

*The National Science Foundation*

*Louis Stokes Alliances for Minority Participation*



*United We Stand*



*Broadening Opportunities and Pursuing  
Excellence to Benefit Society*



2002

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*Dedicated to the people of New York City*

*For extraordinary courage in the face of the  
worst terrorist attack on this country in its history*

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# Table of Contents

LSAMP Surpasses 200,000 Enrollees Nationwide . . . . .	1
The National Science Foundation . . . . .	2
The National Science Foundation Leadership . . . . .	3
New EHR Chief Appointed August 1, 2001 . . . . .	4
Five LSAMP Projects Enter Phase III . . . . .	7
LSAMP Graduates and Graduate Students . . . . .	10
Three New Projects Join LSAMP During 2001 . . . . .	14
LSAMP Tenth Anniversary Celebration Held. . . . .	15
Diversity Continuum Programs Graduate School Fair and Fellows Conference . . . . .	16
Florida/Georgia LSAMP Sponsors Ninth Annual Career EXPO . . . . .	17
LSAMP Data . . . . .	18
Highlights and Accomplishments. . . . .	19
Announcements and News. . . . .	27
LSAMP Award History . . . . .	29
 <b>Project Profiles</b>	
Alabama . . . . .	31
All Nations . . . . .	32
California . . . . .	33
California State . . . . .	34
Colorado . . . . .	35
Florida/Georgia . . . . .	36
Georgia . . . . .	37
Greater Philadelphia . . . . .	38
Heartland. . . . .	39
Houston. . . . .	40
Illinois. . . . .	41
Louisiana. . . . .	42
Maryland. . . . .	43
Mid-Eastern. . . . .	44
Mid South . . . . .	45
Mississippi . . . . .	46
New Mexico . . . . .	47
New York City. . . . .	48
North Carolina. . . . .	49
Northeast. . . . .	50
Oklahoma . . . . .	51
Pacific. . . . .	52
Puerto Rico . . . . .	53
South Carolina. . . . .	54
State University of New York . . . . .	55
Texas. . . . .	56
Texas System. . . . .	57
Washington/ Baltimore . . . . .	58
Western Alliance to Expand Student Opportunities . . . . .	59
Directory . . . . .	60

## LSAMP Surpasses 200,000 Enrollees Nationwide

**Dr. A. James Hicks, Program Director**

This issue of the 2002 Louis Stokes Alliances for Minority Participation (LSAMP) Program Magazine highlights a number of collaborations, partnerships and associations between LSAMP projects and businesses, industries, federal laboratories, community and 4-year colleges, and universities. In addition, the publication summarizes project accomplishments, profiles awardees, gives performance data on the national program, and closes with a directory and distribution map of projects. In the latter case, the program's reach is truly impressive: North to Alaska, Washington, Montana and New York; South to Texas, Florida, and Puerto Rico; East to Massachusetts, Rhode Island, Pennsylvania and The Carolinas; through Middle America, including, Illinois, Missouri, Oklahoma, Colorado and New Mexico; and Westward to Arizona, California and Hawaii.

***In 2002, student participants in the LSAMP Program reached an all time high of 201,615 enrollees and 21,704 graduates at the baccalaureate level.***

Doctoral recipients and graduate students profiled in this issue represent a minuscule sample of LSAMP baccalaureate degree holders who elected to matriculate, graduate, and enter the scientific and engineering workforce, including the professoriate. Indeed, the work of each student is remarkable, as diverse as his or her background, and truly inspiring. Our only regret, due to space limitations, is that each LSAMP Project was awarded a single entry. Several projects, however, expect to develop more expanded versions of this topic in the future.

Partnerships and collaborations are central to successes in LSAMP, especially those between colleges and universities, business, industry, and national research laboratories. In the latter case, particular attention is paid to new interagency collaborations between the National Science Foundation (NSF) and Smithsonian, National Institutes of Health, and Department of Energy. Students and faculty from a large number of LSAMP institutions benefited from these collaborations in 2001, and we look forward to a continuance of these opportunities in the future.

The three newest alliances, namely, Mid-Eastern, Northeast, and Pacific, expand the geographic regions and the diversity of students serviced by the LSAMP Program. It is noteworthy, that the Pacific LSAMP is expected to show important progress in helping address the relative sparse participation of Pacific Islanders in the science and engineering enterprise. Indeed, we welcome the new alliances, and continuing partners in our national efforts to increase significantly, the quantity and quality of underrepresented minorities in fields supported by NSF.

All of these associations broaden opportunities and pursue excellence for targeted students in the sciences, technology, engineering, and mathematics with the total benefit to society.







# The National Science Foundation

The National Science Foundation (NSF) is an independent federal agency created by the National Science Foundation Act of 1950 (P.L. 81-507). From its first days, NSF has had a unique place in the federal government: It is responsible for the overall health of science and engineering across all disciplines. In contrast, other federal agencies support research focused on specific missions such as health or defense. NSF is also committed to ensuring the Nation's supply of scientists, engineers, and science and engineering educators. NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements with more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations, and other research institutions throughout the United States. NSF accounts for about one-fourth of all federal support to academic institutions for basic research. The Foundation receives approximately 30,000 proposals each year for research, education, and training projects, of which approximately 10,000 are funded. In addition, NSF receives several thousand applications for graduate and post-doctoral fellowships. It also supports cooperative research between universities and industries, and educational activities at every academic level.

## **The Directorate for Education and Human Resources**

The NSF Directorate for Education and Human Resources (EHR) is responsible for the health and continued vitality of the Nation's science, mathematics, engineering, and technology education and for providing leadership in the effort to improve education in these areas. EHR consists of seven divisions: Educational System Reform; Elementary, Secondary, and Informal Education; Office of Experimental Programs to Stimulate Competitive Research; Graduate Education; Human Resource Development; Research, Evaluation, and Communication; and Undergraduate Education.

## **The Division of Human Resource Development**

The Division of Human Resource Development (HRD), within the Directorate of Education and Human Resources, seeks to increase the participation and advancement of underrepresented groups and institutions at every level of science, mathematics, engineering, and technology (SMET) education and research. In so doing, these programs contribute to the attainment of an outcome goal of the NSF Strategic Plan FY 2001-2006: A diverse, internationally competitive, and globally-engaged workforce of scientists, engineers, and well-prepared citizens. Division programs include: Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring; Persons with Disabilities; Gender Equity; Louis Stokes Alliances for Minority Participation, Historically Black Colleges and Universities Undergraduate Program, Alliances for Graduate Education and the Professoriate, and Centers of Research Excellence in Science and Technology.

## **The Louis Stokes Alliances for Minority Participation (LSAMP) Program**

The Louis Stokes Alliances for Minority Participation (LSAMP) program is designed to develop the comprehensive strategies necessary to strengthen the preparation and increase the number of minority students who successfully complete baccalaureates in SMET fields. This objective facilitates the long-term goal of increasing the production of Ph.Ds in SMET fields, with an emphasis on entry into faculty positions. The LSAMP program requires each awardee to establish meaningful partnerships among academic institutions, and encourages the inclusion of government agencies and laboratories, industry and professional organizations. It is expected that successful partnerships will enable development of approaches tailored to the institutional setting for achievement of program goals in SMET undergraduate education. Supported activities include, among others, student enrichment, such as collaborative learning, skill development, and mentoring; academic enrichment, such as curricular and instructional improvement; and direct student support, such as summer activities.



## About the NSF Leadership



Dr. Rita R. Colwell became Director of NSF on August 4, 1998. Prior to becoming NSF Director, Dr. Colwell was President of the University of Maryland Biotechnology Institute and Professor of Microbiology at the University of Maryland. She was a member of the National Science Board from 1990 to 1994 and has held numerous advisory positions in government and private foundations. She also served as President of the American Association for the Advancement of Science. Dr. Colwell received a Ph.D. in marine microbiology from the University of Washington.

Dr. Judith Ramaley became Assistant Director for Education and Human Resources on August 1, 2001. Prior to assuming this position, she was President of the University of Vermont. Since the 1960s, Dr. Ramaley has been a professor of biology at five universities, served as President of the University of Vermont and Portland State University in Oregon, and held senior administrative positions at several universities. Dr. Ramaley has served as Chair of the American Council of Education's Commission on Women in Higher Education and numerous other advisory boards.



Dr. Roosevelt Y. Johnson became Acting Director of the Division of Human Resource Development in November of 2001. In addition, he continues to serve as Program Director of the Alliances for Graduate Education and the Professoriate. From 1989 to 1995, Dr. Johnson served as a program director for several NSF programs. From 1995 to 1997, he served as Deputy Director and Acting Executive Director of the GEM Consortium. He returned to NSF in 1997 to manage the administrative operations of the Division of Undergraduate Education. Dr. Johnson received a Ph.D. in microbiology from Indiana University.

Dr. A. James Hicks, former Dean of Arts and Sciences at North Carolina A&T University, became Program Director for the Louis Stokes Alliances for Minority Participation program on September 1, 1997. He received a Ph.D. degree in biology from the University of Illinois at Urbana and additional training at Harvard University, the National Institutes of Health, and the Missouri Botanical Gardens. He has more than twenty years of successful administrative experience in addition to prior short-term assignments at NSF involving proposal reviews, research evaluation, and Intergovernmental Personal Act (IPA).





## New EHR Chief Appointed August 1, 2001

Louis Dale

Dr. Judith Ramaley, former President of the University of Vermont and Portland State University in Oregon, was appointed Assistant Director for Education and Human Resources on August 1, 2001. I traveled to NSF Headquarters in Arlington, Virginia, on November 5, 2001, to interview Dr. Ramaley. Promptly at the appointed time, she entered the reception area, greeted me with a smile and introduced herself. She is a very pleasant and friendly person. As I entered her office, I was impressed by its décor and warmth. After a few friendly conversational exchanges, the interview began with the following questions and responses:

1. *Prior to assuming the position of Assistant Director for Education and Human Resources, you served as president of two universities, senior administrator at three universities, and professor of biology at five universities.*

A. *Describe the adjustment you are making in moving from academia to government service.*

**Response:** Most important, NSF is not what I thought government service would be. In fact NSF is tightly connected to academia and other organizations by its rotation of dedicated people to government service. Such rotation brings about change and NSF appears to be more willing to accept change than academia. Moreover, NSF works on a merit based review system using panels and committees of visitors to assess its programs and has constant advice from the field. It is amazing how much NSF is like a university. It has a stimulating intellectual environment and a strong sense of purpose.

B. *With such broad experience in higher education, what is your vision for this directorate for the next five years?*

**Response:** I have two passions. The first is a love for science. The second is a commitment to the development of a strong community with broadened participation. My vision for the Directorate is best described by the sides of an equilateral triangle. One side consists of quality educational systems working together. Another side is the quality and composition of our workforce. The final represents the impact of innovation on economic and community development. Each of these sides is equally important. My goal is to bring the portfolios of the Directorate into



*Dr. Judith Ramaley, new Assistant Director for Education and Human Resources*

focus to bear on the triangle elements. I will focus on two things; a. What does it mean to integrate research and education? and b. How do we broaden participation? Broadening participation involves four questions: 1. What disciplines are involved?, 2. What institutions are involved and what role do they play?, 3. What regions of the country are involved?, and 4. Who is doing the work? I might note that the National Science Board is reviewing the question of diversity with two assumptions: Diversity is a matter for each directorate, and NSF must itself model diversity through broadened participation in its workforce, review panels, and committees of visitors.

2. *At Vermont you are credited with the creation of a public education partnership, which brought together universities and state education officials to produce a collaboration that extends from pre-K to graduate education.*

A. *How can the Vermont Model be extended to other states to assist them in addressing their educational and workforce needs?*

**Response:** There are currently preK-16 partnerships in a number of states. What distinguishes the Vermont program is that it was developed during several intensive meetings with the heads of the three participating entities and some of their colleagues—The Vermont Department of Education, The University of Vermont, and Vermont State—discussing Vermont’s needs and identifying areas where we could work together. This intense personal interaction can be difficult in large states where there are many more players and greater distances to span in both space and experience. However, for preK-16 collaborations to work, areas of agreement must be found.

promote systemic change and sponsor research that can help us understand how to deal with the remaining serious challenges of dissemination of good ideas and models into new environments, the scaling up of promising pilot projects into large-scale efforts, the sustainability of these efforts over time, and the effective use of partnerships with faculty in the sciences, mathematics, and engineering to improve science and mathematics, both in K-12 and in higher education.

B. *What effect will the steady increase in the minority population have on the problem?*

**“We must examine the pathway from undergraduate education into graduate and professional education and then into STEM careers and find out why so few minority students continue on in STEM after they complete their undergraduate work.”**

Some simple tests to apply are: (a) Does this activity address critical state needs? (b) Is this work a high priority for the participating organizations?, and (c) Can we do this work better together than we could separately?

B. *What is NSF’s role in fostering such partnerships?*

**Response:** It should be noted that NSF has been funding educational partnerships since the early 1990s and continues to support systemic educational reform. Many programs at NSF may be likened to a family tree. Their roots may be traced to the lessons learned from earlier programs.

3. *The Nation has made progress in K-12 student achievement in mathematics and science, and it can be argued that this progress is in large part due to NSF’s educational systemic reform efforts. However, there still remain achievement gaps related to ethnic and socio-economic backgrounds.*

A. *What steps should be taken by government and state agencies to close these gaps?*

**Response:** Our capacity to introduce change at a system level requires clear policy frameworks that are put in place by state governments and local school districts that support improvement and introduce clear educational standards. At the federal level, we can provide resources to help

**Response:** It is hard to predict what the effects of changing demographics will be on participation and success in science, technology, engineering, and mathematics (STEM), but if current trends continue, the gap in participation will not narrow and may even grow. As a nation, we must find ways to broaden participation in STEM by everyone.

4. *The National Science Foundation and the Directorate for Education and Human Resources have been successful in increasing the number of women and underrepresented minorities receiving undergraduate SEM degrees and participating in the national science and engineering enterprise. The success is the result of NSF-supported alliances and partnerships between colleges and universities.*



Dr. Ramaley busy at work in her office, the nerve center of EHR

4. *How well do you think the number of women and underrepresented minorities receiving graduate degrees is affected by the increase in undergraduate degrees?*

**Response:** While the number of women and underrepresented minorities receiving undergraduate degrees in STEM fields has increased, we have not seen a significant increase in graduate enrollment. We must examine the pipeline from undergraduate education (not just the end and professional education and then into STEM careers) and find out why so few minority students continue on to STEM after they complete their undergraduate work. There are some lessons to be drawn from the Lewis Stokes Alliances for Minority Participation (LSAMP) as well as the Alliance for Graduate Education and

post-grad. We need to bring Ph.D.s together to talk about effective strategies for integrating the work into the campus environment. This working group should include students and participating faculty as well as principal investigators.

5. *The Foundation supports science, engineering, and mathematics programs from kindergarten through graduate school. How satisfied are you with existing bridges between these programs?*

**Response:** We are currently reviewing the progress of our portfolio and evaluating their performance to date. Our emphasis and goals continue to evolve as we gain more experience and can assess the impact of our investments in the enhancement of STEM education. Many of our programs are complementary to each other or

**I have two passions. The first is a love for science. The second is a commitment to the development of a strong community with broadened participation.**

the Professional (AGEP). We need to involve more people in undergraduate research, help with the cost of attending graduate school, offer both academic and social support for our students, find appropriate mentors for students, and encourage our students to go on to graduate study by establishing partnerships and pathways that link undergraduate programs with graduate programs.

reflect goals similar to those being addressed by other disciplines in NSF. We can take advantage of these similarities to strengthen the overall impact of our investments.

6. *What has been the most satisfying aspect of this position since August 1, 2011?*

**Response:** Meeting so many talented people here in NSF and from around the country. I love the people here and the people I meet on visits around the country.

7. *What advice would you offer a student in high school thinking about a career in science?*

**Response:** I would point out the wide variety of careers in the sciences and encourage students to explore these options by participating in programs offered by colleges and universities. But invite high school students to educational and research experiences. Many communities also offer other interesting options for young people who are interested in sciences. High school students can be involved in a summer or a career center, for example. I would also encourage students to keep their options open by making as much science and math as they can.



*Dr. Romo reviewing work progress with Dr. Jane Steiner*

8. *It was noted here on the Foundation and the Directorate assist or ensure that these minorities and non-traditional are doing well?*

**Response:** I have a couple of suggestions. All of the projects require applicants to show how they are planning to sustain their work after NSF sup-





## Five LSAMP Projects Enter Phase III



Five cohort I projects began Louis Stokes Alliances for Minority Participation (LSAMP) Phase III October 1, 2001. The projects; Alabama, California, Mississippi, Puerto Rico, and Western Alliance to Expand Student Opportunities entered what could be the final five-year phase of NSF funding. According to LSAMP program guidelines:

“A Phase III award represents a capstone effort to finalize institutionalization of achievements developed over the preceding ten years and to finalize construction of permanent pathways to graduate study for baccalaureate recipients at participating institutions. Entities seeking further support opportunities are referred to the Alliances for Graduate Education and the Professoriate (AGEP) program.”

In addition, the funding schedule for Phase III projects changes to the following:

- \* \$500,000 for projects that award 1,000 or more B.S. degrees annually;
- \* \$300,000 to \$500,000 for projects that currently award between 700 and 1,000 B.S. degrees annually; and
- \* Less than \$300,000 for projects that currently award fewer than 700 B.S. degrees annually.

The investment by NSF in the LSAMP program has paid excellent dividends. The LSAMP Alliances have dramatically increased STEM undergraduate degrees and impacted the total culture of institutions in areas where projects exist. The impact of the program on the cohort I institutions is given below:



### Alabama LSAMP

The Alabama LSAMP project is one of the oldest NSF Alliances and is directly responsible for a new era of cooperation among the diverse academic institutions in the State of Alabama. The alliance is composed of Historically Black Colleges and Universities and Majority institutions, public and private institutions, and research and teaching institutions. The alliance consists of all major undergraduate and graduate institutions in the state and is the only organization in the state whose goal is to increase the number of underrepresented minorities receiving undergraduate degrees in science, engineering, and mathematics.

Alliance partners conceived and initiated the following programs:

- Summer bridge program for high school graduates,
- Graduate bridge program for science, mathematics, and engineering students entering graduate school,
- Research internship program for undergraduate students,
- Peer tutoring programs in all SEM disciplines,
- Alliance-wide retention study.
- The first national LSAMP Student Research Conference bringing students together from across the country to present research findings and establish networks.

- The first publication for dissemination of LSAMP activities (that publication has grown into the LSAMP Magazine, which tells the LSAMP story on an annual basis).

In addition, the project provides students with academic and financial support through the LSAMP Scholars program.

These efforts have produced dramatic results. During the first five-year period of the project baccalaureate degrees awarded increased by over 100%. Moreover enrollment increased from 437 to a high of 979 in 1999.

#### Alabama Underrepresented Minority Facts and Figures

Total Number of Baccalaureate Degrees Awarded	8,635
Baseline Undergraduate Degrees (1990)	437
Undergraduate Degrees Awarded (2001)	916
Baseline Enrollment (1990)	3,301
Undergraduate Enrollment (2001)	6,379



### California LSAMP

The California Louis Stokes Alliance for Minority Participation at the University of California (CAMP) represents a new era of support for underrepresented

students in the sciences. It is one of the University's key vehicles established to enhance retention and degree completion among underrepresented students and has become a catalyst for undergraduate attainment. CAMP owes its genesis to faculty participation and the University's top-level leadership, who recognized the opportunity for substantive engagement in the lives of disadvantaged students. Across the University, preeminent faculty serve as mentors and advisors, bringing students into their laboratories and preparing them for dynamic careers in research and development. Over ten years, in the face of a recession in the early 1990s and more significantly, the passage of Proposition 209, an anti-affirmative action initiative, the minority science, mathematics, engineering, technology (SMET) enrollment across UC increased 33%. Conversely, minorities in non-SMET majors did not experience an equivalent increase. Equally significant, the minority SMET degree completion rate rose 78%.

The sets of relationships the Alliance has developed regionally and nationally yield an unprecedented infrastructure within higher education. These relationships, created from significant personal and professional commitment, reduce attrition, raise expectations, and ensure degree completion. Approximately 1,600 students are served annually through CAMP's retention strategies that bolster academic performance, build community, and enhance graduate school preparation.

The National Louis Stokes Alliances, owning a strong record of accountability, fill an important role in promoting "best practices," including curriculum reform and cooperative learning, which enhance our collective goals for access, equity, and diversity. Long-term, the LSAMP paradigm not only supports degree completion, but engenders a climate that is inclusive and encourages students to prepare for graduate school and leadership in the national scientific community. We look forward to our continued relationship with the National Science Foundation during Phase III, with the knowledge that we are sustaining a significant and valuable investment.



