



## **ALLIANCE FOR MINORITY PARTICIPATION**

### **Impact Report**

### **Submitted to the National Science Foundation**

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### **An Overview of H-LSAMP**

The Houston-Louis Stokes Alliance for Minority Participation (H-LSAMP) is a consortium of seven institutions – The University of Houston, Texas Southern University, The University of Houston Downtown, Texas State University, Rice University, Houston Community College, and San Jacinto College. The success of H-LSAMP is well known. Since the program's inception in 2000, Dr. David Drew and Dr. Martin Bonsangue have served as external evaluators. Although the leadership has changed at the University of Houston, an overview of the program and its successes through 2011 is best described in the following paper of Drs. Drew and Bonsangue.

**The Houston LSAMP: A Model for the Nation  
A Policy Brief for the National Science Foundation**

**David E. Drew and Martin V. Bonsangue  
March 2012**

The Houston alliance first received funding in 2000. Each year since then we have served as external evaluators of this effort, producing a report each year. While we have not hesitated to be critical in these reviews, on balance we have found that Houston has created a world-class alliance. In this policy brief, we want to present solid data about the productivity of this alliance and to report our findings about the strategies that led to this success.

America cannot reform STEM education, or education more generally, if programs don't apply the most rigorous quality standards. We cannot know for certain that pedagogical innovations truly are helping students unless we perform hard-nosed assessments. Far too often, sweeping changes are implemented in our schools or colleges, often at great cost, without careful monitoring or evaluation. This is a nontrivial problem. STEM education is too important to the nation's vital interests to be left to chance, good will, and anecdotal recollections.

During this period, this consortium of Houston's colleges and universities has demonstrated how to both increase achievement levels and close the majority/minority gap. The institutions have included The University of Houston, Texas Southern University, the University of Houston Downtown, Texas State University, Rice University, Houston Community College, the University of Houston at Victoria, and San Jacinto Community College.

**About Evaluation Research.** Our work in Houston has combined *Formative or Process Evaluation*, i.e., examining the ongoing implementation of the funded activities and providing periodic feedback to the directors of the effort, with *Summative or Outcome Evaluation*, providing information on whether measurable objectives have been achieved.

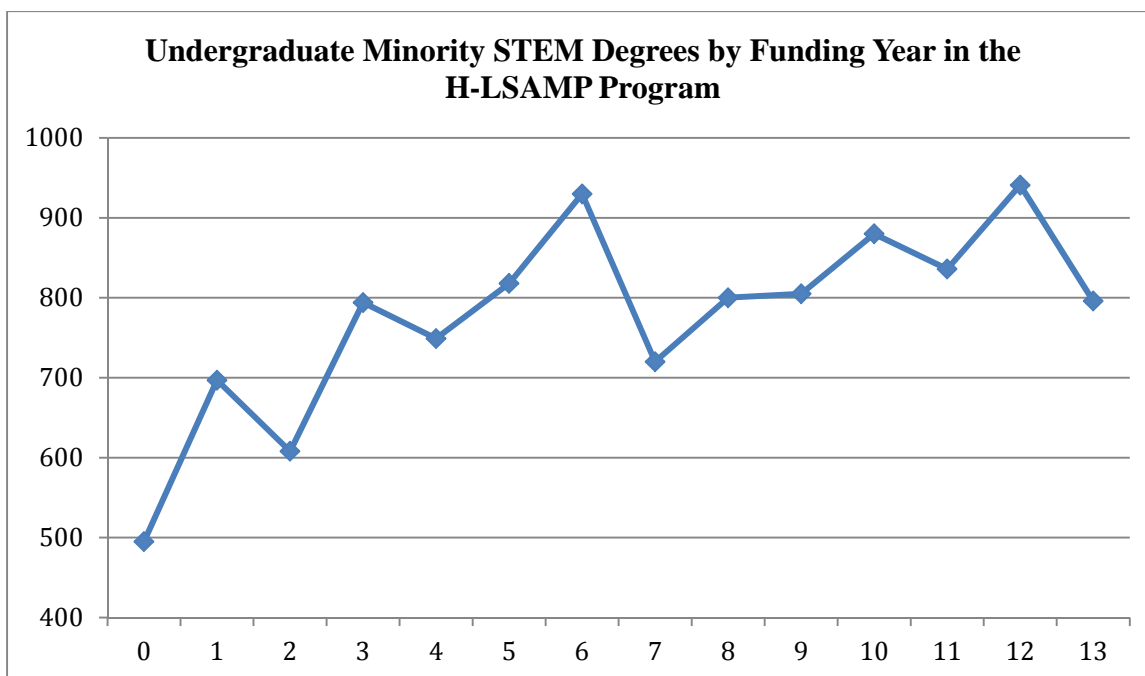
Each Federal program or project should have explicit goals which can be translated into measurable objectives. It is astounding how many well-intentioned individuals work hard to lead organizations every day yet cannot articulate clearly what the goals of the organization are. Statements such as "improving the quality of science education in undergraduate colleges" are not specific enough.

Clarity and specificity in measuring abstract constructs are critical. For example, there are unclear and inconsistent definitions of "underrepresented minority students" in the field and in the literature, e.g., how are Pacific Islanders classified? Defining what constitutes or defines a university can vary. Is the University of Maryland defined and measured as all campuses combined, or College Park only, or by each campus separately? Disciplines can be categorized differently by different funding programs and institutions, e.g., is astronomy listed independently or combined with physics?

**Quantitative Outcome Data for Houston.** In 1999 this consortium set the goal of doubling the number of students of color who achieve bachelor's degrees in STEM disciplines in five years,

and they came close to doing it. It's an astounding record. The question is, how did they do it and what can we learn from that?

The NSF expects each LSAMP consortium to substantially increase the number of underrepresented minority students obtaining bachelor's degrees in the first five years, and it then expects each alliance to sustain this higher level of productivity during the next five years. Figure 1 presents degree data for the Houston alliance from the baseline year to 2010. The number of STEM bachelor's degrees awarded by alliance institutions in the baseline year and the five subsequent years was: 495, 697, 608, 794, 749, and 818.



**Figure 1 – 1998-1999 (year 0) through 2011-2012 (year 13)**  
Amended to append years 11, 12 and 13 to Bonsangue's and Drew's original report.

The graph of minority STEM bachelor's degrees in the first five years shown in Figure 1 reflects two patterns, one overlaid on the other. First, there is a steady increase in the number of degrees awarded over time. Second, there is a "picket fence" effect, in which alternate years are either higher or lower. We have seen this picket fence effect in other STEM degree data. The pattern of alternating higher and lower productivity seems real and may have to do with the availability of required advanced courses for STEM majors. Assuming a linear increase at the rate of 20% per year, the total number of minority STEM degrees necessary for doubling in the five year period was 3,960. The actual number awarded was 3,666, or 92.6% of the expected number.

Presenting outcome statistics alone is insufficient. The outcome data should be compared to the baseline data to demonstrate value-added trends. Ideally, such growth or value-added changes, i.e., pre- to post-intervention, should be compared with national trends.

As you can see, these universities in Houston have demonstrated that the achievement gap can be closed in a short period of time. How does this compare with the national growth rate? When we retrieved data from the US Department of Education and made a longitudinal comparison, we

found that the growth in degrees awarded to the Houston minority students in science and engineering was *double* that of the national growth rate of STEM degrees awarded to underrepresented minority students.

During this same period (1998-99 to 2003-2004), the total number of bachelor's degrees awarded to African-American students in STEM disciplines increased from 14,212 to 18,887, a growth rate of 32.9 %, while Bachelor's degrees awarded to Hispanic students increased from 9,892 to 13,262, a growth rate of 34.1 % (US Department of Education, *Digest of Education Statistics*, 2001 Table 270 and 2005 Table 262). Again, while these national numbers are encouraging, the Houston LSAMP rate of growth was essentially twice that of the national average.

Every alliance encounters barriers and setbacks. For example, the program at Texas State University accelerated rapidly under the dynamic leadership of Dean Stan Israel. Following Dr. Israel's sudden death, the program entered a rocky period. More recently, under new leadership at the college level and at the program level, the program once again is growing and is receiving strong support from the administration.

Beyond presenting hard data to document the success of the Houston LSAMP, we want to discuss what we have learned about why this alliance was so productive. How have the universities in Houston accomplished this remarkable growth? They have used four strategies. Any other college or university can apply these strategies:

1. Extensive recruitment,
2. Constant mentoring,
3. Creating a peer culture of student support aimed at academic excellence, and
4. Engaging the community colleges and tapping the tremendous talent of people, often from poverty, who begin their college education at a community college.

Try for a moment to look at these strategies from the student's point of view. It's difficult for many of us who have completed college to remember what it was like to be beginning college, let alone for those of us who are white to appreciate the barriers facing a student of color, or for a middle-class person to appreciate the barriers facing a student from poverty. To those students, to use the words of an old hymn, it must seem that the college education that lies ahead is a combination of dangers, toils, and snares.

**Recruitment.** One of the institutions in the Houston alliance, the University of Houston-Downtown (UHD), is located in a poor neighborhood, with many high school students who assume that a college education is out of their reach. Dr. Richard Alo' leads an effort to reach out to those students and make them realize that both college and a STEM career can be possible for them. He and his UHD staff have connected with the students as early as the seventh grade to present these possibilities. They have been creative in their communication and outreach, even employing a social worker as part of this effort.

We interviewed a student who grew up in a poor neighborhood, went to the local high school, and didn't think he was college material. He was persuaded to apply to two institutions. One turned him down. The University of Houston-Downtown accepted him and gave him financial support through the LSAMP Program to study computer science. When he got to college, he did

outstanding work, and he decided he was more interested in mathematics--abstract mathematics, the mathematics of cryptography. When we interviewed him, he was a senior. He had been a prizewinner at a multi-state regional academic conference for undergraduates. He had just turned down a very lucrative offer from a federal agency specializing in intelligence work--on philosophical grounds. He had his choice of graduate schools. But all he really wanted to talk about was the mathematics of encryption and decoding. This is one brief snapshot of a highly talented individual whose college education was made possible by this program.

**Mentoring.** At Texas Southern University, Dr. Bobby Wilson is the driving force behind the excellence of the instructional program in the sciences. He expects the best from his students. He and the LSAMP staff and faculty are all committed to extensive mentoring of students. Dr. Wilson is a distinguished chemist who previously was an NSF program officer. He holds the Shell Oil Endowed Chair of Environmental Toxicology and is the L. Lloyd Woods Distinguished Professor of Chemistry. He served many years as university provost, and for a lengthy period as acting president of Texas Southern, yet he still found time to give undergraduates focused individual attention. His commitment to teaching and mentoring started at a young age. While a doctoral student at Michigan State University, he received a chemistry department Excellence in Teaching citation in 1975. Dr. Wilson is a visible presence in his lab. He constantly banters with students, communicating high expectations, joking with them, and motivating them. They can see his commitment to research and to excellence in academic science on a daily basis.

In the past ten years, 24 African American students in the United States received doctorates in environmental toxicology; 9 of these students—nearly forty percent nationwide—were mentored by Dr. Wilson. In February, 2012, he received the AAAS Lifetime Achievement Award for outstanding mentoring.

Another influential presence on the Texas Southern campus is Michelle Tolbert, the university's LSAMP program director. Dr. Wilson recruited Tolbert from the business sector, and she has brought executive efficiency to coordinating and directing the LSAMP program. She is devoted to the success of every student and she brings boundless energy to this task. There are over a hundred LSAMP scholars at Texas Southern, but they receive constant guidance and mentoring. They turn to Dr. Wilson, Ms. Tolbert, and committed faculty members. For example, mathematics professor Dr. Willie Taylor, can be found tutoring students who are struggling with mathematics just about every day, all day—including weekends. In addition to the immense contribution Dr. Taylor makes to Texas Southern students, we have observed that students from other Houston universities often quietly come over to Texas Southern for his help in learning and understanding mathematical concepts.

At Texas State University, LSAMP Director Susan Romanella guides, supports, and mentors each cohort of LSAMP scholars. Dr. Salina Vasquez-Mireles was a key person in the early success of the LSAMP mentoring activities. In 2002 and 2005 she won the Presidential Award for Excellence in Teaching in the College of Science, and she has been nominated twice for the Mariel M. Muir Excellence in Mentoring Award. She is also an extraordinary role model for young Latino men and women and for students from disadvantaged backgrounds. She takes this role seriously.

**Creating a Supportive Peer Culture.** The University of Houston-Central sets aside four or five dedicated rooms where the students in the LSAMP program gather. It's a social experience, but it's all geared toward academic excellence. They don't just sit there and talk about the World Series. They are relaxed, but they're all working towards doing extra problems, towards excelling. Dr. John Hardy had the vision for this program more than fifteen years ago. With support from the college and university administration, and with the tireless efforts of Dr. Sylvia Foster, this program became a national model for universities who are committed to creating a supportive peer culture that impacts academic achievement.

**Community Colleges.** There is a tremendous pool of untapped talent at community colleges. Many people can't afford to go to college when they're 18 years old; then, when they later go to college, they often have staggering financial responsibilities and few financial resources. They often begin part-time at a community college. But, many of those students could become outstanding scientists and engineers. The Houston alliance has been working on articulation programs to facilitate the transition of these students from the two-year environment to a university. Under the leadership of Sharon Sledge at San Jacinto Community College and Bart Sheinberg at Houston Community College, two-year college STEM students have been increasingly active in successful transferring to four-year institutions, as well as participating in summer research projects and internships. Our observation is that creating effective transition policies and supportive procedures for students moving from community college to the local four-year institution is one of the most important challenges facing higher education today.

In this policy brief we have emphasized the first five years of NSF funding, the years of substantial growth. We should note that the alliance now is moving students into graduate school and focuses on the Bridge to the Doctorate program, under the leadership of Executive Director Craig Cassidy.

Dvesharronne Moore is a shining example. This spring she will complete her Ph.D. in cardiovascular chemistry at Texas A&M University. She then will pursue a medical degree at Johns Hopkins University. Prior to enrolling in Texas Southern University, she had attended DeBakey High School in Houston. This young woman is an amazing role model, who, by dint of her example, can show high school students—who may be uncertain as to whether they are college material or whether they can major in STEM—the kinds of career achievements that are possible for a student who enrolls as an LSAMP scholar.

The early leaders of this Houston grant (Dr. Richard Alo' of UHD; Dr. John Bear of UH; Dr. Richard Tapia of Rice; and Dr. Bobby Wilson of TSU), the dedicated faculty and staff, and the high achieving students have shown the rest of the nation how to compete in a globalized “flat world.” We hope other American colleges and universities listen to their message (end of article).

David E. Drew holds the Platt Chair at the Claremont (CA) Graduate University. His book, *STEM the Tide: Reforming Science, Technology, Engineering, and Math Education in America*, was published in October 2011 by the Johns Hopkins University Press.

Martin V. Bonsangue is Professor of Mathematics at California State University, Fullerton. He has taught mathematics at the middle school, high school, community college, and university levels. In 2011 he was named the Outstanding Professor at CSUF.

### **An Overview of the Economic Impact of H-LSAMP**

Houston-LSAMP is a partnership between a complex set of organizations that provide a wide variety of highly differentiated services to the Southeast Texas region. To focus on a single aspect of such a group of institutions may very well miss the forest for the trees. For this impact report we will first establish that the role of major urban university systems is to provide education services to the local population. The Houston-LSAMP programs serve a population of over 5 million, and with high school graduates averaging nearly 60,000 per year.

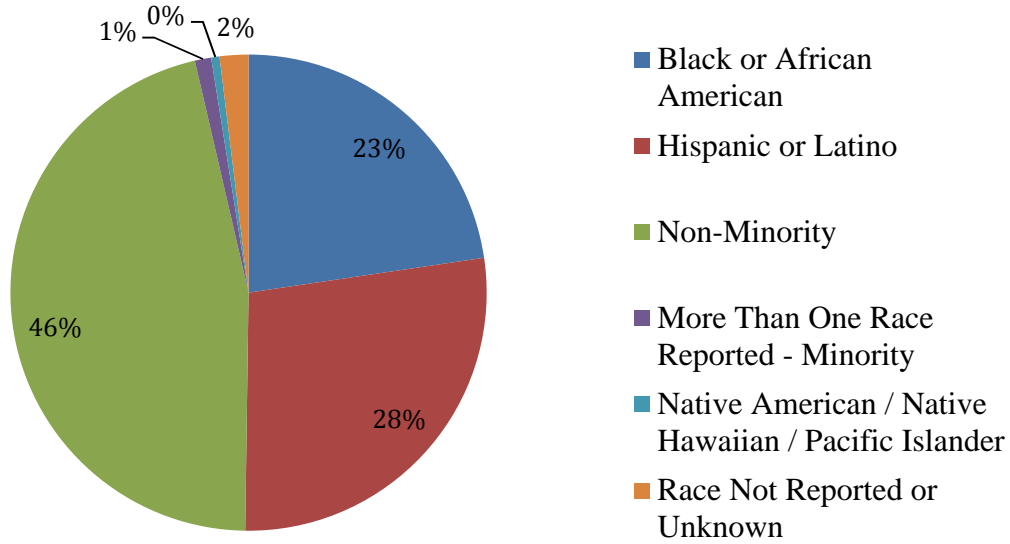
Houston faced an uphill battle due in large part to its failure to address issues in the 1990s. From 1990 to 2000, Denver increased the percent of bachelor's degrees from 12.8% to 23% of the population. Detroit doubled their percent of population with bachelor's degrees. Looking at 10 other urban settings (such as Atlanta, Boston, Dallas, Denver, and Seattle), they had an average of an 80% increase in population with bachelor's degree. During this same time, Houston had a large increase in Hispanic/Latinos and this group had the lowest percent completing bachelor's degrees. The Black/African American population out-paced the 10-city average.

The Houston-LSAMP program is significant in improving the distribution of bachelor's degrees among the race/ethnicities that make up the Houston area. A recent report showed that in the early 2000's over 80% of the graduates from the UH System stayed in the Houston area, with an additional 12% residing in Texas. In the 1990s the UH system sent nearly 16% of its graduates out of state, and nearly as many across Texas but not in Houston. The UH system enrolls about 75% of its students from the Houston area, meaning that improvements in diversity degree production at these universities will have a significant impact on their communities human capital. As the Houston-LSAMP program is institutionalized and grows, it will have an impact on the regional shortfall of human capital.

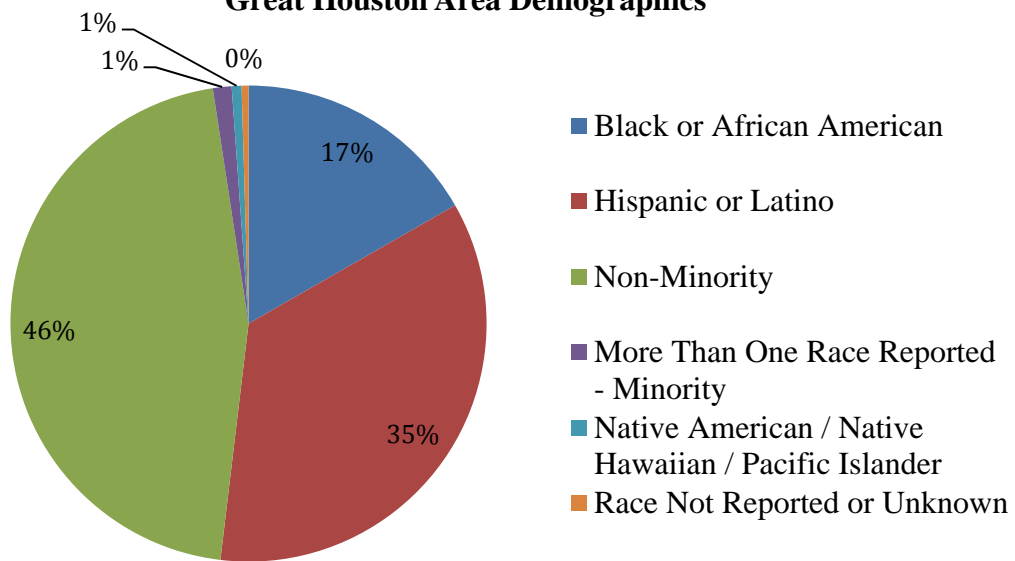
One of the most difficult impacts to measure among transformative programs such as the Houston-Louis Stokes Alliance for Minority Participation, is the economic impact. While no one should ever judge a research grant on its economic impact to a community, we feel the economic impact is substantial, and worthy of mention. Based on the work of Barton Smith, for every dollar spent at the University of Houston, a return of nearly three dollars is seen in the economy. The Houston-LSAMP is currently under a cooperative agreement for years 11-15 with the NSF. Based on the reported expenditures and cost share for years 1-10, and based on the current award

amount plus estimated institutionalization of these programs, we project that over the total 15 years of this LSAMP, a total of \$37.5 million has been spent on minority student success. This has an estimated impact on the greater Houston community of nearly \$112.7 million.

