and post-college levels have also received national media attention in U.S. News & World Reports; ETS Developments; Black Issues in Higher Education; The Wall Street Journal; Inside Higher Education; Business Week; San Antonio Express News; Chemical & Engineering News; the News Bulletin of the National Council of Teachers of Mathematics; The Chronicle of Higher Education; The Scientist; Graduating Engineer; Hispanic Outlook in Higher Education; Research Briefs, a report of the Division of Policy Analysis and Research of the American Council on Education; the National Association of Graduate-Professional Students’ NAGPS Almanac; College Board Review; and Diverse Issues in Higher Education.
The Wisconsin Louis Stokes Alliance for Minority Participation (WiscAMP) is a consortium of 22 colleges and universities throughout Wisconsin that aims to increase the number of underrepresented minority (URM) students who receive bachelor’s degrees in the science, technology, engineering and mathematics (STEM) disciplines.

Contact Information:
PI: Paul M. DeLuca
Co-PI: Molly Carnes, Douglass Henderson, Manuela Romero
Executive Director: Gail Coover
University of Wisconsin – Madison
2107 Mechanical Engineering
1513 University Avenue
Madison, WI 53706
Phone: (608) 262-7764
Fax: (206) 265-5290
http://wiscamp.engr.wisc.edu

Member Institutions:
College of Menominee Nation
Nicolet Area Technical College
Madison Area Technical College
Milwaukee Area Technical College
UW-System Colleges
Alverno College
Beloit College
Lawrence University
Milwaukee School of Engineering
UW-Eau Claire
UW-Green Bay
UW-La Crosse
UW-Madison
UW-Milwaukee
UW-Oshkosh
UW-Parkside
UW-Platteville
UW-River Falls
UW-Stevens Point
UW-Stout
UW-Superior
UW-Whitewater

What does WiscAMP do?
- Gives Voice to issues of URM students in STEM
- Provides funds for new or enhanced programs
- Encourages partnerships between institutions
- Enables further grant opportunities

Program highlights:
Since 2004, WiscAMP has funded 49 individual grants for programs in 17 alliance institutions. These programmatic efforts have provided over $832,000 in direct support for 336 students.

For the last two years, WiscAMP has hosted an 8-week summer program for rising sophomores from across Wisconsin. The program provides stipends, housing, and a wide array of academic enrichment, advising, career counseling, research and professional development experiences.

“I had a dream experience that assured and reconfirmed my career path and made me more excited to become a Marine Biologist.” (~Kevin Patterson, WiscAMP student, UW-Platteville, spent a semester abroad in Fiji studying Marine Biology).
Over the last six years, WiscAMP has developed an extensive and active alliance of 22 institutions. Enrollments and degrees for URM students in STEM continue to increase through WiscAMP initiatives. The relatively large composition of the alliance allows WiscAMP to connect with URM students in metropolitan areas as well as more rural communities. In addition to increasing the number of STEM graduates, WiscAMP is committed to the more fundamental goal of transforming the culture of institutions to support and sustain diversity at all levels of post-secondary education and in all demographic contexts across the state.

The goals of the program are:
- Double the number of baccalaureates awarded to underrepresented minority students in STEM disciplines.
- Forge a new academic alliance across institutions of higher education in the state of Wisconsin.

The program objectives are:
- Increase retention through academic enhancement programs and services that focus on tutoring, mentoring, and peer support.
- Increase recruitment and retention by allowing participating institutions to propose institutional or regional-based initiatives that best suit their local needs and effectively use their resources.
- Focus on faculty development and alliance building by creating a STEM "network of champions" among faculty and administrators within the alliance.
- Focus on staff development and alliance building by establishing regional working groups to facilitate information flow among alliance members.

The WiscAMP Small Grants Program is the primary mechanism for developing institutional collaborations and supporting programming efforts. Through this program, WiscAMP is responsible for funding 49 individual grants for programs in 17 of the Wisconsin institutions that are or have been alliance members. Many of these grants target students early in their academic careers and focus on increasing their awareness, ability, and enthusiasm for pursuing and completing STEM degrees. Small grants provide support for institutions to form collaborative partnerships, particularly between two-year and four-year schools, so that more students have access to undergraduate research experiences and are able to connect with their peers at other institutions. Institutions have used their small grants to leverage funding to expand and sustain their WiscAMP programs. In addition to the Small Grants Program, WiscAMP has also piloted an 8-week summer program for eligible freshmen and sophomores. Qualitative evaluation indicates that the program increases students’ academic confidence and helps them refine and focus their STEM career goals and expectations. For example, at least four of the students in the most recent WiscAMP Summer Program expressly desired careers in the health sciences (e.g., medicine, nursing, or pharmacy) at the beginning of the program and changed their career goals to STEM fields following their participation in the program. Quantitative assessments show significant improvements in students’ math achievement.
LSAMP Directory