## Puerto Rico LSAMP

During Phase I and II (1991-92 to 1999-00), PR-LSAMP institutions awarded 21,878 BS degrees in SMET, with a 69% annual increment from baseline year, from 1,709 annual degrees in 1991 to 2,893 in 2000-01. This was achieved following a two-prong approach: (1) increasing enrollment in SMET disciplines, and (2) improving retention and graduation rates by implementing a series of strategies to improve the effectiveness and efficiency of SMET programs. During Phase I and Phase II the core of PR-LSAMP was the revision of the SMET curriculum to emphasize for depth of understanding with a "less is more approach", to promote active learning based on inquiry and the use of interactive demonstrations, to incorporate technology to the learning process, and the development of broad-based mathematics skills. Teaching strategies such as cooperative learning and the development of Study/Learning Skills within the Context of a Course were also implemented across SMET disciplines. Jointly with this curriculum revision, PR-LSAMP offered undergraduate SMET students mentoring and research opportunities to increase their motivation to remain in SMET careers and enhance their qualification for pursuing graduate studies. During Phase I and II a total of 2,363 research stipends were awarded, for an average of 262 stipends per year. As a result of these sustained efforts, the Index of Course Efficiency, the average number of times students have to take a SMET course to satisfactorily pass it, was reduced from an average of 2.5 to 1.7. The average graduation rate at UPR institutions increased from 48% to 62% in science, while the average graduation rate for engineering at UPR increased from 53% to 81%. At private institutions the average graduation rate increased to 49%. Also the weighted average for satisfactory grades in science and mathematics courses increased from 47.5% to 59.3%. In the case of Engineering courses, the weighted average increased from 74% to 83%.

In Phase III, PR-LSAMP will build upon these achievements to: (1) further increase the SMET production curve from 2,893 to 3,600, which more than doubles the Phase I baseline figure of 1,709; (2) increase to 50% the percent of BS SMET graduates from UPR institutions who enter graduate school, and to 25% for those graduating from the private institutions, and (3) increase the number of BS graduates from PR-LSAMP institutions that complete a PhD degree in SMET, either locally or nationally, from 239 to 300 by the end of year 5.

### *California Underrepresented Minority Facts and Figures*

Total Number of	
Baccalaureate Degrees Awarded	10,092
Baseline Undergraduate Degrees (1990)	615
Undergraduate Degrees Awarded (2001)	1,070
Baseline Enrollment (1990)	3,806
Undergraduate Enrollment (2001)	5,776



***Puerto Rico Underrepresented Minority  
Facts and Figures***

Total Number of	
Baccalaureate Degrees Awarded	26,418
Baseline Undergraduate Degrees (1990)	1,709
Undergraduate Degrees Awarded (2001)	2,893
Baseline Enrollment (1990)	12,572
Undergraduate Enrollment (2001)	23,427



**Western Alliance to  
Expand Student  
Opportunities**

Over the last 10 years our alliance has evolved and been strengthened through two 5-year periods in LSAMP. During our Phase I first 5-year period (November 1991-October 1996), the Southern Rocky Mountain AMP (SRM-AMP) exceeded its goal of more than doubling the number of baccalaureate degrees awarded yearly in science, mathematics, engineering, and technology (SMET) to underrepresented minorities within our region (Arizona, Colorado, New Mexico, Utah, and El Paso, Texas). During our Phase II second five-year period (November 1996-October 2001) the renamed Western Alliance to Expand Student Opportunities (WAESO) took the Phase I project to a new level of creativity and uniqueness and a higher level of achievement, participation, and national significance. Also, because we successfully institutionalized numerous components of the original SRM-AMP, our newly formed WAESO alliance expanded our range, particularly to the application of high technology to student retention and academic progress, and more than doubled yet again the number (1,416) of baccalaureate degrees awarded yearly in SMET to underrepresented minorities within our region (now including the State of Nevada after New Mexico State University left our alliance to form their own LSAMP). The following bullets highlight the significant impact that LSAMP has had on our students, faculty, and institutions.

- Our alliance has experienced a significant effort by faculty and administrators in providing support in terms of cost share and extension of student participation in research projects, Summer Bridge Programs, and Graduate Preparation Institutes.
- Faculty began and still continue to augment LSAMP support by adding more underrepresented students in their laboratories through industry sponsorship.
- WAESO has used high technology to pursue both systemic reform and expansion of its student academic intervention projects beyond the confines of any one

campus or region.

- In our alliance, each specific activity is developed through a peer review process similar to the peer review system at NSF. Committees made up of faculty throughout our alliance review each request for a specific activity submitted by a faculty mentor. This mechanism has made our alliance successful in replicating effective activity models mostly because committee members are rotated through our 3 cycle per year activity process and faculty obtain examples of successful activity models conducted throughout our alliance.
- Over the past ten years, intensive student activities were conducted throughout our region involving a large number of students and faculty. Our LSAMP has had 5,036 underrepresented minority student participations within our activities which include: (1) peer study groups (local and over the Internet); (2) summer bridge programs; (3) faculty-directed undergraduate students research; and (4) graduate preparation, mentorships, and research conference participations.

***WAESO Underrepresented Minority  
Facts and Figures***

Total Number of	
Baccalaureate Degrees Awarded	9,391
Baseline Undergraduate Degrees (1990)	347
Undergraduate Degrees Awarded (2001)	1,416
Baseline Enrollment (1990)	5,341
Undergraduate Enrollment (2001)	15,453

***Summary Impact***

The five alliances collectively produced 54,536 STEM Baccalaureate degrees and provided an annual increase of over 100% in degrees and enrollment.

***Total Alabama, California, Puerto Rico, and WAESO***

Total Number of	
Baccalaureate Degrees Awarded	54,536
Baseline Undergraduate Degrees (1990)	3,108
Undergraduate Degrees Awarded (2001)	6,295
Baseline Enrollment (1990)	25,020
Undergraduate Enrollment (2001)	51,035

## LSAMP Graduates and Graduate Students

*The original goal of the Louis Stokes Alliances for Minority Participation program was to increase the number of underrepresented minorities receiving undergraduate degrees in science, engineering, and mathematics. While extraordinary progress has been made, it is now appropriate to move to the next level. Each alliance was asked to highlight one of its Ph.D. recipients or graduate students for this issue of the LSAMP magazine.*

### Alabama LSAMP



**Michelle Foster, Ph.D.**, Mathematics, Auburn University; B.S., Mathematics, Alabama State University

*"The LSAMP program was extremely effective for minority students. Through participation in this program I developed the necessary skills to do research. It was because of the LSAMP program that I was able to complete graduate studies and secure employment as a mathematics professor." Dr. Foster is currently Assistant Professor of Mathematics at Wingate University.*

### California State LSAMP

**Gregorio V. Sanchez Jr.**, B.S., Chemistry, 2001, Calif. State Polytechnic Univ. at Pomona  
**Graduate Student**; Organic Chemistry, University of Southern California, Ph.D. expected 2005



*"My participation as a student in the LSAMP workshop program allowed for the success necessary to build confidence in my abilities and constantly strive for excellence. My participation as a facilitator for the workshop program shaped the awareness that my options for the future are limitless and with hard work, I too could enter the graduate program in chemistry and attain a Ph.D."*

### California LSAMP



**Elva Torres, Ph.D.**, Chemistry, 2001, B.S., Chemistry, 1996, UCLA

*"I benefited most from the financial support from CAMP which enabled me to do undergraduate research. My faculty mentor also helped me to know my chosen field and prepare as a future faculty member."*

### Colorado LSAMP

**Janice Gonzalez**, B.S., Biochemistry, 2001, Colorado State University  
**Graduate Student**, Biochemistry, Colorado State University, Ph.D. expected 2005



*"The Students as Leaders in Science Program (SLS) through COAMP has been a wonderful opportunity for me as a student at CSU. Through the program I have met many students who have similar interests and backgrounds as myself. Participation in the program has been a wonderful experience and I strongly recommend it to other students who would like leadership experience and a fun way to meet other students and staff."*

### Florida-Georgia LSAMP



**Gabrielle White**; B.S., Biological Sciences, Florida State University  
**Graduate Student**, Biological Sciences, University of North Carolina

*"The FGLSAMP Program has been instrumental in assisting me with summer research opportunities during my undergraduate studies. My area of interest in the discipline of Biological Sciences, and because of my affiliation with the FGLSAMP Program, I was admitted into the Ph.D. Program at the University of North Carolina."*



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## Heartland LSAMP



**Marcus A. Huggans, Ph.D.**, Engineering Management, 1998, University of Missouri-Rolla; B.S., Electrical Engineering, 1995; M.S. Engineering Management, 1997

*"Programs like HAMP, MEP, and GEM were the cornerstone to my success. I began attending Science, Engineering, and Math (SEM) programs funded by MEP/HAMP as early as my junior year in high school. Without such programs, staff, and funding most of my academic endeavors would have been a far reality." Currently, Dr. Huggans works in an application engineering role evaluating Panel Bus Transmitter products and supporting US and international customers."*

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## Illinois LSAMP

**Tayo Ihimoyan**; B.S., Electrical and Computer Engineering, 2000, Illinois Institute of Technology  
**Graduate Student**; Electrical and Computer Engineering, Illinois Institute of Technology



*"Being an I-LSAMP Research Scholar for most of my undergraduate years has prepared and equipped me with the discipline and essential skills needed to cope in graduate school. In December 2001 I received my Masters Degree in Electrical & Computer Engineering from the Illinois Institute of Technology."*

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## Louisiana LSAMP



**Kim M. Lewis**; B.S., Physics, 1998, Dillard University  
**Graduate Student**; Applied Physics, University of Michigan, Ph.D. expected 2004

*"This program introduced me to the opportunities that a degree in physics had to offer as an undergraduate at Dillard University. This program and its requirements encourage me to attend summer programs in physics at The University of Michigan and Argonne National Laboratory. The encouragement, mentoring and recognition I received as an LSAMP scholar allowed me to attend graduate school at the University of Michigan in the Applied Physics Ph.D. Program."*

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## University System of Maryland LSAMP

**Carlise D. Bethel**, B.S., Biological Sciences, 1998, University of Maryland, Baltimore County  
**Graduate Student**; Molecular and Cell Biology, University of Maryland, Baltimore County, Ph.D. expected 2003



*"The program has truly nurtured my growth as a scientist, but more importantly, as person. The program promotes a commitment to research and academic success. It is truly a family that offers invaluable support during my undergraduate years and beyond."*

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## Mid-South LSAMP



**Danita Scott**, B.S., Chemistry, 1999, Rust College  
**Graduate Student**, MS / Ph.D. Program in Biomedical Engineering, University of Tennessee, Memphis

*"The LSAMP program does a fine job of encouraging students to remain in math and science fields by providing academic and professional mentors. My plans are to work in industry as a biomedical engineer on research, which involves building chemical and biological sensors to identify disease and analyses in biological fluids. They also include serving as an adjunct professor at a Historically Black College or University (HBCU)."*

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## Mississippi LSAMP

**Regina L. Bell**; B.S., Biology, 1999, Alcorn State University  
**Graduate Student**; Biology, University of Mississippi,



*"MLSAMP was vital to the start of my career in science. Networking, mentoring, advising, and research were vital to my success thus far. The program allowed for a smooth entry to college and graduate school."*

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## New York City LSAMP



**Angel Pimentel**, B.S., Biology, 1988, Cayey University (Puerto Rico)  
**Graduate Student**; Biology, Graduate School and University Center of CUNY,  
Ph.D. expected 2002

*"I was teaching at Hostos Community College, which I enjoyed very much, but I needed more time for my research. Thanks to the LSAMP stipend I was able to cut down on teaching and do research fulltime. LSAMP funding allowed me to stop worrying about the rent and survive over the summer. It took a huge burden off my mind. Without LSAMP, it would have taken me another year to complete my Ph.D."*

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## North Carolina LSAMP

**Valerie Moses**; B.S. Chemical Engineering, 1996, North Carolina A&T University  
**Graduate Student**, Material Science and Engineering, Tuskegee University,  
Ph.D. expected 2003



*"Not only did the LSAMP Program present an avenue for my professional development, it also provided a wealth of resources. Through LSAMP I had the opportunity to foster mentoring and presentational skills essential to my graduate studies. In short, I can definitely say that the NSF LSAMP Program offers a valuable resource to minority students who want to succeed in SMET fields. I am an example of an LSAMP scholar who moved successfully through the SMET pipeline from the B.S. to the Ph.D. degree. LSAMP made a tremendous difference for me! It is evident that my undergraduate research experiences were vital in the journey from the B.S. to Ph.D. degree."*

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## Philadelphia LSAMP



**James Arthur Cooper, Jr.**, B.A., Chemistry, 1989, Lincoln University  
**Graduate Student**, Biomedical Science, Drexel University, Ph.D. expected 2003

*"The AMP program has shaped my career by providing funding to programs which have given me the time*

*and attention to develop maturity as a scientific researcher. Now as I am about to close the chapter on the completion of my Ph.D. degree and open a new chapter of my career as a scientific researcher, I am thankful that I was a part of the AMP program and hope to continue to contribute to its legacy in helping minorities achieve their academic goals."*

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## Puerto Rico LSAMP

**Angel Marti**; B.S. Chemistry, 1999, University of Puerto Rico-Rio Piedras Campus

**Graduate Student**; Photophysics and Photochemistry of Inorganic Materials, University of Puerto Rico-Rio Piedras Campus, Ph.D. expected 2003



*"PR-LSAMP played a significant role in my academic preparation. Through PR-LSAMP I had the opportunity to do undergraduate research in Inorganic Chemistry, which highly motivated me to continue graduate studies in this field. Also, through the PR-LSAMP Teacher Preparation Component, I took pedagogy classes and seminars that helped me in my role as a Teaching Assistant and Science Advisor in Puerto Rico's public schools. PR-LSAMP prepared me to become a successful graduate student and professional."*

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## South Carolina LSAMP



**Takita Felder**; B.S., Chemistry, 1997, University of South Carolina  
**Graduate School**; Biochemistry, University of South Carolina, Ph.D. expected 2002

*"My participation in SCAMP sponsored programs played an integral role in my career choices. In addition to engaging in SCAMP undergraduate research initiatives to develop my oral and written communication skills, I received unlimited information on graduate programs and careers in SMET disciplines. The mentoring experience provided by this program was invaluable to my success as a graduate student. The sponsorship, experiences, and relationships afforded by participation in AMP programs are immense and are essential to lowering racial barriers to scientific careers."*



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## SUNY LSAMP



**Marvin Vasquez**; B.S., Engineering Science, 1998, Stony Brook University

**Graduate Student**; Materials Science, Stony Brook University, Ph.D. expected 2002

*"I attribute much of my success to the support from the AMP Program which, during my undergraduate studies, guided, supported and exposed me to conduct and present research to the scientific community. I plan to use my qualifications and skills to educate young people and contribute back to this institution and community which have provided the support in the development of my professional career."*

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## Texas LSAMP

**Victor Garza**, B.S. Mechanical Engineering, 2001, Texas A&M University (College Station)

**Graduate Student**, Mechanical Engineering, Stanford University



*"The SEE program (AMP Pre-college out ready activity) certainly helped to open my eyes to the diverse spectrum of engineering disciplines and increased the interest to pursue an engineering degree...I have always enjoyed sharing my experiences with younger students in order to provide advice for those who may face or may be facing similar challenges to those I encountered. Along the way (the AMP Coordinator and Mentor) advised on scholarships, classes, professors to take, and also graduate school. To this day, I still believe that my academic success at A&M had much to do with the support they always provided."*

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## University of Texas System LSAMP



**Dionne Talamantes**; B.S., 1996, Mathematics, University of Texas of the Perian Basin

**Graduate Student**; Mathematics, Emory University

*"Receiving the Louis Stokes Alliance for Minority Participation Student Research Award was a life-changing event for my life. Of course, being so young and naïve, I was unaware of the major ramifications of this award. Growing up, I always knew that I would graduate from college, but I never even knew that I could obtain a Ph.D. LSAMP did not grant me the Ph.D., but it opened the doors that I thought did not exist."*

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## Washington-Baltimore-Hampton Roads LSAMP

**Aris Winger**, B.S., Mathematics, Howard University  
**Graduate Student**, Applied Mathematics, Carnegie Mellon University, Ph.D. expected 2003

*"Aris Winger participated in the WBHR LSAMP Program during 1996-98 at Howard University. He is currently pursuing the doctorate degree in Applied Mathematics at Carnegie Mellon University under the mentorship of Dr. William Hrusa. Mr. Winger expects the completion of the Ph.D. in the spring of 2003."*

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## Western Alliance to Expand Student Opportunities LSAMP

**Daniel A. Franco**; B.S., Microbiology, 1997, Arizona State University

**Graduate Student**; Molecular and Cellular Biology, Arizona State University, Ph.D. expected 2004



*"As an undergraduate I was originally intending to go to medical school. However I got involved in an undergraduate research project which made me very interested in pursuing a career in research. LSAMP programs provide exposure and opportunities in scientific research to students like me. Now I am in my third year as a Ph.D. student in Molecular Biology."*

## Three New Projects Join LSAMP During 2001

Three new Alliances joined the Louis Stokes Alliances for Minority Participation, in the effort to increase the number of underrepresented minorities receiving baccalaureate degrees in science, technology, engineering, and mathematics. The new alliances are Mid-Eastern LSAMP, Northeast LSAMP, and Pacific LSAMP. "The new alliances will expand the geographic regions and the diversity of students serviced by the LSAMP program," according to Dr. A James Hicks, LSAMP Program Director.

### *Mid-Eastern LSAMP*

Virginia Union University will lead a consortium (Mid-Eastern Louis Stokes Alliance for Minority Participation) of six other institutions that are committed to doubling the number of minority graduates in the fields of science, mathematics, engineering and technology (SMET) over the next five years.



Partner institutions include Elizabeth City State, Fisk, James Madison, Virginia Tech, and Johnson C. Smith Universities and St. Augustine's College. All the institutions combined had 374 students to graduate with SMET degrees in 2000. The consortium seeks to double that number in the next five years.

### *Northeast LSAMP*

Institutions comprising the Northeast Louis Stokes Alliance for Minority Participation (NE LSAMP) are: Northeastern University; University of Connecticut; University of Massachusetts, Amherst; University of Rhode Island; and Worcester Polytechnic Institute.



In linkage with the Northeast Alliance for Graduate Education and the Professoriate (NE AGEP), and networking with programs of the New England Board of Higher Education (NEBHE), the NE LSAMP aims to significantly increase the enrollment, persistence, and graduation of underrepresented minority students in SMET disciplines. A variety of student-centered activities are underway on each campus (see page 50).

### *Pacific LSAMP*

The Pacific Alliance is a partnership among academic institutions, industry, government agencies and laboratories, and professional organizations. Both the University of Washington (UW) and the University of Alaska Anchorage (UAA) have been successful in transitioning NSF funded outreach and bridge (ALVA) programs into sustainable corporate and state



funded programs.

Industrial partners to the programs have pledged to provide approximately \$2.6 million dollars in support of the Alliance. Partner Universities have pledged approximately \$1.26 million additional. The Pacific Alliance will transfer successful Alaska and Washington recruitment, retention, and placement programs for Indigenous Americans to the University of Alaska Fairbanks and the University of Hawaii Manoa.



## LSAMP Tenth Anniversary Celebration Held

*The Louis Stokes Alliances for Minority Participation Program celebrated its tenth anniversary on March 26-27, 2001, at the Double Tree Hotel-Crystal City, Arlington Virginia, and the National Museum of Natural History. The celebration was included in the joint PI/PD meeting of AGEF, CREST, HBCU-UP, and LSAMP.*

The celebration began March 26, 2001, at 11:30 a.m. with a LSAMP Tenth Anniversary Luncheon at the hotel with an inspiring speech by Dr. Roosevelt Calbert, former Director of the Division of Human Resource Development.



*Dr. Roosevelt Calbert, former HRD Division Director*

Following the luncheon, a number of LSAMP exhibits were displayed in the hotel's Ballroom. Celebration participants reviewed the displays and departed at 3:30 p.m. for the Museum of Natural History for a reception and tour. At the museum, participants toured a number of exhibits with a minority focus as well as others. During the reception, beautiful music was provided by a harpist. The California LSAMP provided participants with souvenirs, and Dr. Art Hicks made comments regarding the LSAMP Tenth Anniversary milestone.



