A New Trail

Undergraduate Research

Graduate Education

to

**The National Science Foundation** 

**Louis Stokes Alliances for Minority Participation** 

2003

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# LSAMP Student Researchers Blazing New Trails



ear 2003 marks another year of successes in the Louis Stokes Alliances for Minority Participation (LSAMP) Program. Highlights in this year's magazine depict undergraduate student researchers, research con-

ferences, expos, and graduate school fairs. The publication also summarizes project accomplishments, project profiles, award history, announcements, and concludes with the directory and a project distribution map. The Indiana-LSAMP, led by Purdue University-West Lafayette with four other state institutions, entered into partnership with LSAMP during this period, and is highlighted in these pages. Another feature in this edition of the magazine is the section on LSAMP graduates who are Ph. D. recipients and work in either scientific enterprises or academia. While the sample is less than thorough, at this time, it is indicative of LSAMP's major and expanding role, as a source of student talent to fulfill America's future human capital needs.

Thirty (30) alliances currently comprise the national program and involve majority institutions, Historically Black Colleges and Universities, Hispanic Serving Institutions, Tribal Colleges, and Community Colleges. These alliances total nearly 400 academic institutions and are widely dispersed across America (ref. Distribution Map). These institutions and contact information are compiled in a separate publication entitled, "LSAMP Partnership Institutions: Alliances for Success, 2002 -2003". Contact the Alabama-LSAMP, University of Alabama at Birmingham for a copy of this publication.

In this reporting period, a significantly larger number of LSAMP undergraduates have been engaged in laboratory research on college and university campuses and in national laboratory facilities. Experiences of selected undergraduate researchers can best be summarized in the words of two of the participants as follows: University of California-Irvine senior Richard Silva says, "Undergraduate research has been extremely beneficial to me as it has to everyone that has worked under a great mentor. Research is a great way to begin to understand how a scientist thinks and works."

Tennessee graduating senior Allison Cutts, comments, "My research experience exposed me to the fields of astronomy and Applied Mathematics. This experience expanded my knowledge about various opportunities available to math majors. I am now interested in pursuing an advanced degree."

Of particular note is the increased participation of LSAMP students at Department of Energy (DOE) Laboratories around the Nation, including two Faculty-Student Teams (FaST), one each from Illinois and North Carolina. FaST provides opportunities for college professors and students to participate in a 10-week highly interactive and stimulating immersion experience in a research environment at a DOE facility. This program encourages a sustainable professional relationship between the faculty and laboratory investigators and provides opportunities for student hands-on research and continuance in research at their home institutions.

The LSAMP continues emphasizing quality delivery of interactions and outcomes in all facets of the program while increasing the number of outstanding baccalaureate recipients. Across the alliances we are finding a growing number of the graduates expressing interest in pursuing graduate education at some early point in their careers. Indeed, all of the associations chronicled in these pages broaden opportunities for underrepresented minority students in the sciences, technology, engineering and mathematics with a total benefit to America and the larger world.

# **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 (STEM) 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; Alliances for Graduate Education and the Professoriate; Centers of Research Excellence in Science and Technology; Historically Black Colleges and Universities Undergraduate Program; Louis Stokes Alliances for Minority Participation; Programs for Gender Equity; Programs for Persons with Disabilities; and Tribal Colleges and Universities.

#### 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 STEM fields. This objective facilitates the long-term goal of increasing the production of Ph.D.'s in STEM 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 STEM 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. Donald Thompson became Director of the Division of Human Resource Development in the fall of 2002. Before coming to NSF, he was Vice President for Research and Dean of the Graduate School at Western Michigan University. He has more than twenty-five years of administrative experience in higher education. In addition, he has also served as a consultant to federal and state governments and corporate and international business in the fields of planning and resource allocation. Dr. Thompson has a vast knowledge of research, program development and evaluation.

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).



## National Underrepresented Minorities STEM Bachelor's Degrees Academic Year 2001-2002/Reporting Year 2002 Discipline by Race/Ethnicity

| Discipline            | African<br>American | Hispanic | Native<br>American <sup>1</sup> | Pacific<br>Islander | Minority <sup>2</sup> | Total  |
|-----------------------|---------------------|----------|---------------------------------|---------------------|-----------------------|--------|
| Agricultural Sciences | 357                 | 498      | 96                              | 19                  | 13                    | 983    |
| Chemistry             | 456                 | 546      | 32                              | 12                  | 31                    | 1,077  |
| Computer Science      | 2,367               | 1,724    | 158                             | 129                 | 27                    | 4,405  |
| Engineering           | 2,474               | 3,703    | 309                             | 134                 | 35                    | 6,655  |
| Environmental Science | 66                  | 156      | 35                              | 6                   | 2                     | 265    |
| Geosciences           | 32                  | 93       | 13                              | 5                   | 1                     | 144    |
| Life Sciences         | 3,053               | 3,461    | 373                             | 181                 | 14                    | 7,082  |
| Mathematics           | 562                 | 487      | 54                              | 15                  | 7                     | 1,125  |
| Physics/Astronomy     | 129                 | 179      | 7                               | 5                   | 1                     | 321    |
| Total                 | 9,496               | 10,847   | 1,077                           | 506                 | 131                   | 22,057 |

## National Underrepresented Minorities STEM Bachelor's Degrees Academic Year 2001-2002/Reporting Year 2002 Gender by Race/Ethnicity

| Gender  | African<br>American | Hispanic | Native<br>American <sup>1</sup> | Pacific<br>Islander | Minority <sup>2</sup> | Total  |
|---------|---------------------|----------|---------------------------------|---------------------|-----------------------|--------|
| Male    | 4,347               | 5,937    | 607                             | 280                 | 70                    | 11,241 |
| Female  | 5,061               | 4,387    | 460                             | 223                 | 58                    | 10,169 |
| Unknown | 88                  | 543      | 10                              | 3                   | 3                     | 647    |
| Total   | 9,496               | 10,847   | 1,077                           | 506                 | 131                   | 22,057 |

1. The Native American category includes American Indians and Alaskan Natives.

2. The Minority category comprises individuals reporting

a) two or more race/ethnicity categories and

b) one or more of the reported categories includes: American Indian, Alaska Native, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander.

# LSAMP Exceeds 22,000 Degrees and 200,000 Participants

# The Louis Stokes Alliances for Minority Participation Program



# The Louis Stokes Alliances for Minority Participation Program



# **New HRD Division Director Appointed**

Dr. Donald Thompson has assumed the position of Director of the Division of Human Resource Development in the Directorate of Education and Human Resources. The position has been vacant since the departure of Dr. Roosevelt Calbert in 1999. Dr. Norman Fortenberry and Dr. Roosevelt Johnson served in acting capacities during the interim period.

Prior to his appointment at National Science Foundation (NSF), Dr. Thompson served as Vice President for Research and Dean of the Graduate College at Western Michigan University. He has spent more than twentyfive years in higher education as a professor of education and urban planning, researcher in the field of program/systems implementation and evaluation, and administrator at the University of Michigan and at Western Michigan University. While at Western Michigan University Dr. Thompson led the dramatic growth of research and graduate studies that catapulted the university to be ranked in the top one hundred universities in the Carnegie Classification System. During his tenure at Western Michigan University,



Dr. Donald Thompson

and under his leadership, research grew from four to eighty-five million dollars in external funding, and the graduate programs' student population grew to more than six thousand students. Equally as important as the growth was the development of curricula and programs that broadened the participation of underrepresented groups and international students. Through collaborations with Historically Black Universities, Hispanic Serving Institutions, and international partners, the research and graduate studies enterprise became one of the Nation's best models for academic inclusion.

Dr. Thompson has been a consultant to federal and state governments, corporate and international businesses in the fields of planning, resource allocation, systems and program evaluation. As the author of numerous technical reports, articles, and training materials and the author of more than 60 funded proposals, totaling nearly twenty million dollars, Dr. Thompson brings to the Foundation a vast knowledge of the world of research, program development and evaluation.

In his role as Division Director of Human Resource Development at the NSF, Dr. Thompson serves as the focal point for NSF's agency-wide commitment to enhancing the quality and excellence of science, technology, engineering, and mathematics (STEM) education and research through broadening participation by underrepresented groups and institutions.



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# Argonne puts students, faculty on the 'FaST' track

ARGONNE, III. (Aug. 22, 2002) - A new program at the U.S. Department of Energy's Argonne National Laboratory is allowing college students and their professors to work with scientists on cutting-edge research.

The goal of the Faculty and Student Teams (FaST) program is to foster collaboration between the faculty and the laboratory scientists, as well as provide hands-on research for students to encourage them to pursue careers in science and technology.

This new initiative represents a partnership between the Department of Energy's <u>Office of Science</u> and the <u>National</u> <u>Science Foundation</u>.

The program is primarily aimed at faculty and student teams from small undergraduate institutions and research institutions serving large populations of groups historically underrepresented in the fields of science, engineering and technology.

"I'm hoping to broaden my skills and knowledge in the field of biology, particularly molecular biology," said Jasmin Feimster, a participant from North Carolina Agricultural and Technical State University (NCAT).

Harold Myron, director of Argonne's <u>Division of Educational Programs</u>, said FaST cultivates a relationship between the students and faculty, as well as the school and the laboratory.

"With their research," he said, "the faculty gets enhanced, the students get enhanced, and maybe if they're lucky they can continue their research at home during the school year. This benefits the faculty, the students, the school, Argonne and the National Science Foundation."

This summer there are three teams at Argonne. A team from NCAT, headed by Mary Smith, collaborates with Argonne's Darrell Chandler. They are using bioinformatics and biochip technology to develop a biochip that allows the simultaneous detection of at least six viruses. They will use the chip to study patterns of viral infection in various plant hosts.

"Our team is looking forward to gaining hands-on experiences in the Biochip Laboratory," Smith said. "The biochip represents cutting-edge technology for biological research."

Another team from <u>Pace University</u> in New York City, headed by Dennis Anderson, is collaborating with Argonne's Gregor von Laszewski. They are using Java to create software for the Grid, a distributed computing collaboration and data-handling infrastructure that connects geographically dispersed resources.

The final team, from <u>Chicago State University</u>, is headed by Jacques Richard and is collaborating with Argonne researcher Paul Fischer. They are working to further develop NeK5000, a code used for simulation of fluid flow in a broad range of applications, ranging from reactor cooling to blood flow. The team is investigating extensions to this code that will allow simulation of flow in situations where the vessel wall is moving.

"The program allows me to experience some state-of-the-art technology that I may not have access to as an undergraduate at my university," said Rakisha Nicholson, a participant from NCAT.

Argonne's Linda Phaire-Washington, senior educational program leader, agreed with Nicholson, adding, "There are many favorable attributes to the FaST program. It gives participants an opportunity to be on the ground floor of new ideas and exciting projects, it involves them in a highly interactive and stimulating immersion experience in research, and it's an opportunity to add to the diversity of the science and engineering workforce. We are very excited about the long-term implications for FaST."

The nation's first national laboratory, Argonne National Laboratory conducts basic and applied scientific research across a wide spectrum of disciplines, ranging from high-energy physics to climatology and biotechnology. Since 1990, Argonne has worked with more than 600 companies and numerous federal agencies and other organizations to help advance America's scientific leadership and prepare the nation for the future. Argonne is operated by the <u>University of Chicago</u> as part of the <u>U.S. Department of Energy's</u> national laboratory system. – Katie Williams

For more information, please contact Donna Jones Pelkie (630/252-5501 or djpelkie@anl.gov) at Argonne.

# **Outstanding** LSAMP Minority Student Researchers

# Alabama

Wanda D. Jones, Senior, Miles College Research Area: Chemistry/Nanocomposites Mentor: Dr. Derrick Dean, Associate Professor of Materials Science and Engineering, Tuskegee University

#### 2001-2002 Research Presentations

- 1. The Effect of Modifier Content on the Fracture Toughness of Epoxy Clay Nanocomposites, Tuskegee University USEC/ HBCU Joint Conference, November 22-24, 2002, Award: Third Place Oral and Fourth Place Poster.
- 2. *The Mechanical and Thermal Properties of Nitinol*, HBCU Winter Research Conference, February 22-24, 2002.



"I am pleased to have had the opportunity to do research. It has made me aware of the expectations and experiences needed to be successful in graduate school."

# Calífornía

Richard Silva, Senior, Biological Sciences, University of California, Irvine

**Research Area**: Molecular Biology & Biochemistry **Mentor:** Dr. Andrea J. Tenner, Professor, Molecular Biology & Biochemistry

#### 2001-2002 Research Presentations

- 1. Identification of Differentially Expressed Proteins in Hearts from Hypertensive (SHR) and Normotensive (WKY) Rats. Poster presentation at Annual Biomedical Research Conference for Minority Students, November 16, 2002, New Orleans.
- 2. Oral presentation on research in #1 presented at the MBRS/MIRT conference, September12, 2002, UC Irvine, Award: Honorable Mention.
- 3. Correlating Structural Domains of C1qRp with Functional Activity. Research conducted in the UCI Molecular Biology and Biochemistry Department. Poster presentation at ABR-CMS, November 4, 2001, Orlando.

"Undergraduate research has been extremely beneficial to me as it has to everyone that has worked under a great mentor. Research is a great way to begin to understand how a scientist thinks and works."



# California State University

Rocio Barragan Wooton, Senior, San Jose State University Research Area: Molecular Biology / Chemistry Mentor: Dr. Arthur Brothman, Professor of Pediatrics and Human Genetics/Dr. Herb Silber, Director MARC program 2001-2002 Research Presentations

- 1. Annual Biomedical Research Conference for Minority Students; November 16, 2002, Award: Certificate of Participation.
- 2. Summer Research Opportunities Program, University of Utah, Salt Lake City, August 8, 2002, Award: Certificate of Participation.



"I am thankful for research opportunities that have been available to me as an undergraduate and look forward to the future challenges as a graduate student."

# Colorado

James Temte, Senior, Cellular Molecular Biology, Fort Lewis College

Research Area: Molecular Biology

Mentor: Jennifer Nyborg, Professor of Biochemistry & Molecular Biology

#### 2001-2002 Summer Research Presentations

1. Mutation of the major phosphorylation site in the transcription factor CREB; July 29, 2002.

"The CO-AMP summer research program at Colorado State University provided me with the opportunity to gain much needed experience and a greater understanding of the sciences (genetics) and how research is essential for understanding and finding possible cures for diseases."



# Florída-Georgía

Clausell Mathis, Senior, Physics, Florida A&M University Research Area: Atomic and Molecular Theory Mentor: Dr. Charles Weatherford, Professor of Physics 2001-2002 Research Presentations

- 1. Solution of the One-Dimensional Time-Independent Schrodinger Equation for a Coulomb Potential using a Basis Set expansion.
- 2. *Reduction Pathways for RDX*, Conference of Current Trends in Computational Chemistry.