NATIONAL SCIENCE FOUNDATION
4201 Wilson Boulevard
Arlington, VA 22230
Dr. Subra Suresh, Director
(703) 292-8000 • (703) 292-9232 (Fax)
ssuresh@nsf.gov
Dr. Joan Ferrini-Munday, Assistant Director
Directorate for Education and Human Resources
(703) 292-4682 • (703) 292-9179 (Fax)
jferrini@nsf.gov
Dr. James H. Lighthourn, Division Director (Acting)
Division of Human Resource Development
(703) 292-4628 • (703) 292-9018 (Fax)
jlhightb@nsf.gov
Dr. A. James Hicks, Senior Program Director
(703) 292-8640 • (703) 292-9018 (Fax)
ahicks@nsf.gov
Martha L. James, Assistant Program Director
(703) 292-7772 • (703) 292-9018 (Fax)
mjames@nsf.gov

PRINCIPAL INVESTIGATORS

Alabama LSAMP
Dr. Louis Dale
Vice President for Equity and Diversity
The University of Alabama at Birmingham
1530 3rd Avenue South
Campbell Hall Room 401
Birmingham, AL 35294-1170
(205) 934-8762 • (205) 934-1650 (Fax)
ldale@uab.edu
Project Manager
Dr. M. Carolyn Braswell
(205) 934-8762 • (205) 934-1650 (Fax)
cbraswel@uab.edu

All Nations LSAMP
Dr. Luana Ross
Salish Kootenai College – Lead Institution
PO Box 70
58138 US Hwy 93
Pablo, MT 59855
(406) 275-4973 • (406) 275-4807 (Fax)
lross@skc.edu
Co-PI & Project Director
Mr. Steve Dupuis
(406) 275-4996 • (406) 275-4807 (Fax)
steve.dupuis@skc.edu
Co-PI & Program Manager
Ms. Zetra Wheeler
(406) 275-4998 • (406) 275-4807 (Fax)
zetra.wheeler@skc.edu

Arkansas LSAMP
Dr. Mary E. Benjamin
Vice Chancellor for Academic Affairs
The University of Arkansas at Pine Bluff
1200 N. University Drive, Mail Slot #4953
Pine Bluff, AR 71601
(870) 575-6473 • (870) 575-4644(Fax)
bmckenzie@uapb.edu
Project Director
Dr. Anissa E. Buckner
(870) 575-7113 • (870) 575-4602 (Fax)
bucknera@uapb.edu

California LSAMP
Dr. Michael V. Drake
Chancellor
The University of California, Irvine
The Chancellor’s Office
510 Administration
Irvine, CA 92697-1900
(949) 824-5111 • (949) 824-2087 (Fax)
chancellor@uci.edu
Project Managers
Dr. Derek Dunn-Rankin
(949) 824-8745 • (949) 824-8585 (Fax)
ddumran@uci.edu
Marjorie DeMartino
(949) 824-4813 • (949) 824-3048 (Fax)
dmartino@uci.edu

California State University LSAMP
Dr. Joseph Sheley
Provost and Vice President for Academic Affairs
California State University, Sacramento
6000 J Street, Sacramento Hall 0230
Sacramento, CA 95819-6016
(916) 278-6331 • (916) 278-7648 (Fax)
sheley@csus.edu
Project Director
Dr. Juanita Barrena
(916) 278-6519 • (916) 278-4640 (Fax)
jbarrena@csus.edu

Colorado LSAMP
Dr. Rick Miranda
Interim Provost & Executive Vice President
Colorado State University
1001 Campus Delivery
Fort Collins, Colorado 80523-1001
(970) 491-6614 • (970) 491-0215 (Fax)
rick.miranda@colostate.edu
Project Coordinator
Dr. Beverly Marquart
(970) 491-6686 • (970) 491-3421 (Fax)
beverly.marquart@colostate.edu

Florida-Georgia LSAMP
Dr. Ralph W. Turner
FGLSAMP Central Office
Florida A&M University
1540 South Adams Street, Suite-A
Tallahassee, FL 32307
(850) 561-2467 • (850) 561-2684 (Fax)
ralph.turner@famu.edu
Project Manager
Mr. Byron Greene
(850) 561-2467 • (850) 561-2684 (Fax)
jackson.greene@famu.edu