*Harpist, Sonja Inglefield (University of Maryland, Baltimore County), provided music for the Tenth Anniversary Celebration*

On March 27, 2001, activities began with the Tenth Anniversary Project Directors meeting. Project directors honored Dr. Art Hicks with an award for outstanding service to the LSAMP community and underrepresented minority students.



*Dr. Art Hicks chaired project directors meeting*

Project directors presented Dr. Luther Williams a sculpture for outstanding service as founder and architect of the LSAMP program. Dr. David Ferguson, PI, SUNY; provided a video with LSAMP program information and highlights. Dr. Norman Fortenberry, Acting Division Director, HRD, gave remarks on HRD expectations for LSAMP.



*Project directors listen intently to speakers*

Ms. Theresa Smith, University of Oklahoma, gave a report on retention and Ms. Mary Sangrey provided a report on the Smithsonian Winter Workshop. After discussions on LSAMP evaluations and research opportunities, Dr. Art Hicks provided final remarks before lunch and adjournment.



# Diversity Continuum Programs Graduate School Fair/Fellows Conference

**Carolyn Braswell**

The first joint Alabama Graduate School Fair and Graduate Fellows Conference was held October 8-9, 2001, at The University of Alabama at Birmingham. The event attracted students, faculty, graduate deans, principal investigators, and program managers from a number of member institutions of the Louis Stokes Alliances for Minority Participation (LSAMP), Alliances for Graduate Education and the Professoriate (AGEP), and the Historically Black Colleges and Universities Undergraduate Program (HBCU-UP). Dr. Roosevelt Johnson, Acting Director of the Division of Human Resource Development, was guest speaker.



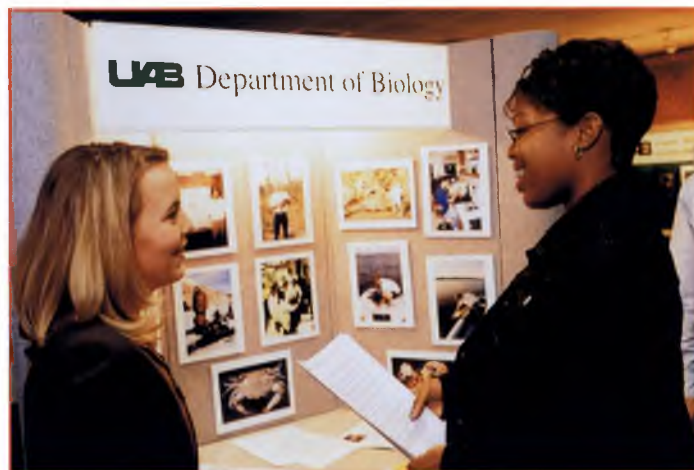
*Students pack auditorium for presentations by graduate deans*

The Fair provided an opportunity for students to compare graduate programs at a number of institutions



*Presidents and Provost at the Fair; L to R: Dr. Joseph Lee, President, Alabama State University; Dr. Earnest McNealy, President, Stillman College, Dr. Arol Augsburger, Interim Provost, University of Alabama at Birmingham, and Dr. Frank Franz, President, University of Alabama in Huntsville*

and talk directly to graduate school representatives. The Graduate Fellows Conference, the first of its kind and scope, provided an opportunity for minority graduate students to form networks and discuss the impact of mentoring, campus environment, and dissertation research on successful degree completion.



*Student discusses graduate program with recruiter*

A number of recent Ph.D. graduates in science, mathematics, and engineering attended the conference to share their experiences with the participants. The Fair attracted 192 undergraduate students and the Conference attracted 65 graduate students.



*Graduate student confers with Dr. Roosevelt Johnson*

**Student comment:** *“The networking I did was invaluable to me because it gave me other resources to draw on as I pursue the Ph.D.” – Lorraine Towns, Psychology, The Graduate Center, CUNY.*





# Florida / Georgia LSAMP Sponsors Ninth Annual Career EXPO



**Ralph W. Turner**

The Ninth Annual Career EXPO of the Florida – Georgia Louis Stokes Alliance for Minority Participation was held January 31-February 3, 2002 with Florida A&M University, Florida State University, and Tallahassee Community College serving as host institutions. Approximately 500 participants attended the four-day event. In addition to the Florida – Georgia LSAMP, LSAMPs from Alabama, Houston, Illinois, Louisiana, New York City, North Carolina, South Carolina had student participants in attendance at the EXPO.



*FGLSAMP EXPO 2002 Participants*



*Student discusses poster with  
Poster Judge Dr. Kenneth Goldsby*

The EXPO provided opportunities for students to tour research laboratories; present oral and poster seminars on their research results; attend specialized workshops to enhance their professional growth and development; and network among themselves. The EXPO also provided a mechanism for students to interact with exhibitors, and vendors and representatives from Ph.D. degree institutions to pursue opportunities for research internships along with stipends/fellowships for matriculation into Ph.D. programs within SMET disciplines.

The Keynote Speaker for the Awards Banquet was Dr. William McHenry, Assistant Commissioner of Academic Affairs for Mississippi Institutions of Higher Learning. Dr. Henry Lewis, III, Interim President of Florida A&M University was the keynote speaker for the Exhibitors Luncheon which provided an opportunity for Institutional Coordinators of the Alliance to discuss how to cooperatively increase minority participation in the SMET disciplines.



*Dr. William McHenry*



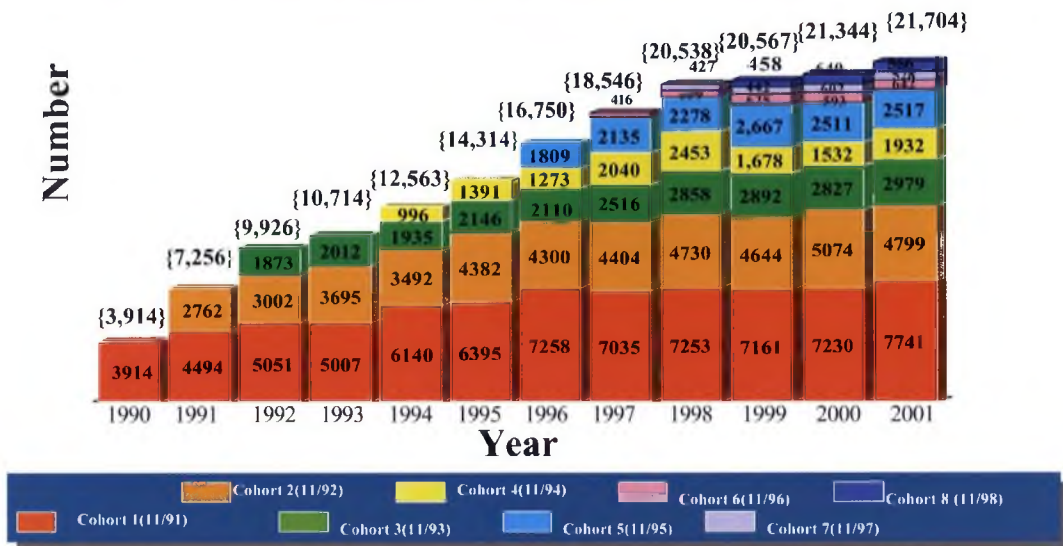
*Dr. Jack Crow, Director of the National High-Magnetic  
Field Laboratory, listens to student comments*



*Dr. Gustava Roig, Florida International University; Dr. Patricia  
Stith, Florida State University; and Dr. Ralph Turner*

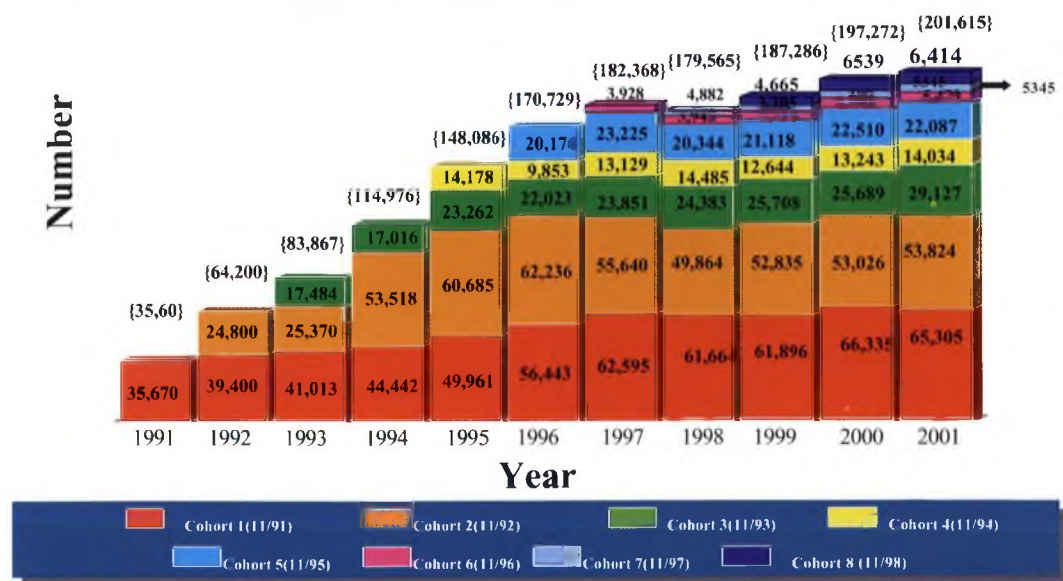
## The Louis Stokes Alliances for Minority Participation Program

### SMET Minority BS DEGREE Production



## The Louis Stokes Alliances for Minority Participation Program

### SMET ENROLLMENT for Individuals from Ethnic and Minority Groups that are Underrepresented in the SMET Workforce







# Highlights and Accomplishments



## Alabama LSAMP

- Alabama LSAMP was successful in acquiring a Phase III award beginning November 1, 2001. The Phase III program will focus on research for undergraduates and graduate school preparation activities including GRE testing.
- In collaboration with the Alliance for Graduate Education and the Professoriate program, Alabama sponsored a Graduate School Fair and Graduate Fellows Conference, bringing over 200 underrepresented minorities together to review graduate programs from a number of graduate institutions. In addition, over 60 doctoral students participated in discussions regarding success in graduate school.
- Alabama published the Tenth Anniversary LSAMP Magazine and LSAMP History Document for the LSAMP Tenth Anniversary Celebration
- Alabama initiated a student tracking system to follow graduates into the workforce and graduate school.
- University of Alabama at Birmingham mathematics student, Jean-Paul Kapuya, gave a presentation at a special session at a joint meeting of the American Mathematical Society and the Mathematical Association of America in San Diego, California, in January 2002.



*Students and faculty register for First LSAMP/AGEP Graduate School Fair and Graduate Fellows Conference*

- baccalaureate degrees and graduate degrees in SMET by: 1) Increasing the number of B.S. degree programs offered in SMET fields at Tribal Colleges from 2 to 10; 2) Increasing the number of B.S. programs in different SMET disciplines from one to four; and 3) Increasing the graduation rate of Native students with B.S. degrees in SMET fields from 112 to 224.
- This year we supported seven AISES Chapters. The Chapter's institutions were Fort Berthold Community College, Northwest Indian College, Salish Kootenai College, Heritage College, Little Big Horn College, Stone Child College, and Cankdeska Cikana College. These Chapters support 94 student members that become eligible for funding and scholarships through the national AISES organization.
- ANLSAMP continued participating in the AISES conference to offer scientific poster and oral presentation. 19 students participated in the scientific poster presentation and 6 students participated in the scientific oral presentation.
- ANLSAMP conducted the scientific poster and oral presentation competitions and the science bowl competition at the Annual American Indian Higher Education Consortium's (AIHEC) Conference. ANLSAMP has been conducting these student-focused competitions since 1995.
- ANLSAMP also supported a student to present her research at the National Minority Research Symposium in October. Delphine Medicine Horse graduated with an Associates of Science Degree from Dull Knife Memorial College and has now transferred to Montana State University and is pursuing a degree in civil engineering.



*Delphine Medicine Horse presenting at the National Minority Research Symposium.*



## All Nations LSAMP

- The All Nations Louis Stokes Alliance for Minority Participation (ANLSAMP) received its Phase II award. Phase II ANSLAMP now includes all 32 of the accredited Tribal Colleges and Universities (TCUs) in the United States as well as 20 state and private institutions of higher education. These partners are located in 12 states including Washington, Montana, North Dakota, South Dakota, Nebraska, Minnesota, Wisconsin, Michigan, Kansas, California, Arizona and New Mexico. The goal of Phase II is to establish a comprehensive ANLSAMP interactive network designed to increase substantially the quality and quantity of American Indians receiving



## California LSAMP

### Alliance Management:

- Regional Directors and Coordinators convened in fall and spring to finalize plans for Phase III
- Advisory Board provided opportunity to observe and critique undergraduate presentations

### Alliance Synergy:

- 2000 CAMP Statewide Undergraduate Research Symposium at UC Davis
- Collaboration with AGEP progresses, with discussions of pipeline issues and dissemination
- CAMP-UC Irvine hosts NIH Career Fair, with participants from Southern California UCs

#### Awards/Honors:

- CAMP regional director from UCSB elected to rank of AAAS Fellow
- CAMP Participants receive GEM Fellowships, Nokia Scholarships, Toshiba America Scholarships,
- Participants complete Cornell/Rockefeller/Sloan-Kettering Tri-Institutional MD/PhD Program
- CAMP participants win Research Poster Presentation Awards at SACNAS, MAES, AAAS, ACS

#### Curriculum Efforts:

- UC San Diego chemistry workshops focus on small group interactions and test taking, including GRE preparation and practice exams

#### Dissemination/Promotion:

- Publication of the Proceedings of the 2000 Statewide Undergraduate Research Symposium
- CAMP Quarterly, featuring student achievement circulated to state and national audiences

#### Graduate Preparation/Tracking:

- At least 26% or about 400 of CAMP graduates have gone on to graduate and professional programs.
- CAMP participants in graduate school contact home campus on progress
- Ph.D. Student (UC Davis CAMP Alumna), 4th year Doctoral Student at University of Wisconsin, Madison, serves as Keynote speaker at CAMP Statewide Symposium

#### Graduate Student Achievement:

- First Ph.D. Achieved at UCLA by Gustavo Miranda, followed by second Ph.D. from Georgia Tech by Ronald Metoyer – a UC President's Fellowship Recipient, and a third Ph.D. from UCLA by Elva Torres

#### Institutionalization:

- Infrastructure support and creation of student study rooms or centers
- Continued funding from Regents Diversity Initiative
- Proactive support from SMET Deans and Directors, who serve as faculty leads



## California State LSAMP

- We continued to offer Summer Workshops for freshmen at all of our eighteen most active CSU campuses. While those Summer enrollments held steady at close to 650 in each of the last two years, we have dramatically increased the number of annual enrollments in our Academic Year Workshops! In the Academic Year 1999/2000 there were 604 individual enrollments scattered over the CSU workshops throughout that year. In 2000/2001 the number of individual enrollments during that year increased to 1772, almost triple the number from the previous year! That does not include the Academic Year Workshops offered at our partner community colleges.
- As part of our Phase II program, we transferred our funds from a second Summer Workshop into an incentive fund for students who performed well – i.e. A or B grades – in courses

es directly related to the workshops we offered. We did not offer the incentives with the expectation that that alone would improve student academic performance. What we did expect and what did happen was that a larger proportion of our students would participate in the workshops and that their participation would improve their overall grades. In fact the 16 campuses filing at least partial reports documented an increase in stipends granted from 214 in the first year to 416 in 2000/2001, just for the CSU campuses. The most extraordinary thing was that campuses with the highest rates of student participation reported that approximately 50% of their active participants received grades of A or B and that 90% of all students attending the workshops, and actively participating, passed the courses!

- We have concluded that the incentives are not the cause of this success, it is participation in the workshops! However, the incentives stimulate student interest and enrollment in the workshops.
- The campus workshops are not monolithic in their structure and this creates some difficulty in making an analysis. Macroscopically we can say that the workshops are beneficial. However, some workshops are institutionalized and are strongly supported and encouraged by the Depts., the Schools of Science and/or by the University. Others are mandatory for some gateway courses, but not for others. Some are completely voluntary and depend upon enticing the students to make the workshops a priority.
- We have made a beginning in expanding the Academic Workshops to the community colleges. In this activity we have received the help of the Mathematics Engineering and Science Achievement (MESA) program for community colleges, which this last year increased the member of contracts with two year public colleges from eleven to 44, not all of which are associated with our AMP.



## Colorado LSAMP

- For Phase I, CO-AMP projected goal was 400 UREP SMET B.S. degrees. By the 5th year, CO-AMP has met 80% of this goal with 319 UREP SMET B.S. degrees awarded.
- Rate of increase from baseline to year 5 in UREP SMET degrees awarded (215 to 319 degrees) was 48.4%.
- Rate of increase from baseline to year 5 in the number of ALL SMET degrees awarded (from 2,789 to 3,380 degrees) was 21.2%.
- The rate of increase of UREP SMET degrees awarded from baseline to year 5 was over twice that of the increase in all SMET degrees awarded.
- Increase in UREP SMET enrollment of approximately 38% (1736 to 2402).
- Increase in NON-UREP SMET enrollment of approximately 16% (14,816 to 17,320).
- The rate of increase of UREP SMET enrollment from baseline to year 5 was over twice that of the increase in NON-SMET enrollment.
- Number of African American students graduating in SMET fields has more than doubled (increase of 135%).
- Number of Hispanic students graduating in SMET fields has increased by 33%.
- Number of Native American students and multi-race receive-





**LS CO-AMP Management Team**

(left to right)

David Aragon, University of Colorado at Boulder, MEP Director  
 Dr. Larry Johnson, Metropolitan State College of Denver, Center for Science, Mathematics, & Environment Education Director;  
 Dr. Omnia El-Hakim, Project Investigator & Director, Civil Engr. Professor;  
 Dr. Albert Yates, Governing Board Chair; President, Colorado State University; Chancellor, Colorado State University Systems;  
 Dr. Hector Carrasco, University of Southern Colorado, Dean of Applied Science & Engineering Technology;  
 Dr. Fred Smith, Colorado State University, Mechanical Engr. Professor;  
 Dr. Johannes Gessler, Colorado State University, Associate Dean, College of Engineering

- Engineering and The Missouri Association for Black in Higher Education (MABHE). All these partnerships enhance HAMP's ability to foster development of learning skills, matriculation and degree production.
- During the six years of the Alliance, underrepresented SMET bachelor degree production equaled a total of 1,313 degrees, an increase of 88 % over the baseline total of 153 degrees.
- African American degree production in 2001 was 43.5 % greater than the initial year degree production.
- Hispanic degree production in 2001 was 66% greater than initial year degree production.
- Native American degree production in 2001 was 69% greater than initial year degree production.
- Enrollment of underrepresented students increased by 87 percent between 1996 and 2001.
- African American students lead the annual growth rates as they moved from 884 in 1996 to 1352 in 2001.
- Hispanic enrollment was 37 percent greater in 2001 than in our first year.
- Native American enrollment 44.5 percent greater in 2001 than in our initial year.



**Houston  
LSAMP**

- The H-LSAMP Alliance has graduated 1,206 SMET minority students during its first two years of operation.
- There are currently 6,414 minority students enrolled in SMET areas.
- The number of direct participants in the Alliance has increased from 155 students during the first year of the program to 337 students during the second year.
- All schools in the Alliance have established their Collaborative Learning Community facilities to provide academic workshops, tutoring, and mentoring for Levels 1 and 2 students.
- The Second Annual H-LSAMP Undergraduate Student Research Conference for the first time invited the other LSAMP programs to participate. Participants from five LSAMP programs attended the conference.



**Florida/Georgia  
LSAMP**

- Participation of undergraduate students as FGLSAMP scholars has increased from 454 in 1993 to 1,268 in 2001,
- The number of SMET B.S. graduates at participating institutions has more than quadrupled since 1991 -- 416 in 1991 to 2,145 in 2001,
- Since 1994 the Alliance has secured more than 1,021 summer internships for eligible FGLSAMP scholars,
- Over the past eight years, the Alliance has graduated a total of more than 913 FGLSAMP supported scholars from four (4) of the major undergraduate participating institutions,
- Since 1993, FGLSAMP has secured, from the Florida Legislature, an average of \$643,000 per year for support of the Florida FGLSAMP institutions, FGLSAMP has hosted two annual Transitioning into Graduate School workshops.



**Heartland's  
LSAMP**

- Fostered the development of a statewide initiative resulting in the inclusion of all four-year public institutions that offer SEM degrees.
- HAMP continues to work closely with the Graduate Education for Minorities (GEM) programs; The National Science Foundations' Alliances for Graduate Education and the Professoriate; Polytechnic University of Puerto Rico; Sandia National Laboratories; National Society of Black Engineers; The Society of Hispanics in Professional



Sylvia Foster, Director of the Scholar Enrichment Program at the University of Houston with two honor H-LSAMP students who are now enrolled in medical school. From left to right: George Williams, Sylvia Foster, and Erin Scott.