"Being a part of the Florida-Georgia LSAMP has enhanced my networking skills, and has given me the necessary tools for me to pursue graduate study in the field of physics."

# Houston-

Jessica Poole, Junior, Mathematics, Texas Southern University Research Area: Mathematics

Mentor: Dr. Willie Taylor, Professor of Mathematics 2001-2002 Research Presentations

- 1. A Curious Quadratic Involving Sums, 105th Annual Texas Academy of Science, Laredo, TX, Spring 2002, First Place: Mathematics and overall.
- 2. On the Solution of a Curious Differential Equation, Third Annual LSAMP Conference, San Marcos, TX, Summer 2002.

"Math is my passion. It is what I want to do. As a leader in H-LSAMP, I am trying to bring others along, so they will see the relationship between the 'universe' and the 'invisible universe' of math."



# Illínois

Marlene Bahena, Senior, Biological Sciences, DePaul University

Research Area: Molecular Biology, Histology

Mentor, Dr. Elizabeth LeClair, Assistant Professor of Biological Sciences

#### 2001-2002 Research Presentations

1. *Expression of tpl, veg and plunc, a trio of secreted proteins in the mouse upper respiratory tract.* American Thoracic Society Conference, May 24, 2002 in Atlanta, GA.



"Working in a biology laboratory for the past two years at DePaul University has been one of the best experiences of my life. It was through this internship that I realized the importance of scientific research."

# Louisiana

Darryl Athos Dickerson, Senior, Biomedical Engineering, Tulane University Research Area: Biomedical Engineering Mentor: Kay C Dee, Glen A. Livesay.

#### **2001-2002 Research Presentations**

1. Effects of Sterilization Techniques and Culture Time on the Creep of Collagenous Ligament Analogues. International Mechanical Engineering Congress & Exposition. New Orleans, November 2002. Award: Second Place in the Bioengineering Division B.S. Student Paper Competition.

- Effects of Sterilization Techniques and Time Under Culture Conditions on the Creep of Collagenous Ligament Analogues. Houston Louis Stokes Alliance for Minority Participation Student, Research Conference. Southwest Texas State University, July 2002, Award: Third Place Oral Presentations.
- 3. Assessment of Kenaf as an Adsorbent for Arsenic Contaminated Groundwater. DOE-EPSCoR HRD & LS-LAMP, 5th Annual Research Conference. New Orleans, Louisiana, February 2001, Award: First place - Life Sciences.
- 4. Assessment of Cajunite (Red Mud) as an Adsorbent for Arsenic Contaminated Groundwater. NSF Xavier/UNCF LSAMP Research Conference, September 2000, Award: Second place - Life Sciences Oral Presentation.
- 5. Assessment of Cajunite(Red Mud) as an Adsorbent for Arsenic Contaminated Groundwater. Louis Stokes Louisiana Alliance for Minority Participation Summer Symposium. Tulane University, August 2000, Award: First Place - Oral Presentations.

"LSAMP is an all inclusive program. You get the research. You get to meet people and you get to be prepared for graduate school. It helps you to really direct your goals to get where you want to go."



# Μίssíssíppí

Ronke Adebiyi, Senior, Industrial Engineering, Mississippi State University

Research Area: Industrial Engineering (Egonomy)

Mentor: Dr. Lesia Crumpton-Young, Associate Dean, Dean of Engineering

#### 2001-2002 Research Presentations

1. Using Thermography to Document Pressure Point, Winter Scholar Symposium in Hattiesburg, MS, January 25, 2002.



"Through research, I have developed a broader understanding of my educational and professional career goals."



Brandon Tilghman, Senior, University of Missouri Research Area: Agricultural Engineering Mentor: Dr. Allen Thompson, Associate Professor of Biological & Agriculture Engineering

#### 2001-2002 Research Presentations

1. Thirteenth Annual Undergraduate Research Science Symposium, August 1, 2002 Poster Presentation Award: Certificate of Excellence.

 2002 Annual Biomedical Research Conference for Minority Students (ABRCMS) November 13-17, 2002 Oral Presentation.

"I was surprised that I had such a wonderful time being involved in the LS-HAMP Scholars program this past summer. I did some great radiopharmaceutical cancer research and got to meet many professionals in my career of interest along with other scholars from across the world."



# New Mexico

Frank Jurado III, Senior, Civil Engineering, New Mexico State University

Research Area: Water Remediation

**Mentor:** Dr. N. N. Khandan, Professor of Civil and Geological Engineering

#### 2001-2002 Research Presentations

- 1. Activated Carbon for Water Treatment Made from Pecan Shells, New Mexico LSAMP Student Research Conference, September 14-15, 2001, Award: Third place.
- 2. *Removal of Arsenic from Drinking Water: Kinetic Studies and Optimization*; New Mexico LSAMP Student Research Conference, September 13-14, 2002, Award: First place.
- 3. *Removal of Arsenic from Drinking Water: Kinetic Studies and Optimization*; New Mexico AGEP Conference, September 19-21, 2002, Award: One of top three undergraduate research presentations.



"Participating in active research projects greatly influenced my decision to attend graduate school and helped me determine my research area early. I received a good foundation for success through the opportunities I had to take on responsibility in the laboratory and through the mentoring I received."

# New York City

Ruth K. Duchatellier, Senior, Chemistry, College of Staten Island Research Area: Biology

Mentor: Phorbal Banerjee

#### 2001-2002 Research Presentations

- 1. American Society For Neurochemistry, June 22-26, 2002, Palm Beach, Florida.
- 2. Urban University Conference, April 18-19, 2002, New York, NY.

"NYC Alliance Program is very important to my school. It helps greatly underrepresented students to meet their academic goals."



# North Carolína

**Renard D. Spratling**, Junior, Computer Science, North Carolina A&T University

Research Area: Distributed Systems, Web Development

Mentor: Dr. Albert C. Esterline, Professor of Computer Science 2001-2002 Research Presentations

- 1. Multi-user Distributed Workspace for Human-Computer Integration and Joint Motion Planning, Fifth Annual NC-LSAMP Undergraduate Research Conference, April 20, 2001. Award: First Place.
- 2. Multi-user Distributed Workspace for Human-Computer Integration and Joint Motion Planning, FGLSAMP Career Expo 2002, January 31 - February 3, 2002, Award: Third Place.
- 3. *Multi-user Distributed Workspace for Human-Computer Integration and Joint Motion Planning*, 16th NAFEO High Tech Student Expo 2002, March 24, 2002. Award: Third Place.
- 4. *Multi-user Distributed Workspace for Human-Computer Integration and Joint Motion Planning*, Sixth Annual NC-LSAMP Undergraduate Research Conference, April 26, 2002.
- 5. An Efficient Website Behind the Scenes and in the Forefront, Duke University REU/Computer Science Outreach Fellows Program, Undergraduate Summer Research Projects in Engineering and Computer Science (National Teleconference) July 25, 2002.
- 6. *Multi-user Distributed Workspace for Human-Computer Integration and Joint Motion Planning*, NC OPT-Ed Day, September 20, 2002.



"Since enrolling in college, the most rewarding decision that I have made is to participate in undergraduate research. Early involvement in research during my freshman year enabled me to clearly recognize the tremendous benefits and critical necessity of pursuing graduate study, especially as a minority in a technical discipline."

# Northeast

Shangari Benin Meleschi, Senior, Mechanical Engineering, Worcester Polytechnic Institute

Research Area: Aeronautical Engineering

#### 2001-2002 Research Presentations

1. Final research project at NASA/Goddard Space Research Center, Greenbeld, MD

Shangari reports that he is looking forward to beginning his graduate education at WPI.



# Oklahoma

Joanne Gonzalez, Junior, Biology and Chemistry, Southwestern Oklahoma State University Research Area: Biology and Chemistry Mentors: Dr. Brian Campbell, Associate Professor, Department

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of Chemistry and Physics, Southwestern Oklahoma State University; Dr John D. Ash, Assistant Professor, University of Oklahoma Health Sciences Center, Department of Ophthalmology; Dr. William J. Kelly, Department of Chemistry, Southwestern Oklahoma State University

#### 2001-2002 Research Presentations

- 1. *Microarray Analysis of Mouse Retinas with TGF-b1 Inhibited Vascular Development*, Regional Research Day, University of Central Oklahoma; National Science Teachers Association Meeting, San Diego, CA; New Mexico AMP Conference, Award: Second Place, and Seventh Annual Research Symposium, Oklahoma AMP; Fall 2002.
- 2. Comparison of Bond Links and Stretching Frequencies for Carbonyl Compounds by Computational Molecular Modeling, Annual Oklahoma LSAMP Research Symposium.



"Research has increased my excitement about learning and has opened my eyes to many career options and opportunities."

# Philadelphia

Daniel Obeng, Junior, Bioengineering, University of Pennsylvania

Research Area: Biomedical Engineering

Mentor: Dr. Toshio Asakura, Department of Pediatrics, Children's Hospital of Philadelphia

#### 2001-2002 Research Presentations

1. Mechanism of Initiation of Vaso-Occlusion in Transgenic Sickle Cell Mouse Models; University of Pennsylvania, School of Engineering (SEAS)/ NSF/Philadelphia AMP Summer Research Conference, August 2002. Award: Second Place.

"My experience in undergraduate research has been the crux of my college education. I plan to use the knowledge and skills I have acquired to earn an MD/Ph.D. and contribute to the academic and medical communities."



# Puerto Ríco

Annette Casiano-Negroni, Senior, Chemistry, University of Puerto Rico, Río Piedras Campus

Research Area: Biochemistry

Mentor: Dr. José A. Lasalde, Professor of Biochemistry 2001-2002 Research Presentations

- 1. Exploring the role of threonine 199 in the metal ion selectivity and specificity in human carbonic anhidrase II; Fall 2002, Health Sciences Research Colloquium, October 4, 2002.
- 2. Exploring the role of threonine 199 in the metal ion selectivity and specificity in human carbonic anhidrase II, CIC Conference, July 20, 2002.
- 3. Exploring the role of threonine 199 in the metal ion selectivity and specificity in human carbonic anhidrase II, Summer Research Opportunities Program Final Symposium, August 1, 2002.



"As an undergraduate student, I have done my best to improve my skills and knowledge of chemistry by constantly volunteering to help my colleagues, and more importantly, by participating in research programs like LSAMP. I feel that my academic-scientific training, and experience in leadership positions will allow me to become a skilled and

dedicated researcher and professor and will prepare me to participate in more in-depth research upon earning my doctorate."

# South Carolína

Sheron Decker, Senior, Computer Science, South Carolina State University

**Research Area:** Computer Science Concepts in Agricultural Research

Mentor: Dr. Dave Himmelsbach

#### 2001-2002 Research Presentations

1. Automation of chemometric pre-processing dealing with Amylase and protein content in rice and wheat, LS-SCAMP Annual Undergraduate Research Conference, August 2001. Award: First Runner Up in Poster Presentations.

"LS-SCAMP provided me the unique opportunity of an internship in the agricultural field allowing me to apply classroom learning to real life problems."

# State University of New York

Georgina Bermudez, Senior, Biomedical Engineering, SUNY at Stony Brook

**Research Area:** Virology

Mentor: Dr. Janet Andersen, Assistant Professor of Biomedical Engineering

#### 2001-2002 Research Presentations

- 1. *The Response of Cells to Viral Infection*, Society of Chicanos and Native Americans; September 29, 2002.
- 2. *The Response of Cells to Viral Infection*, SUNY at Stony Brook Alliance for Graduate Education and the Professiorate Summer Research Institute; August 29, 2002.
- 3. *The Response of Cells to Viral Infection*, SUNY at Stony Brook's Celebration for Undergraduate Achievement; May 1, 2002, Award: Life Science.

"When one door closes, another door opens. Success is not without its tribulations."



# Tennessee

Allison Cutts, Senior, Mathematics, TSU Research Area: Astronomy Mentor: Francis C. Fekel, Research Professor

#### 2001-2002 Research Presentations

 The Spectroscopic Orbit for the Double – Line Binary HR – 4750, Tennessee State University Research Symposium, March 19-20, 2002, Award: First Place.



"My research experience exposed me to the fields of astronomy and applied mathematics. This experience expanded my knowledge about various opportunities available to math majors. I am also now interested in pursuing an advanced degree."

# University of Texas System

Aileen Ferrer, Senior, Biology, The University of Texas at San Antonio

Research Area: Biology

Mentor: Edwin Barea-Rodriguez, PhD

#### 2001-2002 Research Presentations

1. The Expression of Alpha 5 Integrin During Learning and Memory, annual UT-System LSAMP Student Research Symposium, October 2002, First place life science poster.

"I consider it a privilege to be a part of the LSAMP program and to be working in Dr. Barea's lab. Since I began working there, I have found research to be both exciting and rewarding. With my interest in both medicine and research I plan to apply to an M.D./Ph.D. program or a Ph.D. program in the biomedical sciences."



## University System of Maryland

Kenneth Gibbs, Jr., Sophomore, Biochemistry and Molecular Biology, University of Maryland, Baltimore County Research Areas: Epidemiology and Statistical Genetics Mentors: Dr. Yvonne Maldanado and Dr. Joan Bailey-Wilson, 2001-2002 Research Presentations

1. Temporal and Demographic Trends in Receipt of Antiretroviral Therapies in HIV- Infected Pregnant Women and Their Infants in California, 2002 Annual Biomedical Research Conference (ABRCMS) in New Orleans, LA, Award: Sophomore Award for Best Poster, Presentation in the Social and Behavioral Sciences.



"My research interests include the study of the genetic causes of inherited diseases, as well as the molecular mechanisms of both inherited and infectious diseases. I am currently completing linkage and segregation analysis on genome wide scan data for families with lung cancer to attempt to determine if certain markers increase an individual's

susceptibility for developing the disease."

# Washington/Baltimore/ Hampton Roads

Moses Ukaoma, Junior, Chemical Engineering, Howard University

Research Area: Fuel Cell Technology

Mentor: Dr. Mobolagi Aluko Professor of Chemical Engineering

#### **2001-2002** Research Presentations

- 1. Characterization of Polymer Electrolytes for Electric Vehicle Batteries, Sigma Xi Student Research Conference, November 16, 2002. Award: Outstanding Achievement for Best Poster.
- 2. Chemical Engineering Analysis of the Fuel Cell Technology, Howard University 2002 Research Symposium, April 10, 2002, Award: Outstanding Achievement for Best Power Point Presentation.
- 3. *Characterization of Polymer Electrolytes for Electric Vehicle Batteries*, Summer Internship at Lawrence Berkley National Lab, August 15, 2002.



"My research experiences have exposed me to new opportunities in the area of research engineering and have stimulated me to pursue a Ph.D."