Garden State LSAMP
Dr. Steven J. Diner
Chancellor
Rutgers University
Newark Chancellor’s Office
123 Washington Street
Newark, NJ 07102
(973) 353-5541 • (973) 353-1048 (Fax)
Chancellor-newark@newark.rutgers.edu
Project Director
Dr. Alexander E. Gates
(973) 353-5100 • (973) 353-1965 (Fax)
ga=Jates@andromeda.rutgers.edu

Georgia LSAMP
Dr. Carlton E. Brown
President
Clark Atlanta University
205 Harkness Hall
223 James P. Brawley Dr., S.W.
Atlanta, GA 30314
(404) 880-8566 • (404) 880-8995 (Fax)
chbrown@cau.edu

Program Director
Dr. Randal L. N. Mandock
(404) 880-6907 • (404) 880-8499 (Fax)
rmandock@cau.edu

Houston LSAMP
Dr. John L. Bear, Dean
Natural Sciences & Mathematics
214 SR Building 1
University of Houston
4800 Calhoun
Houston, Texas 77204-4001
(713) 743-2618 • (713) 743-8630 (Fax)
jbear@uh.edu

Executive Director
Mr. Craig Cassidy
(713) 743-9220 • (713) 743-8630 (Fax)
ccassidy@central.uh.edu

Illinois LSAMP
Dr. Sandra Westbrook
Provost and Senior Vice President
Chicago State University
9501 South King Drive
Chicago, IL 60628
(773) 995-2410 • (773) 995-3584 (Fax)
s-westbrook61@csu.edu

Project Director
Dr. LeRoy Jones, II
(773) 995-2965 • (773) 995-2966 (Fax)
jones27@csu.edu

Indiana LSAMP
Dr. Beverly Davenport Sypher
Vice Provost and Susan Bulkely Chair
Purdue University
Hovde Hall, Room 100
610 Purdue Mall
West Lafayette, IN 47907-2040
(765) 494-9709 • (765) 496-2031 (Fax)
bdswph@purdue.edu

Program Manager
Dr. Pamela Dale Shaw
(317) 274-6573 • (317) 278-9066 (Fax)
pshaw@purdue.edu

Islands of Opportunity
Dr. Donald Straney
Chancellor
University of Hawaii at Hilo
200 W. Kawili St.
Hilo, HI 96720-4091
(808) 974-7444 • (808) 933-3304 (Fax)
dstraney@hawaii.edu

Project Director
Dr. Daniel Brown
(808) 974-7468 • (808) 974-7610 (Fax)
dbrown@hawaii.edu

Project Manager
Ms. Jazzmin Cabanilla
(808) 974-7601 • (808) 974-7610 (Fax)
jaosamp@hawaii.edu

Kentucky-West Virginia LSAMP
Dr. Lee T. Todd, Jr.
President
University of Kentucky
101 Main Building
Lexington, KY 40506-0032
(859) 257-1701 • (859) 257-1760 (Fax)
todd@email.ukv.edu

Project Director
Dr. John Yopp
(859) 257-2756 • (859) 323-6173 (Fax)
john.yopp@ukv.edu

Louisiana LSAMP
Dr. Diola Bagayoko
SUBR Faculty
Southern University and A&M College
P.O. Box 11776
Baton Rouge, LA 70813
(225) 771-2730 • (225) 771-4341 (Fax)
bagayoko@aol.com

Project Director
Brenda McNeely
(225) 771-2777 • (225) 771-2311 (Fax)
bjmcneely@yahoo.com

Michigan LSAMP
Dr. Mary Sue Coleman
President
University of Michigan
2074 Fleming Administration Building
603 Thompson Street
Ann Arbor, MI 48109-1340
(734) 764-6270 • (734) 936-3529 (Fax)
marysue@umich.edu

Project Director
Dr. Levi T. Thompson
(734) 936-2015 • (734) 763-0459 (Fax)
ltt@umich.edu

Mississippi LSAMP
Dr. Abdul K. Mohamed
Dean Emeritus, College of Science, Engineering & Technology
Jackson State University
P.O. Box 18119
Jackson, MS 39217
(601) 979-1627 • (601) 979-2025 (Fax)
abdul.k.mohamed@jsums.edu

Project Manager
Joan F. Blanton/Martha Tchounwou
(601) 979-2076 • (601) 979-2025 (Fax)
joan.blanton@jsums.edu