## Illinois LSAMP

- Illinois LSAMP hosted the first symposium entitled "Thinking Outside The Box" during the Phase II, Year One term in October 2001. Nearly two hundred (200) registrants participated in the event which included workshops, poster and oral presentations, university/college display tables, a luncheon and dinner banquet.
- Illinois LSAMP successfully implemented pre-college and community college bridge programs, faculty and peer mentoring, supplemental instruction (study groups, skill training, cooperative learning workshops), academic year and summer undergraduate research opportunities, tutorials for introductory SMET courses and annual student conferences within the Alliance.
- Illinois LSAMP has awarded 2,108 bachelor degrees to minority SMET students participating in the Illinois LSAMP program since its inception in 1993.
- The current enrollment of minority SMET students at Illinois LSAMP institutions totaled 4,045 -- which represented an increase over 75 percent since the inception of Illinois LSAMP.
- Illinois LSAMP community colleges have developed programs in association with the senior colleges in the Alliance to increase the number of students matriculating, graduating and attending graduate school in SMET areas. Working closely with the senior partners, the community colleges are using the Transfer Centers, math, science, and engineering faculty, Student Services/Counseling departments and data to identify students for the Illinois LSAMP Program.



## Louisiana LSAMP

- The baseline for Phase II (2001-2005) is 697 minority SMET degrees. In the very first year of Phase II, there has been a significant increase (73) in the annual SMET BS degree production (770) by LS-LAMP. This amounts to an increase of 10.5% over the baseline of 697. The significant increase in minority SMET BS degree production is in large part a consequence of the vigorous systemic mentoring, on-going and growing undergraduate curriculum reforms, and recruitment and retention efforts of LS-LAMP.
- The LS-LAMP and the Louisiana DOE-EPSCoR program jointly sponsored a student and faculty research conference in the Spring 2001 at New Orleans, LA. The conference "Education and Research: Converging Paths to Excellence" attracted more than 300 faculty and students locally and nationally.
- LS-LAMP coordinated and managed the National Association for Equal Opportunity in Higher Education (NAFEO) High Tech Student Expo 2001 during the NAFEO conference in Washington, DC. LS-LAMP has coordinated and managed this effort for the past five years.
- LS-LAMP, the HBCU-UP--"SMART", and the Committee on Institutional Cooperation (CIC) co-hosted an annual CIC

Graduate Recruitment Fair at two of the LAMP campuses (Southern University A & M College and Dillard University).



## University System of Maryland LSAMP

- With the implementation of Phase II, the USM LSAMP placed greater emphasis on preparing underrepresented minority undergraduates to enter and succeed in SMET graduate programs.
- USM LSAMP institutions awarded SMET Master's degrees to 108 percent more minority students in 2001 than in 1996; SMET doctoral degrees awarded to minority students increased by 300 percent.
- The USM LSAMP has influenced the development of additional programs designed to prepare minority undergraduate and graduate SMET students.
- During Phase I, the retention rate for minority SMET students improved significantly. The number of minority SMET students classified as juniors and seniors rose from 1,092 in 1996 to 1,621 in 2001, a 48 percent increase.
- USM LSAMP students had impressive research internships throughout the United States and abroad. Some of the Summer 2001 internships included Lancaster University in Lancaster, England; the Institute of Human Virology, the Howard Hughes Medical Institute at the University of Colorado at Boulder; Stanford University; Georgia Tech; NASA Goddard Space Flight Center; the National Cancer Institute; Lucent Technologies; Cambridge University in Cambridge, England; the U.S. Food and Drug Administration; Raytheon, Duke University; Cornell University; IBM; Johns Hopkins University Applied Physics Laboratory; Case Western Reserve University; and many more.
- Again this year, many LSAMP graduates were inducted into a number of prestigious national honor societies, including Phi Beta Kappa. Others received national public recognition for their academic accomplishments. Included among them is Ms. Dorothy Harris *Natasha Powell conducting research at the National Institutes of Health* who was graduated magna cum laude from the University of Maryland Eastern Shore with a bachelor's degree in Biology and admitted to a neuroscience Ph.D. program. Ms. Harris is featured as one of the "Essence Ten Incredible College Women" in the November 2001 issue of Essence Magazine.







## New Mexico LSAMP

- The Minority Engineering Transfer and Articulation (META) Program was funded in March 2001, through NSF's Advanced Technology Education (ATE) program, "META" is a joint effort between New Mexico State University, Santa Fe Community College, the New Mexico State Highway Department, and three civil engineering firms. META will provide a connected and coordinated educational pathway from associate's degree programs in engineering technology to bachelor's degree programs in civil engineering, and to create instructional materials that emphasize technology applications in civil engineering. The project also addresses the need for innovative approaches that prepare students for transfer.
- The New Mexico State Legislature has appropriated funding for New Mexico AMP since 1996 for a total to date of \$2,013,700. This shows the Legislature's commitment to the program and recognition of the proven, as well as potential impact on a large number of students. This continued funding also demonstrates how the statewide network set in place by New Mexico AMP has become part of the fabric of higher education in the state.
- New Mexico AMP's transfer and retention course model (SMET 101: Introduction to Science, Math, Engineering and Technology) is designed to give community college or traditional freshman students the meta-cognitive thinking and learning skills to succeed in their academic life and beyond the classroom. Since SMET 101 has an explicit transfer and articulation purpose, this purpose is maintained by ensuring that instructors at all our partner institutions offering this course are trained on the materials, methods, and philosophy of this course through an annual training institute. During this time, instructors address issues of concern, curriculum improvements, and are "normed" on the procedures and practices used to teach the class across the state. Workshops are conducted on teaching and learning processes, classroom pedagogy, theory and practice, and assessment and evaluation techniques. SMET 101 is a key curriculum change that has been institutionalized on two university and 14 community college campuses to date.



## New York City LSAMP

- Over 5,800 Baccalaureate degrees granted from 1992-2001
- Baccalaureate degrees granted increased 86%
- SMET enrollment increased 65%
- From inception, 230 LSAMP Scholars have earned BA or BS degrees.
- In 2001, 200 AMP research scholars were institutionalized.
- For the academic year 2000-2001, CUNY enrolled over 14,598 students in NYC LSAMP institutionalized or restructured courses. At the City College, second year chemistry utilizing the collaborative/workshop approach is now in the experimental stage.

### Summer 2001

- Alliance Summer activities have grown to include a CUNY

based Summer Research participation component for LSAMP and Carver scholars, NASA Research and Teaching components, Transition and Bridge activities for entering freshmen and transfer students, CUNY collaborations with Proyecto Access and CUNY Pipeline programs. CUNY LSAMP offsite components include collaborations with Brookhaven National Labs and other Department of Energy research sites. Over forty students participated in research and internship opportunities around the country at Universities, Industry and Agency settings. Three scholars participated in MIRT programs.

### The NASA Goddard's Institute for Space Studies (GISS)

- NYC LSAMP, and CUNY's cooperative agreement for the NASA GISS Institute on Climate and Planets (ICP) has been in operation since 1994. The NASA-ICP is seen as a model for the NASA's interaction with minority universities on the national level. The ICP involves NYC LSAMP students and faculty from five CUNY campuses, minority students and faculty from New York City high schools in research projects with NASA scientists. NASA data and multimedia courseware based on ICP research findings are being placed on the Internet for dissemination to all CUNY campuses and NYC high schools, as well as for national distribution (<http://icp.giss.nasa.gov/>).



*Institute on Climate and Planets  
Summer 2001 Research Conference Presenters*

### CUNY NASA Collaborations

- CUNY/NASA collaboration have led to three additional NASA grants: NASA CUNY Space Science Program, Science and Technology Teachers for the Next Millennium (MASTAP) and Minority University Space Interdisciplinary Network (MUSPIN). NASA-LSAMP collaborations engage faculty members in CUNY, post doctoral scientists and student in CUNY, the NYC K-12 community, the CUNY Baccalaureate Program, and the NASA-GISS research community. Other activities include collaborative research projects, colloquia, teacher preparation and curriculum development. York College and Medgar Evers College recipients of NASA Science, Engineering, Mathematics and Aerospace Academy (SEMAA) awards. York also obtained an additional Space Science Curriculum Grant.



## North Carolina LSAMP

- Total minority SMET enrollment has grown since the baseline year from 4,632 in fall 1994 to 6,230 students in fall 2000, reflecting an increase of approximately 35%.



- Since the baseline year, spring 1995, B.S. SMET degree production has been augmented for underrepresented minority students from 799 to a total of 1,034 in 2001. Collectively, the Alliance universities have increased degree production for minority students by 29.4%.
- In spring 2001, the Alliance awarded 233 master's degrees, and 39 Ph.D. degrees to minorities in SMET Fields.
- A significant increase was achieved in participation for the Fifth NC-LSAMP Undergraduate Research Conference hosted by North Carolina A&T State University on April 20, 2001. Total attendance of 403 students and faculty represents a growth of 90% since the inception of the conference; poster presentations have grown by 250%; and oral presentations increased by 114%. This year, guest students from the South Carolina LSAMP Program presented research projects.
- The Annual Research Conference featured six outstanding former LSAMP scholars in a graduate student roundtable on SMET diversity moderated by Dr. Roosevelt Y. Johnson, AGEP Program Director at NSF. Panelists for the roundtable earned either a master's or Ph.D. degree in a SMET discipline. The roundtable discussion provided valuable information focusing on a variety of key topics related to graduate recruitment, enrollment, and matriculation.



*NC-LSAMP Parade of Scholars*

- Summer Bridge Programs for incoming freshmen were hosted by the University of North Carolina at Pembroke (Alliance-Wide), and North Carolina A&T State University. The University of North Carolina at Charlotte sponsored a Summer Bridge Program for incoming transfer students primarily from community colleges.
- Campus-based research programs involving SMET faculty mentors were offered at each partner institution.
- Alliance-wide, students and faculty mentors participated in 39 SMET-related local, state, and national research conferences and professional meetings. At many of these events, both poster and oral presentations were made by a number of students.
- In 2001, more than 350 NC-LSAMP students completed internship and co-op education experiences in industry, government, and business settings throughout the United States.
- Collaboration between the NC-LSAMP, HBCU-UP, AGEP, and CREST Programs was expanded to maximize experiences and outcomes for SMET students across the Alliance.



## Philadelphia LSAMP

- As of Fall 2001, twenty-two (22) more Philadelphia AMP students successfully transitioned to graduate school in SMET disciplines. With these students, the Alliance now has 69 students currently enrolled in graduate SMET study.
- One hundred and nineteen (119) persons (including more tenured SMET faculty, academic department heads, and senior administrative personnel) were involved in the implementation of the Philadelphia AMP Phase II project compared to last year's participation of 72 persons. This represents a 65% increase in the operational infrastructure of AMP. This dramatic increase in faculty participation has resulted in our ability to move more students to senior status.
- On April 7, 2001, Philadelphia AMP and Temple University hosted the 5th Annual Philadelphia AMP Research Symposium and Mentoring Conference to allow students to showcase their research, to promote more faculty/student interaction, and to expose students to graduate school opportunities at partner institutions. The guest speaker, Dr. Joseph Bordogna, Deputy Director, National Science Foundation was the keynote speaker. Dr. Howard G. Adams, former Executive Director, GEM and the 1996 White House Presidential Awardee for Excellence in Science, Mathematics and Engineering Mentoring, also informed AMP students about how to successfully negotiate the graduate school process.



*From left to Right: Mr. Stephen R. Cox, Associate Project Director, Philadelphia AMP, along with Dr. Bashar Hanna, Associate Dean, Temple University, and Dr. Richard Woodring, Project Director, Philadelphia AMP present Dr. Joseph Bordogna, Deputy Director, National Science Foundation with an award during the 5th Annual Philadelphia AMP Research Symposium and Mentoring Conference.*



## Puerto Rico LSAMP

- PR-LSAMP institutions increased their annual BS degrees in SMET from 1,709 in 1991 to 2,893 in 2001, a 69% increment
- PR-LSAMP institutions increased their SMET undergraduate enrollment from 12,572 in 1991 to 23,427, an 86% increment
- 18.4% of the Hispanics that obtained a PhD in a natural science field nationwide from 1994 to 1999, received their BS degree from a PR-LSAMP institution. In the case of Engineering the percent is 12.5%. PR-LSAMP institutions are



a major source of Hispanic PhDs in SMET fields. At the local level, the number of PhDs awarded by the UPR increased from 9 in 1991 to 49 in 2001

- Undergraduate SMET students academic performance significantly increased in traditionally difficult SMET courses at all institutions as a result of PR-LSAMP sponsored strategies, such as cooperative learning, TaDDEI, Chem-2-Chem, Integration of Course and Laboratory, and tutoring (see section on Activities and Findings)
- Average graduation rate at UPR institutions increased from 48% to 62% and at private institutions from 28% to 49% (Cohort of students that entered in 1991-92 vs. cohort of students that entered in the late 80's)
- Four PR-LSAMP awards of \$20,000 each were given to four institutions to develop and institutionalize curriculum innovations and/or teaching strategies in SMET courses with high attrition rates.
- Fourteen faculty members from 8 institutions participated in the PR-LSAMP mentoring program, and 74 upper level students served as peer mentors to 646 freshman and sophomore SMET students
- 223 stipends were awarded to junior and senior students to serve as mentors in SMET courses implementing cooperative learning and TaDDEI teaching/learning strategies
- 384 research stipends were awarded to undergraduate SMET students to participate in research experiences at local graduate research centers.
- 35 undergraduate students received travel stipends to present their research projects in national professional forums
- 101 low-income undergraduate SMET students who demonstrated high academic performance received an award for excellence to help them defray their cost of studies
- 200 junior and senior high school students from 36 public schools participated in the pre-college to college bridge program
- 53 SMET undergraduate students in addition to obtaining a BS degree in a SMET field were also certified as science or math teachers



- Summer Research participation has tripled since the inception of SCAMP. Academic year research has increased by 70%. Undergraduate research presentation at AMP conference and national conferences has also increased tremendously. SCAMP students have authored and co-authored scientific publications at an increasingly high rate.
- SCAMP continues to maintain its partnership agreements with National and Government Laboratories: USDA-Agricultural Research Services, Oak Ridge National Lab, Spallation Neutron Source and Westinghouse Savannah River Site. Savannah River Site continues to sponsor scholarships for the annual Summer Science and Engineering Research Conference.
- In collaboration with CS-CSEMS, scholarships were awarded to over 100 SCAMP students.
- During 2001, South Carolina AMP students participated in pre-doctoral summer research programs.
- Summer Bridge Programs at SCAMP institutions continues to provide the model for a successful start in SMET disciplines and a mentoring network to increase retention of SMET minority students.



## The University of Texas System LSAMP

- New strategies for joint graduate school recruiting activities: In the past three years, several partner institutions have collaborated to be represented at a single graduate student recruiting booth. In addition, graduate programs in STEM at all UT-System institutions are linked by an LSAMP website. The address for that website is: <http://www.utexas.edu/ogs/outreach/amp>.
- Continued development and dissemination of methods to assess course effectiveness and curricular reform.
- As a result of its LSAMP supported retention activities, El Paso Community College has developed several physics tutorials. They plan to disseminate these to other institutions in the Alliance.
- The Alliance has added a new industrial partner: Marathon Oil, which has donated an additional \$5,000 to the Alliance this year. This money is used to support student travel to attend regional and national meetings as well as support for the annual conference.
- The third annual UT-System LSAMP Student Research



## South Carolina LSAMP

- Minority SMET degrees in South Carolina have increased by 75% since 1992, while non-minority SMET degrees only increased by 33%. Minority SMET enrollment has increased by 52% while non-minority SMET enrollment increase by 11% since 1996.
- During Phase I and Phase II academic years 1994-Present, the South Carolina State Legislature in an unprecedented show of support, appropriated a total of \$4.2 million to AMP activities and events.

Symposium "Creating Pathways for Student Success" was held in July on the campus of the University of Texas at San Antonio. Dr. Michael Howell, University of South Carolina and Dr. Luis Haro, Univ. of Texas at San Antonio were the keynote speakers. Over 30 students participated with 23 giving oral and poster presentations. This year with the donation from Marathon Oil, students received cash prizes for first, second and third place on both oral and poster sessions.



## WAESO LSAMP

- Our Phase II overall five-year goal was to raise our baseline value of 702 SMET baccalaureate degrees awarded annually to underrepresented minorities at the end of year 5 to 1,404. We have been tracking our progress toward this goal by determining the rate of SMET baccalaureates awarded to underrepresented minorities within our region. Our alliance reports an annual rate of 1,416 SMET underrepresented minority baccalaureates at the end of Phase II showing that we exceeded our overall goal by increasing this rate 102%.
- We served 1,845 underrepresented minority students in our Phase II activities, on average, about 18% of our underrepresented minority students participate in two or more activities. As an added benefit, our minority-centered programs have, as an economy of scale, also benefited 208 non-underrepresented students. Most of the data is given in the form of student participation that accurately reflects the number of students engaged in a specific activity. This distribution shows that we have a concerted, focused effort that reaches a significant number of undergraduate SMET underrepresented minority students within our region. Moreover, our activities have benefited all students due to their scalability, portability, as well as faculty and administrator involvement.
- Comparing baccalaureate degrees earned in our alliance with the most recent national data available (Science and Engineering Degrees by Fine Field of Study and by Race/Ethnicity of Recipient 1995 Early Release Tables, <http://www.nsf.gov/sbe/srs/sedtabls/taab.xls>), we find that our alliance is responsible for 7% of the degrees awarded nationally to Hispanics and 12% of the degrees awarded nationally to American Indians in the fields of engineering, physical sciences, mathematical sciences, computer science, biological science, and agricultural sciences. Our alliance is responsible for 6% of engineering degrees awarded nationally to African Americans, American Indians, and Hispanics (NACME Research Letter, Vol. 9, No. 1, September 1999). Based on the most recent national data, 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 between 4.3% - 8.7% for the past five years that data is available. Our alliance once again continues to exceed the national rate of increase by having a 20.4% average annual increase at the end of Phase II.



## Washington- Baltimore- Hampton Roads LSAMP

- Cisco Networking Academies have recently been established at three of the alliance institutions in the WBHR-LSAMP Program. These joint ventures with Cisco are expected to bring to fruition degree programs in network engineering using e-learning and virtual strategies.
- WBHR LSAMP scholars have been elected to membership in numerous learned societies including Phi Beta Kappa, the Golden Key National Honor Society, the Beta Kappa Chi National Scientific Honor Society and the National Institute of Science
- At Morgan State University, the High Performance Computing Summer Institute has been jointly funded by the WBHR AMP and the Howard University Army Research Office funded center called the Computational Sciences and Engineering Center ( ComSERC ). More than 192 students have participated in this joint program.
- During the WBHR Phase I AMP, more than 20 Community Colleges made commitments with alliance partners through articulation agreements. And recently the High School-College Internship Program (HISCIP) allows students from high schools in the District of Columbia to spend their senior year at the AMP institutions there.
- The Harvard Calculus Course Reform has been institutionalized at all of the WBHR-LSAMP partner institutions. The results at Morgan State University and Hampton University indicate an increase in the success rate of students taking reform calculus of 50 % to 77%.
- The Atmospheric Science Institute which has been held at Howard University has attracted students both within and outside WBHR-LSAMP. This institute has resulted in a curriculum change at Howard University such that an atmospheric science course is now being offered at Howard. It is perhaps the only such course being offered at an HBCU in the nation.
- The WBHR-LSAMP Students have received research experiences at the Research Center for Optical Physics (Hampton), the Howard Hughes Center (Hampton and Howard), Nuclear High Energy Research Center (Hampton), NIH Minority Biomedical Research (Hampton, Howard, and Morgan), and the NSF supported Materials Science and Engineering Research Center (Howard). Other facilities where WBHR-LSAMP students have been active participants include the Jefferson National Laboratory and the NASA Goddard Space Flight Center.



### White House Initiative on Historically Black Colleges and Universities Recognizes Dr. Art Hicks

The White House Initiative on Historically Black Colleges and Universities (HBCUs), with the support of the National Science Foundation and Dr. Art Hicks, honored several outstanding individuals from the nation's historically Black Colleges and Universities in the areas of research and teaching. Dr. Hicks spearheaded the evaluation team on his own time, often during late hours and on weekends so as to not interrupt his ongoing daily activities. For his outstanding contribution, Dr. Hicks was recognized by the United States Department of Agriculture at the Annual Secretary's Honor and Awards Ceremony, June 4, 2001, Washington, DC., for establishing a national awards program honoring outstanding teachers and research scientists at Historically Black Colleges and Universities.