# Western Alliance to Expand Student Opportunities

Damian Trujillo, Senior, Engineering, New Mexico Highlands University

**Research Area:** Computer Engineering

Mentor: Curtis Sollohub, Associate Professor of Computer Science

#### 2001–2002 Research Presentations

- 1. *Hardware Implementation in a Robot*, MGE@MSA/WESO First Annual Student Research Conference, January 12th, 2001, Award: Honorable Mention.
- 2. Autonomous Small Robot, MGE@MSA/WESO Second Annual Student Research Conference, March 27th, 2002, Award: First Place: Computer, Information, & Engineering.

"I would like to take this time to thank you for giving me the opportunity to have fun, lear,n and incorporate new knowledge with my course work... I am also grateful to WAESO for giving me the pre-graduation experience and team skills any employer would be very excited to see on my resume."



# Undergraduate Research and Mentoring Results in Three Mathematics Ph.D.'s from HBCU

Two LSAMP Scholars from Alabama State University, Raynetta Prevo and Tracy Tullie, received Ph.D. degrees in 2002. They followed the path established by Michelle Foster, who in 2001 was the first Alabama State University LSAMP Scholar to receive a Ph.D. in mathematics. Dr. Maryland Wallace, Jr., Chair of the Department of Mathematics and Computer Sciences, served as mentor for the three students and predicts that two additional Alabama State University LSAMP Scholars will receive Ph.D. degrees in mathematics in 2003. Alabama State University is a charter member of the Alabama Louis Stokes Alliance for Minority Participation. Dr. Wallace Maryland, Jr. is a mathematician who has built an excellent department on a strong core of mathematics and computer science courses. undergraduate research, and student mentoring.

"My philosophy and belief is that every student can excel in the mathematical sciences with proper mentoring and support. Have faith in students and they will have faith in themselves," Dr. Wallace Maryland, Jr.

#### The LSAMP and AGEP Connection

It is interesting to note that Michelle Foster received a Ph. D. degree from Auburn University, an Alabama AGEP institution; Raynetta Prevo received a Ph. D. degree from the University of Alabama, an Alabama AGEP institution, and Tracy Tully received a Ph. D. degree from North Carolina State University, a North Carolina AGEP institution.



Dr. Michelle Foster

Further, all have begun careers in the professoriate, Dr. Foster at Wingate University in North Carolina; Dr. Tullie at North Carolina A&T University; and Dr. Prevo at Alabama State University. Thus, the LSAMP and AGEP connection is working the way it was designed.

"The linkage between LSAMP and AGEP is an outgrowth of effective strategic planning designed to mine, heretofore, a largely underserved population of underrepresented minorities. The students highlighted here represent a very small sample of the pool of over 22,000 talented and productive LSAMP graduates." - Dr. Art Hicks, LSAMP Program Officer.

"When I assumed responsibility for management of NSF's AGEP program, I envisioned the effective linking of AGEP/MGE projects with other federally funded projects (LSAMP in particular) on regional and national levels to create a dynamic community of institutions working together to identify and nurture minority talent in STEM disciplines. A shared goal of AGEP and LSAMP is to develop more effective linkages that will offer minority students increased opportunities to progress through the educational continuum from undergraduate through graduate school and into faculty positions. Drs. Foster, Prevo, and Tully represent outstanding examples of how successful our students can be, and how LSAMP / AGEP collaborations can play significant roles in that success." - Dr. Roosevelt Johnson, Program Officer for AGEP.

The students' success is a tribute to both programs and the dedication of LSAMP and AGEP principal investigators. Dr. Michelle Foster, an applied mathematician and 1996 graduate of Alabama State University, identified Dr. Wallace Maryland, Jr. and Dr. Overtoun Jenda, Professor of Mathematics at Auburn University, as her mentors and role models, and individuals who



Dr. Tracy Tullie

were most influential throughout graduate school and beyond. According to Dr. Foster, "Dr. Maryland always encouraged me to do my best and believed in my abilities even when my own confidence waned. In graduate

school, Dr. Jenda picked up where Dr. Maryland left off. I learned from these professors the rewards of a rigorous work ethic and social responsibility". Dr. Tully also identifies Dr. Maryland as his role model. "He inspired me to do my best and pursue a doctorate in mathematics," cites Dr. Tullie. "Alabama State University is not a typical His-



Dr. Raynetta Prevo

torically Black College and University (HBCU) as it relates to its mathematics and computer science program."

# LSAMP Ph.D. Recipients Working in Scientific Enterprises or Academia

#### ALABAMA

#### **Melanie Eddins**

Undergraduate Institution: Alabama State University, Major: Applied Mathematics Ph.D., University of Alabama, 2003

#### **Michelle Foster**

Undergraduate Institution: Alabama State University, Major: Mathematics Ph.D., Auburn University, 2001

Current Job: Assistant Professor of Mathematics, Wingate University, Wingate, North Carolina

#### **Ashley Fuller**

Undergraduate Institution: Auburn University, Major: Engineering Ph.D., Auburn University, 2003

#### Harvey P. Hall

Undergraduate Institution: Prairie View A&M University, Major: Materials Science and Engineering Ph.D., Tuskegee University, 2003

#### Loleta D. Harris

Undergraduate Institution: Tuskegee University, Major: Biology Ph.D., University of Tennessee Medical College, 2002 Current Position: Researcher, The Cancer Research Institute

#### **Emmitt R. Jolly**

Undergraduate Institution: Tuskegee University, Major: Biology Ph.D., University of California at San Francisco, 2002 Current Position: Post-Doc in Virology, University of California at San Francisco

#### **Rosalyn Mentor**

Undergraduate Institution: Oakwood College, Major: Biology Ph.D., University of Alabama at Birmingham, 2003 Current Job: Post-Doctorate, National Institutes of Health, Bethesda, Maryland

#### **Valerie Moses**

Undergraduate Institution: North Carolina A&T University, Major: Materials Science and Engineering Ph.D., Tuskegee University, 2003

#### **Raynetta Prevo**

Undergraduate Institution: Alabama State University, Major: Mathematics Ph.D., University of Alabama, 2002 Current Job: Assistant Professor of Mathematics, Alabama State University, Montgomery, Alabama

#### **Tonnia Thomas**

Undergraduate Institution: Tuskegee University, Major: Materials Science and Engineering Ph.D., Tuskegee University, 2003

#### **Tracey Tullie**

Undergraduate Institution: Alabama State University, Major: Mathematics Ph.D., North Carolina State University, 2002 Current Job: Professor of Mathematics, North Carolina A&T University, Greensboro, North Carolina

#### CALIFORNIA

Nelly Amador Undergraduate Institution: UCLA, Major: Neuroscience Ph.D., UCLA, 2002

#### **Chad Leidy**

Undergraduate Institution: UC Davis, Major: Physics Ph.D., UC Davis Current Job: Stanford University

#### Luciano M. Matzkin

Undergraduate Institution: UC Irvine, Major: Biological Sciences Ph.D., State University of New York at Stony Brook, 2003 Current Position: Postdoctoral Research Fellowship, University of Arizona

#### **Ronald A. Metoyer**

Undergraduate Institution: UCLA, Major: Computer Science Ph.D., Georgia Tech, 2002 Current Job: Assistant Professor Department of Computer Science, Oregon State University

#### **Gustavo Mirando**

Undergraduate Institution: UCLA, Major: Microbiology & Molecular Genetics Ph.D., UCLA, 2000 Current Job: NIH Postdoctoral Fellowship

#### **Bettina Seri**

Undergraduate Institution: UC Irvine, Major: Biological Sciences Ph.D., The Rockefeller University, 2003 Current Position: Postdoctoral Research Fellow, CalTech

#### **Elva Torres**

Undergraduate Institution: UCLA, Major: Chemistry Ph.D., UCLA, 2003 Current Position: Presidential Research Fellow, UC Berkeley

#### COLORADO

#### Rudy Horne

Undergraduate Institution: University of Oklahoma, Major: Applied Mathematics Ph.D., University of Colorado at Boulder, 2001 Current Position: Post Doctorate - University of North Carolina Chapel Hill

#### **FLORIDA-GEORGIA**

#### Gena Humphrey Baker

Undergraduate Institution: Florida State University, Major: Industrial Engineering Ph.D., Florida State University Current Position: Kennedy Space Center/NASA

#### Peter Cabaui

Undergraduate Institution: Florida International University, Major: Physics Ph.D., University of Michigan Current Position: Entrepreneur

#### **Clayton Clark**

Undergraduate Institution: Florida A&M University, Major: Civil Engineering Ph.D., University of Florida Current Position: Assistant Engineering Professor

#### **Melissa Davis**

Undergraduate Institution: Albany State University, Major: Biology Ph.D., University of Georgia

#### **Rolando Duran**

Undergraduate Institution: Florida International University, Major: Electrical Engineering Ph.D., Florida International University

#### John Gaulding

Undergraduate Institution: Florida International University, Major: Engineering Ph.D., Current Position:

#### Anisha Germane

Undergraduate Institution: Florida State University, Major: Physics Ph.D., University of Alabama at Birmingham Current Position: Emory Eye Center

#### **Bobby Granville**

Undergraduate Institution: Morris Brown College, Major: Computer Science Ph.D., Florida State University Current Position: FAMU faculty

#### Peter Green

Undergraduate Institution: University of Colorado, Major: Physics Ph.D., Florida State University Current Position: Industry

#### **Charles Ford**

Undergraduate Institution: University of Arkansas, Major: Computer Science Ph.D., Florida State University Current Position: Faculty at University of Arkansas

#### **Kerwin Foster**

Undergraduate Institution: Gordon-Cornwell Seminary, Major: Physics Ph.D., Florida State University Current Position: Faculty at Dillard

#### **Cordell Hardy**

Undergraduate Institution: Florida A&M University, Major:

Chemical Engineering Ph.D., University of Minnesota

#### Vidale Kendricks

Undergraduate Institution: Florida A&M University, Major: Chemistry Ph.D., Purdue University Current Position: Rice University

#### Sylvester Nabritt

Undergraduate Institution: University of Central Florida, Major: Electrical Engineering Ph.D., Rensselaer Polytechnic Institution Current Position: ARA Corporation

#### Jose' Nevada

Undergraduate Institution: University of Central Florida, Major: Mechanical Engineering Ph.D., University of Central Florida Current Position: Research at Coleman Corp.

#### **Mark Weatherspoon**

Undergraduate Institution: Florida State University, Major: Electrical Engineering Ph.D., University of South Florida Current Position: FSU/FAMU College of Engineering

#### **Tiffani Williams**

Undergraduate Institution: Marquette University, Major: Computer Science Ph.D., University of Central Florida Current Position: University of New Mexico

## ILLINOIS

#### Ida Abraha

Undergraduate Institution: Chicago State University, Major: Chemistry Ph.D., Loyola University Current Position: Lecturer, Chicago State University

#### Sabrina Bailey

Undergraduate Institution: Chicago State University, Major: Chemistry Ph.D., Howard University, 2001 Current Position: Chemist, NASA and Lecturer, Montgomery College

#### Jeffrey Eummer

Undergraduate Institution: Chicago State University, Major: Chemistry Ph.D., Wayne State University, 1996 Current Position: Pharmaceutical Research, Bristol-Myers Squibb Company

#### Maria Miriti

Undergraduate Institution: Chicago State University, Major: Biology Ph.D., University of Illinois, 1994 Current Position: Assistant Prof. at Ohio State University

#### **Crystal E. Porter**

Undergraduate Institution: Chicago State University, Major: Chemistry Ph.D., University of Missouri-Rolla, 2000 Current Position: Research Scientist, L'Oreal Institute for Ethnic Hair and Skin Research, Chicago, IL

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#### Victor Vandell

Undergraduate Institution: Chicago State University, Major: Chemistry Ph.D., Louisiana State University, 2000 Current Position: Staff Scientist, Hercules Corporation

#### LOUISIANA

#### Jeremiah Abiade

Undergraduate Institution: Southern University and A&M College, Major: Physics Ph.D., University of Florida, 2003

#### **Robert Crosby**

Undergraduate Institution: Southern University and A&M College, Major: Physics Ph.D., University of Florida, 2003

#### **Kimberly Hamilton**

Undergraduate Institution: Southern University and A&M College, Major: Chemistry Ph.D., Louisiana State University, 2003

#### **Allison Ivy**

Undergraduate Institution: Grambling State University, Major: Biology Ph.D., Meharry Medical College, 2002 Current Position: Tufts-New England Medical Center, Molecular Cardiology Research Institute

#### Jeremy Jackson

Undergraduate Institution: Southern University and A&M College, Major: Physics Ph.D., Florida A&M University, 2003

#### Andre' Johnson

Undergraduate Institution: Southern University and A&M College, Major: Urban Forestry Ph.D., Pen State, 2002 Current Position: Assistant Professor, SUBR, College of Agriculture

#### **Lenward Seals**

Undergraduate Institution: Grambling State University, Major: Physics Ph.D., Georgia Tech, 2000

#### **Jarvis Sulcer**

Undergraduate Institution: Southern University and A&M College, Major: Physics Ph.D., Cornell University, 1998 Current Position: Research Scientist, Agilent Technologies/Raytheon

Gloria Thomas Undergraduate Institution: Southern University and A&M College, Major: Chemistry Ph.D., Louisiana State University, 2001 Current Position: NIST

#### MISSISSIPPI

**Cedric Buckley** Undergraduate Institution: Jackson State University, Major: Biology, Ph.D., Jackson State University, 2000

#### **James McGee**

Undergraduate Institution: Jackson State University, Major: Mathematics Ph.D., MIT, 1999

#### **Tommy Stevenson**

Undergraduate Institution: Mississippi State University, Major: Engineering Ph.D., Mississippi State University, 2000

#### **NEW MEXICO**

**Robert O. Marquez** Undergraduate Institution: New Mexico State University, Major: Mechanical Engineering Ph.D., New Mexico State University, 2002 Current Position: Post-doctoral position at University of Virginia

#### **NEW YORK CITY**

Flora Chavez Undergraduate Institution: Universidad Nacional, Peru, Major: Biology Ph.D., CUNY Current Position: Post Doctoral Study

#### **Angel Pimentel**

Undergraduate Institution: University of Puerto Rico, Major: Biology Ph.D., CUNY Current Position: Post Doctoral Study

#### **Charles Maliti**

Undergraduate Institution: Kenyatta University, Major: Biology Ph.D., CUNY Current Position: Asst. Professor, Bronx Community College

#### **Mellania Pimentel**

Undergraduate Institution: City College, Major: Biology Ph.D., CUNY Current Position: Post Doctoral Study

#### Jose Lorenzo

Undergraduate Institution: City College, Major: Chemical Engineering Ph.D., CUNY Current Position: Air Products

#### **Jamie Lee Cohen**

Undergraduate Institution: Queens College, Major: Chemistry Ph.D., CUNY Current Position: Asst. Professor, Pace University