New Mexico LSAMP
Dr. Waded Cruzado-Salas
Provost
New Mexico State University
Box 30001, MSC 3AMP
Las Cruces, NM 88003-8001
(575) 646-8061 • (575) 646-2960 (Fax)
provost@nmsu.edu

Project Director
Dr. Ricardo B. Jacquez
(575) 646-3944 • (575) 646-2930 (Fax)
rjaquez@nmsu.edu

Project Manager
Michele Auzenne
(575) 646-3944 • (575) 646-2930 (Fax)
amauzena@nmsu.edu

New York City LSAMP
Dr. Neville A. Parker
Professor of Civil Engineering
City College of New York
138th Street & Convent Avenue
Marshak-Building, Room J14

Louis Stokes Alliances for Minority Participation
Tennessee LSAMP
Dr. Melvin N. Johnson
President
Tennessee State University
3500 John A. Merritt Blvd.
Nashville, TN 37209
(615) 963-7401 • (615) 963-7407 (Fax)
president@tnstate.edu

Project Director
Dr. Lonnie Sharpe, Jr.
(615) 963-5501 • (615) 963-7492 (Fax)
sharpe@coe.tsuniv.edu

Texas A&M University System LSAMP
Dr. Karan L. Watson
Interim Provost and Executive Vice President for Academics
Texas A&M University
9th Floor Rudder Tower
College Station, TX 77843-1248
(979) 845-4016 • (979) 845-6994 (Fax)
Watson@tamu.edu

Program Director
Dr. Karen Butler-Purry
(979) 847-3628 • (979) 845-1596 (Fax)
kbutler@ece.tamu.edu

University of Texas System LSAMP
Dr. Benjamin C. Flores
Professor
The University of Texas at El Paso
500 W. University Avenue
Engineering 301
El Paso, TX 79902
(915) 747-5282 • (915) 747-5243 (Fax)
bflores@utep.edu

Project Director
Ariana Arciero, M.P.H.
(915) 747-8725 • (915) 747-5243 (Fax)
avcier@utep.edu

University System of Maryland LSAMP
Dr. Freeman A. Hrabowski, III
President
The University of Maryland, Baltimore County
1000 Hilltop Circle
Baltimore, MD 21250
(410) 455-2274 • (410) 455-1210 (Fax)
hrabowski@umbc.edu

Project Director
Cynthia M. Hill
(410) 455-2445 • (410) 455-1029 (Fax)
chill@umbc.edu

Wisconsin LSAMP
Dr. Paul Deluca
Provost and Vice Chancellor for Academic Affairs
The University of Wisconsin-Madison
150 Bascom Hall
500 Lincoln Drive
Madison, WI 53706
(608) 262-1304 • (608) 265-3324 (Fax)
pmdeluca@wisc.edu

Executive Director
Ms. Gail Coover
(608) 262-7764 • (608) 265-5290 (Fax)
wiscamp@engr.wisc.edu

Urban Massachusetts LSAMP
Dr. Winston Langley
Provost and Vice Chancellor for Academic Affairs
The University of Massachusetts, Boston
100 Morrissey Boulevard
Boston, MA 02125-3393
(617) 287-6800
winston.langley@umb.edu

Project Director
Marshall Milner
(617) 287-4057
marshall.milner@umb.edu

Virginia-North Carolina LSAMP
Dr. Marcus Martin
Professor
The University of Virginia
Department of Emergency Medicine
P.O. Box 400881, Madison Hall
Charlottesville, VA 22904-4881
(434) 243-43110 • (434) 243-2091 (Fax)
mml8m@virginia.edu

Program Director
Kristin Morgan
(434) 243-6660 • (434) 982-2110 (Fax)
kmorgan@virginia.edu

Washington/Baltimore/Hampton Roads LSAMP
Dr. Alvin Thornton
Interim Provost and Chief Academic Officer
Howard University
WBHR-LSAMP
1840 7th Street, NW
Washington, DC 20059
(202) 806-2550 • (202) 806-4971 (Fax)
thornton@howard.edu

Executive Director
Dr. Clarence M. Lee
(202) 865-8568 • (202) 232-4758 (Fax)
cmlee@howard.edu

Western Alliance to Expand Student Opportunities LSAMP (WAESO)
Dr. Antonio Garcia
Hispanic Research Center
Arizona State University
P.O. Box 875403
Tempe, AZ 85287-5403
(480) 965-0840/8798 • (480) 965-8309 (Fax)
tony.garcia@asu.edu

Project Administrator
Mr. Michael J. Sullivan
(480) 965-0840/5388 • (480) 965-8309 (Fax)
michael.sullivan@asu.edu