### Alabama LSAMP

The Annual LSAMP/AGEP Graduate School Fair and Graduate Fellows Conference will be held Monday and Tuesday, October 7-8, 2002, at the University of Alabama at Birmingham. The Fair normally attracts over 200 undergraduate students majoring in science, engineering, and mathematics at Historically Black Colleges and Universities in Alabama, Georgia, Mississippi, and Tennessee and provides an excellent opportunity for graduate schools to recruit students from these institutions in a single location.

The Annual Alabama LSAMP Summer Bridge Program will be held May 31-July 12, 2002 at Alabama A&M University, Alabama State University, and The University of Alabama at Birmingham, with the Summer Bridge Conference to be held at The University of Alabama at Birmingham on July 12, 2002.

The Annual Alabama LSAMP Summer Research Internship Program will be held May 31-July 26, 2002, at Alabama A&M University/University of Alabama in Huntsville and The University of Alabama at Birmingham with the LSAMP Student Research Conference to be held at The University of Alabama at Birmingham on July 22, 2002.

### California State LSAMP

We regret to inform you of the unexpected death of one of our original five co-PI's of the CSU-LSAMP, Dr. Lorraine Wiley. Dr. Wiley was with our program even before NSF funded it, as she was one of the seven or eight CSU representatives who made it to Washington, D.C.,

despite a blizzard, to make our presentation in March of 1993. Even before AMP, Dr. Wiley was extremely active in the department of Biology at California State University at Fresno beginning in 1972. She was extremely student-oriented and previously taught at both Howard University and California State University at Sacramento. Her department, her campus and her friend in the California State University AMP program will sorely miss her.

### California LSAMP

University of California, Irvine Chancellor Ralph J. Cicerone, CAMP P.I., chaired a national scientific panel that advised President Bush that global warming is a real problem that could worsen if human usage of fossil fuels is not checked. A panel of 11 scientists including UCI Nobel Laureate Sherwood F. Rowland, 1995 Nobel Prize for Chemistry, who has been a frequent CAMP faculty lecturer in the faculty seminar series, made the June 2001 report.

University of California, Irvine Engineering Dean, Nicolaos Alexopoulos, CAMP Co-P.I., was named the 2001 Engineer of the Year by the Orange County, California section of the Institute of Electrical and Electronics Engineers (IEEE). Alexopoulos was cited for outstanding contributions to electromagnetic field theory and to the advancement of the engineering profession in Orange County.

### Houston LSAMP

The Houston Louis Stokes Alliance for Minority Participation will hold its Third Annual Undergraduate Student Research Conference on July 12-13, 2002 at Southwest Texas State University in San Marcos, Texas. For further information, please contact Barbara Pascoe at

bp01@swt.edu or call (512) 245-2119. Sylvia Foster, Director of the Scholar Enrichment Program at the University of Houston has been appointed H-LSAMP Interim Executive Director.

## New Mexico LSAMP

The Annual New Mexico AMP Undergraduate Student Research Conference will be held September 13-14, 2002 on the campus of New Mexico State University in Las Cruces, New Mexico. The conference theme is "Reaching Beyond..." All LSAMP programs are invited to participate and to send students to present their undergraduate research in oral or poster presentations. Registration and abstract submission will be available on-line on or about June 1, 2002. The conference provides an outlet for students to present research, and to learn about professional activities along with professional development workshops and activities for faculty. In addition, the conference serves as a forum for SMET students, instructors, and industry professionals to share information, ideas, experiences, and advice. For more information, please contact the conference coordinator, Dr. Mary French, at (505) 646-1847.

## New York City LSAMP

The Fifth Annual Urban University Conference –Celebrating Ten Years of Alliance Activities, will be held at the City College on April 18th and 19th, 2002. Dr. Rita R. Colwell, Director of the National Science Foundation is scheduled to deliver the Keynote Address on Thursday, April 18th. Building on existing strategies and successes of the past, and initiating new relationships between, industry, academia, foundations and agencies, the event serves as a forum for key stakeholders, minority students, scientists and other professionals. For further information and to register, contact the NYC LSAMP office at (212) 650-8854 or [ampcc@cunyvm.cuny.edu](mailto:ampcc@cunyvm.cuny.edu). (<http://nyc-amp.cuny.edu>)

## North Carolina LSAMP

NC-LSAMP is pleased to announce that The North Carolina Alliance to Create Opportunity Through Education (OPT-ED), of which NC-LSAMP is a member, has received funding from the NSF AGEP program. OPT-ED is a partnership among NSF programs at Bennett College, North Carolina Agricultural and Technical State University, North Carolina State University, Saint Augustine's College, the University of North Carolina at Chapel Hill and the University of North Carolina Mathematics and Science Education Network (MSEN). These programs are committed to diversifying the science, mathematics, engineering and technology workforce and academe in order to encourage underrepresented minority students from middle school through graduate school to

obtain the Ph.D. degree. For more information, please contact Ms. Tangie Gray, Coordinator of NC OPT-ED, Phone: (919) 515-2744; E-mail: [tangie\\_gray@ncsu.edu](mailto:tangie_gray@ncsu.edu); or visit us at [www.fis.ncsu.edu/grad\\_fellows/OPT-ED/OPT-ED.HTM](http://www.fis.ncsu.edu/grad_fellows/OPT-ED/OPT-ED.HTM)

## Puerto Rico LSAMP

The Puerto Rico Manufacturers' Association and PRO-COMP, a local organization that promotes competitiveness for excellence, awarded the Resource Center for Science and Engineering of the University of Puerto Rico, the 2002 Award of Excellence in the Category of Innovation and Entrepreneurial Culture. This category recognizes the Center as an organization that creates and supports an environment that encourages creativity and innovation, but most importantly for its capacity to see change as an opportunity.

PR-LSAMP will celebrate its 10th Anniversary February 22, 2002. An all day activity is planned with an expected audience of 200 STEM faculty members. The plenary speaker will be Dr. Neil F. Comins, professor of Physics and Astronomy at the University of Maine. The topic of the conference is "Addressing Misconceptions in the Classroom: Helping Students Identify their Beliefs and then Truly Changing Them." Dr. Comins is nationally recognized for his book "Heavenly Errors".

On March 16, 2002, PR-LSAMP will celebrate the annual Puerto Rico Interdisciplinary Scientific Meeting (PRISM). PRISM is the annual local forum for undergraduate STEM students to present their research projects. This year PRISM will take place at UPR-Arecibo Campus. Dr. Richard Voss, Professor of Mathematics and Physics at Florida Atlantic University, will be the plenary speaker. The topic of the conference is "Fractals and Chaos: Bridging Science and Culture".

## SUNY LSAMP

SUNY LSAMP has NSF CSEMS programs at five institutions: SUNY Buffalo, State College at Buffalo, SUNY New Plaza, SUNY Old Westbury, and SUNY Stony Brook.

**Events:** Spring 2002: Opening and Conference at new Center for Inclusive Education at Stony Brook University

Summer 2002: Third Annual AGEP Summer Research Institute (May 28 – August 1), Contact Nina Maung at 631-632-1383 for further information

## WAESO LSAMP

Minority Graduate Education at Mountain States Alliance / Western Alliance to Expand Student Opportunity Student Research Conference; March 27, 2002, 8:00 a.m. – 4:00 p.m. Call 1-800-327-4893 or e-mail [MGE@asu.edu](mailto:MGE@asu.edu) for information.





# LSAMP Award History



<u>Year</u>	<u>Alliance</u>	<u>Lead Institution</u>	<u>Principal Investigator</u>			
1991	Alabama California Mississippi Puerto Rico Western Alliance to Expand Student Opportunities Texas	The University of Alabama at Birmingham University of California, Irvine Jackson State University University of Puerto Rico	Dr. Louis Dale Dr. Ralph J. Cicerone Dr. Mark Hardy Dr. Manuel Gomez			
		Arizona State University Texas A&M University	Dr. Antonio Garcia Dr. Karan L. Watson			
						
	Dr. Louis Dale	Dr. Ralph J. Cicerone	Dr. Mark Hardy	Dr. Manuel Gomez	Dr. Antonio Garcia	Dr. Karan L. Watson
1992	Florida-Georgia New York City North Carolina South Carolina University of Texas System	Florida A&M University City College North Carolina A&T State University University of South Carolina The University of Texas at El Paso	Dr. Ralph Turner Dr. Neville Parker Dr. Carolyn Meyers Dr. Ralph White Dr. Pablo Arenaz			
						
	Dr. Ralph Turner	Dr. Neville Parker	Dr. Carolyn Meyers	Dr. Ralph White	Dr. Pablo Arenaz	
1993	California State Illinois New Mexico Washington-Baltimore- Hampton Roads	California State University, Northridge Chicago State University New Mexico State University Howard University	Dr. Alfonso Ratcliffe Dr. Marian Wilson-Comer Dr. Ricardo Jacquez Dr. Clarence Lee			
						
	Dr. Alfonso Ratcliffe	Dr. Marian Wilson-Comer	Dr. Ricardo Jacquez	Dr. Clarence Lee		
1994	Metropolitan Detroit All Nations Greater Newark Oklahoma State Greater Philadelphia Region	Wayne State University Salish Kootenai College New Jersey Institute of Technology Oklahoma State University Drexel University	Dr. Hanley Abramson Dr. Judy Gobert Dr. Harold Deutschman Dr. Earl Mitchell Dr. Richard E. Woodring			
						
	Dr. Hanley Abramson	Dr. Judy Gobert	Dr. Harold Deutschman	Dr. Earl Mitchell	Dr. Richard E. Woodring	

<u>Year</u>	<u>Alliance</u>	<u>Lead Institution</u>	<u>Principal Investigator</u>
1995	Louisiana Heartland's University System of Maryland Mid-South Xavier/UNCF	Southern University and A&M College University of Missouri-Baltimore	Dr. Robert Ford Dr. Charles Sampson
		University of Maryland Baltimore County LeMoyne-Owen College Xavier University of Louisiana	Dr. Freeman Hrabowski Dr. Muhammad I. Shafi Dr. Leonard Price
			
			
			
		Dr. Robert Ford	Dr. Charles Sampson
		Dr. Freeman Hrabowski	Dr. Muhammad I. Shafi
		Dr. Leonard Price	
1996	Colorado SUNY	Colorado State University State University of New York-Stony Brook	Dr. Omnia El-Hakim Dr. David Ferguson
			
		Dr. Omnia El-Hakim	Dr. David Ferguson
1997	Georgia	Clark Atlanta University	Dr. Thomas W. Cole, Jr.
			
		Dr. Thomas W. Cole, Jr.	
1998	Houston	University of Houston	Dr. John Bear
			
		Dr. John Bear	
2001	Mid-Eastern Northeast Pacific	Virginia Union University Northeastern University University of Alaska Anchorage	Dr. Bernard Franklin Dr. John Cunningham Dr. Herb Schroeder
			
			
		Dr. Bernard Franklin	Dr. John Cunningham
			Dr. Herb Schroeder



# Alabama

## Louis Stokes Alliance for Minority Participation

**"Increasing the Quality and Quantity of Minority Students Receiving Baccalaureate Degrees in Science, Technology, Engineering, and Mathematics"**

### Alabama LSAMP Begins Phase III

#### ALLIANCE PARTNERS

Alabama A&M University

Alabama State University

Auburn University

Miles College

Oakwood College

Stillman College

Talladega College

Tougaloo College

Tuskegee University

The University of Alabama

The University of Alabama at Birmingham

The University of Alabama in Huntsville



**Since 1991, the Alabama Louis Stokes Alliance for Minority Participation has led the effort in Alabama to increase minority enrollment, minority baccalaureate degrees, and retention at all Alabama institutions of higher learning**



*ALSAMP/AGEP Graduate School Fair and Graduate Fellows Conference*

#### PHASE III PROGRAMS

Undergraduate research for all students

GRE preparation for all students

GRE required for all students

LSAMP "Success Link" Tracking Student System

Increased collaboration with other programs

#### CONTINUING PROGRAMS

Summer Bridge

Graduate Bridge

Research Internship

Student Mentoring

Research Conference

LSAMP Scholars



All Nations  
 Louis Stokes  
**AMP**  
 Alliance For Minority Participation

Native Americans are the least represented minority group in the Science, Math, Engineering and Technology (SMET) fields. The All Nations Louis Stokes Alliance for Minority Participation (ANLSAMP) Phase II program is building the capacity of the Tribal Colleges and Universities (TCUs) to address this disparity.

Tashina Tibbitts third place winner of the Oral Presentation at ASIES 2001 Conference



Ina Ohearn first place winner of the Oral Presentation at ASIES 2001



Brian Saluskin Poster Presenter at ASIES 2001 Conference.

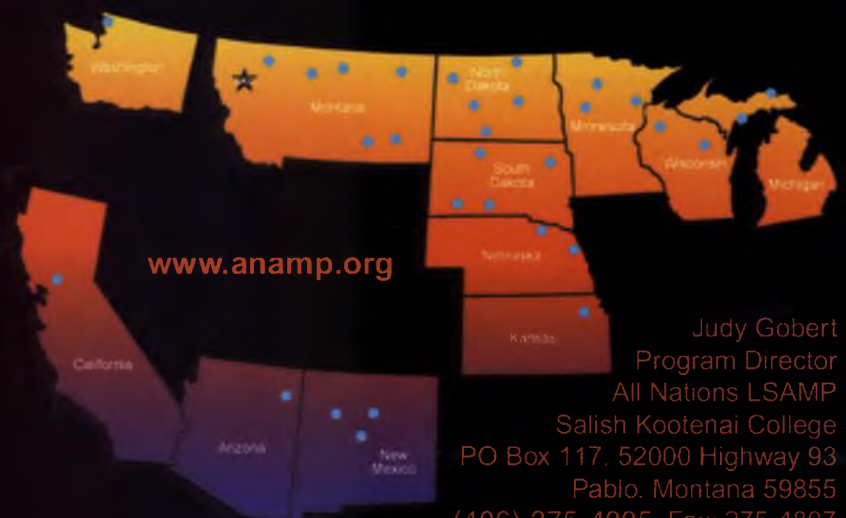


Judy Gobert



AIHEC 2001 Science Bowl Winners

ANLSAMP hopes to achieve parity with the other minority groups and to meet the needs of the tribal communities we serve. Student focused activities play an integral part in increasing student success and are incorporated into the overall program activities.



Judy Gobert  
 Program Director  
 All Nations LSAMP  
 Salish Kootenai College  
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 Pablo, Montana 59855  
 (406) 275-4995 Fax: 275-4807



# UNIVERSITY OF CALIFORNIA California LSAMP: Phase III



## PHASE III PRIORITIES:

- Continued Significant Increase in the Number of Minority Students Receiving B.S. Degrees
- Expanded Undergraduate Laboratory Research Opportunities
- Community College Transfers
- Science/Mathematics Teacher Preparation
- Graduate School Preparation

## MILESTONES:

- Gustavo Miranda, Ph.D., Molecular Cell & Developmental Biology, 2000, UCLA (NIH Postdoctoral Fellowship) (B.S. UCLA 1993)
- Ronald Metoyer, Ph.D., Computer Engineering, 2001, Georgia Tech (B.S. UCLA 1994) (UC President's Postdoctoral Fellowship)
- Elva Torres, Ph.D., Chemistry, 2001, UCLA (NSF Graduate Fellowship) (B.S. UCLA 1996)

**UC CAMP Faculty, Staff, Students Celebrate 10 Years of Achievement and Welcome NSF Support for Phase III with Purpose, Priorities, Resolve**



Administrative Center for CAMP is UC Irvine  
Ralph J. Cicerone, *Chancellor, Statewide P.I.*  
Nicolao Alexopoulos, *Dean, Henry Samueli School of Engineering, Co-P.I.*  
Debra Richardson, *Chair, Information and Computer Science, Co-P.I.*  
Juan Francisco Lara, *Assistant Vice Chancellor, Statewide Director*  
Marjorie DeMartino, *Associate Statewide Director*

CAMP Statewide • Center For Educational Partnerships  
5171 California Avenue, Suite 150, Irvine, CA 92697  
e-mail: camp@uci.edu • Phone: 949-824-6578 • Fax: 949-824-3048



# CALIFORNIA STATE UNIVERSITY LSAMP

The CSU Alliance is composed of 22 of its state campuses and 25 of the 107 California Community (2 year) Colleges. We are now beginning the fourth year of our Phase II contract with the NSF.

The Phase II proposal retained the freshman summer bridge for all of its campuses, but deleted the second summer program for most in order to fund more Academic Year Workshops with a renewed emphasis on Community College participation and to increase support for research opportunities and mentoring. The Phase I summer programs demonstrated their worth in that first year retention of new freshman students increased and remains high since the introduction of the summer workshops specifically targeting AMP students.

Some of the redirected funds were used as “incentives” for students who succeed in “gateway” courses as a consequence of their participation in Academic Excellence workshops in pre-calculus, calculus, physics, chemistry and/or biology, the introductory courses for most SMET majors. These incentives were made available to students in our partner community colleges as well as to lower division students in the CSU. This is so since, historically, Community College students constitute 50% of our SMET students who ultimately earn baccalaureates.

Students who complete the introductory courses may enroll in workshops in more advanced courses and are eligible to compete for internships, research assistantships or positions as “facilitators” for the lower level workshops, especially if they have demonstrated potential for graduate study while still being juniors or seniors. All of our workshops stress collaborative study and academic excellence, but while the summer programs last only four weeks, the Academic Excellence Workshops are distributed uniformly over 30-40 weeks and offer a greater opportunity for students to build a sense of community and to improve their academic performance and retention.

Unfortunately, we cannot provide internships or research opportunities for all of our students, but we make sure that they are aware of the opportunity to compete for openings all over the U.S. and for some positions outside of the 49 continental states. We publicize all internship opportunities immediately and repetitively.



## CSU-LSAMP CAMPUSES

☆☆☆☆☆☆☆☆

CSU Bakersfield  
 CSU Chico  
 CSU Dominguez Hills  
 CSU Fresno  
 CSU Fullerton  
 CSU Hayward  
 Humboldt State University  
 CSU Long Beach  
 CSU Los Angeles  
 CSU Northridge  
 CSPU Pomona  
 CSU Sacramento  
 CSU San Bernardino  
 San Diego State University  
 San Francisco State University  
 San Jose State University  
 Sonoma State University  
 CSU Stanislaus

☆☆☆☆☆☆☆☆

### **Chair, Governing Board**

Dr. Charles Reed, Chancellor  
 • California State University

### **Principal Investigator**

Dr. A. F. Ratcliffe, Dean Emeritus  
 • CSU Northridge  
 • College of Engr. & Comp. Sci.

### **Acting Executive Director**

John Guarrera, CSU Northridge  
 • College of Engr. & Comp. Sci.

### **Associate Executive Director**

Michelle Manchester, CSU Northridge  
 • College of Engr. & Comp. Sci.

### **Fiscal Management**

San Francisco State University



# LOUIS STOKES COAMP

Linking Diverse Students to Educational Opportunities in Science, Math, Engineering & Technology

## LS CO-AMP SERVES STUDENTS IN--

Colorado and the Four Corners Region. Our goal is to substantially increase the quantity and the quality of education for African American Hispanic, Native American, and Pacific Islander students receiving baccalaureate degrees in Science, Mathematics, Engineering and Technology (SMET). LS CO-AMP consists of nine baccalaureate degree-granting colleges and universities, three community colleges, and tribal college partner institutions. LS CO-AMP is also proud to serve the Jicarilla Apache, Navajo, Southern Ute, and Ute Mountain Ute Native American Communities as we collaborate on ways to increase the numbers of American Indian students receiving college degrees.

## LS CO-AMP PARTNER INSTITUTIONS

- Adams State College
- Colorado State University
- Colorado School of Mines
- Diné College
- Fort Lewis College
- Front Range Community College
- Metropolitan State College of Denver
- Pueblo Community College
- Trinidad State Junior College
- University of Colorado – Boulder
- University of Colorado – Colorado Springs
- University of Colorado – Denver
- University of Southern Colorado



## STRATEGY FOR PHASE II (2001-2006) AND THE LS CO-AMP MODEL ---

LS CO-AMP Phase II will undertake a comprehensive effort to place emphasis in the following areas:

- Recruitment
- Leadership/Retention
- Graduation of LS CO-AMP seniors
- K-12 Outreach
- Tracking
- Graduate school placement

Phase II will build upon the momentum and the success of Phase I (1996-2001):

- Projected goal was 400 UREP SMET B.S. degrees. By 5th year, project met 80% of this goal with 319 UREP SMET B.S. degrees awarded.
- Rate of increase in UREP SMET degrees awarded was 48.4%.
- Rate of increase of UREP SMET degrees awarded from baseline to year 5 was over twice that of the increase in all SMET degrees awarded (48.4% vs. 21.2%).
- Rate of increase in UREP SMET enrollment (1736 to 2402) was 38%.
- Rate of increase of UREP SMET enrollment from baseline to year 5 was twice that of the increase in NON-SMET enrollment (38% vs. 16%).