**H-LSAMP University STEM Enrollment 2010-2011**



**Great Houston Area Demographics**



**An Overview of the Impact on Intellectual Capital from the H-LSAMP**



The Houston-Louis Stokes Alliance for Minority Participation has been funded by the National Science Foundation for three separate rounds of funding. Each lasting five years. To date, the alliance is in its thirteenth year of funding.

The 2006 Barton Smith study found that even after five years, 80.5 percent of the graduates from the UH System are still in the Houston area. These graduates play a vital role in the economy of the region, the knowledge base of the region, and “generating ideas and technology for the public and private sectors...”

<b>Demand for Degrees in the Greater Houston Area</b>	
Degree	% of Demand
Bachelor's	13.6%
Master's	17.7%
PhDs	19.7%

The Houston-LSAMP program has graduated nearly 9,100 baccalaureate degrees in the past twelve years, nearly 700 Masters, and 324 PhDs. All of which are from underrepresented minorities in Science, Technology, Engineering and Mathematics.

The Houston-LSAMP program is pleased to have graduated 4,100 Black or African American students, 5,600 Hispanic or Latino, and nearly 200 each Native American and Pacific Islander.

### **Moving the Needle**

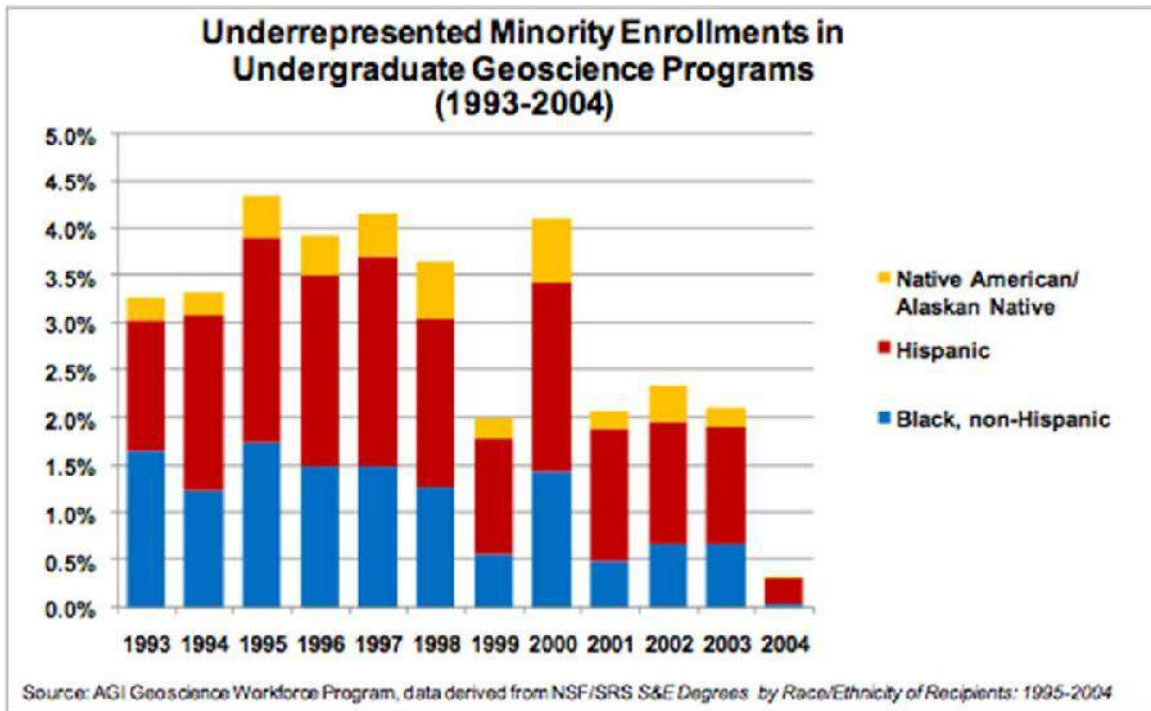
The goals of the Alliance have always been to bring graduation levels to that of parity with the community it serves. This goal involves a major commitment far beyond the limited rescues of one grant. Take for example the University of Houston Earth and Atmospheric Sciences department. A 2004 study by the American Geosciences Institute showed the national average for minority enrollment has been in a steady decline. It peaked at between 3.0-4.5 percent, and bottomed out at less than 0.5 percent in 2004.

In 2010, the University of Houston's Earth and Atmospheric Science program reached over 32.5 percent underrepresented minority enrollment. This represents more than a 500 percent increase in minority enrollment.

The H-LSAMP program is challenging the false notion that a university must sacrifice quality for diversity programs. The UH Earth and Atmospheric Science Program is one of the top ranked departments in the country. Campus Explorer ranked the University of Houston's Geophysics and Seismology program #1. It was ranked #4 in Geology behind Mississippi State, Pennsylvania State, and the University of Texas at Austin.

### The Most Popular Geophysics and Seismology Colleges

1. University of Houston
2. University of Minnesota – Twin Cities
3. Texas A&M University
4. University of California – Los Angeles



### 2010 University of Houston Earth and Atmospheric Sciences Enrollment

Race/Ethnicity	Count	% Enrollment
Black / African American	35	8.5%
Hispanic	96	23%
American Indian	1	<1%
Pacific Islander	3	1%
Asian	56	14%
Other	219	53%



Similar demographics are emerging in other undergraduate STEM programs on the UH central campus. For example, at the start of the fall 2012 semester, the Department of Mathematics reported 397 undergraduate majors, of which 26.5% are Hispanic, and 7% are Black.

### **Impact at the K-12 Level**

#### **Grand Challenges - Recruiting**

With support from British Petroleum (BP) and the National Science Foundation (NSF), the University of Houston's College of Natural Sciences and Mathematics' H-LSAMP program made significant progress in reducing barriers to the recruitment of minority students from Texas high schools. A mandate from the Texas State Legislature increased the number of classroom-teaching hours, in turn diminishing the contact hours provided to college recruitment officers. The H-LSAMP program identified this as a crucial problem.

The program recognized the need to develop a method to aggressively build the pipeline of highly qualified minority applicants. The launch of the H-LSAMP & BP Grand Challenge Competition series provided a new method of combatting this problem.

The Grand Challenges Competition series uses event themes directly related to the state's math and science curriculum core. It also offers sponsoring teachers access to UH faculty members who will come to their classrooms and present a lecture to help prepare students for the competitions.

For these events, H-LSAMP targeted Houston-area high school students participating in upper level math or science classes. Schools contacted had student populations with at least 50% coming from underrepresented minority groups within STEM fields, and they were all rated as economically disadvantaged schools.



These Grand Challenges led to:

- New recruitment pipelines for minority STEM majors from Houston ISD, Aldine ISD, Alvin ISD, and Ft. Bend ISD.
- An average increase in student contact time for recruitment of more than 175%, with some schools having a 400% increase (Table 1).
- Increased targeting of underrepresented minorities in the greater Houston area with college-partnered curriculum directly related to the state's math and science core. (Table 2).

Nearly 50% of eligible participants applying to UH (Table 3).

School	Event Contact Time - Hours	% Increase in Student Contact Time
Eastwood Academy	12	100%
Kempner HS	3	>200%
KIPP Academy	4	300%
MacArthur HS	2	>100%
Manvel HS	5	>400%
South Houston	4	300%
Booker T. Washington	2	100%
Bellaire HS	3	>200%
Chavez HS	1	>100%
Cypress Springs HS	2	>100%
Dulles HS	3	>200%
Madison HS	1	>100%
Reagan HS	2	100%

<b>Table 2: Demographics of BP Recruiting Events</b>		<b>Table 3: Percentage of Students Applying to UH</b>		
Race/Ethnicity	Participants	Students Eligible to Apply for Admissions	Students who Applied for Admissions	% Applicants
African American	21	75	37	49%
Hispanic / Latino	99			
Native American	0			
Asian	21			
White	17			
Other / Not Specified	15			

**Grand Challenge Event: Cardboard Boat Regatta** - The event hosted on April 10, 2010 was the first of the competition series. The competition was a Physics- themed event with a specific focus on fluids and buoyancy.

In preparation for the event, Dr. Robert Dubois, a UH assistant professor of physics and outreach coordinator, visited seven high schools from four area districts, and delivered two to three lectures per school. During the visit, Dr. Dubois gave a 90-minute lecture on buoyancy concepts that students would need to know to build sturdy boats. These lectures included discussions on torque, ballast, and center of gravity.



During the event, the 72 competitors toured the UH campus with student ambassadors, visited with admissions officers, browsed tables provided by H-LSAM student organizations and met scientists and engineers from BP.

After the event, awards presentations held in the AP Physics classrooms of the winning teams, included a presentation on the benefits of majoring in a STEM field and on participating in UH's H-LSAMP program. Valuable personal connections were made with highly qualified

minority students.

**Grand Challenge Event: Weather U Challenge** - The event focused on Earth and Atmospheric Sciences. In preparation for the event, Dr. Berry Lefer, a UH assistant professor of Earth and Atmospheric Sciences and a team of Ph.D. students visited environmental science classrooms at four area schools in three districts. Dr. Lefer and his team gave a 90-minute lecture on meteorology, major weather-affecting phenomena, and the patterns of weather produced. In addition, an online video lesson was added to give additional students access to the lesson.

The competition consisted of two phases. In the first, 107 competitors entered daily weather predictions over the course of a week. For the second phase, the top competitors came to UH and presented a mock weather forecast. While on campus, the finalists received a course on presenting a forecast on television by local KHCW-TV meteorologist, Justin Horne. To add an air of excitement, the mock forecasts were judged by a panel of local celebrity meteorologists including, Justin Horne (KHCW-TV), Mario Gomez (KHOU-TV) and Khambrell Marshall (KPRC-TV).



Students and parents toured two meteorology labs including the weather collection tower on the 18<sup>th</sup> floor of a UH dorm and the weather station where a daily ozone report is collected through the release of a weather data balloon. In addition, students ate lunch with current students, providing an up-close view of campus life in the residential halls

Scholarship funding of \$11,000 was awarded to students contingent on the students' acceptance to the UH College of Natural Sciences and Mathematics upon high school graduation.

### **Grand Challenges – Outreach**

A fundamental mission of the H-LSAMP program involves its commitment to inspire and motivate future minority STEM students, and our students have met the challenge by working with students in three noteworthy efforts.



**Grand Challenge Event: Mars Rover Celebration** – (By Jennifer James : Texas Learning and Computation Center) Among UH's premiere outreach events, Mars Rover Celebration offers high-impact engagement in educational activities that inspire interest in STEM subjects, teaches students how to define and achieve a long-term goal, improves their oral and written communication skills, and emphasizes the importance of teamwork.

“Mars Rover Celebration is an enrichment program for grades 3-8 aimed at creating a much higher level of excitement about science and engineering than contemporary curricula do,” said Edgar Bering, a UH physics professor and founder of the event.



“This program begins with the children researching Mars and choosing a question to investigate that really interests them. The teams decide how they're going to address the question, then design and build a model rover that answers the question using what we charitably call art supplies.”

The program includes six weeks of preparation during which teams define and develop their rovers with guidance from their teachers, who participate in a training seminar and receive curriculum materials developed by Dr. Bering and his collaborators.



An integral part of the capstone event involved 90-minute campus tours with demonstrations and hands-on activities offered by faculty committed to enriching the event with critical STEM subject matter. The excitement was palpable throughout the day as teams presented their mission objectives and rovers to a panel of expert judges trained by Dr. Bering to fairly evaluate the rovers in accordance with

meticulously developed criteria for free form, radio controlled, and solar models. Quail Middle School student Eisha Rao shared her enthusiasm for the experience.

“I had fun with it and learned how to program stuff. I felt like I was an engineer making a rover that was actually going to Mars,” she said.

Parents and teachers were nearly as delighted as the children. Smith Middle School teacher Alex Swing commented on the program’s ability to engage students who are typically less motivated.

“I’ve seen students who get involved and are excited to participate in this every day after school who I never guessed would be interested in this type of program.”

**Grand Challenge Event: ExxonMobil Bernard Harris Summer Science Camp** – Houston-LSAMP students who are part of *teachHouston* participated in the ExxonMobil Bernard Harris Summer Science Camp. More than 50 Houston-area junior high campers lived in a UH dormitory and participated in classroom study, lab experiments, team projects and field trips to NASA and the Museum of Natural Science. The camp aims to enhance students’ skills in math, science, engineering and technology while improving their critical thinking ability and self-confidence.

The camp was started by Bernard Harris, a UH biology alumnus and former astronaut who was the first African-American to walk in space. Concerned that bright kids from tough neighborhoods were not getting the support they needed, Harris started the camp more than a decade ago to give them a taste of college life and the chance to work with other bright, motivated youth interested in math and science.



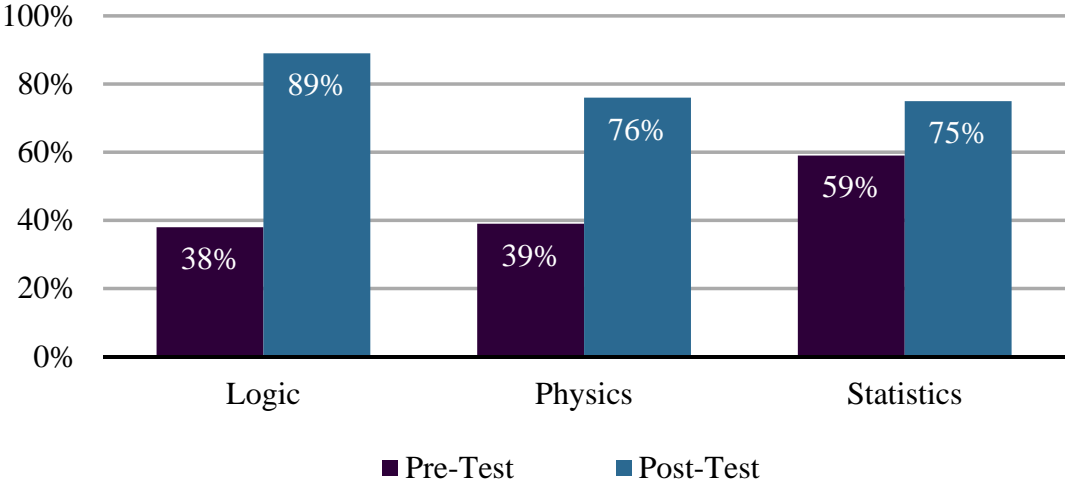
“Not only are we providing these students with two exciting weeks on our campus and offering them the unique opportunity to experience a college campus for the first time, we are investing in our community by encouraging the next generation of innovative problem solvers,” said Paige Evans, one of the camp directors and a clinical associate professor in the *teachHouston* program.



**Grand Challenge: Pre-freshman Enrichment Program (PREP)** - PREP is a summer enrichment program for middle and high school students hosted by the College of Sciences and Technology at the University of Houston-Downtown. Houston PREP was designed to serve as a focal point for activities that help produce a pipeline of better qualified students entering college in the areas of mathematics, science, and engineering to help ensure that the United States maintains its leadership in research and development in science and technology. In addition, Houston PREP is designed to encourage students in economically and socially disadvantaged population groups into careers in these fields.

Programs such as Houston PREP are making a difference in producing exceptional students who will go on to become leaders in engineering, mathematics, and science. The people and organizations that support Houston PREP are the backbone of this development. Hence, we extend our sincerest thanks to all that are involved, and we strive to continue our efforts in educating and encouraging young minds.

**PREP Student Improvement**





## **Houston Community College**

Dr. Navid Tabrizi, became been the HCC – NSF AMP Program Director in September 2012, assuming the role of the previous director, Dr. Bart Sheinberg.

In 2009 the Houston Community College (HCC) lead for the HCC component of this award transitioned from the HCC Southwest College to the HCC Northwest College (HCC-NW). The West Houston Center for Science and Engineering, located at HCC-NW assumed administrative responsibilities for the HCC portion of this project.

Since 2009 45 HCC students have been supported by the NSF AMP program- 21 Females, 24 Males; 20 Hispanic, 22 African American and 3 Caucasian/Asian. Of these 45 students, 26 were declared in the physical sciences and 19 in engineering. These students were recruited primarily from the HCC Northwest and Southwest campus sites. Students accepted into the HCC program are designated as HCC AMP Scholars. We have included Southeast as well as Central College in order to increase HCCAMP Scholars.

### **Recruitment of Underrepresented Minority Student Populations (UMSP) into STEM Academic Pathways**

As noted in the above data, approximately 93% of HCC students funded by NSF AMP are members of UMSP's. While the data is not complete for the entire set of students, anecdotal observations suggest that over 80% of these students who transferred to a university immediately after completion of their studies at HCC. Again anecdotal data suggest that a significant number of these students have completed their undergraduate degrees in one of the STEM educational areas. Many of these students have continued their studies at the University of Houston and have been supported by the UH AMP program. The WHC does have data on approximately twenty five of these students who have participated in the WHC Undergraduate Science Research Experiences each summer. Of these twenty-five students, with approximately 75% of these students having been supported by NSF for one or more semesters, approximately 60% of these students are either attending or have completed one or more graduate degrees.



**Sheinberg speaking before a group of HCC MMI middle school students at North Forest ISD**

The West Houston Center actively recruits high school students from surrounding school districts and has recently reached out to a number of districts outside of the HCC NW and SW service areas. Specifically, the WHC has visited a number of middle and high schools who are participating in the HCC Minority Male Initiative and has begun an effort to market the AMP program to these students. This effort has been coordinated through the HCC Vice Chancellor of Student Services.

Under the leadership of Bart Sheinberg at Houston Community College, tracking the AMP students since 2009, a significant number of scholars have successfully enrolled in a four-year institution, as well as participated in summer research projects at UH and the Rice University.

We at HCC will continue to monitor and support students in order to facilitate transition from community college to the local four-year institutions.



**HCC AMP Scholars visiting the Center for Advanced materials at the University of**

The transition to a four institution is one of the primary goals at the West Houston Science Center for our AMP Scholars. Currently intensive efforts are underway to create policies, procedures, and support infrastructure to increase the number of STEM transfer students to four year institutions. HCC entered into an articulation agreement with the Cullen School of Engineering at the UH in 2006. This program has successfully transitioned significant number of HCC students transferring to UH since 2006.

Furthermore, Houston Community College and the University of Texas at Tyler have created a partnership through the development of an innovative, four-year Engineering Degree program on the HCC campus in Alief. The new program will allow students to obtain an Engineering degree in the normal four-year time period from UT Tyler

The WHC also draws upon both AMP Scholars and applicants to the AMP program as a recruiting resource for a variety of STEM programs, research internships and scholarships. There are additional activities across the HCC District, including the NSF Scholars Program and scholarships, programs and activities funded by other federal and state agencies. Many of the HCC AMP Scholars participate or have participated in those programs and, in general, the totality of these programs has been instrumental in the retention of HCC students in STEM and their eventual transfer to colleges and universities to complete their undergraduate degrees.