#### **Marco** Morizan

Undergraduate Institution: Rutgers University, Major: Computer Science Ph.D., CUNY Current Position: Asst. Professor, Seton Hall University

#### **Stephen Providence**

Undergraduate Institution: Brooklyn Poly Tech, Major: Computer Science Ph.D., CUNY Current Position: Assistant Professor, North Carolina A&T

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Claude Turner Undergraduate Institution: City College, Major: Electrical Engineering Ph.D., CUNY Current Position: Lecturer, Medgar Evers College

Ali Duale Undergraduate Institution: ,Major: Electrical Engineering Ph.D., CUNY Current Position: IBM

#### **Christopher Amo-Quam**

Undergraduate Institution: City College, Major: Electrical Engineering Ph.D., CUNY Current Position: IBM

#### OKLAHOMA

Jennifer Mann Undergraduate Institution: East Central University, Major: Mathematics Ph.D., University of Arkansas, 2002 Current Job: Assistant Professor of Mathematics; University of Texas (Tyler)

#### PHILADELPHIA

#### **Ernestine Beck**

Undergraduate Institution: Temple University, Major: Biology Ph.D., Temple University, 2001

#### James Arthur Cooper, Jr.

Undergraduate Institution: Lincoln University, Major: Chemistry Ph.D., Drexel University, 2002 Current Position: NIST/National Research Council (NRC) Post - Doctoral Research Associate

#### **Tabbetha Dobbins**

Undergraduate Institution: Lincoln University, Major: Physics Ph.D., Pennsylvania State University, 2002 Current Position: Senior Researcher, Ceramics Division, MSEL, National Institute of Standards and Technology

#### **Dave Gayle**

Undergraduate Institution: University of Delaware, Major: Chemical Engineering Ph.D., University of Delaware, 1999 Current Position: Research Scientist in Chicago Hospital

#### **Arthur Johnson**, III

Undergraduate Institution: University of Delaware, Major: Electrical Engineering Ph.D., University of Pittsburgh

#### Lee Johnson

Undergraduate Institution: Lincoln University, Major: Physics Ph.D., Johns Hopkins University, 2000 Current Position: Senior Scientist, Office of Navel Research

#### **Derrick Swinton**

Undergraduate Institution: Lincoln University, Major: Chemistry

Ph.D., University of Delaware, 2002 Current Position: Associate Director, LASER Program, Lincoln University

#### **Kenneth Sykes**

Undergraduate Institution: Temple University, Major: Chemistry Ph.D., Temple University, May 2001 Current Position: Pursuing M.D./Ph.D. at Iowa State University

#### **SOUTH CAROLINA**

#### **Shalawn Kirkland Jackson**

Undergraduate Institution: University of South Carolina, Major: Chemistry Ph.D., University of South Carolina, 2001

#### **STATE UNIVERSITY OF NEW YORK**

Marvin Vasquez Undergraduate Institution: Stony Brook University, Major: Engineering Science Ph.D., Stony Brook University, 2002 Current Position: Post-doctoral Program Material Science, Stony Brook University

#### **UNIVERSITY OF TEXAS SYSTEM**

Magdalena Anguiano Undergraduate Institution: UT Arlington, Major: Chemistry Ph.D., Massachusetts Institute of Technology

#### **Dr. Dionne T. Bailey**

Undergraduate Institution: UT Permian Basin, Major: Mathematics Ph.D., Emory University Current Job: Assistant Professor at Angelo State University in San Angelo, Texas

#### **Dr. Ricardo Cantu**

Undergraduate Institution: UT Pan American, Major: Chemistry Ph.D., University of Houston Current Job: Senior Analytical Chemist for Eli Lilly & Company in Indianapolis, Indiana

#### WESTERN ALLIANCE TO EXPAND STUDENT OPPORTUNITIES

#### **Roger Garcia**

Undergraduate Institution: Illinois Technical Institute, Major: Materials Engineering Ph.D., Arizona State University, 1995 Current Position: Motorola

#### **Gabriel A. Montano**

Undergraduate Institution: Arizona State University, Major: Chemistry Ph.D. Arizona State University, 2002 Current Position: Los Alamos National Laboratory

#### Jaime E. Ramirez-Vick

Undergraduate Institution: University of Puerto Rico, Mayagues, Major: Bio Technical Program Ph.D., Arizona State University, 1998 Current Position: The University of Puerto Rico, Mayagues

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# PI/PD Meeting















Louis Stokes Alliances 18 for Minority Participation

# Snapshots

















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#### "Achieving diversity in science, technology, engineering, and mathematics."

#### Houston-Louis Stokes Alliance for Minority Participation's Third Annual Undergraduate Research Conference

At the top of the H-LSAMP program event schedule, an annual research conference is held in which students are given numerous opportunities for exposure to their chosen fields. The Third Annual Undergraduate Research Conference was held July 12-14, 2002, at Southwest Texas State University, San Marcos, Texas. Approximately two hundred thirty-six people attended the conference, which was roughly forty-seven more than last year and represents a 50% increase since the first year. This conference is aimed at influencing the future careers of AMP scholars through many avenues of experience. There were fourteen workshops featured on various career and academic topics. Also, industry and graduate program exhibitors were invited to provide crucial career-related information and opportunities to students.

Beyond these presentations, this year's awards banquet's keynote speaker was Dr. Roosevelt Y. Johnson, Acting Division Director for the Division of Human Resource Development within the Directorate for Education and Human Resources and Program Director for the Alliances for Graduate Education and the Professorate program. He presented an outstanding motivational speech that encouraged students to reach beyond their current status to graduate school and persevere in their studies towards achieving all of their goals. Also, Dr. Cherry Gooden, Director of General University Academic Center, Texas Southern University, Houston, Texas, presented an inspirational closing for the banquet titled, "Motivating the Young Mind".

Another highlight of the conference was the student research showcased in oral and poster presentations, competing for first, second, and third place awards. In total, twenty-nine student research presentations were made (8 oral and 21 poster)—seven more than last year. The increase of attendance and participation directly correlates to the overall goal of the H-LSAMP to increase the number of minority STEM graduates.

Through the camaraderie of a shared experience, students met friends and colleagues who will form the basis of a life-long network. This conference was a great success and will serve to intensify student commitment towards their educational goals. Houston, Texas has been chosen as the home for the Fourth Annual Undergraduate Research Conference.



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# New Mexico AMP 2002 Student



# Research Conference

The New Mexico AMP welcomed LSAMP students from Louisiana, Texas, South Carolina, New York and Oklahoma to the 2002 Student Research Conference. Designed to mirror the national program goals of research, mentoring, and preparation for graduate school and the workplace, students shared their research activities and results in oral and poster presentations, and participated in panel discussions and workshops. The New Mexico, and the University of Massachusetts Alliance for Graduate Education and the Professoriate (AGEP) Programs were represented along with the Initiative for Minority Ph.D.s in Biomedical Sciences and Minority Health Disparities Program from the University of Arizona Graduate College. Raytheon Missile Systems Company, Hewlett-Packard Company, Agilent Technologies, the United Space Alliance, and the Bureau of Land Management representatives held workshops on internship and employment opportunities. There was also time for fun as participants enjoyed an ice cream social and the music of the Mariachis Espuelas de Plata.









Keynote speaker Vicente Garcia, Jr. (left) and the information technology panel





New Mexico AMP's Co-Directors with students and luncheon speaker State Senator Ben Altamirano (center)



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 e-mail: amp@nmsu.edu http://www.nmsu.edu/~nmamp Phone: 505/646-1847 Fax: 505/646-2960

# Annual Alabama LSAMP Graduate School Fair

The Fair, held October 7, 2002, at the University of Alabama at Birmingham, attracted over 400 students, faculty, graduate deans, principal investigators, and program managers from a number of member institutions of the Louis Stokes Alliances for Minority Participation, Alliances for Graduate Education and the Professoriate (AGEP), and Historically Black Colleges and Universities Undergraduate Program (HBCU-UP). Dr. Donald Thompson, Director of the Division of Human Resource Development (HRD), was guest speaker.



Students assemble to hear speakers

The Fair provided an opportunity for students to compare graduate programs at a number of institutions and talk directly to graduate school representatives.



Student reviews materials at the University of San Diego table



Students discuss program options



Students discuss Cellular and Molecular Biology program

An Executive Luncheon was held with Presidents and their representatives to discuss current problems in attracting students to careers in science, technology, engineering, and mathematics.



Dr. Louis Dale, LSAMP PI, Dr. Donald Thompson, Division Director for HRD, Dr. Carol Garrison, President, University of Alabama at Birmingham, and Dr. Roosevelt Johnson, Program Director for AGEP

# **FGLSAMP EXPO 2003**

The FGLSAMP Career EXPO 2003 represents the united effort of all institutions in the Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) Project. The FGLSAMP Project, now in the eleventh year of operation, has exceeded its original goal for graduating minority students in science, technology, engineering and mathematics (STEM) disciplines. The EXPO 2003



theme, "FGLSAMP: Preparing STEM Scholars for Professional Careers in Research and the increase the production of minorities in STEM disciplines at the undergraduate and graduate levels.

The University of South Florida served as the host institution and played a major role in providing funding, administrative and logistic support. The highlights of this EXPO featured representatives from the National Science Foundation (NSF), Dr. A.

James Hicks, Program Director for LSAMP Programs, keynote speaker for the Awards Banquet and Dr.



Professoriate", is fundamental to the goals of the entire alliance. This conference provided a medium for STEM students to network with professionals from research institutions, laboratories, industry and governmental agencies and present research seminars to enhance their STEM career paths. Our students, faculty and visitors are expected to use the EXPO as a catalytic agent to



Mark Weatherspoon Ph.D., EXPO 2003 Conference Judge and FGLSAMP alumnus is an example of the path to the Professoriate. Dr. Weatherspoon received his BA at FSU, his Ph.D. at University of South Florida and is currently a professor in Electrical and Computer engineering at FAMU-FSU.

Director for the Alliances for Graduate Education and the Professoriate (AGEP), keynote speaker for the Exhibitor's Luncheon. In addition, Dr. Ernest McDuffie, NSF Lead Program Director for the Federal Cyber Corps Scholarship for Service Program provided an excellent workshop on How to Obtain NSF Funding.

# LSAMP Accomplishments and Highlights

# Alabama



#### The Alabama Alliance sponsored the Fifth Annual Graduate School Fair involving more than 400 minority students from institutions throughout Alabama, Mississippi, and Georgia. Dr. Donald Thompson, new Director of Human Resource

Development, and Dr. Roosevelt Johnson, Program Director for the Alliances for Graduate Education and the Professoriate, were guest speakers. The Fair provided an opportunity for the many undergraduate students to review graduate programs from fourteen institutions.



The Alliance sponsored the Second Annual Graduate Fellows Conference bringing role models to meet and advise students about graduate school preparation and completion issues.

The Alliance published the annual LSAMP Magazine and the LSAMP Partner Institutions: Alliances for Success.

# All Nations

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The All Nations Louis Stokes Alliance for Minority Participation (ANLSAMP) is in its second year of the Phase II award that includes all 32 of the accredited Tribal Colleges and

Universities (TCUs) in the United States and 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.

- ANLSAMP supported 14 partner projects focused on student research, mentoring and curriculum development. These projects have indicated that these projects will directly impact 270 ANLSAMP students and 81 faculty members.
- This year we supported 9AISES Chapters. These Chapters support 113 student members that become eligible for funding and scholarships through the national AISES

organization. This year student participation in these chapters received \$27,000 in scholarship funds.

- 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. Last year 10 students participated in the scientific poster presentation, 2 students participated in the scientific oral presentation and 46 students (12 teams) participated in the science bowl.

\* >>+\* Calífornía

- Annual statewide undergraduate research symposium, hosted by UC Riverside, with 100 UC students, faculty, staff participating from the eight general UC campuses.

• Successfully implemented site-based data entry, whereby each UC campus coordinator assumed responsibility for data entry on their respective students, activities, and faculty.

- Publication of the Proceedings of the 2002 Statewide Undergraduate Research Symposium and the CAMP *Quarterly*, featuring student academic achievement in research and profiles in graduate education UC system wide.
- Student awards system-wide continue to gain national attention, include research recognition at professional conferences for AAAS, ACS, MAES, NSBE, SACNAS.
- UC Office of the President and Edison International provided \$15,000 scholarships for 20 community college transfer students, all STEM majors, to UC.



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## California State University

• Between 2000-2001 and 2001-2002, the number of SMET degrees increased by 8.0 percent, to 1,485. This is a turnaround in the recent trend of decreasing numbers. The number of 2001-2002 CSU-LSAMP participants rose to an annual high of 2,432 students, a 4.4 percent increase over the previous year's mark. In fall 2002, there were 8,784 minority men enrolled in SMET and 5,185 minority women. The dominant SMET fields were engineering and life sciences. Fully 47 percent of the minority men (4,163) were majoring in engineering and 44 percent of the women (2,281) were majoring in life sci-



- The growth in program participation was accompanied by parallel growth in new minority students with SMET degree objectives. Between fall 2000 and fall 2001, new minority first-time freshmen enrolled in SMET majors increased by 3.7 percent, from 2,169 to 2,249 students. New minority community college transfers enrolled in SMET increased by 10.0 percent, from 937 to 1,026 students.
- Between fall 2000 and fall 2001, the population of minority SMET undergraduates that were continuing students grew by 3.0 percent, from 13,489 to 13,969.
- In fall 2001, fully 79 percent of the minority SMET enrollments were full-time students (i.e., attempting at least 12 semesters units or quarter equivalents.

# Colorado



ences.

• For Phase I, CO-AMP projected goal was 400 underrepresented (UREP) Science, Technology, Engineering, & Mathematics (STEM) B.S. degrees. By the 6th year, CO-AMP has met this goal with 400 UREP STEM B.S. degrees awarded.

- Rate of increase in degrees awarded from baseline Phase I (from 215 to 400 degrees) was 86%.
- Rate of increase from baseline to year 6 in the number of all STEM degrees awarded (from 2,789 to 4,425 degrees) was 58.6%.
- The rate of increase of UREP STEM degrees awarded from baseline to year 6 was greater (86% vs. 58.6%) than that of the increase in all STEM degrees awarded.
- Increase in STEM enrollment of underrepresented minority students of approximately 72.8% (from 1922 to 3322).

Increase in the number of African American students graduating by 91.6% (from 36 to 69); increase in the number of Hispanic students graduating by 41% (from 181 to 256); and for Native American students and multi-race, the graduation rate increased by 120.5% (34 to 75).



Nicole Pitlock (left), Univ. of Colorado-Denver, presenting research of Colo. State Univ. Summer Research Symposium; Lauren Harris (right) is the CO-AMP AGEP graduate asst.





• The total number of SMET B.S. graduates at participating institutions has more than quintupled since 1991 (416) to 2,319 in 2002.