Dr. Omnia El-Hakim  
Principal Investigator  
& Director



## LS CO-AMP KEY PERSONNEL

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Colorado State University &  
Fort Lewis College  
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## GOVERNING BOARD CHAIR

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President, Colorado State University  
Chancellor, Colorado State University  
Systems

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## TRIBAL PARTNERS

Jicarilla Apache Tribe – Frieda Havens  
Navajo Nation – Roxanne Gorman  
Southern Ute Tribe – Latitia Taylor  
Ute Mtn. Ute Tribe – Yolanda Rossi

Linking diverse students to educational opportunities in science, mathematics, engineering, and technology  
<http://lamar.colostate.edu/~coamp>



# FGLSAMP

*Florida - Georgia Louis Stokes Alliance  
for Minority Participation*



The Florida-Georgia Louis Stokes Alliance For Minority Participation (FGLSAMP) Project is a Coalition of twelve academic institutions in Florida and one in Georgia committed to producing graduates in the science, mathematics, engineering and technology (SMET) areas and influencing the enrollment of these students in graduate programs. The institutions involved in the FGLSAMP Project have a holistic plan to influence the progression and graduation rates of minorities in SMET areas.



Graduate Workshop

The FGLSAMP Project strengthens the academic preparation and progression of students in their majors and supports students in research projects as early as the summer following the sophomore year. FGLSAMP has established linkages with industry, governmental laboratories and research institutions to facilitate research opportunities and smooth the transition of students to graduate programs. Involvement of these partners is in the form of scholarships, summer internships and seminar presentations.



Career Expo 2001

The FGLSAMP operations are supported primarily through funding from the National Science Foundation (NSF) and a special state appropriation by the Florida legislature. The FGLSAMP Project is completing its tenth year of operation. The program has achieved visibility within participating institutions and from other institutions around

the nation. The Alliance has hosted two Regional Conferences, eight Career EXPOs and collaborated in the implementation of one NSF-AMP Student Research Conference.

By equipping students with the tools they need to succeed, FGLSAMP is making an investment in our most precious resource - the future.

*(From left to right) Former FAMU President Humphries, Dr. Pamela McCauley-Bell, FGLSAMP student, and Dr. Ralph Turner*



Awards Reception



University of Central Florida



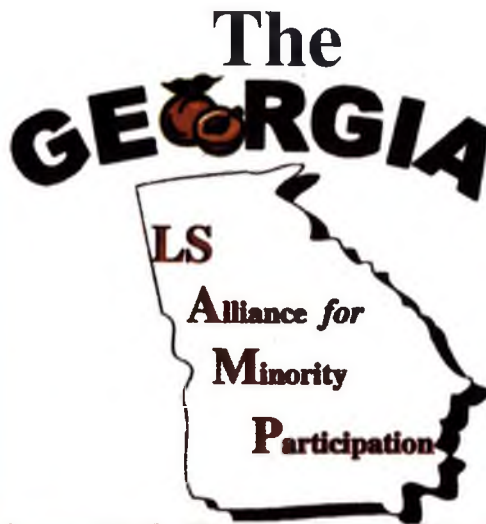
FMC FLORIDA MEMORIAL COLLEGE



TALLAHASSEE COMMUNITY COLLEGE







*In Science, Math, Engineering, and Technology*

## Alliance Institutions

Atlanta Metropolitan College  
 Clark Atlanta University  
 Georgia State University  
 Morehouse College  
 Morris Brown College  
 Paine College  
 Spelman College



## Alliance Programs

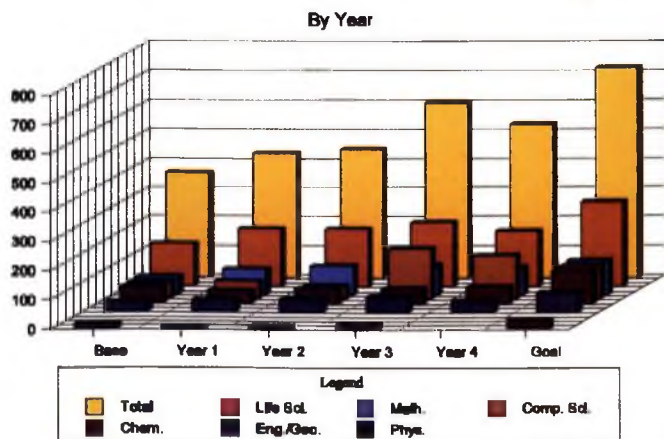
Curricular Reform  
 Combined Degree Programs  
 Early Identification/Recruitment  
 Summer Bridge Programs  
 Post-Freshman Research/Academic Support  
 Research Internships  
 Faculty Mentoring  
 Tutorial Support  
 Cooperative Study Groups

## Producing a more diversified 21<sup>st</sup> century workforce in the sciences, engineering and mathematics.

The Georgia Louis Stokes Alliance for Minority Participation, established during academic year 1997-1998, continues to make progress toward its goal of making significant contributions to a diversified 21st century science, engineering, and mathematics (SEM) workforce. The SEM enrollment has increased by more than forty percent, and undergraduate degree production has increased by more than sixty percent. Additional indicators of success include the following: (1) Two of the top five baccalaureate institutions of origin of recent Black SEM PhD recipients are members of this alliance; (2) between December 1998 and December 2001, members of this alliance have awarded provided at least fourteen Black female PhD recipients in SEM; (3) during academic year 1998-1999, one member of this alliance awarded fifty-one degrees in chemistry to minority recipients including four PhDs to Black recipients; and (4) members of this alliance have produced more than sixty-five recipients of BS/MS and BS/BSE degrees between academic years 1997-1998 and 2000-2001.



## GA LSAMP Minority SMET BS Degrees



## Alliance Partners

Committee on Institutional Cooperation  
 David and Lucille Packard Foundation  
 HOPE Scholarship Foundation  
 MEDIC-B (Indian University)  
 National Security Agency  
 Naval Research Laboratory  
 NSF CREST  
 NSF Undergraduate Program  
 Office of Naval Research  
 NASA Funded Pair



# PhiladelphiaAMP

GREATER PHILADELPHIA REGION LOUIS STOKES ALLIANCE FOR  
MINORITY PARTICIPATION IN SCIENCE, ENGINEERING AND MATHEMATICS

## PARTNERS

Cheyney University  
Community College of Philadelphia  
Delaware State University  
Drexel University  
Lincoln University  
New Jersey Institute of Technology  
Temple University  
University of Delaware  
University of Pennsylvania



## MISSION

- To increase the minority SMET degree production to 1116 degrees annually
- To increase the minority progression and retention rates in SMET
- To move at least 10% of AMP graduates into graduate SMET education



# The Heartland's Alliance for Minority Participation

***Heartland's AMP...Diversity, Quality and Academic Excellence***



The Heartland's Alliance for Minority Participation is clearly making a difference in the number of underrepresented students who are entering and expanding the pipelines leading to higher education and employment opportunities in science, mathematics, engineering and technology. With the continued support of our Alliance member academic institutions, State of Missouri agencies, and industry partners, the Heartland's AMP remains committed to the principles of diversity, equality and academic excellence. Synergies created by the cooperative efforts of Heartland's Alliance members are insuring that underrepresented students in the state have every opportunity to maximize their intellectual potential. Alliance members' continued support of the HAMP mission and its goals is acknowledged and their enthusiasm for achieving greater program successes in the future is appreciated.

**Our Mission:** *The Heartland's Alliance for Minority Participation is a multidisciplinary comprehensive program designed to significantly increase the quantity and quality of minority and underrepresented students who receive baccalaureate and graduate degrees in life and physical sciences, mathematics and engineering.*

**Our Goals:** (1) To increase the enrollment of minority and underrepresented undergraduates earning degrees in life and physical sciences, mathematics and engineering disciplines by 15 percent per year for five years.  
(2) To increase the enrollment of minority and underrepresented students in the cognizant disciplines.

**Our partners:** Central Missouri State University, Lincoln University, Metropolitan Community Colleges, Missouri Southern State College, Northwest Missouri State University, St. Louis Community College, Southeast Missouri State University, Southwest Missouri State University, Truman State University, University of Missouri-Columbia, University of Missouri-Kansas City, University of Missouri-Rolla, University of Missouri-St. Louis, University of Missouri System, Missouri Coordinating Board for Higher Education, Missouri Department of Conservation, Missouri Department of Elementary and Secondary Education, Missouri Department of Natural Resources

**PROJECT DIRECTOR AND PRINCIPAL INVESTIGATOR: Charles L. Sampson, Ph.D.;**  
**ADMINISTRATIVE ASSISTANT: June Gibson**

# Houston Louis Stokes Alliance for Minority Participation

“Achieving diversity in science, mathematics, engineering, and technology”

## H-LSAMP INSTITUTIONS

University of Houston  
Texas Southern University  
Southwest Texas State University  
University of Houston-Downtown  
Rice University  
University of Houston-Victoria  
Houston Community College System  
San Jacinto Community College District  
Houston Independent School District



## Third Annual Undergraduate Student Research Conference

July 12-13, 2002 at Southwest Texas State University in San Marcos, Texas. For further information, please contact Ms. Barbara Pascoe at [bp01@swt.edu](mailto:bp01@swt.edu).



## Accomplishments

The H-LSAMP was formed in 1999 as the 28<sup>th</sup> LSAMP program in the country. During its first two years of its existence, the program has graduated 1,298 SMET minority students. There are currently 6,414 minority students enrolled in SMET areas. The number of direct participants in the program has increased from 155 students the first year to 337 students during the second year of the program.



## Program Highlights

- Recruitment
- Financial Assistance
- Collaborative Learning Communities
- Mentors
- Summer Bridge Programs
- Internships
- Undergraduate Research Experiences
- Student Research Conference





# ILLINOIS LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION



## PRINCIPAL INVESTIGATORS

Dr. Elnora D. Daniel, President  
Dr. Marian Wilson-Comer,  
Executive Director

## DIRECTOR

Dr. LeRoy Jones II

## SCIENCE OUTREACH COORDINATOR

Mrs. Yolanda McGehee Jordan

## OFFICE MANAGER

Ms. Fay D. Edmond

## PARTNERS

Chicago State University  
DePaul University  
Governors State University  
Illinois Institute of Technology  
Illinois State University  
Northeastern Illinois University  
Southern IL Univ. Edwardsville  
University of Illinois Chicago  
Harold Washington College  
Harry S Truman College  
Kennedy-King College  
Malcolm X College  
Olive-Harvey College  
Richard J. Daley College  
South Suburban College  
St. Augustine College  
Wilbur Wright College

## CONTACT INFORMATION

Illinois LS-AMP  
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(773) 995-2966 (fax)  
ilsamp@csu.edu (e-mail)  
www.csu.edu/ILSAMP (web site)

## OVERVIEW

The Illinois Louis Stokes Alliance for Minority Participation (I-LSAMP) formerly the Chicago Alliance for Minority Participation (ChAMP) was formed in 1993 in response to the National Science Foundation's (NSF) mandate to significantly increase the number of underrepresented minority scholars earning degrees in science, mathematics, engineering, and technology (SMET) disciplines. In support of this goal, I-LSAMP has 1) provided programs to improve SMET student academic preparation, 2) modified or reinvented gateway courses to better educate more students and, 3) provided underrepresented students with more educational options to increase opportunity and enhance performance. With continued support, this program can and will serve as a solid foundation for student achievement.

## PROGRAMS

Illinois LS-AMP provides activities that are comprehensive, multidisciplinary, and focused on enhancing the scholarship of minority students. Considerable effort is expended to address transition points in a student's academic career. The transition points include high school to college, 2-year college to 4-year college, undergraduate study to graduate study, and academic study to careers in SMET. Other activities include: hands-on research apprenticeships, scholarship programs, science conferences, facilitated study groups, faculty mentoring, professional development activities, peer mentoring, summer bridge programs and internships.

## Student Comments



"The AMP program has allowed me to embark on a new journey through the evolving world of computer science and has afforded me the opportunity to focus entirely on my studies. Moreover, I have been able to establish new, profound, and lasting relationships among my colleagues and faculty."

Anthony Carlos  
Governors State University



"The Illinois LS-AMP program gave me the opportunity to extend my knowledge of Mathematics to areas I did not know existed."

Celia Jimenez  
St. Augustine College

# LOUIS STOKES LOUISIANA ALLIANCE FOR MINORITY PARTICIPATION

P.O. Box 9274 Baton Rouge, LA 70813  
225.771.2777 • www.ls-lamp.org

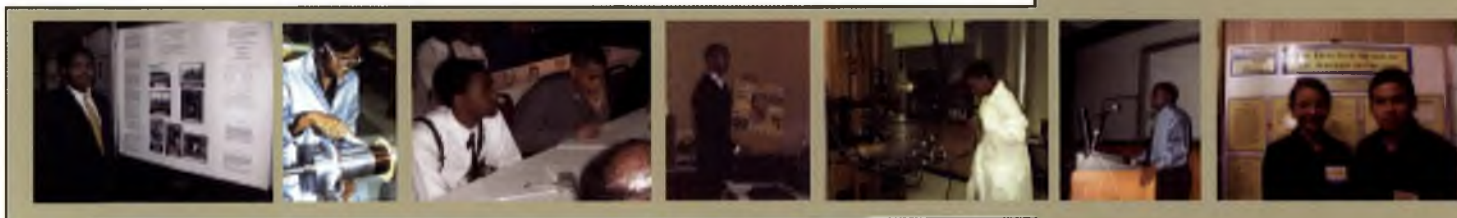
The Louis Stokes Louisiana Alliance for Minority Participation began in 1995 with the Phase I objective of increasing the number of minority science, mathematics, engineering, and technology (SMET) students receiving bachelor of science degrees from partner institutions and sending at least 40 percent of these graduates to SMET graduate programs.



Now, in Phase II, LS-LAMP partners are maximizing current gains and institutionalizing its entire operation through systemic and holistic mentoring, curriculum development, education, and student research.

These efforts provide the foundation for the successful matriculation of our scholars into graduate programs and will remain at the forefront of LS-LAMP activities.

LS-LAMP showcases a standard of academic excellence that is not only achieved by our scholars and affiliates, but is also a standard that is nationally recognized as one of the foremost contributors to the education of underrepresented minorities pursuing SMET careers in the state of Louisiana.



## LAMP PARTNER INSTITUTIONS

Southern University and A&M College\*  
Dillard University  
Grambling State University  
Louisiana State University  
Louisiana Universities Marine Consortium  
McNeese State University  
Nunez Community College  
Southern University New Orleans  
Southern University Shreveport  
Tulane University  
University of New Orleans  
University of Louisiana at Lafayette

*\*lead institution*

## GAINS FOR LAMP SCHOLARS

- ❖ Systemic Mentoring
- ❖ Direct Financial Support
- ❖ Cooperative Learning
- ❖ GRE Preparation
- ❖ Skills Enhancement and Professional Development
- ❖ Research Participation
- ❖ Local and National Conference Participation
- ❖ Research Competitions, Presentations, and Publications

## GAINS FOR PARTNERS

- Connection to SMET Scholars for Research and Recruitment
- Articulation and Bridge Activities for Pre-College, Community College, and Four year College SMET students
- Curriculum Reform
- Infrastructure Improvement



# UNIVERSITY SYSTEM OF MARYLAND LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

The University System of Maryland Louis Stokes Alliance for Minority Participation (USM LSAMP) partner institutions include the University of Maryland, Baltimore County (lead institution); the University of Maryland, College Park; the University of Maryland Eastern Shore; and the public community colleges in Maryland.

The **USM LSAMP** is a comprehensive program that is designed to increase substantially the quantity and quality of minorities and other students receiving baccalaureate degrees and going on to graduate programs in science, mathematics, engineering and technology (SMET).

Since its inception in fall 1995, the **USM LSAMP** has significantly increased the number of minority students in SMET majors and awarded baccalaureate degrees to 2,738 minority students in SMET fields.

Many top research scientists serve as mentors for **USM LSAMP** students who prepare for advanced study by conducting cutting-edge research in domestic laboratories and abroad. The mentoring component facilitates educational and professional growth before and after completion of the baccalaureate degree.

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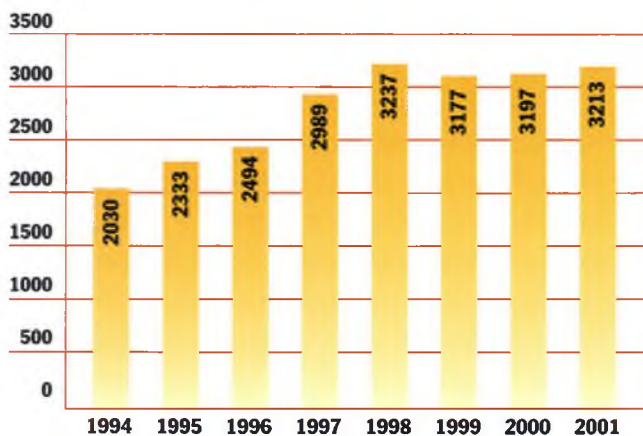
“The LSAMP Program is guiding me in my endeavors to become a scientist by providing academic support and opportunities to explore my interests in science. In addition the program also offers a supportive family environment.”

*Alex Dummett, Sophomore in Chemical Engineering*

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**USM LSAMP Enrollment of Minority Undergraduate Students in SMET Majors, 1994-2001**



# Mid-Eastern Louis Stokes Alliance for Minority Participation

Virginia Union University is the lead institution of a consortium of six other institutions that are committed to doubling the number of minority graduates in the fields of science, mathematics, engineering and technology (SMET) over the next five years. In 1995 African Americans were approximately 14.4 percent of the college freshman age population, about 11 percent of the United States college enrollment, represented 5.6 percent of all graduate SMET students, and were awarded just 2.1 percent of all SMET doctoral degrees. In that same year, African Americans constituted just 3 percent of the nation's employed scientists and engineers.



Reasons for such inequities include discrimination, academic disengagement, lack of role models and inadequate pre-college education. Historically black institutions and other consortium participants have a tradition of educating students from economically disadvantaged backgrounds. The inclusion of larger, well-resourced majority institutions will result in sharing new ideas, resources and fresh visions for success.

## **Specifically, the Mid-Eastern Alliance for Minority Participation (AMP) will:**

- Incorporate regional freshman orientation programs, oversight, management and technical assistance, and internal and external evaluation.
- Recruit sufficient numbers of students to double the Science, Mathematics, Engineering and Technology (SMET) degree production over five years
- Provide pre-college enrichment activities to improve students' analytical skills
- Emphasize the skills and knowledge needed for success in SMET study
- Provide a faculty mentor for each AMP participation
- Provide ongoing undergraduate research experiences
- Foster networking and interaction among students with similar interests
- Widen the network of SMET faculty and increase the exchange of information among AMP faculty members and administrators

Partner institutions include Elizabeth City State, Fisk, James Madison, Virginia Tech and Johnson C. Smith Universities and St. Augustine's College. All the institutions combined had 374 students to graduate with SMET degrees in 2000. The consortium seeks to double that number in the next five years.



### **From Left to Right**

Dr. Benjamin Dixon, Virginia Tech; Dr. Philip Archer, VUU; Dr. Willie A. Bragg, VUU; Dr. Lebarron Chambers, VUU; Dr. Ali Khan, Elizabeth City State; Dr. James Hicks, National Science Foundation; Dr. Arnold Burger, Fisk University; Dr. Kim Luckes, St. Augustine's College; Dr. Bernard W. Franklin, President, VUU; Dr. Mickey L. Burnim, President, Elizabeth City University; Dr. Harry Bass, VUU; Dr. David Brakke, James Madison University.