**HCC AMP Scholars attending a seminar at the UH High Performance Computing Center**



**HCC AMP Scholars Touring NASA JSC**

### **West Houston Center for Science and Engineering Activities to Promote Research Activities**

Since 2005, the Director of the West Houston Center for Science and Engineering has been instrumental in developing summer research experiences for academically qualified and motivated HCC students. Since 2009, over twenty five HCC students have participated in research at regional universities and in 2012 HCC students will be participating in summer research at one of the Department of Energy federal labs. These research experiences have

been funded through a number of federal, state and private foundations. Four of these students have been supported through this NSF project.

During the academic year, HCC AMP Scholars are provided with the opportunity to tour research labs at the University of Houston and Rice University. This serves as an opportunity for AMP Scholars to get a sense of the diverse research topics and opportunities available over the summer.

The following project descriptions are exemplary of the students, their respective projects and the talent of HCC students.

### **Project Descriptions:**

Purification and Crystallization of Human Hsp70 Escort Protein – M. Cecilia Guerra worked with Dr. Jonathan Silberg, Department of Biochemistry and Bell Biology, Rice University. Ms. Guerra was supported by the National Science Foundation Alliance for Minority Participation.

Polymer Solar Cells – Amanda Schlafer worked with Dr. Rafael Verduzco, Department of Chemical and Biomolecular Engineering, Rice University. Ms. Schlafer was supported by Chevron Energy Solutions.

The Deposition of Anti-Reflection Coatings on Solar Cell Materials- Amsale Derese is worked with Dr. Alex Freundlich, Center for Advanced Materials, University of Houston. Ms. Derese was supported by the Texas Space Grant Consortium.

Reflectance Measurement of Anti-Reflective Coating on Solar Cell Materials- Ima Moradi worked with Dr. Alex Freundlich, Center for Advanced Materials, University of Houston and was supported by the Texas Space Grant Consortium.

Emission-Absorption Ratio as a Quality Measure of Single-Walled Carbon Nanotubes - **Yanick Ndikum**, J.-D. R. Rocha, S. M. Bachilo, and R. B. Weisman, CBEN & Department of Chemistry, Rice University, Houston TX

Advanced Life Support: CO<sub>2</sub> Removal - **Kimberly T. Koppenhaver**, Rama Kumar Allada, Ph.D.; Leonard Yowell, Ph.D., NASA Johnson Space Center

Minimizing Arcing in Coilgun Sliding Contacts - **V. Ikegwuonu**, P.T Putman and K.Salama University of Houston, Texas Center for Superconductivity & Department of Mechanical Engineering, Materials Engineering Program

Fabrication of Thin Film Solid Oxide Fuel Cells - **Gabriel Elpers**, Zigui Lu, Xin Zhang, Laverne Smith, Xin Chen, Naijuan Wu, Alex Ignatiev, Texas Center for Advanced Materials, University of Houston

Ceramic Optical Microdetector for an Artificial Retina - Project leader: Dr. Alex Ignatiev, Mentor: Dr. Ali Zomorrodian, Student: Barbara Schmeitz

Electrochemistry of Single Wall Carbon Nanotubes (SWNT) - **Salma Mahzooni**, Juan G. Duque, Matteo Pasquali, Howard K. Schmidt at the Carbon Nanotechnology Laboratory, and the Department of Chemical and Biomolecular Engineering, Rice University, 6100 South Main, Houston, Texas 77005 USA

**Press Release from HCC – September 2010**

**Chevron Energy Solutions Assists with Undergraduates Obtaining Research Lab Experience: Nourishing Roots to Help STEM Students Bear Fruit**

As a national push gathers steam to encourage educational pursuit of science, technology, engineering and mathematics disciplines, Chevron Energy Solutions has become integral in providing opportunity in these fields to Houston Community College students who otherwise would find it unavailable.

Chevron Energy Solutions helps to fund the West Houston Center for Science and Engineering's Undergraduate Science Research Experience, a 10-week intensive program in which students learn from and work with nationally and internationally recognized faculty from Rice University and the University of Houston. This past summer, four students from Houston Community College participated in the USRE program, giving them practical, real-world laboratory experience that took their education into realms they had never before seen. "People talk about transformative experiences – this program is truly one of those experiences," said Bartlett M. Sheinberg, director of the West Houston Center for Science and Engineering.

Echoing that sentiment is HCC student Cecilia Marinaro Guerra, a Chevron Energy Solutions scholarship recipient this fall who has studied biochemistry and biotechnology. She is interested in biological remediation such as restoring environments affected by oil spills. "(Entering the program) I was kind of scared," she said. "I never worked in a lab before. I didn't know if I had enough knowledge to be a part of this. But they are really friendly and explain things well, and they help you. It changed everything, my perspective for the future."

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Guerra, a 33-year-old who moved to the United States from Buenos Aires, Argentina, in 2001, changed her focus to biochemistry after her summer in the USRE studying mitochondria – the energy source in human cells – and the purification and crystallization of a human protein known

as an escort protein. In addition, she secured an internship as a research assistant with her USRE mentor, Dr. Jonathan Silberg, an assistant professor of bioengineering at Rice. “This experience has expanded my goals more than I expected,” she said. “I will finish my Associate of Science at HCC, transfer to UH for a major in biochemistry and later do my Ph.D., hopefully, at Rice.” Guerra was supported by the National Science Foundation Alliance for Minority Participation.

Two other students in the USRE also were supported by the AMP: Amsale Derese and Amanda Schlafer. And Derese, like Guerra, also is receiving scholarship funding through Chevron Energy Solutions this fall.

“During the 10 weeks of the (USRE) program, I had a great opportunity to read scientific literature and journals and work in labs I never thought I’d work in,” said Derese, who is from Addis Ababa, Ethiopia, and has lived in Houston for 2½ years. Her summer in the USRE was spent working with her mentor, Dr. Alex Freundlich of the University of Houston’s Center for Advanced Materials, on the deposition of anti-reflection coating on solar cells that enables the cells to capture and retain more energy. “This proved to me that if one has the motivation and persistence, it’s possible to work in this kind of advanced lab as an undergraduate student and learn more than imaginable,” she said. “Consequently, every day, I’ve been learning about issues related to the challenges of how to better exploit the most abundant, renewable and environmentally friendly energy source: solar energy.” Derese is on schedule to graduate from HCC this fall and intends to enter the University of Houston in the spring to study biochemistry. Beyond that, she plans to pursue a Ph.D. in semiconductor physics.

Moradi grew up in Shiraz, Iran, and moved to Houston 16 years ago. She received a degree in Persian literature before leaving her native country but had been raising her daughter and helping her husband with his small business before resuming her education. Now 39, she enrolled at UH this semester after her summer in the USRE and is majoring in industrial engineering.

She, too, worked with Dr. Freundlich on anti-reflection coating on solar cells, measuring the reflectance and how much energy could be gleaned from solar cells. “I learned so much in such a short time that it was amazing,” she said. “It changed my mind to not only attain my bachelor’s degree but to go forward and get a master’s.”

Receiving scholarship funding from Chevron Energy Solutions this past year was Amanda Schlafer, who participated in the USRE after graduating from HCC in May. She worked over the summer on fabrication of polymer solar cells. A Houston native who attended Katy High School, she decided to matriculate at HCC because it was close to home, where she could receive the support of friends and family, and it allowed her the flexibility to work full time while going to school. She has moved on to UH, majoring in biology. She expressed her gratitude toward Chevron Energy Solutions for supporting the research she did in the USRE. “I had a really good experience,” she said. “When I started, I knew nothing about polymer solar cells, and by the end of the summer I was confidently producing polymer solar cells on my own.”

Dr. Rafael Verduzco of the Department of Chemical and Biomolecular Engineering at Rice mentored Schlafer and is enthusiastic about the program’s goals and effectiveness. “For the long term, I think it’s important for scientific communities to attract these students who are at schools

like HCC who otherwise might never consider research,” he said. “The fact is that a lot of American students are not going into research, and I think we need to get more of our own domestic students going into research, developing new technologies for us. “Students of various backgrounds can get into scientific research. That’s what this program does. It enables students from HCC who don’t have as many opportunities to have a chance to see what research is like and to consider another career path.”



**From left, Amsale Derese, Amanda Schlafer and Ima Moradi, HCC’s 2010 USRE Summer Participants. Schlafer was sponsored by Chevron Energy Solutions for the summer program. Derese is recipient of a Chevron Energy Solutions scholarship this fall.**

Sheinberg, the program director, is optimistic that Chevron will reap the benefits of its investment in the futures of these students. “The projects that the students have been involved in are all energy-related,” he said. “And probably topics that are of interest to not only Chevron Energy Solutions but probably Chevron USA as well. That’s part of the theme that I think we have to make sure that we concentrate on – not just providing scholarships but providing for the students to understand what’s going on in the world of energy. And at some point, working with Chevron to get these students involved in their corporate culture, who knows – maybe through this program it could help Chevron groom future employees.”

### **San Jacinto Junior College**

Sharon Sledge is the Director of the H-LSAMP program at San Jacinto Junior College.

#### **Enrollment and Demographic Information**

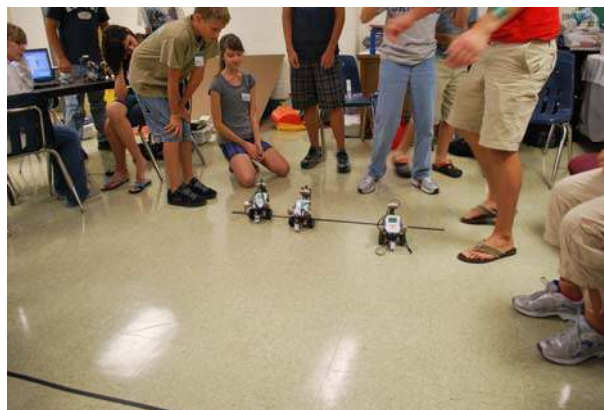
Enrollment in the program saw a spike to 40 students in 2009-2010, due to carry-over of funds from the previous stage of the grant, but returned to normal levels with an enrollment of 16 students in 2010-2011, and 20 students in 2011-2012. In the fall of 2012, 15 students enrolled in the program, evenly split among the three San Jacinto campuses. Currently, 67% of the students in the program are Hispanic, 18% are black, 8% are Native American, 1% are Pacific Islanders, and 6% come from some other ethnic group. 28% of the students are female and 72% are male.

The primary goal of the program is to increase the UREP STEM production through a series of events and activities, such as the FIRST Tech Challenge Robotics Program reaches out to Southeast Texas region high school students. The program is also involved in summer Robot Extravaganza camps.

Another mechanism for increasing UREP STEM production involves their Pathways P-16 Grant, and the newly created pre-engineering program. In addition, the Chancellor has named STEM as a target area for future expansion.



March 2012 Championship



Summer Robot Camp



Fall Robotics Workshop

The San Jacinto program is working hard to increase its transfer rate by offering supplemental workshops, math/science tutorial labs, and create a community of learners. This effort has been aided by the formation of an Astronomy, Engineering and Mathematics Club. They are also working with the University of Houston to ease transfer to the UH central campus.

### Internships

The San Jacinto H-LSAMP program strongly encourages internship participation. Since 2009, 24% of the students have participated in internships. In addition, San Jacinto offers 4 paid internships in the Summer Robotics Camps. In total, nearly 35% of San Jacinto College and H-LSAMP funds are used to support internships.

### Institutional Support

San Jacinto College is offering course releases to its H-LSAMP campus coordinators (central, north and south campuses) and \$20,000 in additional student stipends. In addition, San Jacinto College has formed a partnership with the Texas-STEM scholarship program to increase minority participation in STEM fields. This effort is helping H-LSAMP coordinators at the San Jacinto Campuses to work with 100 T-STEM scholars to form a larger community of learners.

### Scholar Highlights

Darren Seibert

Summer 2009 – REU at Rice University, Summer 2010 – REU Carnegie Mellon, Summer 2011 – REU MIT, Fall 2012 – Accepted into the PhD program at MIT in Brain and Cognitive Science

Sergio Ortuno

Summer 2010 - Applied Molecular & Synthetic Lab at Arkansas State University, Summer 2011 - Nanoscale Science and Engineering at Harvard University

## **Texas Southern University**

Texas Southern University is uniquely distinguished and positioned as a Historically Black College and University (HBCU.) The designation of Texas Southern University as “special purpose institution of higher education for urban programming” provides a foundation for its programmatic goals. Ascribing to the global implications of its urban mission, the University focuses on high quality teaching, research, and public service to prepare students for leadership roles in the urban communities of our state, nation, and world. Texas Southern offers a variety of academic programs to students of diverse backgrounds and various levels of scholastic achievement. These students matriculate in undergraduate and graduate programs leading to degrees in the arts and sciences, public affairs, education, business, health sciences, law, pharmacy, and technology.

The Houston LSAMP at Texas Southern University is designed to increase the number of underrepresented minority students in STEM fields. Through sustained initiatives, students participated in a program that includes their academic studies, with an emphasis on research, internships, co-op opportunities, and computer literacy. The academic support services emphasize mentoring through STEM seminars and other enhancement initiatives such as community volunteer activities. These experiences of real world applications will ensure that students will be well prepared to enter graduate studies in STEM fields and the global workforce

### **Leadership**

Dr. Bobby Wilson has been the driving force in the success of the LSAMP program at Texas Southern University. Dr. Bobby Wilson was the Co-Principal Investigator along with Dr. John Bear when the Houston Alliance for Minority Participation was awarded the first five years of the grant from 1999-2004 and served in the same capacity for Phase II along with Dr. John Bear from 2004-2009. In the current Phase III of the Houston Louis Stokes Alliance for Minority Participation Senior Alliance, he serves in the capacity as Project Director. His commitment to the advancement of minorities in STEM fields has spanned over a forty (40) years. He has been the former Provost of Texas Southern University from 1999 to spring 2007. He served as acting President for Texas Southern University twice. As provost, Dr. Wilson was instrumental in securing funding for the building of a \$35 million dollar state of the art science building which was completed in fall 2006. He has brought over \$60 million dollars in grants to the university.







The Associate Director position for the TSU LSAMP program is Dr. Willie Taylor. Dr. Taylor was the first African American male to receive a Ph.D. in mathematics from the University of Houston, and he is committed to the education of minorities in learning and understanding mathematics and spends numerous hours tutoring, conducting workshops, and special help on Saturdays for students. Dr. Taylor also teaches pre-calculus math in the LSAMP Summer Bridge Program for incoming LSAMP freshman during the summer over a five-six weeks period, and his teaching experience has expanded over forty years. Dr. Taylor is listed in Who's Who Among African Americans in Mathematics and has mentored over fifty master students in mathematics and funded mathematical research experiences for LSAMP scholars over the summer months. To enhance undergraduate research in mathematics, Dr. Taylor founded the L. L. Clarkson Mathematical Research Experience in 2009. He has solicited funds from the university and outside the university to establish the research experience. Several of the summer research participants have made presentations at national conferences and to members of the U.S. Congress in Washington, D.C. Dr. Taylor created the HAMP Group to better prepare high school students mathematics teachers and to recruit more students into college teaching. HAMP stands for High Achievement in Mathematics is possible. This group awards scholarships to students and serves as mentors to high achieving mathematics majors and some graduate students in mathematics. Dr. Taylor is a dedicated patriot of service and going beyond the call to help students succeed in mathematics courses and STEM fields.

### **Culture of Students**

The students in the LSAMP program represent a culture of intelligence, have a high aptitude for science and math, are well rounded and embrace the "it's cool to be smart or thought of as a geek" ethos. These students are viewed on the campus by their peers as the nation's most promising students who will fill the critical fields in the United States employment sector as scientists, entrepreneurs and collegiate academicians. They will represent the people of color who will replace the older tenured professors who are nearing retirement. These students also influence the culture of the university by influencing qualified siblings and friends to become an LSAMP scholar upon graduating from high school. The LSAMP scholars are featured in news publications, TSU Website, billboards, and other initiatives.

TSU-LSAMP scholars apply integrated knowledge learned in the classroom to real world applications in undergraduate research through the assistance of a scientist, preceptor, mentor, professor, or business professional.

LSAMP scholars accepted in paid internships at many prestigious laboratories, institutions and government agencies. The performance of TSU-LSAMP students on our and other college campuses, laboratories, governmental agencies, and industries has proven to be an asset in enhancing the status and visibility of the university.

## **Recruitment**

The recruitment efforts have been successful in enrolling a diverse group of minority students into the LSAMP program. On average, these students exceed or rank with the National Average and State Average on SAT scores derived from the College Board. Scholars are admitted to the TSU-LSAMP program through a competitive process. Students must have a record of outstanding performance in math and science and must have a minimum 3.00 GPA to be accepted into the program. Students in the program have taken at least four years of math, four years of science, and enrolled in some Advanced Placement or International Baccalaureate classes. Recruitment is targeted at high schools with great rigor and reputations in their math and science curricula. The math and science academies tend to be the best schools from which to recruit students for STEM fields.

The average GPA of high school student recruited into the TSU H-LSAMP program is 3.64, and their average SAT scores are 500 (math) and 500 (verbal). New students consist of valedictorians, salutatorians, Gates Millennium Scholars, and National Achievement finalists. 95% of the students are listed in "Who's Who Among American High School Students", 95% are on the National Honor Roll, 50% graduate in the top 10% of their class, and 50% graduate in the top 15-25% of the class.

New students receive additional scholarship/stipend support in the form of the President's scholarship of \$15,000 per year (valedictorian), the Provost's scholarship of \$14,000 per year (salutatorian), and the Dean's Award ranging from \$4,000 to \$10,000 per year. The program supports students in Chemistry, Computer Science, Mathematics and Physics, and students are recruited nationally.

## **Phase III Funding**

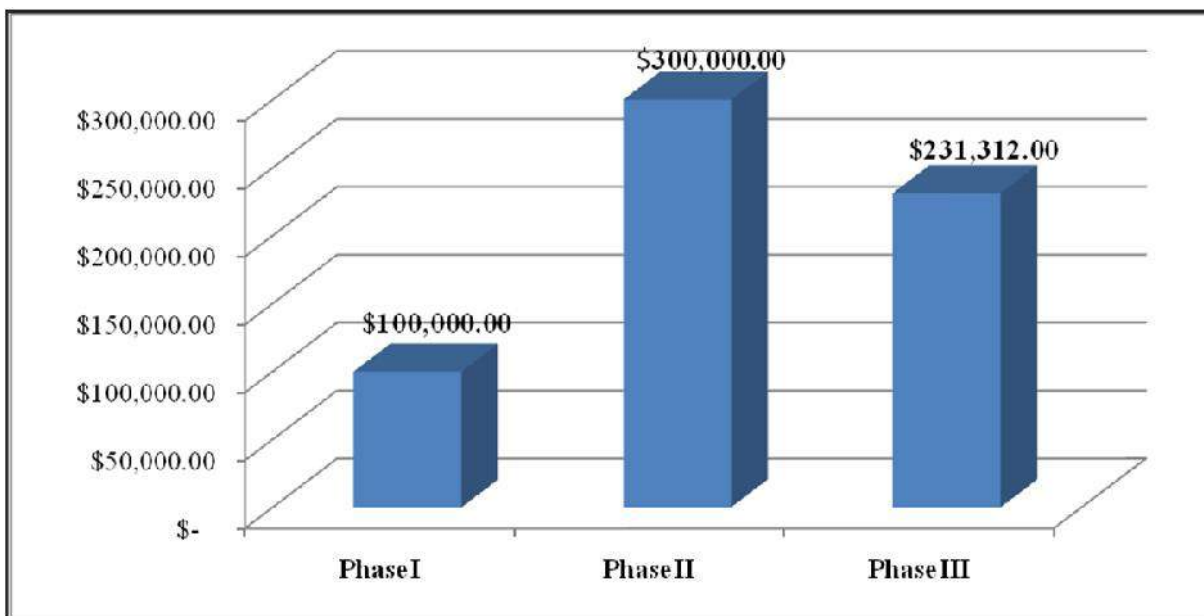
TSU was allotted \$967,500 from NSF for the period September 2009 to October 2014. Through the Fall of 2012, \$560,000 has been expended, and TSU has matched these funds with \$814,000.