• Over the past nine years, the Alliance has graduated more than 1,000 FGLSAMP supported scholars from four of the major undergraduate participating institutions. At least 475 of these students have enrolled in graduate programs.

- The Alliance has hosted two Regional Conferences, nine Career EXPOs and collaborated in the implementation of one NSF-AMP Student Research Conference.
- Since 1994, the Alliance has secured more than 1,133 summer internships for eligible FGLSAMP scholars.
- The FGLSAMP Website has been upgraded to provide current information on the alliance activities and provide links between central office and participating institutions. FGLSAMP scholars can access the website for information on scholarships, internships, graduate schools and conferences.

#### A SON KICS A

## Houston



· All schools in the Alliance have enhanced their Collaborative Learning Community facilities to provide academic workshops, tutoring, mentoring, volunteer activities, and student recruitment.

- The Third Annual H-LSAMP Undergraduate Student Research Conference was held at Southwest Texas State University in San Marcos, Texas. With LSAMP scholars from many Alliances, this was the largest conference to date. The number of oral and poster research presentations increased from 104 in 2001 to 278 in 2002.
- The number of underrepresented students in STEM majors has increased by 66%: 4,665 majors in 1999 to 7759 in 2002.

- The number of underrepresented students earning degrees in STEM majors has increased by 61%: 458 in 1999 to 738 in 2002.
- The number of participants in H-LASMP programs has increased by 269%: 1,087 in 2000 to 4012 in 2002.

→===+ Illínoís

• Illinois LSAMP institutions have awarded 2,531 bachelor degrees to minority STEM students participating in the Illinois LSAMP program since its inception in 1993.

• The overall enrollment of underrepresented STEM students has increase by over 75 percent since the inception of Illinois LSAMP.



**2002 ILSAMP Summer Science Institute (SSI) Participants** SSI is designed to enhance students' reading, writing, computer and mathematics skills in the context of scientific research and to develop their understanding of the nature of scientific inquiry and research as a means of learning science using the cooperative learning style.

- 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 STEM courses and annual student conferences within the Alliance.
- 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 STEM 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.

# Louísiana

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• Participation in research internships and conferences is an essential part of the Alliance, more than 80% of all LS-LAMP supported scholars have participated in ies.

- research activities.
- In 2001-2002, 346 scholars participated in conferences.
- Seventeen LS-LAMP scholars won first, second, or third place at national scientific competitions.
- Selected LS-LAMP Publications disseminated nationally:

- LS-LAMP Journal
- Conference proceedings (2 conferences) of refereed technical papers by student researchers.
- MainSTey Workbook, a supplemental manual for using graphing calculators for STEM activities. This workbook will be available in 2003.
- LS-LAMP co-sponsored and managed the annual NAFEO High Tech student Expo, attracting over 200 minorities, STEM scholars, many of whom made professional, scientific presentations. Gateway Computers was a primary contributor to the Expo.
- The LS-LAMP website (<u>www.ls-lamp.org</u>) has been enhanced to include resources for students and mentors: sample resumes, career statements, research opportunities.

ましままの Míd-Eastern



MEAMP Students:

• Participated in the pre-freshman orientation activities focusing on retention and science survival skills on Virginia Union University's campus

• Attended the Washington-Baltimore-Hampton Roads LSAMP Symposium



Johnson C. Smith University students participate in summer enrichment program.

- Participated in the Saturday Opportunities for the Advancement and Retention of Students (SOARS) program on Saint Augustine's campus
- Visited the Savannah River Environmental Site in Savannah, Ga. and a research laboratory in Oakridge, Tenn.
- Introduced prospective students and their parents to summer activities and college life on Elizabeth City State University's campus



# Μίσσίσσι



• LSMAMP has spawned an unprecedented, highly empowered, inter- and intra-institutional network of (STEM) minority students in Mississippi. LSMAMP site coordinators

form the core of a highly interactive, collaborative team working to improve the efficiency and effectiveness of undergraduate education in (STEM).

• Minority LSMAMP students who are actively involved (Level 1) are performing at a higher average GPA than the total population of (STEM) students.

- LSMAMP 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 LSMAMP has achieved.
- LSMAMP 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.
- NSF awarded LSMAMP funding for Phase III, making 2002 LSMAMP's eleventh year in operation.





• Fostered the development of a statewide initiative resulting in the inclusion of all four-year public institutions that offer STEM degrees.

• During Phase I of the Alliance, underrepresented STEM bachelor degree production equaled a total of

1,110 degrees, an increase of 86% over the baseline total of 153 degrees.

- Enrollment of underrepresented students was 31 percent greater than in our baseline year.
- March 14-16, 2002 worked with the Missouri Association for Blacks in Higher Education to facilitate a jointly sponsored successful Research Symposium at Northwest Missouri State University.
- Continued to be guided by the leadership of the LS MoAMP governing board in the identification and resolution of operational challenges.
- Continued monthly meetings of site coordinators resulting in sharing challenges and successes on individual campuses and subsequently firmer bonding as a team.

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• NSF has recently funded the NMSU Bridges for Engineering Education (NMSU BEE) program. This program will extend the emphasis on effective teaching and learning within engi-

neering education to the pre-college level through a strongly aligned multi-level curriculum designed to attract students to the engineering profession beginning at the middle school level.

- The Raytheon Missile Systems Company provided four \$1000 scholarships leveraged against a matching gift from the American Indian Education Foundation for a total of eight \$1000 scholarships available to American Indian students through New Mexico AMP. Raytheon also co-sponsors the AMP student research conference as well as facilitating internship workshops.
- Santa Fe Community College pre-engineering students participated in the first Minority Engineering Transfer and Articulation Program summer bridge funded under NSF's ATE program to address the need for more comprehensively trained civil engineers. A key component of the bridge was a design project centered on a basic infrastructure system

(water, wastewater, power, streets and roads) for a local *colonia*.



CU NY OF

• Over 6,000 Baccalaureate degrees granted from 1992-2002. Baccalaureate degrees granted increased 88.4 %. From inception, 262 LSAMP Scholars have earned BA or BS degrees.

- For the 2001-2002 academic year 202 LSAMP research scholars were offered CUNY academic scholarships.
- For the academic year 2001-2002, CUNY enrolled over 18,534 students in NYC LSAMP institutionalized or restructured courses.
- The LSAMP CUNY Summer Research Program drew participation from 70 CUNY students.
- Five LSAMP Activity Coordinators completed MS degrees during the academic year 2001-2002.

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• North Carolina LSAMP was granted a Phase III award beginning November 1, 2002. The aim of Phase III is to continue to increase the number of science, technology, engineering, and mathematics (STEM) degrees for minority students and to prepare and increase student interest in transitioning into graduate school.

- In spring 2002, NC Alliance institutions awarded a total of 841B.S. degrees to minority STEM students.
- Minority STEM enrollment increased from 4,744 in fall 1997 to 5,588 in fall 2001, reflecting an increase of 17.8%.
- Faculty and students throughout the Alliance participated in 50 STEM-related local, state, and national conferences and professional meetings. Many students presented both poster and oral presentations at several of these events.
- During summer 2002, a NC-LSAMP biology faculty mentor and three NC-LSAMP biology students from NC A&T participated in the Faculty and Student Team (FaST) Research Program. The 10-week program at Argonne National Laboratory provided a research experience for the participants with national laboratory scientists.

Northeast

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• Development of faculty mentors.

• Presentation by a team of graduate and undergraduate students to inner city middle school students.

• Experiencing the benefits of collaboration across campuses and institutions.

+ >>+\*+C=+ Oklahoma



• A total of 29 high school graduates participated in Summer '02 Bridge Programs partially funded by the Oklahoma State Regents for Higher Education; 184 Scholars in STEM majors received stipends during 2001-2002 academic year

- Forty (40) LS-OKAMP Scholars participated in summer '02 internships at higher education institutions, corporations, and government research laboratories
- Graduate preparation programs increased at each Alliance institution. 31 LS-OKAMP graduates enrolled in graduate programs;
- The 6th Annual Research Symposium included 19 oral and 28 poster presentations
- Of the 587 STEM degrees in 2001-2002, ethnic distribution was; 53% American Indians, 31% African Americans, and 16% Hispanics.



LS-OKAMP Scholars, Annual Research Symposium

# Pacífic Allíance

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- Alliance campuses continue to increase the number of LSAMP students and all 4 campuses are well focused on the Pacific Alliance recruitment, retention, and placement strategies
- Our Alliance has attracted the attention of NASA, Intel, and Siemens BuildingTechnologies and formal cooperative agreements are pending.
- Alaska campuses received \$190,000 in scholarship funding from Alyeska Pipeline Service Company
- An Alaska Director was selected and Math coordinators hired for the Fairbanks and Hawaii math workshops.
- *TALPA* outreach labs up and running in Kotzebue, Alaska, on the Yakima Reservation in Washington State and with new Alliance partner Hewlett Packard in Hawaii.

# Phíladelphía



Cheyney University was awarded a NASA Curriculum improvement grant. During the 2001-2002 academic year, visiting NASA scientist, Dr. W. Mackey, worked with Cheyney University faculty for the year 2001-2002.

- Delaware State University is a partner in the Delaware Biotechnology Institute (DBI), which was awarded grants from the National Institute of Health (NIH) to establish the Delaware Biomedical Infrastructure Research Network (BRIN). The creation of new Academic units in STEM areas made possible through state funding will produce a greater number of STEM students.
- Seven Philadelphia AMP graduates from Lincoln University will be attending graduate school in the Fall 2002 in Masters

and Ph.D. programs in Chemistry at the following universities: Howard University, Temple University, Florida A& M University, University of Maryland, Baltimore County, and the Georgia Institute of Technology.



# Puerto Ríco



• PR-LSAMP institutions awarded 3,094 baccalaureate degrees in STEM fields in academic year 2001-02; a total of 29,513 BS degrees have been awarded since 1991 in STEM areas.

- PR-LSAMP institutions have more than double their STEM undergraduate student enrollment, from 12,572 in 1991 to 26,524 in the Fall of 2001.
- 17% of the Hispanics that obtained a PhD in a natural science field nationwide (1995-2000), received their BS degree from a PR-LSAMP institution (251 out of 1,481). In the case of Engineering, it was 12.5%.
- During academic year 2001-02, PR-LSAMP awarded 509 stipends to STEM undergraduate students to participate in research experiences at local research laboratories. Over 250 students presented their research projects to their peers and STEM faculty at PRISM, the annual local research forum.
- An annotated data bank of websites to complement STEM courses was developed for seven STEM disciplines: Physics, Chemistry, Biology, Geology, Engineering, Mathematics, and Electronics. The data bank will be available in the PR-LSAMP web page.

# South Carolína



 Partner institutions conferred over 500 STEM minority degrees for the first time in alliance history.

- Five of the Twelve Alliance Institutions ranked nationally as leaders in producing minority STEM Graduates. The schools recognized were: Benedict College, Clemson University, Morris College, South Carolina State University and University of South Carolina. Claflin University recognized by US News and World Report as #1 Best Values and #7 among America's Best Comprehensive Colleges.
- LS-SCAMP recognizes outstanding achievement among its Alliance Co-PI's. Dr. Cassandra Smith, Voorhees College was named Distinguished Professor of the Year; Dr. Shingara Sandhu, Claflin University was received the National Millenium Award for Excellence in Teaching.

# State University of New York

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An increase in UREP STEM bachelors and doctoral degrees with an increase in bachelors degrees of 12.6% from Phase II baseline and 52.7% from Phase I baseline and an increase of 150% in UREP STEM Doctoral degrees at

SUNY LSAMP institutions since the inception of SUNY AGEP in 1999.

- An increase in the enrollment of STEM students of 9.2% from Phase II baseline and 146% above the baseline in Phase I with an increase in UREP STEM enrollment of 61.3% at SUNY Old Westbury.
- SUNY LSAMP is building important new collaborations with CUNY LSAMP, Peterson's Corporation, UMBC, Howard, NASA and NOA. These collaborations will lead to expanded funding opportunities, increased UREP STEM bachelors and doctoral degree production and new research opportunities for SUNY LSAMP students



SUNY LSAMP students at the Black Engineer of the Year Awards Conference

- SUNY LSAMP has strengthened its Alliance through expanded outreach and public relations efforts, improved fund raising efforts, new focus on scholarly articles and presentations at professional conferences, better program analysis and program planning and better sharing of successful programs and program components.
- SUNY LSAMP has increased its local and national visibility through its Center for Inclusive Education, its "Access to Success" Symposium, its new web site and its new video and outreach materials.



Tennessee

· Tennessee LSAMP institutions awarded 372 bachelor degrees to minority STEM students. Over the next five years, this alliance will increase that number to 744 bachelor degrees. The current undergraduate enrollment is 3,178 students in the STEM disciplines.

- TLSAMP projects include:
  - Supplemental instruction
  - Tutorials
  - Bridge program
  - · Summer and academic year research
  - Curriculum reform
  - Faculty mentoring
  - · Peer mentoring
  - · Drop-in center
- TLSAMP partnered with BWXT Y-12, Bechtel Jacobs, Oak Ridge National Laboratory, and Sandia National Laboratories on this effort. The participation of these federal laboratories and private companies ensures that our students are exposed to state of the art technology in the STEM areas.

# University of Texas System



OF TEXAS SYSTEM • In the current reporting year, 1,018 under-D represented minorities received bachelor's degrees in STEM field. In addition, the current graduate enrollment of underrepresented minority students at UT-System universities is 585.

- In the past ten years, 423 community college students have participated in summer bridge activities. Of the 241 (57%) community college students who have matriculated to the four-year institution, 57 (24%) are still enrolled in STEM fields and 184 (76%) have received their degrees in a STEM field. Of the 602 students who have been supported on research stipends over the past ten years, 419 (70%) have graduated with degrees in STEM fields and 124 (21%) are currently enrolled in STEM degree programs.
- Joanna Swain, a student at UT-Tyler has a conference paper published in the Proceedings of the AIAA/ASME Joint Thermophysics meeting. Hillary Verlei and Alethia Oldham, students at UT-Permian Basin were co-authors on a recent article, published in the Journal of Bacteriology.

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# University System of Maryland



The students of the USM LSAMP Program have obtained many honors over the past year including:

- · Outstanding Graduating Senior in Biological Sciences
- The Vitullo Award for Undergraduate Research, the Scholarship Excellence in Chemistry Award, and the Howard Hughes Fellowship
- Several MIRT Internships to conduct research in Lancaster, England
- Juvenile Diabetes Research Summer Scholars
- Several awards for Academic Distinction and several perfect 4.0 grade point averages



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• The three major highlights of the AMP Program are: (1) Research Traineeship-activities that allow our students to be trained in research; (2) Calculus Reform - expansion of the mathematical approach to calculus using calculators and computers; and (3) Retention of Students - tutorial activities, some of which include walkin labs as well as one-on-one tutoring sessions.