LEMOYNE-OWEN COLLEGE • UNIVERSITY OF TENNESSEE, MEMPHIS •

STATE TECHNICAL INSTITUTE AT MEMPHIS • TENNESSEE STATE UNIVERSITY •

ARKANSAS STATE UNIVERSITY • CHRISTIAN BROTHERS UNIVERSITY • UNIVERSITY OF MEMPHIS

National Science Foundation  
Louis Stokes

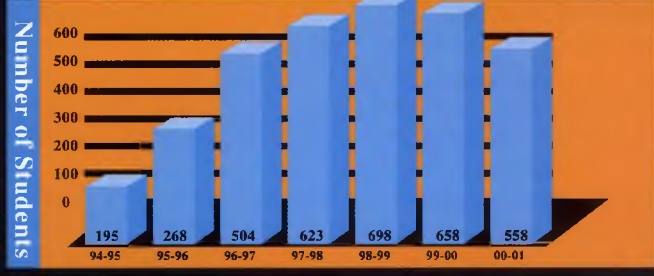


1995 - 2001

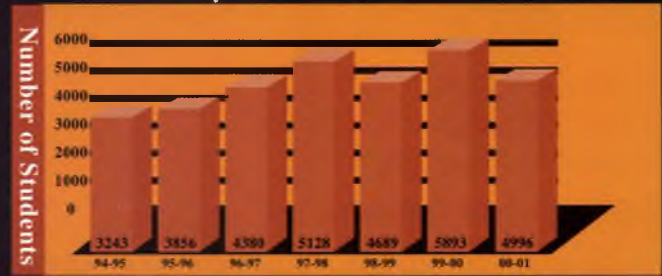
Developing Future Leaders  
in  
Science, Mathematics, Engineering,  
and Technology

MID-SOUTH COMMUNITY COLLEGE • SHELBY STATE COMMUNITY COLLEGE • RUST COLLEGE

Minority SMET Bachelor's Degrees



Total Minority SMET Enrollment 4Year Institutions





Alcorn State University



Delta State University



Jackson State University



Mississippi State University



Miss. University for Women



Miss. Valley State University



University of Mississippi



University of Southern Miss.

# Mississippi Louis Stokes Alliance for Minority Participation (MLSAMP)

The Mississippi Louis Stokes Alliance for Minority Participation (MLSAMP) has made significant contributions toward diversifying the nation's scientific workforce. Furthermore, we are confident that the number of minority science professionals educated in Mississippi universities will continue to increase because MLSAMP has created a legacy of institutional environments that support minority empowerment and achievement in the sciences. As we move into the eleventh year of the alliance, we are proud of the contributions that MLSAMP is continuously making toward the diversification of the nation's scientific workforce.

Improvement in student achievement through the statewide alliance has been dramatic. This is evidenced by the striking increase in B.S. degrees earned by minority students in SMET disciplines at Mississippi universities - from 242 in 1991, the baseline year, to 605 in 2001. This has been achieved by developing a permanent, systemic infrastructure to support both minority achievement at the undergraduate level, and the successful transition to graduate school. The alliance has facilitated a more than doubling of the number of minority students earning degrees in science, mathematics, engineering and technology since 1991 in Mississippi universities.

The single most important impact of MLSAMP is the empowerment of students. From the outset, they are made aware of the many people and activities available to help them succeed. Peer based networks have been established, in which students may serve or be served as needed. These networks give students accountability for accessing the strategies and methodologies MLSAMP has implemented for their enhanced success.

## MLSAMP's Statewide Achievements:

- ❖ The number of B.S. Degrees in SMET disciplines granted to minority students more than doubled from the baseline year, from 242 in 1992 to 605 in 2001.
- ❖ MLSAMP has spawned an unprecedented, highly empowered, inter- and intra-institutional network of SMET minority students in Mississippi. MLSAMP site coordinators form the core of a highly interactive, collaborative team working to improve the efficiency and effectiveness of undergraduate education in SMET.
- ❖ MLSAMP has implemented several successful models of educational intervention which improve the performance of students through empowerment (enhanced responsibility and accountability). Peer mentoring and study groups characterize the program throughout the system
- ❖ Minority MLSAMP students who are actively involved (Level 1) are performing at a higher average GPA than the total population of SMET students.
- ❖ Institutions are beginning to adopt some of the MLSAMP activities, such as the summer bridge programs, for the enhancement of all students, not just minority SMET majors. The success of MLSAMP activities is creating a mandate for their routine integration at the departmental level.
- ❖ MLSAMP has caused a rapid and unprecedented integration of minorities into the programs of the Mississippi Academy of Sciences. Scientists all over the state wish to duplicate the substantial participation of undergraduate students MLSAMP has achieved.



# New Mexico AMP

## SMET 101: INTRO. TO SCIENCE, MATH, ENGINEERING, AND TECHNOLOGY

was developed by New Mexico AMP with a curriculum grounded in the latest scholarship in effective learning. It incorporates the concepts of collaborative learning, writing across the curriculum, portfolio development/assessment, and student development activities.

The goal of SMET 101 is for students to develop a better understanding of their own learning processes and the expectations, challenges,



and requirements of their discipline now and after graduation.

SMET 101 helps students become more confident in their choice of major and focused on their discipline. It shows them how successful students approach learning and helps them adopt specific behaviors to increase their own success.

To increase the quality and consistency of instruction, and provide professional development, SMET 101 instructors are brought together annually for a week-long institute which includes discussions on classroom pedagogy, theory and practice, and assessment and evaluation techniques.

## UNDERGRADUATE RESEARCH ASSISTANTSHIPS (URA)

are available to students at many of the two- and four-year Alliance institutions. Students attend writing workshops, produce technical reports on their project, and present their research at the New Mexico AMP Undergraduate Student Research Conference or other professional conferences such as SHPE, NSBE, AISES, SACNAS.

URA students develop both a research and professional relationship with their faculty mentor to encourage and help them prepare for graduate school. Students are also better prepared for the expectations of industry and government internships since participants are more likely to have specific areas of interest to pursue, ask more pertinent questions, and be more "savvy" in assessing the information they are given about their role in a project.



## ANNUAL UNDERGRADUATE STUDENT RESEARCH CONFERENCE

is a statewide event for students and faculty from the state's 27 two- and four-year colleges and universities, and for students and teachers from the New Mexico Mathematics, Engineering, Science Achievement, Inc., program (New Mexico MESA).

The conference serves as a vehicle for student and faculty networking and as a forum for SMET students, instructors, and industry professionals to share information, ideas, experiences, and advice. Professional development workshops and activities are available for faculty.

The conference provides an opportunity for students to present their research and gain presentation experience; to serve as role models for other students; and to participate in workshops and panel presentations which help them plan their academic and professional careers.



Dr. Ricardo B. Jacquez, Director; New Mexico Alliance for Minority Participation; MSC-3AMP;

New Mexico State University; P.O. Box 30001; Las Cruces, NM 88003-8001

Phone: 505/646-1847 Fax: 505/646-2960 e-mail: [amp@nmsu.edu](mailto:amp@nmsu.edu) <http://www.nmsu.edu/~nmamp>

# NEW YORK CITY LOUIS STOKES ALLIANCE



**T**he NYC Louis Stokes Alliance for Minority Participation (NYC-LSAMP) is an alliance of 16 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, Mathematics, Engineering, and Technology (SMET).



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 SMET enrollment and graduation in the City University of New York. Since 1992, over 5,800 baccalaureate degrees have been awarded. The Alliance provides academic scholarship support to CUNY students majoring in the SMET disciplines, making research an integral part of SMET education in New York City.

## LSAMP Program Activities Include:

- Collaborative Learning Approach to SMET 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



## *Partner Institutions*

*North Carolina A&T State  
University (lead campus)*

*College of Engineering  
640 McNair Hall  
Greensboro, NC 27411  
Phone: (336) 334-7447  
Fax: (336) 334-7540  
E-mail: [vivian@ncat.edu](mailto:vivian@ncat.edu)*

*Fayetteville State University*

*North Carolina Central  
University*

*North Carolina State University*

*University of North Carolina at  
Chapel Hill*

*University of North Carolina at  
Charlotte*

*University of North Carolina at  
Pembroke*

*Winston-Salem State University*



*2001 NC-LSAMP Annual Undergraduate Research Conference Participants*

## **Record Attendance Set During Fifth Annual Undergraduate Research Conference**

Undergraduate research is a major component of the North Carolina LSAMP Program. This initiative specifically addresses the retention, education, and graduation of SMET students through focused research experiences providing early exposure to a graduate/postgraduate environment. Faculty in SMET disciplines across the Alliance assume key roles as mentors to facilitate guided research experiences for students. Opportunities for freshmen are initiated through team problem-solving and joint class projects, and attendance at local seminars. During the academic year, upperclass students are paired with faculty in campus-based laboratory research projects. In addition, many juniors and seniors engage in summer internships and research programs sponsored by the Alliance, national laboratories, other universities, and industry.

The Alliance sponsors an annual research conference to showcase undergraduate research accomplishments, and to promote Alliance-wide interaction among SMET students and faculty mentors. North Carolina A&T State University hosted the fifth NC-LSAMP Undergraduate Research Conference on April 20, 2001. This year, the Alliance collaborated with other NSF diversity-focused programs to expand conference participation of students and faculty at various stages of the SMET pipeline. Specific programs included the Historically Black Colleges and Universities-Undergraduate Program (HBCU-UP); the Center of Research Excellence in Science and Technology (CREST); and Alliances for Graduate Education and the Professoriate (AGEP). Salient components of the conference consisted of student presentations; keynote address by Dr. Roosevelt Y. Johnson, AGEP Program Director at NSF; a graduate student roundtable on SMET diversity moderated by Dr. Johnson; graduate recruitment/networking; and tours of campus research laboratories. In addition, personal introductions of SMET students were made during a "parade of LSAMP scholars" at the awards banquet.

Since the first conference in 1997, participation by both students and faculty has increased significantly. In 2001, a record number was accomplished for poster (n=40) and oral presentations (n=45), and for overall conference attendance. The total attendance of 403 students and faculty represents a dramatic growth of 90% since the inception of the conference; poster presentations have grown by 250%; and oral presentations increased by 114%. Local high school students interested in pursuing SMET degrees also attended the conference. Student presenters represented the eight NC-LSAMP partner institutions and guest students from the South Carolina LSAMP Program.

*Bottom Left Photos: Dr. Johnson, NSF AGEP Program Director, interacts with student presenters.*



# Northeast Louis Stokes Alliance for Minority Participation Phase I Begins!

## NE LSAMP Gathering of PIs and Partners

Left to Right: FRONT ROW-Gilda Barabino, PI, Northeastern University; Amanda Burton, New England Board of Higher Education, Ann Lewis, Director, Northeast AGEP (UMass), John Cunningham, PI, University of Massachusetts, Harold Knickle, PI, University of Rhode Island, Dawn Johnson, Director, Minority Affairs and Outreach, WPI

BACK ROW-Leonard Brown, Northeastern University, Art Dimock, Program Director, LSAMP-CT, Ron Growney, co-PI, University of Connecticut, Suman Singha, co-PI, University of Connecticut, Lance Schachterle, PI, Worcester Polytechnic Institute, David Blackman, Northeastern University



The *Northeast Louis Stokes Alliance for Minority Participation (NE LSAMP)* brings together public and private institutions across the southern New England region:

Northeastern University (NU, co-lead institution)  
University of Connecticut (UConn)  
University of Massachusetts, Amherst (UMass, co-lead institution)  
University of Rhode Island (URI)  
Worcester Polytechnic Institute (WPI)

Northeastern houses the AMP Resource Center designed to provide resource support to the other partner institutions. The Decision Support for Student Success (DSSS) system, an intelligent information system designed at Northeastern to support faculty and administrators in advising students for success will be available to all partners.

The “*Keys to Success*” can be found across the NE LSAMP. Examples include:

### *Mentoring-*

available on all campuses from faculty and graduate students in addition to advising/counseling by specialized staff; student chapters of NSBE and SHPE are in place; UConn and URI enlist upper-class student coaches for minority engineering students; EMSEP at WPI provides strong student, faculty, and staff support; cultural centers at UConn and UMass

### *Focused Workshops-*

Math Excel at WPI; Supplemental Instruction at UMass; a First Year Experience seminar at UConn

### *Research Experiences for Undergraduates -*

Academic year laboratory experiences at UMass and NU; a summer REU through the NE-AGEP;

### *Summer Bridge Programs-*

for high schoolers = NUQUEST, a science education camp at NU for students at selected Boston public high schools; STRIVE, WPI’s on-campus project experience; a new research camp at UConn;  
for entering undergraduates = ATOMS, a bridge between Roxbury Community College and NU; the Engineering Diversity Program at UConn offers an intensive program in mathematics, chemistry, physics and computers; a new bridge program at URI for entering minority SMET students





## LOUIS STOKES OKLAHOMA ALLIANCE

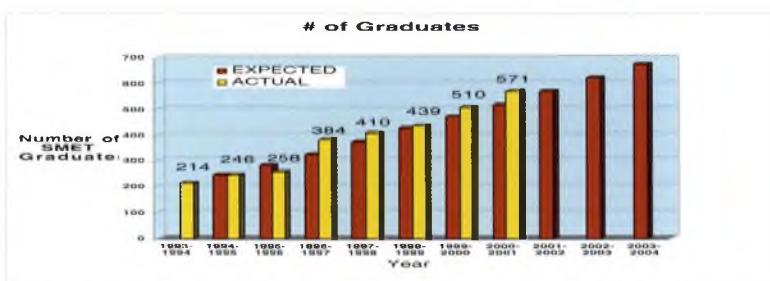
FOR MINORITY PARTICIPATION  
IN SCIENCE, MATHEMATICS,  
ENGINEERING, AND  
TECHNOLOGY  
(LS-OKAMP)



Earl D. Mitchell, Program Director

**Partner Institutions:** Cameron University, East Central University, Langston University, Northwestern Oklahoma State University, **Oklahoma State University (Lead Institution)**, Southeastern Oklahoma State University, Southwestern Oklahoma State University, University of Central Oklahoma, University of Oklahoma, University of Tulsa

Phase I (1994-1999) began with a baseline graduation number of 214 and Phase II (1999-2004) began with a baseline of 438. At the end of the second year of Phase II, 571 LS-OKAMP students were awarded baccalaureate degrees in SMET fields.



Phase II aims to continue annual increases in undergraduate degrees, with emphasis on graduate school motivation, preparation and enrollment.



**Edward J. Daniel, Ph.D. Candidate (December '02), Electrical Engineering, Oklahoma State University:**

*"The LSAMP Program gave me the financial means to reach my short-term academic goals, thus enabling me to pursue my long-term goals. The program also gave me the exposure I needed to make the quality decision to pursue graduate studies in engineering. This included research, working closely with professors, and having access to a wealth of information about graduate school."*

(BS & MS, Electrical Engineering, OSU, 1997 and 2000)



**Activities:** Dr. Hicks' Spring 2001 visit; Summer 2001 Bridge Program; Research Internship Program; Fall 2001 Annual Research Symposium - poster and oral presentations.

**National Science Foundation  
LSAMP Pacific Alliance**

*Building A National Model for Excellence in Native American Higher Education Programs*

**Project Overview**

*Our objective is to effect a systemic change in the hiring patterns of Alaska Natives, Native American, and Pacific Rim Islanders in the fields of science, engineering, and mathematics (SEM) by increasing the number of individuals on a career path to leadership within SEM fields.*

*We will know that we are meeting our objectives over the next five years when we double the current number of Indigenous American students graduating annually and we see 50% of these going on to graduate school.*

The Pacific Alliance is a partnership among academic institutions, industry, government agencies and laboratories, and professional organizations. Both the University of Washington (UW) and the University of Alaska Anchorage (UAA) have been successful in transitioning NSF funded outreach and bridge (ALVA) programs into sustainable corporate and state funded programs. Industrial partners to our programs have pledged to provide approximately \$2.6 million dollars in support of our Alliance. Partner Universities have pledged approximately \$1.26 million additional.

According to NSF, the national average retention rate for Native Americans in engineering programs is 27%. Existing retention programs at the University of Alaska Anchorage (UAA) and at the University of Washington (UW), already have program life retention rates above 70%. LSAMP funding will enhance and further develop the retention component of these existing successful models. The University of Hawaii at Manoa (UH), and the University of Alaska Fairbanks (UAF) will replicate the programs at the UW and the UAA.

We target undergraduates who have shown an interest or aptitude for SMET fields in high school, when they entered college, or during their college career. The Pacific Alliance offers an array of opportunities designed to help students fulfill their potential in college, to sustain their interest in SMET fields, and develop an interest in graduate study. Students are *teamed*. Program components include outreach workshops, high school to college bridging, retention, summer internships, hands-on research experiences, career development, graduate school, and interaction with other institutions in the Alliance.

For more information please contact:

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PI, LSAMP Pacific Alliance

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King Island Dancer at the 2001 ANSEP party

**The Pacific Alliance**

University of Alaska Anchorage  
University of Alaska Fairbanks  
University of Hawai'i Manoa  
University of Washington

**Recruitment, Retention and  
Placement Strategies for the  
Pacific Alliance**

*Outreach*

*TALPA: Technology  
Applications & Learning  
for Professional  
Achievement*  
High School Workshops  
Recruiting Visitations  
Field Trips  
*KEEO: Knowledge of  
Engineering Early On*

*Bridge: Summer Experiences  
for entering freshman*  
Internships with Calculus  
Prep (ALVA)

*Retention*

Learning Community  
Co-enrollment  
Team building  
Group study  
Counseling  
Scholarships  
Internships  
Supporting community  
Professional mentoring  
Hands on research

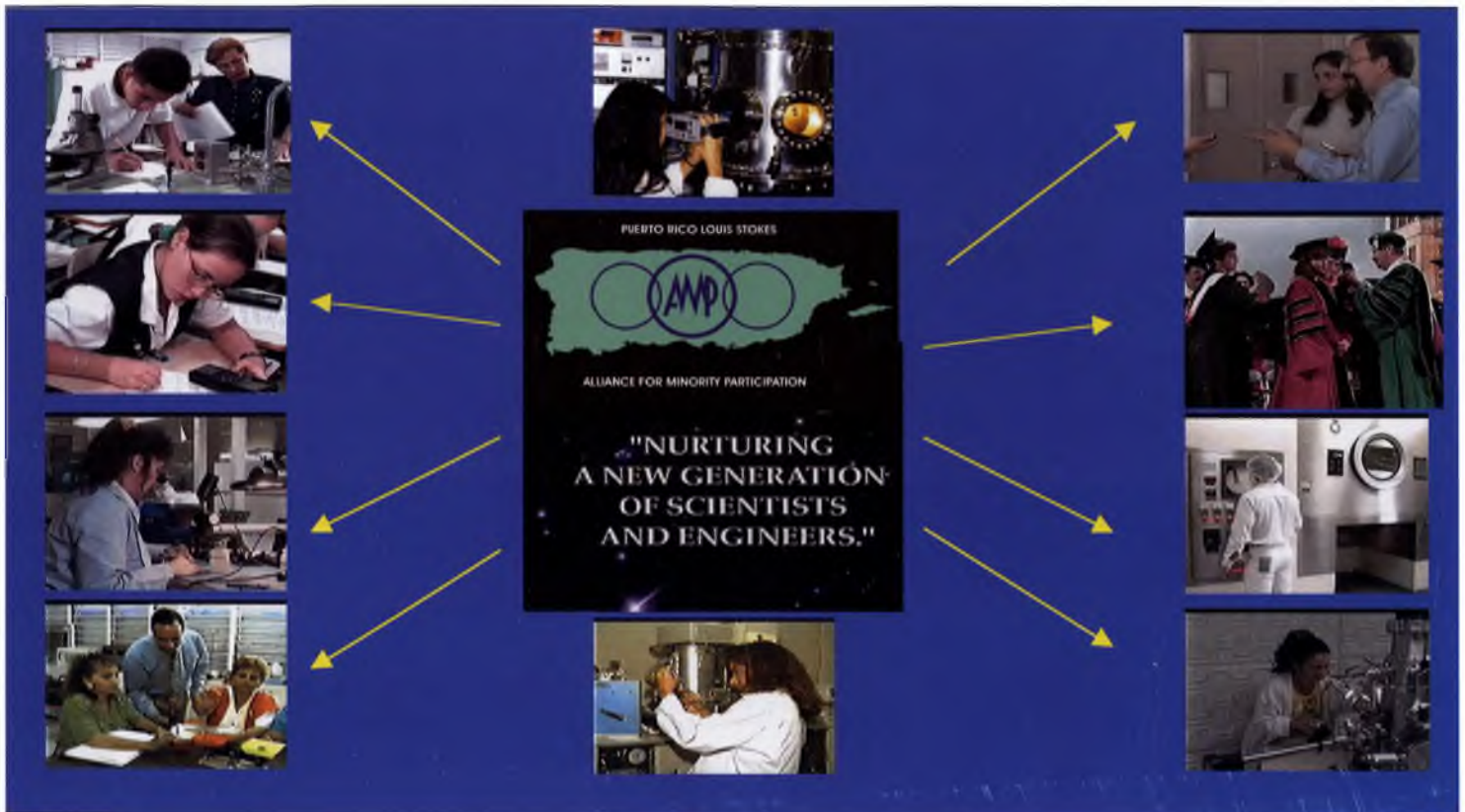
*Graduate School*

Undergraduate Research  
Information Sessions  
Counseling  
Faculty Mentoring



## Puerto Louis Stokes Alliance for Minority Participation (PR-LSAMP)

The Puerto Rico Louis Stokes Alliance for Minority Participation (PR-LSAMP) is an alliance of the Resource Center for Science and Engineering of the University of Puerto Rico, the University of Puerto Rico System, the Inter American University System, Pontifical Catholic University of Puerto Rico, and Polytechnic University of Puerto Rico. The goal of PR-LSAMP is to increase the quantity and quality of minority and low-income college students who successfully complete a baccalaureate degree in science, technology, engineering, and mathematics (STEM), and/or complete a graduate degree in a STEM-related field. In Phase I and II PR-LSAMP institutions increased the number of BS degrees awarded from 1,709 to 2,893.