## **Internships/Research Opportunities**

TSU-LSAMP scholars apply integrated knowledge learned in the classroom to real world applications in undergraduate research through the assistance of a scientist, preceptor, mentor, professor or business professional.

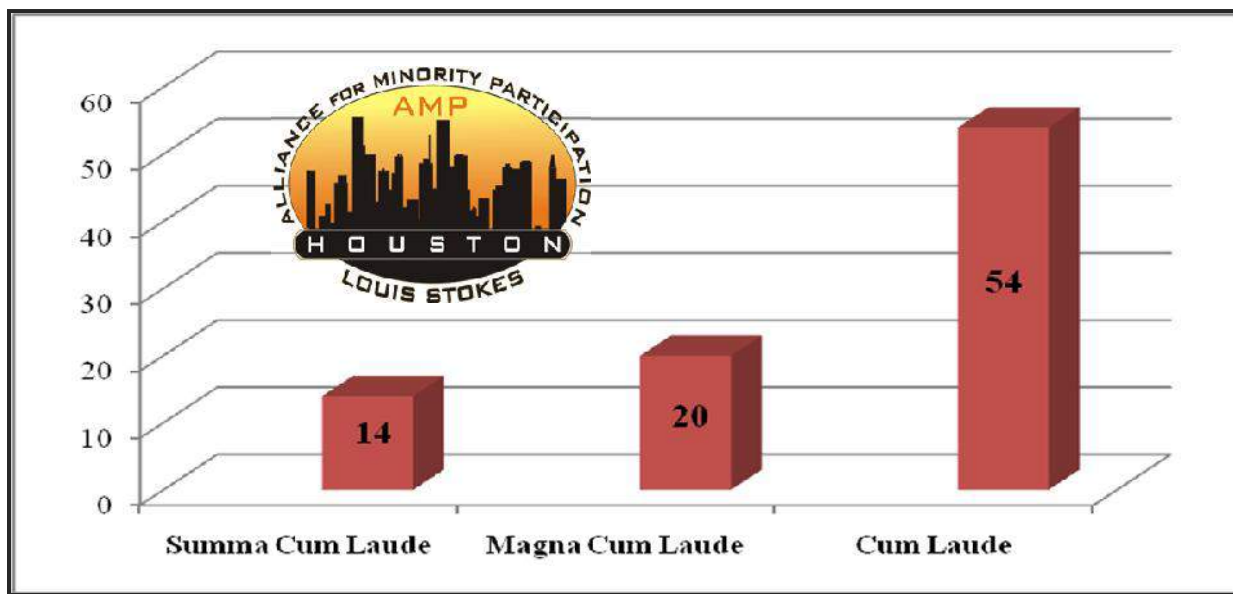
LSAMP scholars accepted in paid internships at many prestigious laboratories, institutions and government agencies. The performance of TSU-LSAMP students on our and other college campuses, laboratories, governmental agencies, and industries has proven to be an asset in enhancing the status and visibility of the university. The many impressive institutions and governmental agencies, and laboratories LSAMP scholars have completed summer research includes Texas Southern University, Rice University AGEP program, U. S. Nuclear Regulatory Commission, Rutgers University, Louisiana State University, University of Houston, University of North Texas Health Science Center, University of Arkansas, Texas A&M University, Corpus Christi, Texas A&M University, College Station, National Oceanic and Atmospheric

Administration, Los Alamos National Laboratory, NASA AMES Research center, University of Utah, Drexel University, University of Texas, Clemson University, Center for Disease Control, University of Colorado, Columbia University, Florida International University, British Petroleum, University of Iowa, NASA Science and Technology Institute, U. S. Customs Border Patrol, University of Texas Health Science Center, Texas Southern University HBCU-UP International Research Experience in Beijing, china at Beijing Jiaotong University, National Institute of Standards and Technology (NIST), University of Massachusetts-Amherst, University of North Carolina at Chapel Hill, University of Massachusetts-Amherst, and Purdue University.

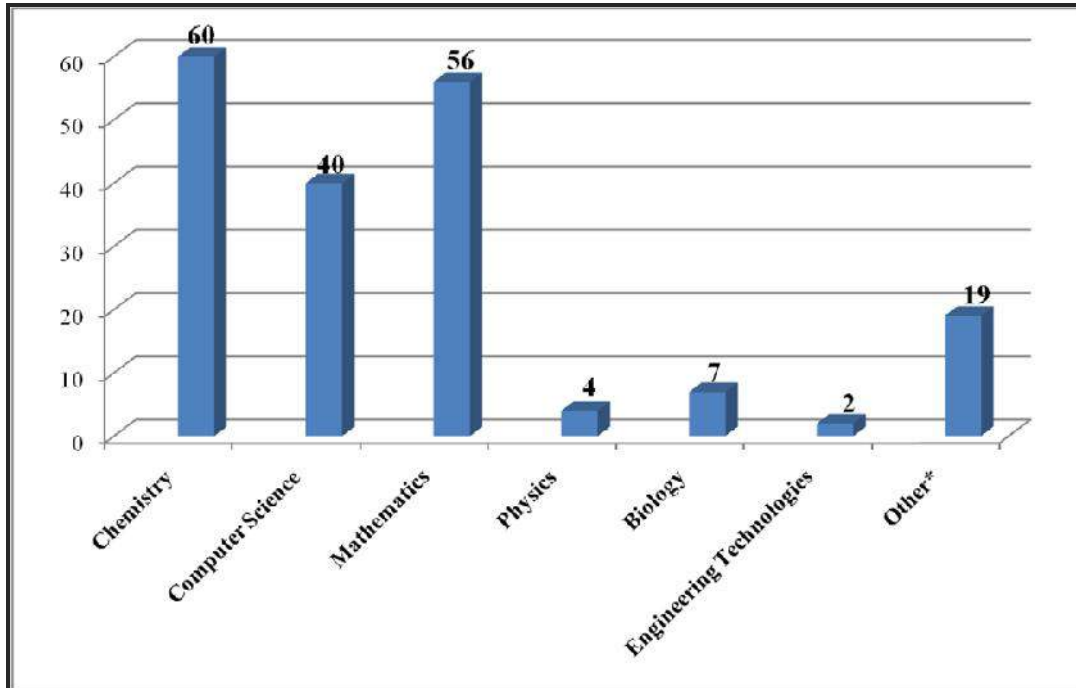


Internship Funding for TSU-LSAMP

### TSU-LSAMP Honor Graduates



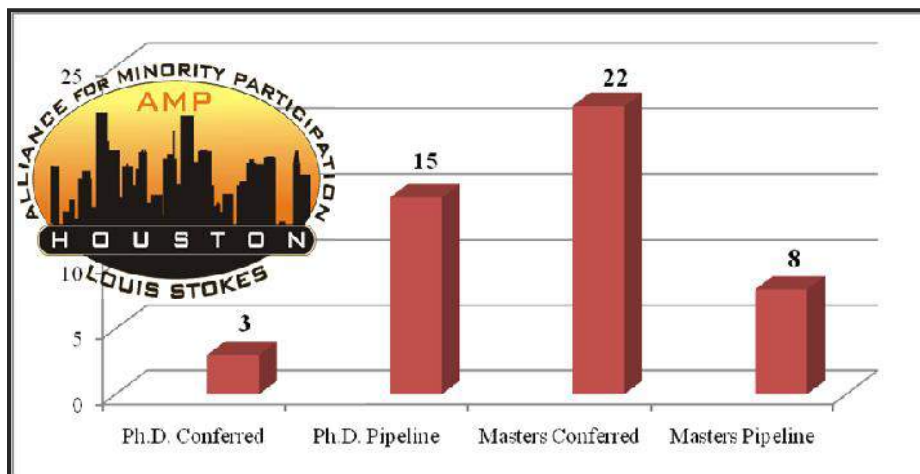
Eighty-eight (88) Louis Stokes Alliance for Minority Participation (LSAMP) Scholars have graduated with Honors, as depicted in the chart above. Overall 47% graduated with honors. The total number of TSU-LSAMP graduates since the program's first cohort entered in fall 2000 is 188 students.



Degrees by Major in the TSU-LSAMP

### Graduate Schools/Funding

LSAMP scholars receive full fellowship(s), assistantship(s), paid tuition/fees upon admittance to graduate universities/colleges/schools.



The success of the program can be measured by LSAMP graduates who are pursuing graduate and professional degrees in their discipline. Exceptional students who are now in graduate school

or have finished a graduate degree program are indicated in the chart above. In addition, students have attended professional schools to be dentists, pharmacists, medical doctors, optometrists, and lawyers.

### **Masters Degree Programs (Enrolled)**

1. Steven Harris – Texas Southern University – Barbara Jordan Mickey Leland School of Public Affairs, Fall 2012
2. Allan Chambers – Texas Southern University – EMBA Program – (Fall 2011)
3. Brandon Mikell – Texas Southern University – MBA Program – (Fall 2011)
4. Rochelle Johnson – University of Houston MBA Program – Mathematics Program – (Fall 2011)
5. Dalton Baltimore – Texas Southern University – MBA Program (Fall 2010)
6. Amanda Henry – Texas Southern University – Biology Program (Fall 2010)
7. Edidiong Obot – Texas Southern University – Environmental Toxicology Program - (Fall 2008)

### **Professional School Graduates**

1. Marjuana Bush –South Texas College of Law; Doctor of Jurist Prudence, May 2009
2. Alicia Martin – University of Houston Clear Lake, Mathematics Curriculum Education, May 2010, Doctor of Education
3. Nytarsha Brown – College of Optometry, Penn State University, Doctor of Optometry – May 2011
4. Tara Gainey Meharry Dental School – Doctor of Dental Surgery. May 2011
5. Alise North – Howard University, College of Pharmacy – Doctor of Pharmacy, May 2011
6. Frank North – Texas Southern University, College of Pharmacy & Health Science, Doctor of Pharmacy, May 2011
7. Alexis Stephens – College of Osteopathic Medicine – Doctor of Osteopathic Medicine – June 2011
8. Shayla Thomas- College of Pharmacy and Health Science – Texas Southern University, Doctor of Pharmacy, May 2011
9. Brian Scott – College of Pharmacy and Health Science – Texas Southern University - May 2008

### **Professional Schools (Enrolled)**

1. Tierra Johnson received her BS in Chemistry, Summa Cum Laude, May 2012, and is currently enrolled in the Pharm.D. Program, Texas Southern University, Fall 2012
2. Pamela Mbonu received her BS in Chemistry, Cum Laude, May 2012, and is currently enrolled in the Pharm.D. Program, Texas Southern University, Fall 2012
3. Lance Harris – University of Texas Medical School – Houston , Texas - (3rd year)
4. Helen Ubanyionwu – College of Pharmacy and Health Science – Texas Southern University - (4th year)
5. Samuel Ubanyionwu – College of Pharmacy and Health Science – Texas Southern University - (3rd year)

## Ph.D. TSU-LSAMP Graduates

1. Ms. Ashley Guillory received her Ph.D. in Pharmacology in the Department of Pharmacological and Pharmaceutical Sciences from the University of Houston, December 2012. Dr. Guillory has accepted a post-doctoral fellow in the Burn Surgery department at University of Texas Medical Branch –Galveston starting in January 2013.
2. Ms. Dvesharronne Moore received her Ph.D. from Texas A&M University in Chemistry, May 2011. Ms. Moore was recruited in the 3rd cohort of the LSAMP program in 2002 from Michael E. DeBakey High School for Health Professions in Houston, Texas. Ms. Moore received her Bachelor's in chemistry with honors from Texas Southern University.
3. Ms. Katoria Tatum Gibbs was recruited in the 1st cohort of LSAMP students in fall 2000 from Worth High School, and graduated in chemistry in 2004 with honors. She received her Ph.D. in Environmental Toxicology in 3 and ½ years from Texas Southern University.

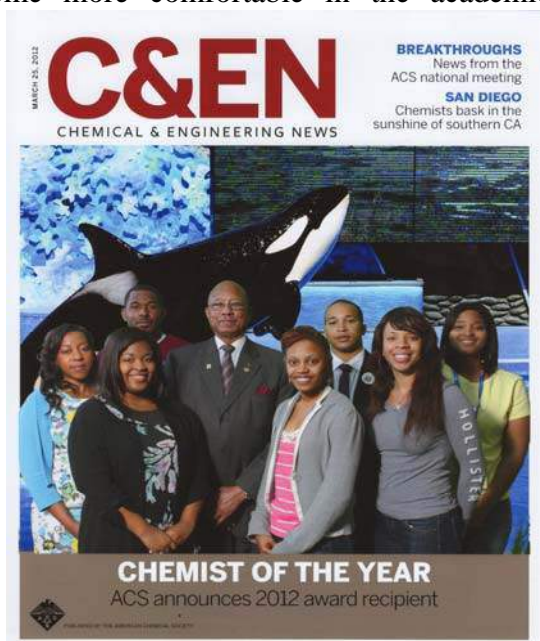
## Economic Impact on Student Careers

The median income for graduates from the TSU-LSAMP program is \$61,000, and the median of the top 10 graduates is \$123,000.

## Summer Bridge Program

The Summer Bridge Program is an integral part of recruitment of the incoming freshman H-LSAMP class. Each year, during the second summer session, the TSU-LSAMP program has enrolled scholars in Pre-calculus and English classes. The students are brought on campus with tuition, and room and board paid for by the program during a five to six week session. Students have earned a total of six hours of credit before the regular semester begins in the fall. They are also given their fall schedule before leaving for the summer. Having the students reside on campus during the summer allows them to become more comfortable in the academic environment. They quickly get to know the campus, the names and locations of the classroom buildings, financial aid office, health facility, and the gymnasium. So when the students arrive on campus for the fall semester, they already have their schedule in their hands, receive a book voucher to purchase their books, and are ready for a great year.

The summer program also includes a supplementary course, Writing Across the Disciplines taught by assistant director of TSU-LSAMP and journalism instructor, Peter Thornton. This course covers the fundamentals of writing that every student needs to master to be successful in all courses and in applying for internships. This course consists of vocabulary, grammar, proofreading, writing personal statements and CVs.



### **Addition University Support**

Instrumental to the achievements of the LSAMP's goals, the TSU faculty and administrators have given immeasurable support to this program. Particularly, in the areas of instruction and support services, LSAMP is viewed as an educational initiative that will assist the University to sustain its growth in enrollment and to increase its retention and graduation rates.

Texas Southern University's New Science Building, a \$35 million dollar state of the art facility, was opened in the fall of 2006. The LSAMP Program operates in the 4,300 square feet of space designated for the LSAMP Collaborative Learning Center. There are 30 computers, 2 printers, and 2 plasma flat screens where LSAMP students engage in studying, homework, collaboration, and tutorial exercises. Also, guest speakers, lecturers, and graduate school recruiters visit with the students in the lab. Monthly meetings are held with the "Community of Scholars." The Collaborative Learning Center was set up using the Tresiman Model.



**Texas Southern University New \$35 Million Science Center**

Systemic reforms in LSAMP have been positive. They have resulted in the greater integration of academic studies with enhancement and community service initiatives, which have impacted the educational, cultural, social, and personal growth environment of LSAMP scholars. The growth has been contagious; the interest and involvement of faculty members who are not in the STEM fields has been a welcome addition, as has the invaluable support of the administration.



**Community of Scholars Collaborative Learning Center - TSU New Science Center**



**Phase I and Phase II Community of Scholars - Nabrit Science Center**





## Undergraduate Research

The American Chemical Society (ACS) conference was held throughout March 24-29, 2012 in San Diego, California. ACS is the largest scientific organization in the country and boasts a membership of over 215,000 active members. There were over 15,000 in attendance at the conference with thousands of students presenting oral and poster presentations. An array of presentations were given in various scientific disciplines including chemistry, chemical science, biology, biomedical, environmental, space physics and other interrelated specialties. It was an impressive gathering of chemists from assorted universities and research institutions throughout the world. Students were able to participate in workshops as well as various research and panel discussions with a cadre of outstanding professors. Exhibitors and recruiters from major pharmaceutical companies, national laboratories, industry, and government agencies from across the United States attended.

Six of the Louis Stokes Alliance for Minority Participation (LSAMP) scholars and one TSU HBCU-UP “Science and Technology Enhancement Program” (STEP) scholar from Texas Southern University in Houston, Texas were afforded the opportunity to present their research work from internships during the summer of 2011. Six LSAMP scholars and one STEP scholar can be seen on the *attached mock magazine* cover of the Chemical and Engineering News (C&EN) Magazine for March 2012.

The students were supported in full or part by the following grants from the National Science Foundation: Houston Louis Stokes Alliance for Minority Participation Senior Alliance, Grant Number: HRD-0903948 and HBCU-UP STEP, Grant Number: HRD-0624866. Dr. Bobby Wilson is the Principal Investigator of both NSF grants. The American Chemical Society also provided \$600.00 for travel related expenses to five of the seven students.

Presentations by Students at the ACS Conference are listed below.

1. Melody Roberson – (pictured front row, left) - *Electrical Biosensing of Enzyme Activity with a Precipitation-Based Nonreactor*: Roberson participated in a paid internship for 10 weeks at NASA AMES in Moffett Field, California. She was under the advisement of Boaz Vilozny Ph.D. and Nader Pourmand, PhD of the University of California, Santa Cruz and Jessica Koehne, Ph.D. from NASA Ames.
2. David Taylor (pictured back row, left) – *Identification of Cell Cycle Regulators in Yeast, Texas A&M University, College Station, Texas*. Taylor participated in an 8 week paid Internship at Texas A&M University, College Station, Texas. Taylor was under the advisement of Michael Polymenis, Ph.D. of Texas A&M University, graduate student Scott Hoose, and undergraduate student Deepika Kaushal.
3. Janise Jackson (pictured front row, second from the left) – *The Effects Osteopathic Lymphatic Pump Technologies (LPT) on Blood Leukocyte Numbers in Rats with Lung Diseases*. Jackson participated in a paid Internship for 10 weeks at the University of North Texas Health Science Center, Fort Worth, Texas. Her advisors consisted of Lyndsey Harden, Ph.D., Artur Schander, Ph.D., Caitlin Creasy, Ph.D., Courtney McKee, Ph.D., and Lisa Hodge, Ph.D.; all advisors are of the University of North Texas Health Science Center in the Department of Molecular Biology and Immunology.
4. Maria Williams (pictured front row, third from the left)-*A Kinetics Study of Cytochrome C and Cytochrome C Oxidase*. Williams participated in a 10 week paid internship at the University of Arkansas, Fayetteville, Arkansas. Her advisors consisted of Francis Millett, Ph.D. Lois Geren, Ph.D. Jeffrey Havens, Ph.D., of the University of Arkansas.
5. Kyle Thomas (pictured back row, far right) – *Local Structure Determination of Oxygen Deficient Perovskites Using the Pair Distribution Function*. Thomas was under the advisement of Graham King, Ph.D. and Anna Llobet, Ph.D. from the Los Alamos National Laboratory Lujan Scattering Center. His paid internship lasted 10 weeks at the Los Alamos National Laboratory in Los Alamos, New Mexico.
6. Shelby Hill (pictured front row, far right)- *HDAC3's Interaction with N-COR and GR using Co-Immunoprecipitation*. Hill participated in a 10 week paid internship at the University of North Texas Health Science Center in Fort Worth, Texas. Here, she was under the advisement of Rosalie M. Uht, Ph.D. of the Department of Pharmacology and Neuroscience and graduate student Shreyas Bhawe.

## Student Profiles



**RAIANNA ARSCOTT:** RaiAnna Arscott graduated with a B.S. in Chemistry in 2011, at 19 years old from Texas Southern University. She was recruited out of Barbara Jordan High School where she received her high school diploma at 15 years old. She, along with her sister Rhea Arscott, are the youngest graduates to receive a bachelor's degree out of the TSU LSAMP program. Throughout her academic year at TSU, she applied to internships and worked with professors and mentors which furthered her interest in research. She is an active member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, American Chemical Society, National Technical

Society, and the Society for the Advancement of Chicanos and Native Americans in Science. An ambitious young lady, she applied to several universities but chose Oklahoma State University where she was accepted into the Bridge to Doctorate Program with a cohort of 12 in her class in 2011. She was accepted into the PhD program in chemistry and is currently enrolled and doing well.