Principal Investigator of the WBHR-LSAMP Program Dr. A. Toy Caldwell-Colbert and student researcher Nigel Lloyd at the Annual Board of Governors Meeting at Howard University September 12, 2002

- During the academic year, the WBHR-LSAMP provided junior/senior level students with research opportunities during the first & second semesters and the summer. They also participated in specialized classes through the Cisco Networking Academy. The annual symposium was conducted at Norfolk State University on July 23, 2002. The Board of Governors Meeting was held at Howard University on September 12, 2002.
- Faculty advising has been identified as a key initiative to enhance student success. At Norfolk State University, workshops on faculty advising have been organized in collaboration with the Academy for Collegiate Excellence and Student Success (ACESS). Written instruments to facilitate advising and assess the quality of advising are being developed at Howard University, using the Noel-Levitz's Retention Management College Student Inventory (CSI).

Reform at a Distance is a cooperative project involving four universities (Bowie State University, Virginia State University, Norfolk State University, and Howard University). The primary objective of the project is to offer a Harvard Calculus Reform course for students at the partner institutions using real-time interactive distance learning techniques.

# Western Alliance to Expand Student Opportunities



Our alliance reports an annual rate of 1,326 underrepresented minority STEM baccalaureates at year I of Phase III showing that we exceeded our 1st year goal for Phase III goal of 1,259 and our average annual increase is 21%.

- We served 389 underrepresented minority students in our Phase III activities, on average, about 9% 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 36 non-underrepresented students.
- We continue to have a great deal of impact due to the tireless effort of over 217 campus coordinators in our LSAMP who are mostly STEM faculty but also include minority program administrators and university administrators. These coordinators in turn collaborate with many STEM faculty creating a multiplier effect, which is important to our goal of systemic reform.

# LSAMP Announcements

#### **National Science Foundation**

#### **New Program Director in HRD**

Dr. Margaret Curtis has been appointed as Program Director for the Historically Black College and University Doctoral Capacity Building (HBCU DCB) Program, Division of Human Resources Development (HRD), Directorate of Education and Human Resources (EHR). She also assists with the Louis Stokes Alliance for Minority Participation (LSAMP), directed by Dr. A. James Hicks and the Alliances for Graduate Education and the Professoriate (AGEP) directed by Dr. Roosevelt Johnson. Other responsibilities include: Representation of the Program,



Dr. Margaret Curtis

Division, and the Foundation within scientific and education communities, and with others as appropriate. She also serves as a liaison between NSF and academic institutions.

Her prior experiences include: managing federally and privately funded programs, two of which were supported by the National Institutes of Health (NIH): Minority Access to Research Careers (MARC) and Minority Biomedical Research Support (MBRS). She also managed other programs supported by the Kennan Foundation, Hearst Foundation, Lilly Foundation, US Department of Education, National Endowment for the Humanities, and Howard Hughes Foundation. In addition, she served as a provost and vice president for academic affairs, faculty member, and on numerous institutional and inter-institutional committees and councils. Dr. Curtis received a Ph. D. degree from Howard University where she did research in Human Genetics. She did additional studies at New York University, National Institutes of Health, Harvard University, and the Johns Hopkins University and Jackson Laboratory. She has extensive experience as a panelist, reviewer, evaluator, and consultant. Her experience in administration and work with minorities make her a valuable asset for the HBCU DCB, LSAMP, and AGEP programs

#### **New Phase III Awards**

Florida-Georgia (Florida A & M University) New York (City College) North Carolina (North Carolina A & T University) Texas System (University of Texas at El Paso)

#### **New Phase II Awards**

Colorado (Colorado State University) SUNY (State University of New York)

#### **New Phase I Awards**

Indiana (Purdue University)

#### Alabama LSAMP

The Sixth Annual Alabama LSAMP Graduate School Fair will be held at the University of Alabama at Birmingham on Monday October 6, 2003. The Fair provides an excellent opportunity for graduate schools to recruit minority STEM students from Alabama, Georgia, and Mississippi in a single location. Normally, the Fair attracts over 250 STEM juniors and seniors from Historically Black Colleges and Universities in the LSAMP, HBCU-UP, and AGEP programs.

The Annual Alabama LSAMP Summer Bridge Program will be held May 30, 2003 – July 11, 2003 at three sites: Alabama A&M University, Alabama State University, and the University of Alabama at Birmingham.

The Alabama LSAMP Summer Internship Research Conference will be held at the University of Alabama at Birmingham on July 21, 2003.

#### Florida-Georgia LSAMP

Career EXPO 2003 will be held in Tampa, Florida on January 31-February 2, 2003, at the University of South Florida. This will be the 10<sup>th</sup> conference.

#### **Houston LSAMP**

Plans for the Fourth Annual H-LSAMP Undergraduate Student Research Conference are underway. Please check our website WWW.HLSAMP.UH.EDU for further information.

#### Louisiana LSAMP

The Seventh Annual LS-LAMP Student Research Conference will be held in November 2003. Please visit the Web site for updates. (http://www.ls-lamp.org)

The Seventeenth NAFEO High Tech Student Expo will be held during the NAFEO Annual Conference April 8-13, 2003, in Washington DC. Please visit the website for updates. (http://www.ls-lamp.org)

#### **New Mexico LSAMP**

The 2003 New Mexico LSAMP Undergraduate Student Research Conference will be held on September 25-27, 2003 at New Mexico State University. Contact Sylvia at (505) 646-1847 for information.

Christopher Burnham, English Department Chair, and writing assessment consultant for the New Mexico LSAMP program, has been selected by New Mexico State University as a recipient of the Regents Professorship.

#### Philadelphia LSAMP

Dr. Richard E. Woodring, former PI and Project Director, Philadelphia LSAMP and Dean of Engineering Emeritus, Drexel University, was inducted as a 2002 Honorary Member of the American Society of Civil Engineers.

Dr. Ewaugh Finney-Fields, Professor of Mathematics and Dean Emeritus, Drexel University, and Dr. Linda Powell, Chair, Biology Department, Community College of Philadelphia, were the recipients of the 2002 Philadelphia LSAMP Excellence Award in Engineering and Science Education.



(From left to right): Mr. Stephen R. Cox, Associate Project Director, Philadelphia AMP, Dr. Linda Powell, Community College of Philadelphia, Dr. Ewaugh Finney-Fields, Drexel University, and Ms. Veniece Keene, Project Coordinator, Philadelphia AMP.

#### **Puerto Rico LSAMP**

Dr. Manuel Gómez, the PR-LSAMP Principal Investigator and Director of the UPR Resource Center for Science and Engineering, was awarded in June 2002, the Puerto Rico Chamber of Commerce's Zenith Award in Education, in recognition of his life-long commitment to advancing STEM education and research on the Island.

The Puerto Rico LSAMP will hold the 2003 Puerto Rico Interdisciplinary Scientific Meeting (PRISM) on March 8, 2003 at the University of Puerto Rico, Río Piedras Campus. Over 600 STEM faculty and students are expected to attend.

#### **University of Texas System LSAMP**

The Fifth University of Texas System LSAMP Student Research Symposium will be held at South Padre Island, Texas in mid-fall. Information and registration materials will be mailed in early summer.

#### **University System of Maryland LSAMP**

The College of Computer, Mathematical, and Physical Sciences at the University of Maryland, College Park has expanded the magnitude of the LSAMP vision by: 1. The commitment of additional resources in the form of PRIME scholarships, 2. The hiring of a director of diversity, recruitment, and retention, and 3. The creation of a new NSF funded summer program (Summer 2003) for students from six HBCU's with an interest in pursuing graduate studies in mathematics.

Louis Stokes Alliances 31 for Minority Participation

# LSAMP Award History

University of California, Irvine

Jackson State University

University of Puerto Rico

Arizona State University

Texas A&M University

The University of Alabama at Birmingham

**Lead Institution** 



#### Alliance

1991

Alabama California Mississippi **Puerto Rico** Western Alliance to **Expand Student Opportunities** Texas





Dr. Louis Dale

1992

Dr. Ralph J. Cicerone

Florida-Georgia **New York City** North Carolina **South Carolina University of Texas System** 

**California State** 

**Hampton Roads** 

Dr. Alfonso Ratcliffe

**Oklahoma State** 

**All Nations Greater Newark** 

**Metropolitan Detroit** 

**Greater Philadelphia Region** 

Dr. Judy Gobert

Washington/Baltimore/

**New Mexico** 

Illinois



Dr. Ralph Turner

1993

1994



Dr. Nevill Parker



Dr. Mark Hardy

City College

Dr. Carolyn Meyers

California State University, Northridge Chicago State University New Mexico State University Howard University



Dr. Marian Wilson-Comer

Wayne State University Salish Kootenai College New Jersey Institute of Technology Oklahoma State University **Drexel University** 

Dr. Ricardo Jacquez



Dr. Earl Mitchell Louis Stokes Alliances 32 for Minority Participation



Dr. Louis Dale Dr. Ralph J. Cicerone Dr. Mark Hardy Dr. Manuel Gomez

Dr. Antonio Garcia Dr. Karan L. Watson



Dr. Antonio Garcia

Dr. Karan L. Watson

Dr. Ralph Turner Dr. Neville Parker Dr. Carolyn Meyers Dr. James H. Arrington Dr. Pablo Arenaz



Dr. James H. Arrington



Dr. Pablo Arenaz

Dr. Alfonso Ratcliffe Dr. Marian Wilson-Comer Dr. Ricardo Jacquez Dr. A. Toy Caldwell-Colbert



Dr. A. Toy Caldwell-Colbert

Alumni Dr. Judy Gobert Alumni Dr. Earl Mitchell Dr. Harvill Eaton



Dr. Harvill Eaton



Dr. Manuel Gomez



The University of Texas at El Paso

#### Year

1995

#### Alliance

Louisiana Heartland's University System of Maryland **Tennessee (Mid-South)** Xavier/UNCF



Dr. Robert Ford

1996

Colorado SUNY

#### **Lead Institution**

Southern University and A&M College University of Missouri-Baltimore

University of Maryland Baltimore County Tennessee State University Xavier University of Louisiana



Dr. Charles Sampson

Dr. Freeman Hrabowski

Colorado State University State University of New York-Stony Brook



Dr. Omnia El-Hakim

#### Clark Atlanta University

University of Houston



Dr. Walter D. Broadnax



Dr. David Ferguson

Dr. John Bear

Virginia Union University Northeastern University University of Alaska Anchorage



Dr. John Cunningham



Dr. Herb Schroeder

Dr. Sally Frost Mason

#### **Principal Investigator**

Dr. Robert Ford Dr. Charles Sampson

Dr. Freeman Hrabowski Dr. James A. Hefner Alumni



Dr. James A. Hefner

Dr. Omnia El-Hakim Dr. David Ferguson

Dr. Walter D. Broadnax

Dr. Bernard Franklin

Dr. John Cunningham

Dr. Herb Schroeder

Dr. John Bear

199

Houston

Georgia



**Mid-Eastern** Northeast Pacific



Dr. Bernard Franklin





## **Purdue University**



Dr. Sally Frost Mason Louis Stokes Alliances 33 for Minority Participation



Indiana



The Alabama Louis Stokes Alliance for Minority Participation (ALSAMP) strives through its twelve member institutions to increase the quality and quantity of underrepresented minority students completing baccalaureate degrees in science, technology, engineering, and mathematics (STEM) fields. Seven of the institutions have doctoral programs in STEM fields. The interaction of ALSAMP students and faculty, and the facilities on these twelve campuses are advantageous for all. The undergraduate institutions benefit from having their students participate in research experiences with research faculty while the research institutions have the opportunity to work with, identify, and recruit highly qualified minority students seeking to attend graduate school. The diversity of the alliance: Historically Black Colleges/Universities and majority institutions, public and private institutions, and research and teaching institutions, boasts a new era of cooperation as the alliance seeks to maximize learning opportunities and heighten achievement for all ALSAMP students in the fulfillment of LSAMP goals.

Activities supporting LSAMP are:

- Summer Bridge Program
- Graduate Bridge Program
- Research Internship for Undergraduate Students
- Peer and Faculty Mentoring
- Student Resource Center
- National, State, and Alliance-Wide LSAMP Publications
- Academic and Financial Support

Lead Institution:

#### The University of Alabama at Birmingham

Dr. Louis Dale, Principal Investigator (205) 934-8762 ldale@uab.edu Dr. Carolyn Braswell, Project Director (205) 934-8762 cbraswel@uab.edu



#### **University and College Partners:**

Alabama A&M University Dr. Jerry Shipman, Principal Investigator (256) 851-5300 jrshipman@aamu.edu

#### Alabama State University

Dr. Wallace Maryland, Jr., Principal Investigator (334) 229-4464 wmaryland@asunet.alasu.edu

#### Auburn University

Dr. Overtoun Jenda, Principal Investigator (334) 844-4663 jendaov@auburn.edu

#### **Miles** College

Dr. Bernice Coar-Cobb, Principal Investigator (205) 929-1547

#### Oakwood College

Dr. Kenneth LaiHing, Principal Investigator (256) 726-7112 laihing@oakwood.edu

#### Stillman College

Dr. Charlotte Carter, Principal Investigator (205) 366-8928 ccarter@stillman.edu

#### Talladega College

Dr. Leonard Cole, Principal Investigator (256) 761-6300 Icole@talladega.edu

**Tougaloo College** Dr. Lovell Agwaramgbo, Principal Investigator (601) 977-7785 lovell.agwaramgbo@tougaloo.edu

#### **Tuskegee University**

Dr. Shaik Jeelani & Dr. Herman Windham **Co-Principal Investigators** (334) 727-8970 & (334) 727-8556 jeelanis@tusk.edu & windham@acd.tusk.edu

The University of Alabama Dr. Viola Acoff, Principal Investigator (205) 348-3761 vacoff@coe.eng.ua.edu

The University of Alabama in Huntsville Dr. Adriel Johnson, Sr., Principal Investigator (256) 824-6235 johnsona@email.uah.edu



The All Nations Louis Stokes Alliance for Minority Participation (ANLSAMP) is working to achieve parity with the other minority groups and to meet the needs of the tribal communities we serve. ANLSAMP has fiftytwo Alliance Partners. Our partners consist of twenty-five universities and 4-year colleges, and twenty-seven Tribal Colleges offering two year degrees. Please refer to the map for the locations of the Tribal Colleges.

The ANLSAMP Phase II program is building the capacity of the Tribal Colleges and Universities (TCUs) to address the disparity of Native Americans. Native Americans are the least represented minority group in the Science, Math, Engineering and Technology (SMET) fields. Student focused activities play an integral part in increasing student successes and are incorporated into the overall program activities.