### PR-LSAMP Phase III activities:

- Interactive web-based learning to master hard to teach concepts in science and mathematics;
- Electronic modules to expand the interdisciplinary capabilities of undergraduate STEM students to further enhance their preparation for graduate studies;
- The scaling-up of the teaching/learning strategies that have proven successful in improving student performance in STEM courses;
- Information Technology Skills so students are capable of making effective and more critical use of accurate and valid information in their professional lives;
- A Pre-College to College Bridging Component
- A Research and Mentoring Program

**The Resource Center for Science and Engineering (RCSE) of the University of Puerto Rico** coordinates the PR-LSAMP initiative. The RCSE's mission is to achieve excellence in STEM education, in order to promote the full participation of Puerto Rican students in these fields, and to develop the human resources and research base needed to support the Island's economic and technological development. The RCSE was recently awarded the Award for Excellence in Innovation and Entrepreneurial Culture by the Puerto Rico Manufacturers Association.

**Project Director**  
Dr. Ralph E. White

**Program Manager**  
Ms. Beverly A. Wright

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COORDINATORS**

---

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**The South  
Carolina  
Alliance for  
Minority  
Participation  
(SCAMP)**

***2001 South Carolina Alliance Summer Research Conference Interns***

**The South Carolina Alliance for Minority Participation** represents diversity and undergraduate excellence in the areas of science, mathematics, and engineering technology (SMET). Offered at eight South Carolina institutions of higher learning, SCAMP programs and activities promote academic excellence for SMET majors, particularly for students from underrepresented groups.

- Summer Bridge Programs - Incoming freshmen, which emphasize mathematics using technology and collaborative learning techniques. Many programs also offer workshops in computer applications and communication skills.
- Directed Research - Summer and academic year. Students conduct cutting edge research under the supervision of a faculty advisor in their degree field. Collaboration among Alliance partners permits students to conduct research with faculty members at any institution. Students also participate in external research opportunities offered by academic, governmental, and private-sector laboratories.
- Graduate School Preparation Workshop - Offers SMET students an opportunity to discuss graduate education, GRE preparation and SMET graduate student panel discussion.

**Enrollment at SCAMP institutions has increased by 64% in SMET disciplines with a degree completion rate of 75% to minority students.** The South Carolina Alliance has been instrumental in motivating students to attend graduate school.

Dr. Roosevelt Y. Johnson, National Science Foundation Program Director for AGEP delivered the keynote address for the South Carolina Alliance 2001 Research Conference and presented the Awards for outstanding research winners in science, engineering and technology.





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**Web Site:** [www.ee.sunysb.edu/sunyampRED](http://www.ee.sunysb.edu/sunyampRED)

## Scaling Up and Advancing New Initiatives

Since 1996, The State University of New York Louis Stokes Alliance for Minority Participation (SUNY LSAMP) has been helping to change the basic shape of science, technology, engineering, and mathematics (STEM) education and forging new opportunities for underrepresented (UREP) minority students in New York State. The infrastructure, research base, and replicable models created in Phase I are the result of aggressive and sustained efforts of the Alliance partners.

These efforts have resulted in a substantial increase in bachelor's degrees awarded to UREP students in STEM fields. In addition, the thrust has led to an astonishing increase in the number of UREP students enrolled in STEM undergraduate programs.

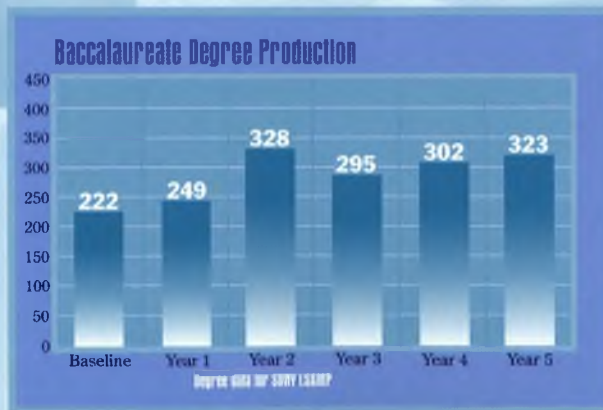
As we complete Phase I and move into Phase II, we are addressing the lessons learned during Phase I, implementing a plan that will scale up those programs that work, and advancing new initiatives to address those areas that posed the greatest

challenges during Phase I. In this way, SUNY LSAMP will make an "order of magnitude" difference in enrollment, degree production, workforce preparation, and students continuing to graduate study and entering the professoriate.

By better understanding what it means to scale up and advance new initiatives for STEM education in complex educational systems such as SUNY, we will have advanced the national agenda of changing the "face" of STEM education.

### Current areas of focus include:

- Increasing SUNY LSAMP visibility through the Center for Inclusive Education and the new SUNY LSAMP video, "Building Excellence by Building Community"
- Continuing to build the partnership with the SUNY Alliance for Graduate Education and the Professoriate (SUNY AGEPE)
- Encouraging broad assessment of student performance
- Developing and implementing comprehensive service delivery models
- Encouraging the development of effective academic advising
- Bringing about an increase of fiscal support
- Developing targeted efforts to increase retention in specific majors
- Helping to bring about institutional improvements
- Continuing to encourage efforts that increase curriculum and pedagogical reform



## SUNY LSAMP Participating Institutions

**Buffalo Region:** Buffalo State College ★ University at Buffalo **Binghamton Region:** Broome Community College  
 ★ Tompkins Cortland Community College ★ Binghamton University

**Hudson Valley Region:** Dutchess Community College ★ Orange County Community College  
 ★ Schenectady Community College ★ SUNY at New Paltz ★ University at Albany ★ Ulster County Community College

**Long Island Region:** Nassau Community College ★ SUNY at Farmingdale ★ State College at Old Westbury  
 ★ Stony Brook University ★ Suffolk Community College



Texas A & M System  
Louis Stokes Alliance for Minority Participation  
2000-2001

### News of Former AMP Student from Graduate School



Victor Garza

Victor Garza, received his B.S. from Texas A&M University in Mechanical Engineering in Spring 2001 and has just completed a 4.0 semester at Stanford University, in Mechanical Engineering where he is a Teaching Assistant in the Production Realization Lab. Victor has also been engaged in Design for Manufacturability projects with Industry partners, and is a member of the SSCLES(Stanford Society of Chicano/Latino Engineers and Scientists)

Osbaldo Cantu is a Graduate Student Researcher (GSR) for the GIS Center at Berkeley, a Graduate Student Instructor (GSI), and a Graduate Fellow for the Central Intelligence Agency. He is earning a Masterís degree in Information Management and Systems from the University of California Berkeley

### Alliance Partner Spotlight

*Texas A&M Corpus Christi wins the National Role Model Institution Award from Minority Access, Inc. for exemplary efforts in recruiting, retaining and graduating minority student researchers.*



*Dr. Diana Martinez, TX AMP Co-P.I. & Texas A&M Corpus Christi Dean of Science and Technology, Named Woman of the Year By Corpus Christi YWCA for her example to women and minorities in science and technology.*

### Alliance-wide Performance Update

**Retention** of Freshman Cohort 1999 Level I AMP and Minority SMET students, Alliance-wide, in the TX LSAMP was higher than retention of Minority SMET and All SMET Cohort 1999 students nationally

Cohort '99	TX AMP Alliance		Nationwide	
	Active AMP	Min. SMET	Min. SMET	All SMET
1 Year	95.4%	81.5%	64.8%	76.1%

The **6-Year Graduation Rate** of Freshman Cohort 1993-94 Level I AMP and Minority SMET students, alliance-wide, in the TX LSAMP was higher than the national graduation Rate of Minority SMET and All SMET Students.

Cohort '93-94	TX AMP Alliance		Nationwide	
	Active AMP	Min. SMET	Min. SMET	All SMET
1 Year	54.9%	28.5%	23.0%	37.6%

By Spring of 2001, the **Averaged Graduation Rate** of Level I AMP Minority students was 32.8%, or 87.4% higher than the Averaged Graduation Rate of Non-AMP Minority SMET students (17.5 %), Alliance-wide, from First Time Transfer, First Time Freshman cohorts 1992 ñ 2000.



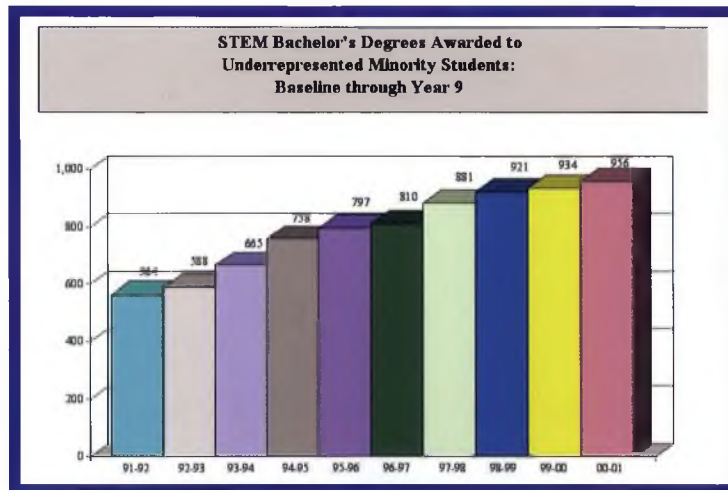
# UT - SYSTEM LSAMP

A Catalyst for Change

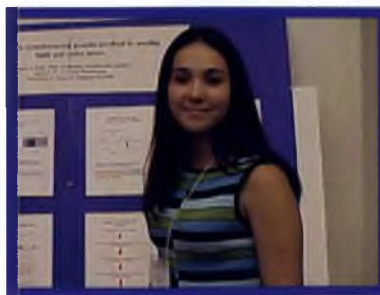


The University of Texas System Louis Stokes Alliance for Minority Participation (LSAMP) brings together the nine academic components of The University of Texas System and ten regional community college districts in an effort to increase the number of underrepresented students enrolling in and graduating from baccalaureate programs in science, technology, engineering and mathematics (STEM). At the same time, the Alliance commits itself to increasing the enrollment of underrepresented students in STEM graduate programs at UT-System institutions.

- UT Arlington
- Tarrant County College
- UT Austin
- Austin Community College
- UT Brownsville/Texas Southmost College
- UT Dallas
- Collin County Community College District
- Dallas County Community College District
- UT El Paso
- El Paso Community College
- UT Pan American
- South Texas Community College
- UT Permian Basin
- Howard College
- Midland College
- Odessa College
- UT San Antonio
- Alamo Community College District
- UT Tyler



UT El Paso 2001 Bridge & Research students (l to r): Diana Kretzer, Marisela Munoz, Paul Ontiveros, Blanca Reyes, Hector Sandoval, Dr. Diana Natalicio (UTEP President), Sycora James (LSAMP Program Coordinator), Dr. Pablo Arenaz (LSAMP Project Director), Nancy Bastidos, Catalina Abeyta, Christopher Tarango, Sergio Lujan.



Yvonne Luna, UT Arlington, Junior, Biology major

Gabriela Oropeza, UT Brownsville, Electronic Engineering Technology major, explains to Dr. James Almazan, Vice Provost, UT San Antonio, her research project during the poster session at the 2001 UT-System LSAMP annual student research conference in San Antonio, Texas.





## History and Goals

The Washington/Baltimore/Hampton Rhodes Louis Stokes Alliance for Minority Participation Program (WBHR LSAMP) came into existence in 1994 as a result of a grant through the EHR Directorate of the National Science Foundation. Under a cooperative agreement grant, four partner institutions in the middle-Atlantic region of the nation formed a working alliance. These institutions included the University of the District of Columbia (DC), Hampton University (VA), Morgan State University (MD), and Howard University (DC) serving as the lead institution. These institutions began with a baseline of 447 B.S. degrees awarded to underrepresented minorities in the sciences, mathematics, engineering, and technology (SMET) fields of study. In 1999 at the end of its Phase I, the alliance had produced almost 3600 B.S. degrees in SMET fields. During 2000 an expanded alliance began Phase II of its program with three additional partners including Bowie State University (MD), Norfolk State University (VA), and Virginia State University (VA). This new alliance of seven members began with a baseline of 700 B.S. degrees in SMET fields. The WBHR LSAMP continues its focus in seeking to increase the number of underrepresented minorities who choose careers in SMET fields and its major stratagem is to double the number of undergraduates who successfully complete training in SMET fields during Phase II.

## Impact and Systemic Changes

Undergraduate research has now become a more common experience than before the establishment of the AMP program at the WBHR alliance institutions. Typically, undergraduate students at all the WBHR LSAMP institutions are involved in research during the academic year and during the summer. Further, students at these institutions have opportunities to participate in research on their own campus, at the campuses of neighboring institutions, at government research laboratories, and at various industrial research facilities. Research as an enhancement and enrichment experience has caused numerous curricula changes at alliance institutions. There has even been discussion on requiring research as a criterion for graduation via mechanisms such as senior projects in certain courses or senior research as a separate course offering. The aforementioned are clear indications that one of the goals of AMP, to institutionalize undergraduate research at minority and minority serving institutions, can become a reality in the very near future.





NSF sponsored undergraduate component  
of the Western Alliance to Expand Student  
Opportunities

# WESTERN ALLIANCE TO EXPAND STUDENT OPPORTUNITIES (WAESO)

<http://www.asu.edu/WAESO>

Email: [waeso@asu.edu](mailto:waeso@asu.edu)



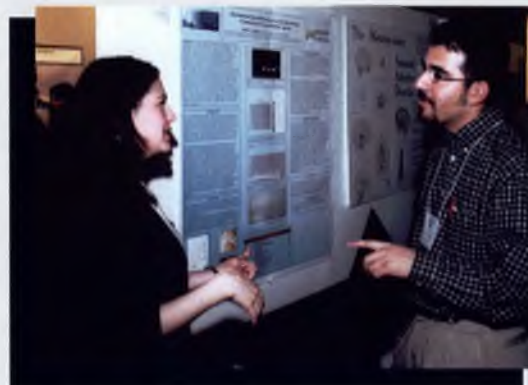
The LSAMP - Western Alliance to Expand Student Opportunities (WAESO) is now engaged in Phase III of operations. After exceeding our goals of doubling the number of baccalaureate degrees per year within the SMET disciplines during Phases I and II, our goal for Phase III is to once again, double the number of graduates within our region. WAESO will continue to increase the quality and quantity of underrepresented minority students receiving degrees in science, mathematics, engineering, and technology 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 (local and over the Internet)
- summer bridge programs
- faculty- directed undergraduate research projects
- graduate preparation institutes, mentoring, and research conference



MGE@MSA/WAESO students attended the 52<sup>nd</sup> International Astronautical Congress Conference on October 2001 in Toulouse, France. Pictured from left to right are: Nicole Ramos, Kelly Walker, Joe Fierro and Professor George Morgenthaler from the University of Colorado, Boulder.



MGE@MSA/WAESO student presenting her research poster at the Annual Student Research Conference.



MGE@MSA/WAESO students presenting their posters at the Annual Student Research Conference on January 12, 2001 at Arizona State University.



MGE@MSA/WAESO students presenting posters at the Annual Student Research Conference.

Supported in part by a grant from the Alliance for Graduate Education and the Professorate program of the National Science Foundation (NSF), WAESO held the Annual Student Research Conference in conjunction with the Annual Minority Graduate Education at Mountain States Alliance (MGE@MSA) Graduate Student Fair on January 12, 2001 at Arizona State University. Undergraduate and graduate students within the SMET disciplines participated in a series of student poster presentations and exhibits especially designed to assist them in pursuing graduate studies in science, mathematics and engineering.



MGE@MSA/WAESO students attending a session on graduate school opportunities during the Annual Student Research Conference.



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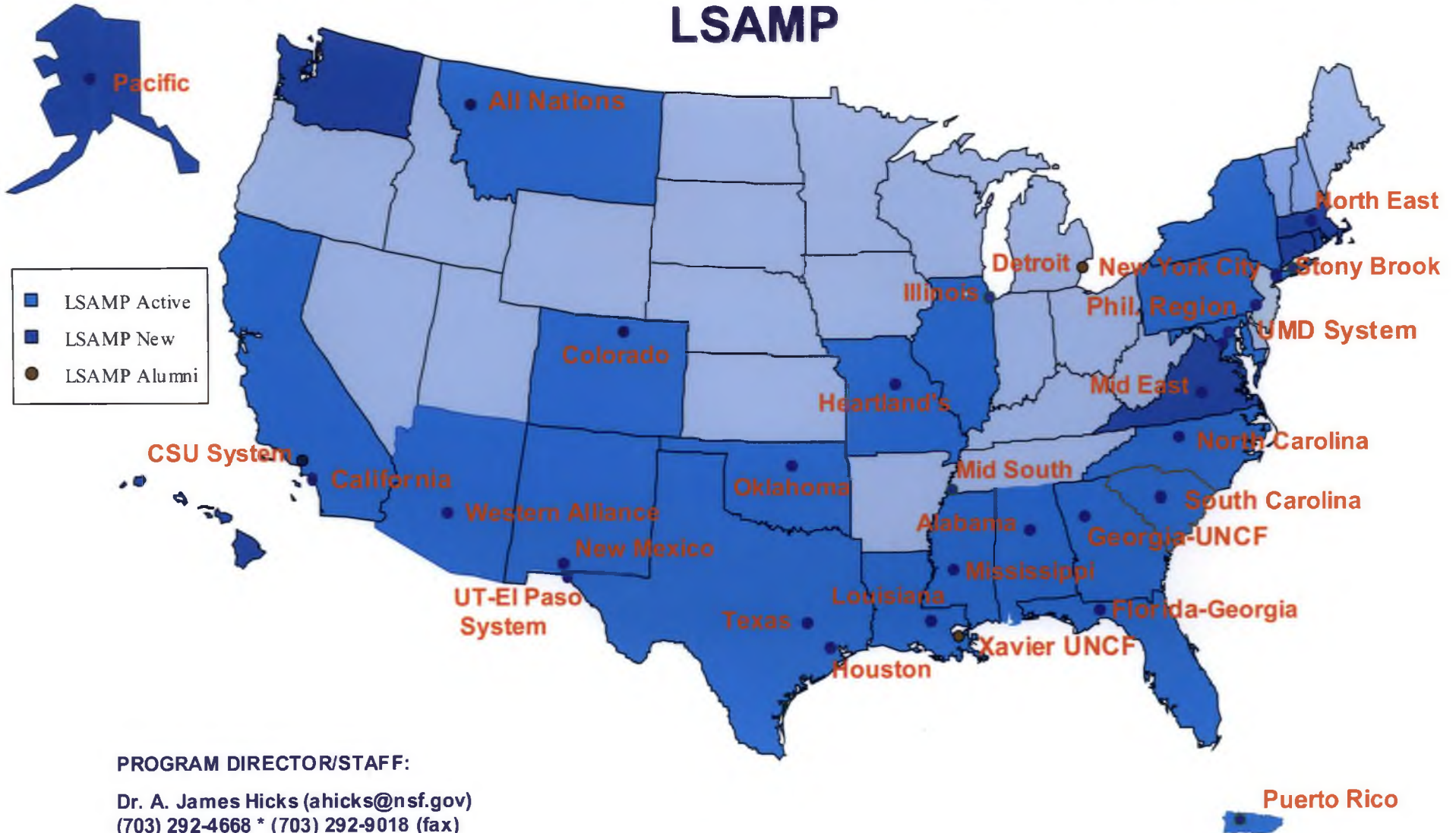
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