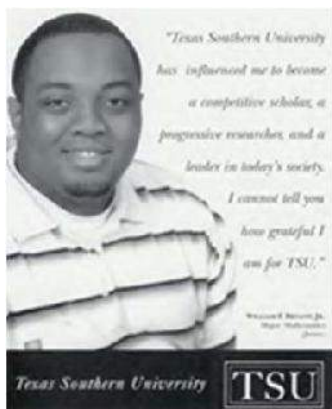


**RHEAA ARSCOTT:** Rhea Arscott graduated with a B.S. in Computer Science in 2007, at 19 years of age from Texas Southern University. She, along with her sister RaiAnna Arscott, are the youngest recruits to come in to the TSU Louis Stokes Alliance for Minority Participation (LSAMP) program and graduate at the same age. While attending TSU, Rhea applied and accepted various internships and presented at national conferences throughout the years. She is an active member in the Society for the Advancement of Chicanos and Native Americans in Science

(SACNAS), and the National Technical Society (NTS). Upon graduating, she applied to the TSU's Barbara Jordan Mickey Leland School of Public Affairs where she received a master's degree in Urban Planning. Her future plans are to attend law school and is currently working in the private sector.

**RODERICK BRANNON:** Roderick Brannon graduated from Texas Southern University in 2006 with a B.S in Mathematics and a minor in physics. He was awarded the Houston Louis Stokes Alliance for Minority Participation Scholarship from 2002 to 2006. He completed his degree with cum laude distinction and was immediately hired in the fall semester to teach mathematics at Sterling High School in Houston, Texas. Brannon has been instructing at Sterling High School for over six years and is now seeking out graduate opportunities for the fall 2012 semester at Texas A & M University, University of Houston or Louisiana State University. His love of math keeps him curious about new discoveries and techniques that can be used to enhance the learning experience in the classroom, especially for underprivileged neighborhood schools where money for equipment and books is not always available. Brannon's long term goal is to establish a charter academy focusing on mathematics and science for young boys at risk in low socioeconomic areas.

**WILLIAM BRYANT:** William Bryant graduated from Texas Southern University in 2006 with a B.S. in Mathematics and a minor in physics. He was funded throughout his undergraduate career by the Houston Louis Stokes Alliance for Minority Participation Program from 2002-2006. He completed his degree with magna cum laude distinction. Bryan applied to a PhD program at Rice University that focused on Biostatistics where he received a M.S. in Biostatistics



in 2008. He received Alliance for Graduate and the Professorate (AGEP) funding while enrolled at Rice University. Bryant is currently pursuing a PhD in Health Bioinformatics at the University of Texas Health Science Center in Houston, Texas and is employed by the City of Houston Health Department.

**MARJUANA BUSH:** Marjuana Bush graduated from Texas Southern University with a B.S. in Chemistry in 2005 with cum laude distinction. Her education was funded by the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) scholarship. Bush was an active member of the American Chemical Society, The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, and the National Technical Society. She also served as a tutor in Chemistry for undergraduates and neighborhood after school programs. Bush combined her love for chemistry with law in order to pursue a degree in Environmental Law, Patent Law, and Forensic Law. She completed her program at South Texas College of Law in Houston, Texas in 2009. Her undergraduate degree in chemistry has certainly served her well.



**ALLAN CHAMBERS:** Allan Chambers graduated in December of 2006 with a B.S. in Computer Science and a minor in physics from Texas Southern University. While obtaining his degree, Chambers began an internship with Raytheon Technologies on a contract for NASA at the Johnson Space Center in Houston, TX. Shortly after graduation, he was employed full-time as a member of Raytheon at the Sonny Carter Training Facility (Neutral Buoyancy Lab) in the I.T. department. He currently works in the Technology Solutions Group, where he helps build and maintain custom contract specific and required tools/sites using Sharepoint. Chambers is also completing his

Executive Masters in Business Administration (eMBA) at TSU. He plans to transfer his work ethic skills and his new findings, in the eMBA program, to a promising career in the oil and gas industry.



**BRESEAN COCKRELL:** Bresean Andre' Cockrell graduated from Texas Southern University in May of 2011 with a B.S. in Mathematics with a concentration in Secondary Education. A born and raised Houstonian, Cockrell feels very fortunate to have attended TSU because of "its rich heritage and the reputation the school has within the Greater Houston area." He attended the university on a full scholarship provided by the National Science Foundation in the form of the Louis Stokes Alliance for Minority Participation (LSAMP) Program. The program proved to be very resourceful for him as he had strong faculty and staff support. He feels that they provided him a great deal of resources to help him grow academically, personally, professionally, and financially. He currently holds a position at Elsik Ninth Grade Center in the Alief Independent School District as an algebra instructor. Also, he is in the process to further his education and is in the process of

applying to several graduate schools to begin his master's degree in Instructional Technology.

**NOE CERVANTES:** Noe Cervantes graduated from Texas Southern University in 2007 with a B.S. in Mathematics and a magna cum laude distinction. He was awarded the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) scholarship to fund his education. During his undergraduate career at TSU, he served as a tutor in the Department of Mathematics. Cervantes is currently working at an inner-city high school teaching math. In the future, Cervantes plans on returning to his studies and pursue a doctoral degree in mathematics at Rice University. He says math comes naturally to him and there's not a problem he won't tackle. His resiliency, drive and ambition will motivate him to find new ways to apply mathematics in everyday life.

**EDWIN CUC:** Edwin Cuc finished Texas Southern University in 2005 with a B.S. in Computer Science and a cum laude distinction. His education was funded by the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP). Cuc then applied to the newly acquired master's program in computer science at TSU. He was among the 1st cohort in which he received his distinguished Master's degree in computer science in 2007. After a little over a year, he left his job as an Information Technology Specialist in the Enrollment Services at TSU to begin his rewarding career at a global IT corporation. Cuc's love of computers was evident as he worked tediously learning new software, hardware, language, and obtaining the necessary licenses for his studies and career. The H-LSAMP Community at TSU will be watching as he prospers.



**ASHLEY GARNER:** Ashley Garner Lee graduated from Texas Southern University with honors in 2007 with a B.S. in Chemistry. Her education was funded by the Louis Stokes Alliance for Minority Participation program which allowed for her to develop her passion for Science. During her undergraduate studies, Garner participated in many campus organizations including the student chapters of the American Chemical Society and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, now known as the TSU Chemistry Club. She participated in two inspiring internships during the her summer including the Summer Pre-Graduate research at the University of Michigan in Ann Arbor,

Michigan and in a Carbon Dating Investigation at Argonne National Laboratory in Illinois. Ashley began a career as a science teacher for Houston Independent School District (HISD) and has been teaching for four years in Traditional Chemistry, AP Chemistry, Integrated Physics and Environmental Science. Garner will continue her studies in Education and hopes to obtain a Masters of Education in Educational Leadership.



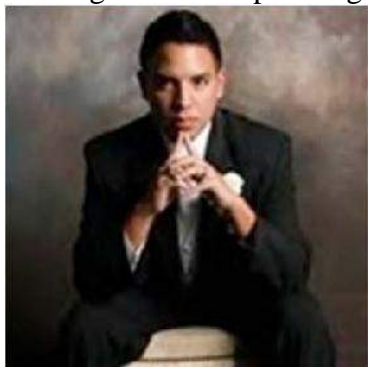
**BRANDON GEORGETOWN:** Brandon Georgetown completed a dual B.S. degree in Mathematics and Physics from Texas Southern University in 2010. Immediately after graduation, Georgetown traveled to the University of Nevada Las Vegas (UNLV) as a summer research student under Dr. Ken Czerwinski. While attending UNLV, he was able to help assess the amount of radioactive material in soil samples taken near nuclear facilities. Upon completion of the summer program, Georgetown attended Tuskegee University as a graduate student in Mechanical Engineering and received the Tuskegee Center for Advanced Materials (TCAM) fellowship in the fall of

2010. In the summer of 2011, he traveled back to Houston and was accepted to the University of Houston (UH) as a graduate research assistant in the Cullen College of Engineering. Georgetown was awarded the Louis Stokes Alliance for Minority Participation Bridge to the Doctorate (LSAMP-BD) Fellowship to study Environmental Engineering under Dr. Hanadi Rifai. Upon completion of his PhD and Professional Engineering license (P.E.) at UH, he plans on entering the private sector or furthering his research. Georgetown truly believes that the time spent as an LSAMP scholar empowered him to strive for unlimited success.



**ASHLEY GUILLORY:** Ashley Guillory graduated magna cum laude from Texas Southern University in 2007 with a B.S. in Chemistry. She is currently a fifth year graduate student in the Department of Pharmacological and Pharmaceutical Sciences at the University of Houston where she is completing a terminal degree in Pharmacology. Ashley's research is focused on investigating the molecular mechanisms associated with the maladaptive changes of  $\beta$ -adrenergic receptor signaling in heart failure with the intention of identifying new therapeutic targets for the treatment of heart failure. In 2009, she was awarded an NIH/ NHLBI Minority Graduate Research Supplement; a prestigious grant funding that is only bestowed upon 15% of applicants.

Additionally, she has been the recipient of several university scholarships, including the University of Houston Presidential Scholarship, the Mading, Cora and Webb Scholarship and, most recently, the Perin F. Lokhandwala Foundation Scholarship. She has presented at conferences across the United States, including the American Heart Association's Scientific Sessions and Experimental Biology and has received multiple travel awards to attend others. Guillory also serves on several committees of the American Society for Pharmacology and Experimental Therapeutics and was a moderator and planning committee member for the Thirty-Eighth Annual Medicinal Chemistry & Pharmacognosy Meeting-in- Miniature. In addition to these activities, Ashley has attended the NIH-Sponsored Short Course in Integrative and Organ Systems Pharmacology in Omaha, NE as well as an NIH-sponsored Leadership Development and Grant Writing Seminar in Chantilly, VA. Upon completing her PhD training, she intends to continue her training in a post- doctoral position and further advance to become an independent investigator. As a principal investigator, Ashley wants to continue to conduct research in the field of cardiovascular disease while participating in programs that allow undergraduates and high school students to gain research experience. Her ultimate goal as a principal investigator is to work in conjunction with Historically Black Colleges or Universities and encourage minority undergraduates to pursue graduate degrees in the sciences.



**NELSON GUERRERO:** Nelson Guerrero graduated from Texas Southern University in 2011 with a B.S. in Computer Science. He came to TSU after a year of study at St. Edwards University in Austin, Texas. During his tenure at TSU, Guerrero became very active in student life including: chapter president of Sigma Lambda Beta International Fraternity, member and president of the Hispanic Student Association, active member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, The Institute of Electrical and Electronics Engineers, and the League of United Latin American Citizens. He is

currently working for Hewlett Packard as a Global IT Operations Developer/Engineer in

Houston, Texas. He plans to pursue a master's degree in computer science in the fall of 2012.



**AMANDA HENRY:** Amanda J. Henry graduated from the Houston-LSAMP program in 2006 with her B.S. in Biology from Texas Southern University. During her tenure at TSU, she gained research experience at the following institutions: Howard University-Robert Wood Johnson Foundation Summer Externship Summer 2005, NASA Environmental Toxicology Center and Wilson Institute for Summer 2004 Research and Training (WIRT) Program, University of Texas at Austin Department of Pharmacology and Toxicology Summer 2003, and Lab Assistant for Dr. Jade Clement funded by Welch Grant 2004-2005. Upon graduation, Henry embarked on a

new journey that entailed the convergence of science and business. She completed a competitive graduate program funded by the Army Research Lab valued at forty thousand plus dollars, the Integrated Technology Transfer (ITTN) at California State University San Bernardino (CSUSB). The program is a technology transfer program that recruits minority students with science degrees from Historically Black Colleges and Universities and trains them to become entrepreneurial scientists. After completion of the prestigious program, she returned to Texas where she was employed by the Texas Commission on Environmental Quality for three and half years. During her employment, she worked as a Natural Resource Specialist ensuring the exceptional quality of drinking water for the citizens of Texas. This opportunity gave her first hand experience on governmental policies and procedures. Additionally, she is abreast of the public health effects of drinking water. Currently, Amanda is a Graduate Teaching Assist in the Department of Biology at Texas Southern University. She is conducting literature reviews and learning new research methodologies under the direction of Dr. Jason Rosenzweig. Her interests include streptococcus pyogenes and the potential risks they have on varying ailments in humans. She anticipates graduating in spring 2012 and plans to continue her education in a doctoral program thereafter.



**SHANI HERRINGTON:** Shani Anika Herrington graduated magna cum laude with a B.S. in Computer Science in 2003 from Texas Southern University. She was a scholar in the LSAMP and Honors College programs where she improved her analytic skills, composing algorithms, and administering simulations. However, when introduced to the idea of being able to make a difference in society by applying analytic skills to health problems she became very interested in Population Health Science. As a research intern for two summers, she worked with scientists from different disciplines to develop solutions of problems that could be solved with computer applications. These experiences awakened her interest in analytical problem-solving and

motivated her to pursue graduate studies and other research experiences. She continued on to receive her master's degree at the University of Wisconsin – Madison (2006) in Population Health where she had the opportunity to work with the distinguished scholars of the Health Measurement Research Group. Her research in her graduate studies was funded by the McNair Program with an Advanced Opportunity Fellowship and a fellowship under a grant for the Health Measurement study. Currently, Shani is employed at Chevron USA, as the Medical Programs Analyst for the Health & Medical Department. In her current role she is responsible for the oversight, compilation, collection, analyses, and dissemination of Medical related information

for the Chevron Corporation. Shani is also involved community and social organizations that include Delta Sigma Theta Sorority Inc. and the NAACP. She is also the Houston Area Liaison for Chevron's Black Employee Network that covers three Houston locations.



**BRIAN HINTON:** Brian Hinton is originally from a small southern town called Yazoo City, Mississippi. He left the comforts of Yazoo City, Mississippi in 2000 to become a part of the first group of scholars to receive the LSAMP scholarship at Texas Southern University. Hinton obtained his B.S. in Computer Science with a minor in Mathematics in 2005. During his work-study at TSU, he helped create a database for the Department of Pharmacy and assisted with the graphic and design of portions of the university's website. Hinton was also exposed to many different aspects of the Computer Science world, including a programming internship with Summer Pre-Graduate Research Experience (SPGRE) at the University of North Carolina-Chapel Hill where he would implement JAVA programming to create visual seismic waves via the input of a seismometer. After graduation, Brian expanded his knowledge in computer networking by obtaining the Network+ and Cisco Certified Network Associate (CCNA) Certifications. He is now an IT Production Support Analyst at Loomis Armored in Houston, TX. Hinton's studies have not been hindered as he is currently studying to earn his Microsoft Certified IT Professional certification will pave the way to become an IT Systems Engineer. He also plans to complete a postgraduate degree and become a certified teacher so that he may inspire and mold the young minds that will help pave the way for further technological advancements.



**ASHLEY HOWARD-MINUS:** Ashley Howard-Minus completed a B.S. in Chemistry in 2008 from Texas Southern University in relation to the LSAMP program. After receiving her degree, she enrolled in an alternative certification program for teachers to teach chemistry at the secondary level. She is currently inspiring the young minds of pre-AP chemistry students at Pasadena Memorial High School. She has been teaching for four years and has developed a successful career. She is currently on the High School Chemistry Curriculum Writing team for the school district and a new teacher mentor. She feels that her career in high school education may have peaked at a very rapid pace and plans to obtain a master's degree in chemistry to reach out to students in community or junior colleges. She also plans to become certified as a medical laboratory technologist and work in a clinical laboratory.



**BINIAM KINFE:** Biniam Kinfe graduated in 2006 from Texas Southern University with a M.S. in Mathematics. He had also previously received his B.S. in Mathematics with a minor in physics from TSU. As an undergraduate student, he worked as a math and physics tutor, at both high school and college levels. In addition, as a graduate student he worked as a supplemental instructor and an adjunct Math instructor. Through all these, he has gained teaching experiences that have helped his current position as a full-time mathematics instructor at TSU in the Developmental Mathematics Department. He is also teaching developmental mathematics at one of the Houston Community College campuses. He plans to obtain his PhD in Applied Mathematics



but is certainly not limiting himself from other possibilities as he continues to learn in his field. He is sure that as he learns more, and expands his horizons, he will dabble in other areas that he never thought he would have.



**CHERIE LEE:** Cherie Lee earned a B.S. in Mathematics in 2004 from Texas Southern University and was supported by the Louis Stokes Alliance for Minority Participation (funded by NSF) and the Frederick Douglass Honors Program. Following graduation, she entered the Graduate School at Louisiana State University in the fall of 2004 with support from the Geoscience Alliance to Enhance Minority Participation and NSF-OEDG program. She earned a M.S in Geology in 2007. She is currently employed as a petrophysicist with BP in Houston, Texas. She wishes to further her career with hands-on-experience rather than in a classroom setting.



**BRITTANY LEWIS:** Brittany Lewis completed her B.S. in Mathematics with a minor in psychology in 2010. She finished with cum laude distinction and applied for a position as a teacher in the Houston Independent School District, where she is currently teaching mathematics at a local high school. She is an active member in professional organizations such as the National Association of Mathematicians, the National Technical Society, and in Alpha Kappa Alpha Sorority, Inc. She regularly volunteers with her sorority to provide help within her community. Lewis plans on returning to pursue

a master's degree in mathematics to further advance within the school district.



**ALCIA MARTIN, Ed.D:** Alicia Martin graduated summa cum laude in 2005 at Texas Southern University with a B.S. in Mathematics. Her education was funded from 2001-2005 by the Houston Louis Stokes Alliance for Minority Participation Program. Alicia's determination allowed her to advance in her educational pursuits. She enrolled in the Mathematics Education program at the University of Houston-Clear Lake where she obtained a master's degree in Mathematics Education in 2007 and her Doctor of Educational Leadership in 2011. She is an active member in Alpha Kappa Alpha Sorority, Inc. and anticipates doing great things with the experience she has received thus far.



**REYNA MAYORGA:** Reyna Mayorga graduated summa cum laude with a B.S. in Mathematics in 2010 as the Class Valedictorian from Texas Southern University. Originally, Mayorga intended to pursue a degree in physics but her love of numbers and complex systems was a perfect niche. She was funded by the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program to help her achieve academic excellence. She is currently working in an exciting and fast-paced environment as an Air Traffic Controller in a local airport. She is now pursuing her master's degree in Aviation Technology at TSU. Mayorga is certainly reaching for great heights!

**NCHEKWUBE MBAMALU:** Nchekwube Mbamalu graduated from Texas Southern

University with a B.S. in Mathematics in 2008. His education was funded by the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program throughout his undergraduate career. After graduating, he was accepted in to the graduate program at Louisiana State University in the Geosciences Department and was funded by the National Science Foundation Bridge to Doctorate program. He interned during his summer months with geophysicists who researched rock formations, seismic faults, and drilling while in graduate school. He received his M.S. in Geosciences in 2010 and is now employed by a major Petrochemical company.

**KEVIN McDANIEL:** Kevin McDaniel graduated from Texas Southern University in 2006 with *cum laude* distinction. His education was funded by the Houston Louis Stokes Alliance for Minority Participation Program. During his undergraduate career at TSU, he participated in numerous internships and presented at major conferences in the United States. He then went to graduate school and received a graduate fellowship at Kansas State University where he obtained a master's degree in chemistry in 2010. He is an active member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and the American Chemical Society (ACS). McDaniel is currently pursuing a PhD in Public Health from the University of Texas Health Science Center in Houston, Texas.

**APOLLONIA McMILLIAN:** Apollonia McMillian received her B.S. in Chemistry with a minor in mathematics in 2007 with *magna cum laude* distinction from Texas Southern University. She was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. She went on various internships throughout her academic years and would present her research at national conferences and workshops throughout the United States. She is an active member in the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and the American Chemical Society (ACS). McMillian is currently teaching in the Houston Independent School District for students in grades 9-12 with a focus on AP Chemistry. She plans on returning to a graduate program in the near future to pursue a doctoral degree.