FOUR YEAR ALLIANCE PARTNERS

Haskel Indian Nations College Oglala Lakota Community College Salish Kootenai College Sinte Gleska University Sitting Bull Community College Central Michigan University **Evergreen State College** Heritage College Lake Superior College Montana State University - Bozeman Montana State University - Northern North Dakota School of Mines & Technology South Dakota State University **Universtiy of Kansas University of Minnesota - Dulth University of Minnesota - Twin Cities University of Montana** University of North Dakota University of South Dakota University of Washington University of Wisconsin - Madison Washington State University Western Washingtion University



Louis Stokes Alliances 35 for Minority Participation

#### California Louis Stokes Alliance for Minority Participation Phase III (2001-2006)

Increasing the number of B.S. degrees completed by minority students in Science, Engineering and Mathematics with a commitment to excellence.

"Faculty mentored research is a key student development tool and an effective platform for graduate school."

CAMP SUPPORTS UNDERGRADUATES THROUGH:

- Faculty mentoring
- Peer mentoring and tutoring
- Laboratory research experiences
- Peer facilitated core course workshops
- Annual undergraduate research symposium
- K-12 science and math teacher opportunities
- California Community College transfer support
- Synergy with affiliated programs having similar goals
- Graduate school preparation including GRE practice exam

With appreciation to the National Science Foundation for continued support.

"I can't emphasize strongly enough how important it is to be involved in research. CAMP helped me tremendously in my academic endeavors and prepared me for my professional life. Above all else, it provided me with effective communication and teamwork skills that I now use in my career."

—Giancarlo Marchesi UC Santa Cruz Alumnus, Software Engineer

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University of California Primary Partners: UC Berkeley • UC Davis • UC Irvine(*lead campus*) • UC Los Angeles UC Riverside • UC San Diego • UC Santa Barbara • UC Santa Cruz



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# **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 fifth 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 of them 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.

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 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 be juniors or seniors. All of our workshops stress collaborative study and academic excellence. 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.

#### \*\*\*\*\*\*\*\*\*



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

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Fort Lup AL Golden

of Nouth

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492-4276

Springs

COLORADO Colo

NEW MEXICO

#### 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, Technology, Engineering, and Mathematics (STEM). 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 .

#### **LS CO-AMP PARTNER INSTITUTIONS & SITE COORDINATORS**

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- ٠ **Diné College** Clarissa Bowman, 505/368-3555 cnbowman@shiprock.ncc.cc.nm.us
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UTAH

RIZONA



Dr. Omnia El-Hakim **Principal Investigator** & Director

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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, Technology, Engineering, & Mathematics http://lamar.colostate.edu/~coamp



#### FLORIDA-GEORGIA LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

#### **DISSION STATEMENT**

To ensure that all Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) participants have an academic support system that provides counseling, mentoring, tutoring and shadowing services needed to pursue careers in science, engineering and mathematics.

#### **PROJECT OVERVIEW**

The Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) is a National Science Foundation (NSF) Project that includes over 1000 talented undergraduates in science, technology, engineering and mathematic (STEM) majors. It is a coalition of twelve institutions in Florida and one in Georgia, with Florida A&M University as the lead institution. The member institutions are: Albany State University, Bethune-Cookman College, Florida A&M University, Florida International University, Florida Memorial College, Florida State University, University of Florida, University of Miami, University of Central Florida, University of South Florida, Florida Community College @ Jacksonville, Miami-Dade Community College and Tallahassee Community College.

The primary focus of FGLSAMP is to increase the number of baccalaureate degrees granted to underrepresented students in the SEM disciplines and to influence these students' admission to graduate school, FGLSAMP has significantly increased the number of students enrolled in graduate education and has placed more than 43% of SEM students in graduate programs. The Alliance continues to stress the value of experiential exposure for all participants.



**35** University

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TALLAHASSEE COMMUNITY COLLEGE

It's for upu

#### THE GEORGIA LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION







#### OFFERED COOPERATIVELY BY

CLARK ATLANTA UNIVERSITY I ATLANTA METROPOLITAN COLLEGE I GEORGIA STATE UNIVERSITY MOREHOUSE COLLEGE I MORRIS BROWN COLLEGE I PAINE COLLEGE I SPELMAN COLLEGE

The Georgia LSAMP was established during academic year 1997-1998 and has made significant progress in contributing to a diversified 21st century STEM workforce. STEM enrollment has increased by more than 80 percent and the number of graduates has increased by more than 50 percent. Institutional indicators of success are: Four of the six baccalaureate degree granting institutions are in the top 50 nationally in awarding undergraduate degrees to African Americans; three are ranked in the top ten as best institutions for African Americans; and three are among the top institutions identified as the baccalaureate origin for recent African American recipients of STEM doctorates.

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# Houston Louis Stokes Alliance for Minority Participation

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H-LSAMP STEM Bachelor's Degrees





**CLC Workshop** 



H-LSAMP

ALLIANCE FOR

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LSAMP Scholar, Ronald Cotton UH Commencement Speaker

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# **LLINOIS STATE**







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#### OVERVIEW

The Illinois Louis Stokes Alliance for Minority Participation (ILSAMP) 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, technology, engineering and mathematics (STEM) disciplines. In support of this goal, ILSAMP has 1) provided programs to improve STEM students academic preparation, 2) modified or reinvented gateway courses to better educate more students and, 3) provided under-represented students with more educational options to increase opportunity and enhance performance. With continued support, this program can and will serve as a solid foundation students for achievement.









University of Illinois at Chicago

Illinois LSAMP provides activities that are comprehensive, multi-disciplinary, 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 STEM. Other activities include: hands-on research apprenticeships, scholarship conferences, science programs, facilitated study groups, faculty mentoring, professional development activities, peer mentoring, summer bridge programs and internships.















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# LSAMP Indiana

#### **Principal Investigator**

Dr. Sally K. Frost Mason, Provost and Professor of Biological Science Purdue University

#### Partners

Ball State University Muncie, Indiana

Indiana University Bloomington, Indiana

Indiana University - Purdue University Indianapolis Indianapolis, Indiana

Purdue Calumet Hammond, Indiana

Purdue University West Lafayette, Indiana

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## The Louis Stokes Alliance for Minority Participation (LSAMP) Indiana

project is a collaboration among Ball State University; Indiana University, Bloomington; Indiana University - Purdue University Indianapolis;



Purdue Calumet; and Purdue University, West Lafayette. The goal of the project is to double the number of minority graduates in the Science, Mathematics, Engineering and Technology (SMET) disciplines by the end of the five-year grant period. The over-arching goal is to increase the learning and success of the minorities in the SMET fields. Each member of the alliance is committed to increasing the number of SMET minority graduates by 100 percent by the end of the five-year period. ■ Each university surveyed existing student retention and minority programs and found that few pro-

grams were offered to help first-year students identify with their SMET

discipline <u>and</u> that few programs helped them sustain that initial identification through research and mentoring experiences over the next two years of college. In response to this finding, these institutions formed an alliance to increase the number of minorities receiving baccalaureate degrees in SMET disciplines.



**Programs:** LSAMP Indiana will implement programs that will: 1) provide early research and enrichment experi-

ences; 2) sustain teaching and mentoring opportunities on gatekeeper, as well as upper-level courses; 3) provide personalized interactions with graduate students and faculty mentors beginning in the students' first year; and 4) provide professional and personal development opportunities. These early experiences with research and teaching are designed to encourage students to forge and sustain an academic and social identification within their SMET discipline and serve as a solid foundation for student achievement.

# www.purdue.edu/lsamp











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# LOUIS STOKES LOUISIANA ALLIANCE FOR MINORITY PARTICIPATION

Post Office Box 9274 Baton Rouge, LA 70813 - (225) 771-2777 (225) 771-2311 (f) www.ls-lamp.org

The Louis Stokes Louisiana Alliance for Minority Participation is a comprehensive, statewide, coordinated program aimed at substantially increasing the number and quality of minority students earning baccalaureate degrees in science, technology, engineering, and mathematics (STEM) disciplines. LAMP Scholars have the ambition, exposure, and educational background to be successfull following graduation.





#### www.ls-lamp.org):

- 1. Financial support
- 2. Communication skill enhancement
- 3. Comprehensive, scientific advisement
- 4. Tutoring
- 5. Generic research activities
- 6. Specific Research project execution
- 7. Development of a professional culture
- 8. Development or enhancement of computer and other technological skills
- 9. Monitoring

WWW.LS-LAMP.ORG

10. Guidance to graduate school

## Students participating in the LS-LAMP program are immersed in the 10-strand Systemic Mentoring Model of the Timbuktu Academy (visit

# LS-LAMP comprises eleven colleges and universities and one research organization:

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#### Mid-Eastern Alliance for Minority Participation Activities

- Incorporate regional freshman orientation programs
- Recruit and prepare students to double the number of graduates in Science, Technology, Engineering and Mathematics (STEM) over five years
- Provide faculty mentors for students
  - Provide ongoing undergraduate
    research experiences
  - Foster networking and interaction among students with similar interests
- Widen the network of and increase information among AMP faculty members and administrators



# Louis Stokes Mississippi Alliance for Minority Participation Program

# **Endurance leads to Empowerment**

The Louis Stokes Mississippi Alliance for Minority Participation (originally called "MAMP") is one of the six "Grand AMPS" funded originally in 1991 as a part of NSF's national initiative to dramatically increase the representation of minorities in science, mathematics, engineering and technology. Currently in its 12th year, LSMAMP has made significant contributions toward diversifying the nation's scientific workforce. LSMAMP has created a legacy of institutional environments that support minority empowerment and achievement in the sciences. We are proud of the contributions that LSMAMP is continuously making toward the diversification of 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 of the statewide consortium of Mississippi's eight public universities, three of which are Historically Black Colleges and Universities (HBCUs). Located in both urban and rural settings throughout the State, the eight LSMAMP partners are Alcorn State University, Delta State University, Jackson State University (lead institution), Mississippi State University, Mississippi University for Women, Mississippi Valley State University, University of Mississippi and University of Southern Mississippi.

The single most important impact of LSMAMP, as we have stated several years in the past, is the empowerment of students. From the outset, they are made aware of the many people and activities available to help them succeed. There are peer-based networks established, in which students may serve or be served as needed.

#### Accountability through Accessibility

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 science, technology, engineering and mathematics (STEM) disciplines at Mississippi universities - from 242 in 1991, the baseline year, to 624 in 2002. 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. This infrastructure has facilitated the development of an intra- and interinstitutional network of faculty and administrators. They form the nucleus of a permanent, highly interactive, collaborative team working to improve the efficiency and effectiveness of undergraduate education in STEM. LSMAMP has fostered several successful models of educational intervention in Mississippi universities. In particular, peer mentoring and study group models, initially begun by LSMAMP, permanently enhance student empowerment throughout the system. The students learn to take personal responsibility for accessing the strategies and methodologies LSMAMP has implemented for their continued and enhanced success.

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# The Missouri's Alliance for Minority Participation Missouri's AMP...Diversity, Quality and Academic Excellence

L he 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 degree awards among 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

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# NEW YORK CITY LOUIS STOKES ALLIANCE

**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, Technology, Engineering, and Mathematics (STEM).



**The NSF supported NYC Louis Stokes Alliance for Minority Participation** (NYC-LSAMP) at CUNY has, since its inception in November 1992, been at the forefront of a concerted effort to increase annual minority STEM enrollment and graduation in the City University of New York. Since 1992, over **6,000** baccalaureate degrees have been awarded. The Alliance provides academic scholarship support to CUNY students majoring in the STEM disciplines, making research an integral part of STEM education in New York City.

#### **LSAMP Program Activities Include:**

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

# NORTH CAROLINA Louis Stokes Alliance for Minority Participation





#### PHASE III APPROACH

- \* Recruitment of underrepresented minorities into STEM programs
- \* School-College Bridge
- Retention in STEM programs
- Motivating and preparing STEM undergraduates for graduate school transition.
- First year retention in graduate school

#### PROGRAMS

- \* Summer Bridge Programs
- \* Supplemental Instruction
- \* Peer Study Groups
- \* Professional Workshops
- **\*** Student Mentoring
- **\*** Research Conference
- Research Internships



#### **Key Personnel**

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#### Northeast Louis Stokes Alliance for Minority Participation

The University of Massachusetts Amherst, the University of Connecticut, the University of Rhode Island, Northeastern University, and Worcester Polytechnic Institute have joined to form the Northeast Louis Stokes Alliance for Minority Participation in SMET (NE LSAMP). Our primary purpose is to build on current successful recruitment and retention efforts; recognize variation in the status, approach and rate of momentum for each institution and department; allow departments to benefit from the experiences of one another; and create cultural change at the departmental, interdisciplinary and institutional levels.

The primary goal of this Alliance is to increase enrollment, retention and graduate rate of under-represented minority SMET students beyond that possible through the initiative of any single institution.

NE LSAMP aims to build an infrastructure to ensure continuation of the Alliance and its activities beyond the funding period. The NE LSAMP will move the partners beyond communication to true collaboration and sharing of best practices and approaches.



Contact persons at each institution:

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|---------------------------------|-------|
|---------------------------------|-------|

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# LOUIS STOKES OKLAHOMA ALLIANCE FOR MINORITY PARTICIPATION

LS-OKAMP began Phase I in 1994 with a baseline number of 214 STEM graduates from underrepresented populations. The number progressively increased to 438 by the start of Phase II in 1999. In the past year (2001-2002), a total of 587 baccalaureate degrees were awarded to LS-OKAMP Scholars. (See figure below).



Phase II goals emphasize graduate school preparation and expansion of research experiences. Thirty (30) Scholars are currently enrolled in graduate programs, or have completed the MS degree. One (1) Ph.D. in Mathematics was earned in May 2002 by ECU graduate, Jennifer Mann, now an Assistant Professor at University of Texas (Tyler).

EXPECTED

ACTUAL

In summer '02, a total of 40 Scholars participated in research internship programs.



Oklahoma State University junior, Fred Beartrack, interned with Phillips Alaska, Inc. investigating tank over





#### **LS-OKAMP Partners**

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## LSAMP Pacific Alliance Building a National Model for Excellence in Native American Higher Education Programs

#### **Pacific Alliance**

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, technology, engineering, and mathematics (STEM) by increasing the number of individuals on a career path to leadership within STEM fields.