**JEREMY MILLER:** Jeremy Miller received his B.S in Computer Science with a minor in mathematics in 2010 with cum laude merit from Texas Southern University. His education was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. Throughout his time in undergraduate studies, he pursued internships in the summer months where he would present his research at national conferences throughout the academic year. At present he is working for a major IT firm and has plans to attend graduate school to obtain a master's degree in computer science. He is also a current member of the National Technical Society and the National Computing

Society.

**MATTHEW MINUS:** Matthew Minus graduated cum laude with a B.S. in Chemistry in 2009. Post graduation, he became a certified teacher and taught chemistry at Dobie High School for two years. In the fall of 2011, he was accepted into Rice University and is actively pursuing his PhD in Chemistry. He plans to research new ways to effectively bind to intercellular proteins with shallow binding pockets. In the more distant future, I plan on developing new catalysts to lower the activation energy of useful chemical reactions that are energetically costly. His scientific goals can strongly be credited towards the research skills he gained apart of the LSAMP program.



**D'VESHARRONNE MOORE, Ph.D:** Dr. D'Vesharronne Moore received her B.S. in Chemistry with cum laude distinction in 2006 from Texas Southern University. Her education was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. She applied to various internships during the summer where she was able to conduct research on various projects with professors and then later presented research at annual conferences and meetings including the Texas Academy of Science, The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE) Conferences, and American Chemical Society (ACS). She gained innumerable

experience through these opportunities. Upon graduation she applied to the prestigious program at Texas A&M University to the Department of Chemistry where she was accepted and provided a full fellowship for the five years of intended study. In the fall of 2006 she attended Texas A&M for doctoral studies and was awarded the Doctor of Philosophy in Chemistry in 2011.



**KANETRA MOSES:** Kanetra Moses received her B.S. in Mathematics in 2007 from Texas Southern University with magna cum laude distinction. Her education was funded by the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. Upon graduation, Moses applied to an oil and petrochemical firm and was immediately hired which can be credited towards her work ethic. Within a six month period, she discovered the company had made an error on a computational problem and could have resulted in company losses. She was immediately rewarded with an increase in salary of \$20,000. Aside from ensuring her success in the workplace, they are ensuring her academic success as well. Moses is currently pursuing a master's

degree in geophysics at the University of Houston, paid for by her employer.



**FRANK NORTH, Pharm. D:** Dr. Frank North is a 2000 graduate of Booker T. Washington Senior High School who immediately sought excellence in the Louis Stokes Alliance for Minority Participation Scholar (LSAMP) at Texas Southern University. Frank was an honor student while in attendance at TSU who participated in many community service projects, such as, The Houston Bank, S.H.A.P.E. Community Center, The Children's Museum, as well as academic organizations, the American Chemical Society and the National Organization for the Professional Advancement Black Chemists and Chemical Engineers (NOBCCChE). Frank graduated from Texas Southern University with a major in biology and a minor in chemistry

in 2006. He matriculated to California State University-San Bernardino where he served as a Fellow in the joint Integrated Technology Transfer Network Program of California State University-San Bernardino, the Army Research Lab, NAFEO, and Morgan State University. Frank earned the prestigious Certificate of Business Entrepreneurship from the California State University-San Bernardino College of Business and Public Administration in 2007. He continued his academic matriculation in the professional pharmacy program in the College of Pharmacy and Health Sciences at TSU where he earned the Doctor of Pharmacy (Pharm.D.) degree in

2011. North passed the Texas State Board of Pharmacy Examination on his first attempt. Prior to his hire as a registered pharmacist at Walgreens, he worked for Walgreens as a Certified Pharmacy Technician for over 6 years. North is a member of numerous professional and fraternal pharmacy and health care organizations, such as: the American Pharmacist Association, the Texas Pharmacy Association, the Association of Black Health-system Pharmacists, the Houston Pharmaceutical Association, Phi Delta Chi Pharmaceutical Fraternity (Beta Omicron Chapter), Omega Psi Phi Fraternity, Inc. (Tau Epsilon Chapter and Rho Beta Beta Graduate Chapter) and Life Member of the Texas Southern University National Alumni Association. His involvement with different organizations has provided him the experience needed to be successful by being able to effectively collaborate with others. His academic achievements have certainly inspired those around them, including his sister Alise North, who obtained her professional degree in Pharmacy as well.



**ALISE NORTH, Pharm. D:** Dr. Alise North is a 2002 graduate of Booker T. Washington Senior High School. She earned a B.S. in Chemistry with a minor in mathematics from Texas Southern University in 2006. She has worked as a licensed Pharmacy Technician for nine years at Health Select Hospital in Houston, Texas. She credits her exposure and her final educational choice to pursue Pharmacy to what she learned as a Pharmacy Technician under the direction of Mrs. Patricia Pellerin. She indirectly may have been inspired by her brother Frank North to achieve greatness. He is also holds a professional degree in Pharmacy. Alise was a Louis Stokes Alliance for Minority Participation (LSAMP) scholarship recipient and she made the Dean's

Honor Roll List, consecutively, for four years during her undergraduate career. After graduation from TSU, Ms. North matriculated to Howard University where she enrolled into the professional pharmacy program in the College of Pharmacy. She graduated from the College of Pharmacy with her Pharm.D degree. She is currently a member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), the American Chemical Society (ACS), and Beta Kappa Chi Scientific Honor Society (BKX). Alise is also a member of numerous professional pharmacy and health care organizations, such as: the American Pharmacist Association, the Association of Black Health-system Pharmacists, and the Houston Pharmaceutical Association.



**JESSICA POOLE:** Jessica Poole is a current graduate student in the Department of Mathematics and a 2008 graduate of Texas Southern University. While at TSU during her undergraduate studies, Poole was an LSAMP Scholar and made many award winning presentations in Mathematics. After teaching in HISD for two years she plans to continue her graduate studies until she earns a doctorate in Mathematics. Poole will act as a research assistant to professors Robert M. Nehs, Willie E. Taylor, and Roderick B. Holmes whose primary research efforts will focus on the periodic behavior of solutions to nonlinear difference equations. Although Ms. Poole was accepted to both Texas State University and Louisiana State University, she chose to obtain her master's degree

from TSU because of the support she gained throughout her undergraduate studies.

**LORIE PEREZ:** Lorie Perez completed her B.S. in Mathematics with summa cum laude

distinction in 2006 from Texas Southern University. Perez was the Valedictorian out of Barbara Jordan High School which helped her achieve the prestige recognition to have her education funded by the Houston Louis Stokes for Minority Participation (H-LSAMP) program. She is a member of professional organizations in the National Association of Mathematicians and the National Technical Society. Her love of students influenced her to become a high school teacher at her alumnus, Barbara Jordan, where she is currently teaching mathematics in grades 9-12. In the future, she would like to obtain a doctorate in Educational Leadership Administration to influence the curriculum and deal with the challenges teachers face every day of retaining student attention in the classroom. She is a truly 21st new leader in the new teacher paradigm.



**LIZETTE RAMIREZ:** Lizette Ramirez finished all requirements for a B.S. in Mathematics and graduated cum laude in 2007 from Texas Southern University. The Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) provided her with funding during her academic career at TSU. Her love of mathematics also prompted her to go to the classroom to teach underprivileged kids from inner-city schools and teach them how math can be a fun. She has been a teacher for over five years and enjoys the daily challenges each day brings. Ramirez has improvised new ways of teaching to keep the student's interest. She is also a member of professional mathematics organizations and is active in her community. In the

future, she plans to return to obtain a doctoral degree in public administration where she can become a principal and inspire teachers in different regions of the city.



**JACINA REDDEN:** Jacina Redden made it to Texas Southern University, hailing from Las Vegas, NV with an AS degree in Criminal Justice, and magna cum laude distinction, from Southwestern Christian College, located in Terrell, Texas in 2003. She continued her undergraduate studies as a scholarship recipient of the Louis Stokes Alliance for Minority Participation (LSAMP) program at TSU. She did not realize at the time the impact science would have on her life. In May of 2006, she graduated with a B.S degree in Chemistry along with cum laude distinction from Texas Southern University. The H-LSAMP program and TSU

introduced me to numerous opportunities involving scientific research which eventually lead to my interest in fields like analytical chemistry, food science and environmental studies. During her undergraduate studies for the summer of 2005 and 2006, she was selected to complete internships at the University of North Carolina-Chapel Hill under the advisory of Dr. Joseph DeSimone and Dr. Jennifer Kelly within the Center for Environmentally Responsible Solvents and Processes (CERSP) as well as Rice University under the advisory of Dr. Vicki Colvin and now Dr. Jennifer Jamison within the Center for Biological and Environmental Nanotechnology (CBEN). Immediately after graduating from TSU, she was unsure about attending graduate school immediately and, instead, made a decision to gain first-hand experience in the industry. She was employed almost straight away by SABIC Technology Center (STC) in Sugarland, TX in 2006 and worked as a Research Associate and Chemist for two years. After two years, she made another important decision in to pursue graduate studies at the University of Florida (UF) located Gainesville, FL. She had the honor of being a part of the first Bridge to the Doctorate Fellowship program through the National Science Foundation

established at the UF by Dr. Henry Frierson, Associate Vice President and Dean of Graduate School at UF. Her alumni status at TSU, and an LSAMP graduate, helped her gain admission in to the program. During her graduate studies, she had the opportunity to work under the advisory of Dr. David Powell and Dr. Richard Yost within the Chemistry Department under the Analytical Chemistry division at UF. In 2010, she completed the requirements for a M.S. in Analytical Chemistry from UF. She has had many opportunities because of the NSF and feels that she is now able to turn her vision into a reality. Her transition from a degree in criminal justice to majoring in chemistry was an important turning point in her life! She will eventually return to the industry where she can utilize her analytical skills in a way that will have a positive impact on the well-being of human beings and the overall sustainability of the environment.



**CLIFF ROBINSON:** Cliff Robinson graduated in 2006 with a B.S. in Computer Science from Texas Southern University. He is an Atlanta, Georgia native who received education funding from the Houston Louis Stokes Alliance for Minority Participation (H- LSAMP) program. He applied to internships each summer to acquire knowledge in his field and work with world class professors on projects. Throughout the academic years, he presented at conferences such as Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), the National Technical Society Conference, and the National Computing Society Conference. This led him to want to apply to graduate school and was accepted in the computer science program at Purdue University where he obtained a master's degree.

**CYNTHIA ROMANO:** Cynthia Romano graduated *magna cum laude* with a B.S. in Mathematics in 2006. She was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. During summer months, Cynthia interned at various sites in the U.S. and worked with world class professors and assisted graduate students in their research work. She then presented at various conferences including Math Fest, National Association of Mathematicians and H-LSAMP conferences. Cynthia's love of math and tutoring students in after school programs led her to become a mathematics teacher who is now teaching AP classes at a local high school. She is currently on the fast track in her career and is an Assistant Principal in Channelview, Texas ISD. Her future plans are to return to school and pursue a doctorate in education administration.



**CYNTHIA SIDOA:** Cynthia Marie Sidoa graduated from Texas Southern University in 2009 with a B.S in Chemistry with a focus in pre-med. She was a Houston Louis Stokes Alliance for Minority Participation Scholarship (H-LSAMP) recipient from 2004 to 2009. During her collegiate years, she was active in numerous community service activities and was a member of the American Chemical Society, as well as a founding member of the TSU Chemistry Club. Currently, she is working as a Chemist for SGS North America Inc., where she leads laboratory analysis and operations in her department on a daily basis. With Exxon Mobil, Shell Trading US & Co., Marathon, Valero, Conoco Phillips and countless others as their biggest clients, SGS is the world's leading inspection, verification, testing and Certification Company. Recognized as the global benchmark for quality and

integrity, they operate a network of over 1,250 offices and laboratories around the world. In the future, Cynthia plans to attend graduate school to pursue a doctorate degree in Biochemistry. Ms. Sida's sister, Esperanza Sida, was also an H-LSAMP Scholar in Chemistry. Scientific excellence must run in the family!



**ESPERANZA SIDOA:** Esperanza Sida graduated from Texas Southern University in 2008 with a B.S. in Chemistry. She was a recipient of the Houston Louis Stokes Alliance for Minority Participation Scholarship. During her undergraduate years, she was active in numerous community service activities and was a member of the American Chemical Society, TSU Chemistry Club, Reserve Officer Training Corps (ROTC), Hispanic Student Association, and founding member of the Rho Gamma chapter of Sigma Lambda Gamma National Sorority, Inc. She conducted undergraduate research with the Chemistry department at TSU

with a focus on the metallization of carbon nanotubes. Other undergraduate research was conducted at Wright Patterson Air Force Research Laboratory with a focus on the processing and characterization of new materials for power and energy devices (i.e. organic photovoltaic devices and fuel cell membranes). Her successes in college can certainly have been a reason as to why her sister, Cynthia Sida, became an H-LSAMP scholar with TSU. Determination is something both girls do not lack especially in the case of Esperanza. Esperanza earned her commission in 2008 as an officer in the United States Army Medical Service Corps. Currently, she is a First Lieutenant and the company executive officer for C Co, 125<sup>th</sup> Brigade Support Battalion, 3<sup>rd</sup> Brigade Combat Team, 1<sup>st</sup> Armored Division (L). She is responsible for the safety, training, readiness, discipline, morale, health and welfare of her soldiers and directly responsible for the accountability of property and equipment valued in excess of \$2.3 million dollars. She is also responsible for maintaining the operational readiness of the company's organizational equipment and communication assets and resourcing all the company's training events and accountability of expendable/durable property. Her company is the brigade support medical company for over 3,000 soldiers at Fort Bliss, TX and they are currently providing medical support at a Role II<sup>+</sup> aid station in Afghanistan. Her future plans include attending graduate school to pursue a master's degree in biochemistry or chemical engineering and a career as a Clinical Lab Scientist in the United States Army or Federal Bureau of Investigation.



**LINDSEY SCOTT-CALHOUN:** Lindsey Scott Calhoun earned a B.S. in Chemistry, cum laude, from Texas Southern University in 2006. After graduating, Lindsey accepted a position at DNV Petroleum Services where she worked for four years as a Laboratory Technician. In the fall of 2010, Lindsey decided to further her education by pursuing a PhD in Environmental Toxicology from her alumnus, TSU. This excellence in achievement certainly did not stop with her. Her younger sister, Reba Scott-Georgetown, also joined TSU in her ventures to obtain a degree in chemistry. One thing is for sure, they really love their science! Upon completion of her degree, Lindsey hopes pursue a career in environmental compliance and

enforcement. Lindsey believes that the invaluable tools she obtained as an LSAMP scholar have greatly contributed to where she is today. Currently, Lindsey is employed at Southern Petroleum Laboratories Inc. as a Quality Control/Quality Assurance Chemist where she is responsible for ensuring that services meet customers' demands.



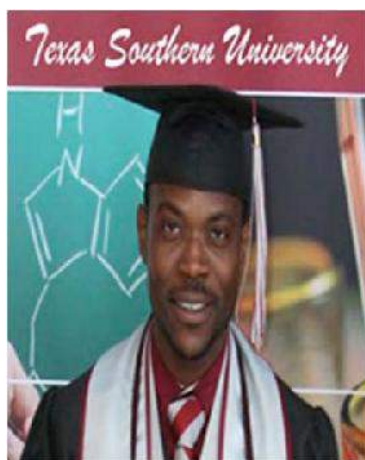
**REBA SCOTT-GEORGETOWN:** Reba Scott-Georgetown received her B.S in Chemistry and Mathematics from Texas Southern University in 2009. Her academic achievements are modeled, but certainly not replicated, after Lindsey Scott- Calhoun, her sister who also was a part of the H-LSAMP program at TSU. Two months after receiving her dual degree; she received a position for Southern Petroleum Laboratories (SPL) as a GC analyst. She further sought other opportunities and accepted a technician position at The Dow Chemical Company. She is still employed by Dow where she implements the skills learned as a scholar at TSU. Her future plans include returning to school to obtain a

PhD in Analytical Chemistry. With that achievement, she will enable herself further opportunities in academia as well as the private sector. Reba strongly believes that the talents she gained as an LSAMP scholar provided her the tools to succeed in her personal and professional development.



**NAQUETTA SIMPSON:** Naquetta Simpson received an Associate of Applied Science degree in Dallas, TX from Cedar Valley College respectively before her move to Houston, Texas to attend Texas Southern University. She graduated *cum laude* with a B.S. in Mathematics and a minor in computer science in 2005. A year after graduation, Simpson was accepted into Colorado State's Bridge to the Doctorate program in the Computer Science department. Now back in Dallas, she is currently in her third year of teaching Math and Science and plans to obtain a master's degree

in education.



**THEIRRY CEDRIC KOUAMOU TANTCHOU:** Born in Cameroon (former French/English and German Colony), Thierry Cédric Kouamou Tantchou is the sixth child out of six children. Kouamou grew up in different parts of the world because his father was a diplomat. He started developing a certain affinity for food and the changes it can undergo inside a pot while cooking. Years later, he realized that the attraction that he had for food cooking was related to science, especially chemistry. Four years ago, as he came to America and enrolled at Texas Southern University, Cédric decided to major in chemistry due to his passion for foods. After outstanding completion of his freshman year, several opportunities became available to him. The opportunity that

affected the most his education was joining the Louis Stokes Alliances for Minority Participation (LSAMP) program. Being an LSAMP Scholar (America's Most Wanted Scholar) allowed Cédric to not only maintain his GPA above the 3.5 requirement, but to participate in a summer research experience at an outstanding research facility in the country, as well as to tutor other students, and to mentor freshman's. In addition of being



an LSAMP Scholar, he was also a McNair scholar and was awarded many other scholarships (American scholarship, National Pan Hellenic Counsel scholarship and General University scholarship). Cédric finished his undergraduate studies in May 2011 and earned a B.S. in Chemistry and magna cum laude. He is thankful to the faculties and staff of the College of Science and Technology and especially to the LSAMP program at TSU. His solid foundation built at TSU would help him to accomplish honorable achievements and to endeavor doctoral studies in chemistry at Texas A&M College Station starting spring 2012.



**IAN SOLARIE:** Ian Solarie received his B.S. in Mathematics from Texas Southern University in May 2007 with a minor in physics. He was the recipient of the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) scholarship which helped him fund his educational ventures. In his undergraduate career, he went on internships and gained valuable knowledge where he was able to present the research work at various conferences. He is an active member in the National Association of Mathematics and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE). He is currently working in the Houston

Independent School District teaching AP Mathematics for grades 9<sup>th</sup>-12<sup>th</sup>. In the future he does plan to attend graduate school and pursue a PhD in Mathematics.



**KATORIA TATUM-GIBBS, PhD:** Katoria Tatum graduated cum laude with a B.S. in Chemistry in 2004 with the help of the Louis Stokes Alliance for Minority Participation program. She was the 1st cohort recruited into the program fall's class of 2000. Enhancing her curriculum, she applied to internships during the summer months which furthered her interest to pursue research including the Student Pre Graduate Minority Student Experience (SPRGE) program at University of North Carolina at Chapel Hill under then the leadership of Dr. Henry Frierson. Upon graduation, she was accepted into the prestigious Environmental

Toxicology program's one of only three in Texas where she was accepted and full fellowship provided by Dr. Bobby Wilson, her mentor and advisor. All through her undergraduate career she worked in the Wilson's Research Group laboratory where she conducted cutting edge research in air pollutants, air quality and water control. Upon entering the Environmental Toxicology program in fall of 2004, she was able to further the research she had done as an undergraduate in Dr. Bobby Wilson's lab, Wilson Research Laboratory Group and graduated in three and one-half years with a PhD in Environmental Toxicology. She is now employed as a post-doctoral researcher at the Environmental Protection Agency in Raleigh, North Carolina. She holds current memberships in the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and American Chemical Society (ACS).

**SIOBHAN TARVER:** Siobhan L. Tarver graduated from Texas Southern University with honors and a B.S. in Chemistry with a minor in mathematics in 2005. Her education was funded by the National Science Foundation Louis Stokes Alliance for Minority Participation (NSF-LSAMP) Scholarship Program and the Jesse H. Jones Houston



Endowment Fund. During her undergraduate studies, Siobhan participated in many campus organizations including the student chapters of the American Chemical Society (ACS) and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE), now known as the TSU Chemistry Club. She was also a member of the Delta Gamma Chapter of Delta Sigma Theta Sorority, Inc. where she served as Chapter President in 2004 and 2005. Participation in the LSAMP program helped Siobhan develop a passion for research. She participated in an internship each summer including the Summer Pre-Graduate Research

Experience at the University of North Carolina (UNC) Chapel, Hill in Medicinal Chemistry, the NASA University Research Center for Biotechnology & Environmental Health, the Department of Energy (DOE) Mickey Leland Fellowship at the Strategic Petroleum Reserve in New Orleans, LA, and the West Virginia High Technology Consortium Emerging Minority Business Leaders Program (EMBL) in Wheeling, West Virginia. Her experiences with the EMBL program sparked her interest in the merging of science and technology with entrepreneurship and management. She was accepted in the inaugural class of the Integrated Technology Transfer Network (ITTN) Program at California State University. She earned a Certification in Technology Transfer & Commercialization in 2006, and later served as a technical consultant on product feasibility for the Computational Sciences Directorate at the United States Army Research Laboratory-Aberdeen Proving Ground. Siobhan returned to Houston, and began a career as a science teacher for Houston Independent School District and taught middle school Mathematics and Science until being accepted in the 10<sup>th</sup> Cohort of the NASA Harriet Jenkins Predoctoral Fellowship Program (JFPF). She is pursuing her doctoral degree in Environmental Toxicology under the advisement of Dr. Bobby Wilson. She is also very active in professional organizations serving as Vice President of the Houston Gulf Coast Chapter of NOBCCChE and as Vice President of the Environmental Toxicology Graduate Student Association (ETGSA) at TSU. Currently, Siobhan is on a rotation at as a research fellow in the Habitability and Environmental Factors Division of Space and Life Sciences at NASA-Johnson Space Center. Her next rotation will be completed in the Engineering Directorate of Life Support Systems and Environmental Control. Her expected graduation date is August of 2013. Her career goals include continuing research with a government agency and serving as a faculty member at a minority institution.



**KIARA TAYLOR:** Kiara Taylor is a recent graduate of the Texas Southern University's LSAMP program where she graduated magna cum laude and with B.S. in Chemistry within only three academic years in 2011. Upon completing her tenure at TSU, she began instructing chemistry and physics for the Fort Worth Independent School District at a local high school. She anticipates joining the LS-AMP Bridge to Doctorate program in the spring of 2012 at Louisiana State University. She wishes to further her studies with a concentration in biochemistry and hopes to be admitted into a M.D. or PhD program or completing medical studies after the completion of

my graduate studies.

**DAMIEN TERRY:** Damien Terry received his B.S. in Chemistry in 2009 from Texas Southern University and was funded by the Houston Louis Stokes Alliance for Minority (H-LSAMP) program. He is a member of professional organizations such as the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE) and American Chemical Society (ACS). He served as a research assistant in the Department of Chemistry at TSU because of his love for Chemistry. He applied and was accepted at Texas A&M University in the Department of Biochemistry and Biophysics where he enrolled to begin working on his Doctorate of Philosophy in Biochemistry in 2009. He is currently still working on his degree and will be graduating in 2012 with a PhD in Biochemistry. He plans to apply to be a post-doc or work in a national laboratory.



**MICHAEL THOMAS:** Michael Thomas completed his B.S. in Computer Science at Texas Southern University in 2009. During his studies, he began an internship in 2006 with NASA, contracted by a company called Raytheon Technical Services. At first, under the impression that he would be working on the NODE II module for the international space station, he was then assigned his real task, scan 150, 000 blue print drawings into a reference database. This tedious job would keep him busy for two years until his hard work would finally pay off. He would be given the opportunity to work on an advertising video for commercial customers to create opportunities for them to use NASA facilities to work in the

Neutral Buoyancy Lab, one of the largest pool environments and where astronauts train to do space walks. For the next three years, he would be in charge of all media in the department to help produce training videos for astronauts and employees around the facility, programming and designing websites and graphics, and as a backup for the IT department at Raytheon's corporate building. Due to budget cuts, his position would no longer be necessary but his multiple talents would prove to be necessary in commercialization. He has since joined the commercialization team to help manage their website, handle sensitive information, and work on media projects.



**HELEN UBANYIONWU-MUONEKE:** Hellen grew up in El Paso, Texas and attended Eastwood High School where she graduated 9th in my graduating Class of 2003. Her brother, Sammy Ubanyionwu also was recruited as an LSAMP scholar in chemistry. She graduated Summa Cum Laude from Texas Southern University with a B.S. in Chemistry (ACS certified) in 2007. Hellen was a Houston Louis Stokes Alliance for Minority Participation (HLSAMP) Scholar and has been on the President's Honoree List for the past four years. Throughout her academic endeavors, she received considerable hands-on experience in research during her summer internships at the University of Michigan and at the Department of

Defense Army Research Laboratory. Hellen published an article in each of these internships along with her graduate assistant. She later became a middle school science teacher in the Houston Independent School District where 93% of my students mastered the Science TAKS. It was once said that, "Arriving at one point is the starting point to

another.” Hellen is currently in the professional doctorate degree program in pharmacy at Texas Southern University. She is currently an Honor Roll Honoree and a member of the prestigious pharmacy honor society, Rho Chi. Hellen’s ultimate career goal is to become a pharmacist to impact the medical community and health care providers in developing innovative therapies and optimizing patient centered care especially among minority populations in space exploration. She sees a need for future medical advancements to sustain the health care of our astronauts. Hellen says, “There are so many scientific discoveries that these men and women have yet to unveil. We must take care of our people because they are our future.” Hellen is committed, and has a clear understanding of the importance of education, and the role education has played in the research and discovery of new drugs to deal with the increasing public health needs. She is eager to contribute to major innovations in drug therapy.



**SAMUEL UBANYIONWU:** Samuel Ubanyionwu graduated summa cum laude and as the Salutatorian for the Texas Southern University graduates of 2010 with a B.S. in Chemistry. He is currently enrolled in TSU’s College of Pharmacy and Health Sciences graduate program. He works part time as a high school tutor at Fostering Stars Learning and Resource Center, Inc. and is also a NASA Fellow. He received the University of Texas Medical Branch Graduate School of Biomedical Sciences Kemner Scholarship in 2011 and the University of Texas Medical Branch Graduate School of Biomedical Sciences Award of Excellence in

Pharmacology Research 2011. He was the recipient of the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) scholarship from 2006 - 2010 and the recipient of the National Oceanic and Atmospheric Administration (NOAA) Educational Partnership Program (EPP) with Minority Serving Institutions Scholarship from 2008-2010. He also received the Texas Space Grant Consortium Scholarships from 2007-2009. Ubanyionwu plans to graduate with a PhD in Pharmaceutical Science where his research will further his success.



**FELISHA VITELA:** Felisha Vitela received a B.S. in Chemistry in 2007 from Texas Southern University and was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. As an undergraduate, she participated during summer research at various sites throughout the country. She served as a tutor and leader for students in the lab and also assisted with presentations. Vitela was a member of the American Chemical Society and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers during her tenure at TSU. She is now working in the

industry and plans to return to her studies in the near future.

**ANDRE WHITE:** Andre’ White is a proud graduate of Texas Southern University. He completed a B.S. in Mathematics in 2011. While attending TSU, he had the privilege being a scholar in the prestigious Louis Stokes Alliance for Minority Participation (LSAMP) program under the guidance of Dr. Bobby Wilson and Ms. Michelle Tolbert. He was highly involved in many different organizations and programs including, but not limited to: Co- Chairmen of the Dean’s Student Advisory Council, student ambassador, and a mathematics tutor. White is



currently a mathematics graduate student at The University of Houston and a proud recipient of the Bridge to the Doctorate Fellowship. Upon completion of his doctoral degree, he plans to head back to a college setting, as the professor. White hopes that he can give back to the community and impact the lives of young adults through his teachings as he had once been. Although the road will not be easy, he has the support of family members and fellow LSAMP mentors and scholars. He is honored to be alumni of The Louis Stokes Alliance for Minority Participation (LSAMP) program knowing that he is one of many future scholars the LSAMP communities help produce, including his sister Andrea White-Thomas who received her

B.S. in Chemistry in 2007.



**ANDREA WHITE-THOMAS:** Andrea White-Thomas is a proud graduate of Texas Southern University who received a B.S. in Chemistry in 2007. While at TSU, her proudest achievement was being a recipient of the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) scholar's award. Being an H-LSAMP scholar has paved the way for her to achieve many of the goals she has set in her life. Upon graduating, she was given the opportunity to share her knowledge and touch the hearts of many as a chemistry teacher at Lamar Consolidated High School in Rosenberg, Texas where she has been teaching for four years. She will certainly inspire the minds of many as she already has, including her brother Andre White who received his

B.S. in Mathematics shortly after Ms. White in 2011. In the future, she plans to continue teaching, as well as attend graduate school at TSU where she plans to obtain a master's degree in the field of curriculum and instruction and hopes to teach at an institution of higher education.



**MARK WILLIAMS:** Mark Williams received a B.S. in Mathematics in 2006 from Texas Southern University and was funded through the Houston Louis Stokes Alliance for Minority Participation (H-LSAMP) program. During his college career, he was an active member in the National Association of Mathematicians (NAM). After graduation Mark took a job as a Budget Analyst in the Resource Management division, with the U S. Army Corps of Engineers, in Galveston, Texas. He was extremely confident in this position and as such he was selected as a candidate to apply to the prestigious Syracuse University master's program whereby he will earn both a Master of Business Administration and an Executive Master of Public Administration. He is one of 32 military and civilian employees nationwide to be accepted into the program.

## Texas State University



Susan M. Romanella, M.A., is the Director of the H-LSAMP Scholars Program and Collaborative Learning Center in the College of Science and Engineering.

As a Senior Alliance partner, Texas State University-San Marcos has maintained its commitment to supporting retention, academic enrichment, and high achievement standards for program participants. Texas State's overall graduation rate is fifth among the 35 public colleges in Texas and Its freshman-to-sophomore retention rate is eighth. Compared to the 10 largest Texas public universities, Texas

State University-San Marcos ranks third in retention and graduation of both African-American and Hispanic students. Within the H-LSAMP program, 98% of program participants have graduated with a STEM degree within 5 years, and 75% entered graduate school or the professional STEM workforce.

As a unique learning community, Texas State University-San Marcos's H-LSAMP program includes as many "best practices" as possible to establish strong community bonds among its participants. Personal growth workshops and "boundary-stretching" activities help the students develop lifelong friendships and inspire one another to succeed. Two unique features of the program are G.O.A.L. teambuilding and the Science Café Book Discussion group. G.O.A.L. is based on experiential education principles and philosophy using initiatives and activities that are socially, mentally, physically, and environmentally challenging. Activities are designed to strengthen group cohesiveness, communication, trust, group processing, interpersonal relationships, individual members' self-awareness and confidence level. H-LSAMP students begin every semester with a G.O.A.L.-directed activity. The students typically talk about this event for weeks to follow!



**G.O.A.L. Teambuilding - Climbing the heights with H-LSAMP!**

Fall 2011 marks the 10th gathering of H-LSAMP students who love to read, talk about books, and explore ideas about life and science woven into compelling stories. Texas State University-San Marcos developed this activity as a novel way to engage students in the culture of science and challenge their critical thinking skills. Book club participants are expected to engage responsibly in this activity by paying careful attention to the details in the book, taking the time to learn about the science, history, and/or culture that informs the plot and themes, and, importantly, contributing to two seminar-style discussions.

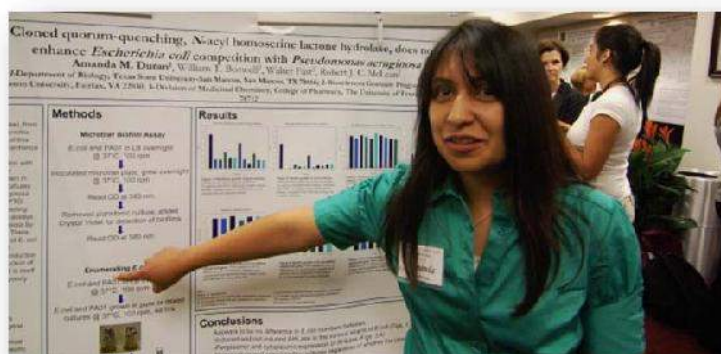
Participation at the undergraduate level in research is

a driving force in the scientific lives of our students. H-LSAMP continues to identify opportunities for scholars to participate in undergraduate research during the long semesters as well as the summer. H-LSAMP scholars have an excellent reputation in the lab; they are sought after by STEM and non-STEM faculty as undergraduate researchers, supplemental instructors, teaching assistants, and tutors. As the program goals have expanded during each phase, so has the number of students working in research labs. Currently, 75 % of H-LSAMP students are working in undergraduate research during the long semesters, and 60 % participated in summer research or internship experiences on campus and around the nation. These are the highest numbers we have had working in research since the inception of the H-LSAMP program at Texas State University-San Marcos. Importantly, a diverse spectrum of faculty is committed to mentoring H-LSAMP students. Texas State University-San Marcos faculty actively seek the participation of H-LSAMP students in their research labs, and the students' participation has helped them secure new funding sources for their work.

Amanda Duran is a recent H-LSAMP graduate who will begin graduate school at Vanderbilt University last fall to complete a PhD in chemical and physical biology, concentrating her studies on prion diseases — neurodegenerative disorders such as Creutzfeldt-Jakob disease and Bovine Spongiform Encephalopathy or mad-cow disease. “I am a first-generation college student, so the H-LSAMP program has been extremely helpful in supporting me, guiding me, and helping me take the first few steps towards a career path that I am both passionate about and capable of,” Duran says. “H-LSAMP was structured with career development and a support system which greatly aided me in creating, working towards and achieving my goals.”

Duran won several major awards after becoming an H-LSAMP scholar, including the Outstanding Undergraduate Student Talk award at the Department of Biology's 2010 Colloquium, a 2010 Chemistry Leadership Group Travel award from the NSF Research Experiences for Undergraduates program, and the 2011 George H. Meyer Award in Microbiology.

“My career goal is to be the principal investigator of many research projects pertaining to the prion diseases and elucidating structural information about the proteins associated with these diseases. I would like to publish papers with high impact in the field. I have also enjoyed teaching and hope to eventually lecture at a university.”  
 ~ Amanda Duran, B.S. biochemistry



Two H-LSAMP engineering students – Gregory Guzman and Saul Villarreal - worked on a research project that focuses on alternative energy sources. The project aims to make the most effective use of energy in cities by minimizing the operation of power plants and placing alternative sources near customers. Guzman and Villarreal are leading the project alongside their H-LSAMP faculty mentor, Dr. Jesus Jimenez, assistant professor in the Ingram School of Engineering. Guzman and Villarreal began the project by developing a wind turbine and solar panel model with the W.I.T.N.E.S.S.

software to demonstrate energy consumption in a small market like San Marcos. They developed mathematical models representing how wind speed affects energy use in the area. Guzman and Villarreal presented their research most recently at IIE, INFORMS, and will present the continuation of their work at the 2011 Great Minds in STEM Conference.

“About my research: I really had to do research on almost everything that was asked of me because I had such little knowledge of what we were working on. I really enjoyed this though because it gave me a sense of how research is done at research institutes. It solidified my idea of wanting to do research for a career. I loved the challenge and learning something new that wasn't for a grade. Instead this is directly applicable to life and solving issues the world is facing, specifically dealing with energy.” ~ Gregory Guzman, industrial engineering

“About the H-LSAMP program: I love how we have a large group of scholars. It gave me the chance to meet other people who were on the same track as me. Plus everyone here is trying to be successful and is very encouraging with everyone. I enjoyed most being able to be in the CLC lab whether I was being tutored or studying. It was a good environment to be in.”

~ Saul Villarreal, industrial engineering major

As of fall 2010, Texas State University-San Marcos achieved Hispanic Serving Institution status. Texas State University-San Marcos is the fourth largest HSI in the state. Area demographics and economics continue to influence and increase enrollment. Fall '10 total enrollment was 32,572 students. The College of Science fall '10 enrollment was 3,945, representing 12.1 % of total enrollment. Total enrollment projections for fall 2011 are 33,453. The H-LSAMP Scholars Program has contributed to the recruitment and retention of Hispanic students choosing STEM. We have established new recruiting partnerships with San Marcos High School, Rural Talent Search, TRIO's Student Support Services, and the College Assistance Migrant Program. Students who have graduated from our program refer incoming students to us as well. The Ingram School of Engineering at Texas State is a strong supporter of the H-LSAMP program; faculty and advisors regularly refer minority and UREP engineering majors to our program and the CLC. Another new institutional benefit from the H-LSAMP program is disseminated through the freshman transition course titled “University Seminar.” Our program director teaches two sections of University Seminar which are restricted to new H-LSAMP first year students and first year engineering and engineering technology students. In addition to providing important “transition assistance” to first year students, University Seminar is an excellent venue for identifying minority and UREP potential STEM majors. They are introduced to the resources of the CLC and the H-LSAMP Scholars Program to support STEM retention.



Gregory Guzman, Saul Villarreal



## Student Profiles



### **Amanda Duran, *biochemistry*, B.S. 2011, summa cum laude**

During her undergraduate years as a Texas State University H-LSAMP scholar, Amanda spent several years working in research with Dr. Robert J.C. McLean, studying *Escherichia coli* competition in mixed cultures with *Pseudomonas aeruginosa*. She presented this research at the American Society of Microbiology's Texas Branch Meeting as well as the Women in Science and Engineering Conference at Texas State. In summer 2010, Amanda spent the summer at the University of Cincinnati's REU and studied the characterization of singlet oxygen generated DNA-protein cross-links under the mentorship of Dr. Edward Merino. She presented this research at the American Chemistry Society National Meeting in Anaheim, CA. Amanda is the recipient of numerous academic and honorary awards including the Outstanding Undergraduate Student Talk at the Department of Biology's Colloquium and the George H. Meyer Award in Microbiology.

Amanda graduated summa cum laude in spring 2010. She is a graduate student in Chemical and Physical Biology at Vanderbilt University and plans to get her Ph.D. Amanda is also the recipient of Vanderbilt University's 2011 Graduate Honor Fellowships for Underrepresented Minorities. She plans to concentrate her studies on prion diseases - neurodegenerative disorders such as Creutzfeldt-Jakob disease and Bovine Spongiform Encephalopathy or mad-cow disease.

"My career goal is to be the principal investigator of many research projects pertaining to the prion diseases and elucidating structural information about the proteins associated with these diseases," Duran says. "With that, I would like to publish papers with high impact in the field. I have also enjoyed teaching and hope to eventually lecture at a university."



### **Sherille Bradley, *microbiology*, B.S. 2011**

Sherille always knew that working in research was in her future. With a passion and love for science from an early age, Sherille discovered that cancer research was a career path where she could do basic research on the immune system and help create vaccines and cures that would save lives. As an H-LSAMP scholar, Sherille pursued this goal through her academics and in the research lab with Dr. Robert McLean. Her research project, "Changes in *Escherichia coli* and *Pseudomonas aeruginosa* Grown in Mixed Culture for 500 Generations" was selected to represent Texas State University at the 2011 Undergraduate Research Day at the Texas State Capitol. This event was organized by the Council of Public University Presidents and Chancellors (CPUPC) and Independent Colleges and Universities of Texas (ICUT). The event showcased the research work of undergraduate students throughout the state of Texas. Sherille also received the G.H. Meyer Award for Excellence in Microbial Research. In fall 2011, Sherille began her graduate studies in the Masters program at University of Texas Health and Science Center Houston; she is pursuing biomedical sciences with a

concentration in immunology.