UNIVERSITY OF ALASKA ANCHORAGE UNIVERSITY OF ALASKA FAIRBANKS UNIMERSITY OF HAWAILAT MANOA





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#### **University of Washington**

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#### Pacific Alliance Recruitment, Retention and Placement Strategies

#### Outreach

- •TALPA: Technology Applications & Learning for Professional Achievement
- •High School Workshops

## Bridge: Summer Experiences for entering freshman

•*ALVA:* Internships with Calculus Prep

#### Retention

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

#### **Graduate** School

- •Undergraduate Research
- Information sessions
- Advising
- Faculty Mentoring

http://www.engr.uaa.alaska.edu/ansep Louis Stokes Alliances 53 for Minority Participation

#### **CENTRAL MANAGEMENT**

PhiladelphiaA

TION IN SCIENCE, ENGINEERING

PI, Project Director: Dr. Richard E. Woodring Associate Project Director: Mr. Stephen R. Cox Project Coordinator: Ms. Veniece Keene Administrative Assistant: Ms. Linda Senesombath Phone (215) 895-2203 • Fax (215) 895-2098

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University of Pennsylvania Ms. Cora Ingrum, (215) 898-7084 Email: month of sensitive media



LANCE FOR

MATHEMATICS

Dr. Neville Parker, Director, New York LSAMP receives an Appreciation Award during the 6<sup>th</sup> Annual Philadelphia AMP Research Symposium and Mentoring Conference.



Alliance students participate in the research competition during the conference.



# CAMPO

# Puerto Rico Louis Stokes Alliance for Minority Participation: Building Permanent Pathways to Graduate School

Participating Institutions:





#### Interamerican University System



#### Pontifical Catholic University of Puerto Rico



Polytechnic University of Puerto Rico



Coordinated by:



UPR-Resource Center for Science and Engineering

Initiated in 1991, the goal of PR-LSAMP is to improve the effectiveness and efficiency of undergraduate STEM Programs in order to increase the number of students that obtain a BS degree in STEM disciplines and continue graduate studies in these fields.



**Phase III Activities** 

#### Development of web-based resources to enhance student learning

- □ Scaling-up of successful teaching/learning strategies
- □ Bridging program with high school students
- □ Undergraduate research opportunities
- □ Mentoring Program

#### Highlights

- □ PR-LSAMP institutions have awarded a total of 29,513 with 3,094 awarded in 2002.
- □ Undergraduate enrollment in STEM Programs has increased to 26,543, from 12,572 in 1991.
- 17% of the Hispanics that obtained a PhD in a Natural Science field nationwide (1995-2000) received their BS degree from a PR-LSAMP institutions. In the case of Engineering the percent was 12.5



Research

**PRISM 2002** 



Bridging



Zenith Award in Education 2002



Mentoring



BEST PRACTICES CONFERENCE

PR-LSAMP PI:

PI: Dr. Manuel Gomez m\_gomez@upr.edu

www.prlsamp.org

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#### AMP South Carolina Minority Participation SOUTH CAROLINA ALLIANCE FOR MINORITY PARTICIPATION

Dr. James H. Arrington, Principal Investigator (803)536-7108 email:zf\_arrington@scsu.edu Dr. Judith D. Salley, Program Manager (803)536-8509 email:djdsalley@scsu.edu

The Louis Stokes-South Carolina Alliance for Minority Participation Program (LS-SCAMP) was established in 1992 as a collaborative effort between the National Science Foundation (NSF) and the State of South Carolina. LS-SCAMP's mission is to remove the barriers that prevent full participation by minorities in science, technology, engineering and mathematics disciplines. Through this initiative, enrollment in STEM disciplines increased from 2,393 to 3,446 and minority completion rates rose by 100% from 255 to 510.

#### Minority STEM Bachelor's Degrees 1992-2002



In a continued effort to meet and surpass NSF's goal for degree attainment in STEM, a new and restructured Phase I of the LS-SCAMP program was implemented naming South Carolina State University as the lead institution. Four new collaborative partners were added to ensure stronger outcomes in minority degree production to make up a \*twelve member alliance. This new LS-SCAMP alliance embodies all seven of the state's HBCUs, two major research institutions and three technical colleges. To meet the strong demand for higher education and to combat the persistent barriers to access, the new LS-SCAMP will implement new strategies while continuing to build on the foundation established during the prior SCAMP phases.

#### LS-SCAMP's Impact in South Carolina

- Summer bridge participants have a higher retention rate than non-summer bridge students.
- Minority STEM degree growth is 2.5 times the growth in non-minority STEM degrees at LS-SCAMP institutions.
- Minority STEM degree growth at LS-SCAMP

institutions outpace the growth in minority STEM degrees nationwide.

 Post baccalaureate studies have increased through LS-SCAMP efforts.

#### LS-SCAMP Program Activities

- Summer Bridge Programs
- Tutorial Sessions
- Professional Development
- Graduate Preparation
  Institutes
- Faculty/Student Undergraduate Research
- Scholarships
- Internship opportunities
- Mentorships

#### Contact Information LS-SCAMP Program South Carolina State University Campus P O Box 7212 Orangeburg, SC 29117 Phone: (803) 536-8513 Fax: (803) 516-4685

#### **Alliance Partners**

Allen University \* Benedict College \* Claffin University \* Clemson University \* College of Charleston Denmark Technical College \* Midlands Technical College \* Morris College \* Orangeburg-Calhoun Technical College South Carolina State University \* University of South Carolina \* Voorhees College

#### "Providing Challenging Opportunities to Get Exceptional Outcomes"



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## **Striving for Diversity and Excellence**

he State University of New York Louis Stokes Alliance for Minority Participation (SUNY LSAMP) is a coalition of 16 institutions within the SUNY system, one of the largest public college/university systems in the nation. This coalition works in collaboration with federal, state, and local government agencies, major national laboratories, industry, private foundations, and professional and community organizations.

To produce change in the order of magnitude necessary to meet degree production and enrollment targets, SUNY LSAMP has designed and implemented a comprehensive network of services that have a positive impact on students, faculty, and institutions.

#### **Services include:**

- · Scholarship and stipend support
- Workshops and tutoring in science, technology, engineering, and mathematics (STEM) disciplines

- Mentoring programs that link faculty and staff to students
- Paid research and internship opportunities
- Opportunities for students to attend professional conferences and present the results of their research
- Assistance to students in preparing for and applying to graduate programs
- Innovative enrichment courses and program models



**Current areas of focus include:** 

- Authoring scholarly articles and making presentations at professional conferences about the SUNY LSAMP program
- Strengthening the pathway from high school to the professoriate through partnerships with New York State programs and the SUNY Alliance for Graduate Education and the Professoriate (SUNY AGEP)
- Developing more effective strategies to prepare graduating students and place them in doctoral programs
- Seeking private and public foundation support
- Continuing to develop and implement comprehensive service models for SUNY LSAMP students
- Publicizing the program at the institution, state, and national level
- Developing a National Center for Inclusive Education in partnership with SUNY AGEP and private foundations

#### **SUNY LSAMP Institutions**

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# **Tennessee** Louis Stokes Alliance For Minority Participation

#### **OVERVIEW**

Tennessee State University (TSU), LeMoyne-Owen College (LOC), Middle Tennessee State University (MTSU), University of Memphis (Memphis), University of Tennessee at Knoxville (UTK), and Vanderbilt University (Vanderbilt) partnered to form the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP). A number of companies and laboratories have agreed to support this effort. They include Oak Ridge National Laboratory, Sandia National Laboratories, Bechtel Jacobs Company LLC and BWXT-Y12 LLC.

The goal of the TLSAMP program is to increase the number of the underrepresented science, technology, engineering, and mathematics (STEM) students by at least 100% at the end of the five-year period. The objectives to support the goal of the alliance are to:

- recruit underrepresented students to pursue science or engineering as a career
- improve the quality of the learning environment for underrepresented science and engineering students at all schools
- ensure that a larger number of undergraduate students are prepared to enter graduate programs.

#### PROGRAMS

- Recruitment Programs
- Student Support
- Summer Bridge
  Program
- Undergraduate Research
- Tutorial Programs
- Drop-In Centers
  Graduate School Preparation
- Curriculum Reform
- Faculty Mentoring
- Industry Mentoring
- Peer Mentoring
- Collaborative Learning
- Supplemental Instructions

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# Louis Stokes Alliance for Minority Participation 2001-2002

The TX LSAMP was one of the original 6 AMP programs in the US and the First in Texas, in Phase I. In Phase II (1997-2002) our alliance included one large Research I category state university, one HBCU, and two Hispanic-majority institutions, which had expanded to 4-year-university status within the previous few years, as well as a number of the community colleges which feed these universities. In 2001-2002, the active TX LSAMP participants included:

#### Four Year Colleges:

- TAMU College Station
- TAMU Prairie View
- TAMU Corpus Christi
- TAMU International, Laredo

#### <u>Community Colleges</u>:

- Laredo Community College
- San Antonio College
- Del Mar Community College
- El Centro Community College
- Houston Community College
- Richland Community College

#### Alliance Leadership:

- Karan Watson Principal Investigator, TX A&M University
- Rita Caso –Assoc. Project Director & Assessment Mgr., TX A&M University

#### **TX LSAMP Program Activities:**

- High School Bridge Programs
- Community College Bridge Programs
- Internships
- Mentor Programs
- Professional Development Training
- Supplemental Instruction
- Tutoring
- Undergraduate Research
- Peer Mentoring
- Peer Teaching Assistance
- Graduate School Application
  Assistance



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# **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.



Jose Hector Sandoval , Senior, Industrial Engineering, The University of Texas at El Paso Hector conducts research in the W.M. Keck Border BioMedical Manufacturing and Engineering Laboratory. Hector is using a laser scanner to scan the bone of a cadaver and process the data collected to build a 3 dimentional rapid prototype model of the bone to be used by medical doctors to design prosthetics or in surgical planning. Once data is collected and analyzed, it takes approximately one hour to build the model.

The number of underrepresented minority students who completed baccalaureate STEM degrees has increased by 80% over the 1992 baseline (1,018 vs. 564) and 30% over the Phase II baseline of 798, despite flattening higher education enrollment, the Hopwood decision and significant tuition increases in Texas.



# **University System of Maryland Louis Stokes Alliance for Minority Participation**



University of Maryland, Baltimore County University of Maryland, College Park University of Maryland Eastern Shore

#### **Program Success**

- Awarded 502 minority science, mathematics, engineering, and technology (SMET) degrees in 2002
- Continued enrollment of over 3,000 minority SMET students
- Continued support of over 300 USM LSAMP students
- Advancement of many USM LSAMP students to top graduate schools including Harvard, Duke, Northwestern, and MIT
- Summer 2002 research positions include Georgia Tech, National Institutes of Health, Army Research Lab, Fogarty MIRT, Stanford, and NASA
- Over 1,000 community service hours completed by students

#### **Honor Societies**

Students continue to be inducted into prestigious honor societies including:

- Phi Beta Kappa
- Phi Kappa Phi
- Pi Mu Epsilon (mathematics)
- Tau Beta Pi (engineering)
- Golden Key





#### **Program Highlights**

- Undergraduate research
- Academic support
- Summer bridge
- Mentoring
- Financial assistance
- Service
- Cultural events
- Advising and counseling
- College and lab visits
- Conference presentations
- Math bridge program
- Student recognition receptions

#### UMBC

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#### UMES

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#### UMCP Tamara Hamilton Program Coordinator hamiltot@deans.umd.edu 301-405-3882

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# Washington/Baltimore/Hampton Roads - Louis Stokes Alliance for Minority Participation Program

#### **History and Goals**

Over the past six years, the Washington Baltimore Hampton Roads Alliance for Minority Participation (WBHR-LSAMP) has received base support from the National Science Foundation to increase undergraduate research participation for minority students in Science, Technology, Engineering, and Mathematics (STEM) fields. This Alliance includes Howard University as the lead institution with Morgan State University, Bowie State University, the University of the District of Columbia, Hampton University, Norfolk State University, and Virginia State University as partners. Project participants in the WBHR-LSMAP program include the project director, alliance coordinator, project coordinators, research mentors, and students. The combined total minority students enrolled in STEM fields at this WBHR Alliance exceeds 20,000. Over the past 6 years, more than 6,000 students have graduated from these institutions with B.S. degrees in STEM fields.

The WBHR-LSAMP program supports undergraduate research for students. The overall objective of this program is to ensure that the LSAMP student has well-rounded research opportunities. Students are expected to participate during the summers and the academic year in research at their home institutions, at other research universities and in industrial or national laboratories. The overall goal of the program is to encourage minority students to pursue doctoral degrees in STEM fields and to become involved in research careers. During the 2001-2002 academic year, the WBHR-LSAMP provided junior/senior level students with research opportunities during the first & second semesters and summer; conducted specialized classes through the Cisco Networking Academy; organized a special video-conferencing course for students enrolled in Calculus; provided tutorial support for students in gatekeeping courses (Biology, Calculus, Chemistry, & Physics); provided financial assistance to STEM students during the fall and spring semesters; and facilitated the transfer of community college students into STEM programs at WBHR institutions.

#### **Impact and Systematic Changes**

There has been a significant impact on students and systemic change as evidenced by the fact that for the academic year 2001-2002, the WBHR-LSAMP partners continued to have students involved in summer institutes, academic year research, and calculus reform courses. Undergraduate research is a common experience for STEM students. Undergraduate students at all of the WBHR-LSAMP institutions are involved in research during the academic year and during the summers. In fact, during the academic year, there have been more than 390 students who have participated in hands-on research at their own institutions during the academic year, at national or industrial laboratories during the summers, during the academic year as a regular part of their academic program, and as a part of independent study. In addition, more than 3,000 students were supported by the WBHR-LSAMP Project through workshops, tutorials, summer institutes and travel to professional meetings.

#### Second Annual Undergraduate Research Symposium Norfolk State University





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#### **Summer Research Students**





#### WESTERN ALLIANCE TO EXPAND STUDENT OPPORTUNITIES (WAESO)

http://www.asu.edu/WAESO Email: waeso@asu.edu

THE NATIONAL SCIENCE FOUNDATION



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

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 presenting their posters at the Annual Student Research Conference on March 27, 2002 at Arizona State University.

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 conjuction with the Annual Minority Graduate Education at Mountain States Alliance (MGE@MSA) Graduate Student Fair on March 27, 2002 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 gradute studies in science, mathematics and engineering.



 $\mbox{MGE}@\mbox{MSA}/\mbox{WAESO}$  students presenting posters at the Annual Student Research-Conference.

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

#### **WAESO** Participating Institutions

Arizona: Arizona State University • Cochise College • Maricopa Community College System • Dine (Tsaile Campus) • Pima Community College • University of Arizona New Mexico and Western Texas: Eastern New Mexico University • Dine College • New Mexico Highlands University • New Mexico Institute of Mining and Technology • Northern New Mexico Community College • Santa Fe Community College • University of New Mexico • Western New Mexico University • El Paso Community College Nevada: Northern Nevada Community College • University of Nevada, Las Vegas • University of Nevada, Reno Colorado: Colorado State University

Community College of Aurora • Mesa State College • Pikes Peak Community College • Pueblo Community College

• Regis University • University of Colorado at Boulder • University of Southern Colorado Utah: Brigham Young

University • Salt Lake Community College • Southern Utah University • University of Utah • Utah State University • Utah Valley State College • Weber State University

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