“In the lab, I learned that you may not always get the results that you are expecting to get, and you also may not get a chance to complete the work but that's okay because you can pass it on to the next undergraduate who may have some great contributions to the project. I enjoyed just being in the lab and getting hands on experience.”



**Suleima Alkusari, *industrial engineering*, B.S. 2011, cum laude**

Suleima Alkusari's early plans for her STEM career were to graduate with an engineering degree and pursue a master's in architectural engineering. As an H-LSAMP student at Texas State, Suleima found her niche in industrial engineering, particularly excelling at Supply Chain, Operations Research, Probabilistic Operations Research, Economic Analysis, and Engineering Design Graphics and Statistics. She was Dr. Clara Novoa's teaching assistant for operations research and one of the Collaborative Learning Center's strongest tutors in engineering courses. Suleima was a member of the Texas State University Chapter of Institute of Industrial Engineers and served as treasurer for the SWE (Society of Women Engineers) student chapter. Suleima participated in two summer REUS at Texas State: one in discrete mathematics where she did research on the "checkerboard problem" and the second in IE, focusing on micro/nano assembly workcell via infrared 3d sensing and haptic feedback. Arlon ECP was the site of Suleima's industrial engineering internship in Fall '10 where she performed time studies on production equipment and improved the flow of products and materials by decreasing cycle times and eliminating bottlenecks. Graduating cum laude, Suleima accepted a position as a modeler/analyst for Clockwork Solutions, Inc., in Austin, Texas, where she creates simulation models and performs statistical analyses on complex systems. Suleima has applied to graduate school at the University of Texas-Austin.

“H-LSAMP greatly influenced me regarding graduate school by providing guest speakers to schools as well as guest speakers for the GRE. This was very helpful because there are not many people who offer advice for graduate school. “



**Lissette Gomez, *biology*, B.S. 2007, summa cum laude**

Lissette Gomez is a medical student at Baylor University School of Medicine. She was also a participant in the Joint Admissions Medical Program (JAMP). Lissette founded the Disabilities Awareness Student Organization at Texas State and volunteered with Best Buddies and the Children's Association for Maximum Potential – all of these organizations provide assistance to persons with disabilities. As an H-LSAMP student, Lissette could always be found tutoring organic chemistry to her peers in the Collaborative Learning Center. Lissette received one of the first Durrenberger Scholarships for Women at Texas State and was also awarded the Mariel Muir Scholarship and Joan Austin Memorial Scholarship. Lissette graduated summa cum laude and was the first Texas State H-LSAMP student to be selected as Outstanding Undergraduate Student of the year which

afforded her the honor of giving the student address at commencement.

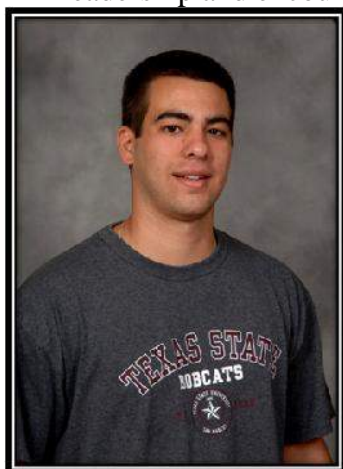
“I have really enjoyed being an H-LSAMP scholar. It has been helpful in many ways. There is a great community of STEM majors you have the opportunity to be a part of and the connections and friendships you make are invaluable. “



**Marina Andruzzi, *construction technology*, B.S.T. 2008**

During her undergraduate years as a Texas State University H-LSAMP scholar, Marina was one of six females in her major (construction technology). Marina became interested in construction technology during her project manager assistant job with the Rangel Concrete Contracting Company. She was an active member of the Texas State student chapters of Associated General Contractors and the National Association of Home Builders as well as a member of Texas State University’s Cross Country/Track team. Marina could always be found in service to others by tutoring other technology students in the Collaborative Learning Center and volunteering for campus events such as Engineering Week, Bobcat Build, and our Remodel Your Bottle Project. Her career preparation included undergraduate research with Dr. Young Sam Ryu and career training through LEED New Construction and Technical Review Workshops, Taming the Frontier of Green Affordable Housing, and the Austin region Sustainability Fair. Marina’s strong technical construction background helped her land a summer internship with Archer Western LLC in Arlington, TX. Upon graduation, Marina launched her career as a marketing and estimating engineer with Archer Western and also returns to Texas State to recruit for their company during Texas State’s career fairs.

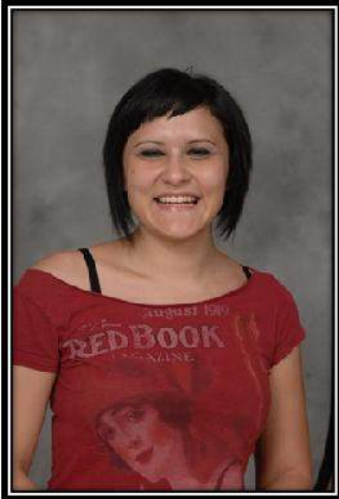
“I very much enjoy the challenge of not only managing teams comprised of different membership, but also leading those teams towards full productivity and growth. I am proud to say that I am a Texas State H-LSAMP Scholar because it is only in this program where the leadership and encouragement is there all the time to ensure success once you graduate.”



**Michael Bazan, *engineering technology*,  
B.S.T. 2007, M.S.T. 2010**

As an H-LSAMP student, Michael Bazan could be found everywhere. He dedicated countless hours to the outreach activities of Texas State’s MAES Chapter including the annual Science Extravaganza as well as serving as a physics tutor and member of the Hispanic Business Student Association. As an engineering technology major, Michael secured a design technician internship with the Texas Department of Transportation where he put his coursework into applied learning experience – designing roofing projects on AutoCAD, surveying construction sites, and creating cost estimates. After graduation, Michael entered graduate school at Texas State and received his M.S.T. - Master of Science in Technology. He is currently working as a quality engineer at Ember Industries, a circuit board assembly and testing company in San Marcos, Texas.

“I consider the mentoring meetings to be the most valuable part of my H-LSAMP years. I have learned and gained so much information by talking with my mentor, Dr. Gary Winek. He has helped me stay on track in school and gave me valuable information about internships and graduate school.”



**Anjoli Janelle Fry, Geography - *Resource and Environmental Studies*, B.S. 2007**

Anjoli Fry was the first Resource and Environmental Studies major in the H-LSAMP Scholars Program at Texas State. Texas State’s Department of Geography is known as one of the best in the nation, and Anjoli took advantage of every opportunity that could benefit her academic career. As a budding environmentalist, Anjoli found her calling when, as an H-LSAMP scholar, she attended the Audubon Institute at Lesley University’s conference, “Education, Leadership, and Activism for a Life Sustaining Civilization.” Anjoli was inspired to follow her deep commitment to protecting and sustaining our natural resources and to educate others about the environment. She chose to intern at “Earth Camp” which is an organization run by the Austin Watershed Protection and Development Review Board and is focused on educating and motivating local AISD fifth graders about their surrounding watersheds, creeks, and natural areas. She completed naturalist hikes, hydrologic tours, and taught green classroom curriculums. Among her many activities, Anjoli was a member of the National Association of Environmental Professionals, Supporting Women in Geography, PRAXIS Volunteer Program, and a recipient of the Allen D. Hellman Scholarship in the Department of Geography at Texas State. She studied geography abroad during 2007 travelling to Italy, Switzerland, and France. After graduating, Anjoli became a Teacher Naturalist at the Massachusetts Audubon Society’s Boston Nature Center.

“I am grateful to have taken place in this program, and I am so proud to say that I was involved in all the things I have been involved with because of this program. I feel it’s a great reflection on my academic standing and on me as a person.”



**Allen Derton, *industrial engineering*, B.S. 2008**

Allen Derton graduated from Texas State in 2008 with a degree in industrial engineering and a minor in mathematics. His career interests and goals were diverse – including becoming an engineering professor as well as working in the defense and space industry. While he was an undergraduate, Allen was the Vice President of Texas State’s Institute of Industrial Engineers student chapter, and he attended several IIE and HENAAC conferences to further his engineering education and career development. Allen came to Texas State after completing an A.S. in General Engineering at Austin Community College as well as STEM coursework at the United States Naval Academy. He subsequently worked with Applied Materials in Austin as a certified test technician in rapid thermal processing and also as a Sigma Black team member at Sanmina, an electronic manufacturing industry. Upon graduation, Allen accepted a position as an industrial engineer at

Northrop Grumman Corporation and is currently a multi-disciplined engineer at Northrop Grumman Information Systems. Allen's career goals include graduate school at Texas A & M to obtain an M.S. in industrial engineering.

“As an H-LSAMP scholar, you are given the chance to experience a broader area of college; an area where research, camaraderie, and academic success breathe together as one. It will open doors to ideas and possibilities, experiences, and opportunities which are above and beyond what most college students could even begin to see. If given the chance, become an H-LSAMP scholar; it is amazingly worth it!”



**Jose Flores, *mathematics with teacher certification*, B.S. 2008**

Jose Flores is a high school mathematics teacher in the rural Texas town of Uvaldes. Known for his excellent physics and mathematics tutoring in the Collaborative Learning Center and the Math Lab at Texas State, Jose was known for his ability to explain complex concepts clearly to fellow students. As an H-LSAMP scholar, Jose could always be counted on to lead activities, team-build at our G.O.A.L. Challenge Course, encourage others to join our Science Café book discussion group, and be a role model for new H-LSAMP scholars. Jose plans to continue his education and will begin a second degree in electrical engineering in Fall 2012 at Texas State.

“Tutoring was the most valuable part of my experience as an H-LSAMP scholar. It helped me become a better instructor, and it also teaches you how to deal with people and enhances your academic skills.”



**Asha James, *microbiology*, B.S. 2007**

Asha James is currently in graduate school at the University of Texas at Austin's School of Public Health. As an undergraduate, Asha was an officer on the H-LSAMP Advisory Board, tutored in the Collaborative Learning Center, and was an instructional assistant in general chemistry. Although originally considering becoming a middle school science teacher, Asha found her passion in the public health field. She spent the summer of 2006 working in biology research at the University of Houston's summer REU program. After graduation, Asha worked as a lab technician at Biomat USA, a plasmapheresis center in Austin, TX, until she was ready to enter graduate school.

“The most valuable part of the H-LSAMP program was my mentor, Dr. Linette Watkins. My experience as a scholar helped me become more involved in school. Before I became a part of this program, I really wasn't.”



**Saul Villarreal, *industrial engineering*, B.S. 2011**

Saul joined the H-LSAMP Scholars Program in Fall 2008. As an industrial engineering major, Saul spent the summer '10 at the University of Puerto Rico – Mayaguez in an NSF-funded REU: Educating the culturally-sensitive industrial engineer: A complex interdisciplinary systems perspective to global IE issues. He was a poster finalist at the 2010 HENAAC Conference for his research on metamodeling and subsequently won first place at the 2011 Great Minds in STEM Conference for his research work on "Modeling, Analysis, and Integration of Distributed Generation Systems in a Semiconductor Wafer Fab." Saul worked for two years with Dr. Jesus Jimenez using Lanner's WITNESS simulation software in the Center on the Center for High Performance Systems research team simulating models to more effectively harness and utilize wind power and photovoltaic energy sources. They shared in the Ingram School of Engineering and Dr. Jesus Jimenez' selection as 2011 WITNESS Academic Contribution Merit Awardee. Saul was featured on the Texas State website, social media, and in numerous articles about his work at Texas State. Saul could always be found in the CHiPS lab, the composites lab, or the foundry! He also received his ACMA: CCT (Certified Composite Technician) Certification in 2011. Upon graduation, Saul accepted a position as an industrial engineer with Tindall Corporation in San Antonio and also plans to attend graduate school.

“Since I have been an H-LSAMP member, it has really increased my chances of becoming a better person and student. Today I can say that I use the resources that I have from the university at their full potential thanks to H-LSAMP. I can easily say that I have accomplished as much as I have thanks to the program. Without the H-LSAMP program, I would have probably never achieved this.”



**Christina Vasquez, *electrical engineering*, B.S. 2011**

Christina Vasquez says choosing her college and career path was not difficult; her father and two aunts attended Texas State. Thanks to an exceptional opportunity in high school, choosing her major also was a no-brainer. “I discovered my major while working on a NASA experiment,” she says. “I was doing engineering before engineering was my major.” While still in high school, Vasquez was chosen as a student research participant in a 2006-07 NASA experiment aimed at measuring mass in space. After high school graduation, she enrolled at Austin Community College and then transferred to Texas State. As one of Ingram School of Engineering's star students, she was selected to participate in a 2009-10 NASA experiment testing SRED (Smart Resistive Exercise Device) as a way to mimic free-weight exercise in space. “I just like to think, design and build,” she says. Christina was a Physics Lab tech at ACC for four years and also worked in research with Dr. Ravi Droopad in the Ingram School of Engineering. Her achievements are considerable: co-founder of the Austin Space Aces and the Alternative Energy Group; invited Speaker – American Mathematical Association of Two Year Colleges 2011 Conference; created an Outreach Science Curriculum for the Austin-area community (2007-2010); Fox National News -

Recognition for NASA Microgravity Research; NASA Publication for Undergraduate Microgravity Experiments; and Austin Business Journal - Recognition for NASA Microgravity Research (2007 & 2009). Christina accepted a position with Boeing in Seattle, WA in their R&D group.

“I think that the most valuable part of being an H-LSAMP scholar is gaining the academic opportunities to go to conferences and to also be surrounded my peers that are similar to one another. That is the best part!”



**Sara Camacho, *manufacturing engineering & applied mathematics*, B.S. 2011, magna cum laude**

H-LSAMP scholar Sara Camacho graduated magna cum laude in December 2011. She is currently working as a mechanical design engineer with Cummins, Inc., headquarters in Columbus, Indiana. As an undergraduate, Sara was a research assistant in the Ingram School of Engineering and worked with a partner to set up and run a Next Engine 3D laser scanner, wrote a manual for the scanner, and developed techniques to use for reverse engineering. She was also a teaching assistant for Cad/Cam Class, helping students in learning and trouble-shooting MasterCam Software and the concepts of computer aided design and manufacturing. Sara participated in the Ingram School’s Stellar Summer Institute: 6 Simple Machines where she developed and presented a hands-on seminar for middle school teachers introducing various ways to teach science and created activities to explore the concepts and mechanics of the 6 simple machines. Sara also found time to be a senior liaison Resident Assistant at Texas State and was an avid member of our Science Café Book Discussion Group!

“Being able to attend the Society of Women Engineers (SWE) conferences every year was extremely helpful for my career. As a scholar, I really enjoyed the workshops we were both required to attend and the ones we could choose. I honestly dreaded having to attend them but I found them really interesting. And they expanded my knowledge and thought process. I think the most valuable thing we do is tutoring because it allowed me to work with other students in my class or to reinforce past knowledge.”



**Juan Gonzalez, *computer science*, B.S. 2011, cum laude**

Computer science major Juan Gonzalez was recruited into the H-LSAMP Scholars Program from Texas State’s Center for Migrant Education’s CAMP Program. He quickly assumed a leadership role as a scholar and is one of our program’s strongest advocates and ambassadors. As an undergraduate, Juan worked on research in several areas: autonomous vehicle robotics research in the Ingram School of Engineering; Summer REU research in Graph Theory, a Mathematical Association of America funded research project in Texas State University’s Department of Mathematics; Google Maps API Project where he designed an Interactive Texas State Campus map; and RDBMS Design and SQL Server and MySQL implementation of checkout system. Juan attended many

professional conferences as an H-LSAMP student: National Instruments NI Week Worldwide Conference in Graphical Programming (2011), Great Minds in STEM (2011), Iowa State University - Mathematics Field of Dreams Conference (2010), SIAM Discrete Mathematics Conference (2010), SACNAS National Conference (2009), CEO National Leadership Conference (2009), and the Business Professionals of America, where he won 5th place in National PC Troubleshooting Competition (2007). Juan also served as President of the H-LSAMP Student Executive Board and headed the student planning committee for the first STEaM Bowl Science Quiz at Texas State that was organized by the H-LSAMP Scholars Program. He held officers roles in the Collegiate Entrepreneur Organization and the Sigma Tau Gamma Fraternity. After completing a summer internship at National Instruments, Inc. in Austin, TX, Juan graduated cum laude in December 2011 and accepted a fulltime position with National Instruments as a programmer analyst.

“I believe the experience H-LSAMP provides is invaluable. I believe it gets us ready for the next step. I really enjoyed the feel of the community. With this many students always trying to help each other makes me feel good and makes me feel I am in the right place. Having a great program coordinator helps a lot, getting emails about the stuff going on, what to apply to, what to do, and what not do is really, really helpful. I loved everything about H-LSAMP.”



**Marlen Leal Pena, *Geography-Resource & Environmental Studies, B.S. 2007***

Marlen Leal Pena graduated from Texas State as an H-LSAMP scholar in 2007 and completed her graduate degree in Education Management at the University of Houston-Clearlake. She was a health and physical education teacher at Eastwood Academy in Houston, a National Blue Ribbon and Exemplary school. She also taught at Herrera Elementary for two years and recently accepted a position as the magnet school coordinator at Burbank Elementary in the Houston Independent School District.

During her undergraduate years, Marlen was a National Science Foundation intern in environmental research and education (2005), worked as an environmental intern for American National Power Operations Company, and participated in a summer REU at Rice University in 2006 working on advanced treatment technologies for water quality control. To further her training in environmental studies, Marlen attended the SACNAS Conference, the H-LSAMP Alliance Conference, and the Association of American Geographers Conference in 2007. Marlen was also the lead volunteer coordinator for the Race, Ethnicity, and Place Conference that was held at Texas State in 2006, chaired by Distinguished Professor of Geography, Dr. Lawrence Estaville.

“My experience as an H-LSAMP scholars has been great because I feel I belong to a group that has the same aspirations which keeps me motivated.”





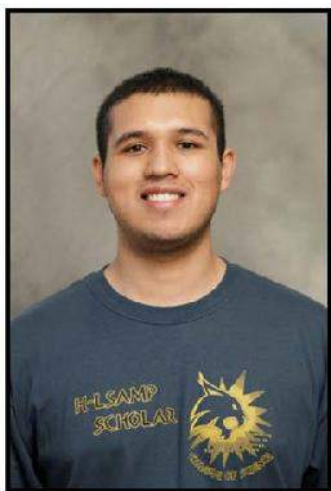
**Brian Johnson, *physics & music-sound recording technology*,  
B.S. 2008, summa cum laude**

Brian Johnson is currently a electrical engineering doctoral candidate at the University of Illinois-Urbana Champaign. His tentative thesis title is “Design, Analysis, and Coordination of Distributed Inverter Systems in Photovoltaic Applications“ with Drs. Patrick Lyle Chapman and Philip T. Kreon serving as his PhD Advisors.

Brian’s interests and research focus has been on power and energy systems since his undergraduate days at Texas State. As an H-LSAMP scholar, Brian’s research focus was in power electronics including electromagnetic research on ball lightning with Dr. Karl Stephan. Johnson’s honors thesis, “Power Conditioning in Photovoltaic Systems,” was based on his research on specific applications of power electronics in solar energy applications, i.e., exploring how power electronics can provide another means of improving energy efficiency in photovoltaic systems. Brian was also a dedicated sound recording engineer and electronics aficionado and worked for an audio company in Austin helping develop analog products geared for recording engineers.

As an H-LSAMP scholar, Brian was on the dean’s list every semester and was a tutor and study session leader in physics, electronics, calculus, and differential equations for both the Collaborative Learning Center and Texas State’s Student Learning Assistance Center. Brian could also be found regularly playing guitar at several local San Marcos’ music venues!

“My goal is to attain a Master’s and PhD in electrical engineering. I hope to integrate my experience in practical electronics with the problem solving abilities I’ve developed studying physics to become an effective researcher in power electronics and renewable/clean energy technologies.”



**Miguel Cazares, *computer science*, B.S. 2011, summa cum laude**

Miguel Cazares graduated summa cum laude in 2011 from Texas State and is working as a software engineer at SpeakWrite in Austin, Texas. Miguel joined the H-LSAMP Scholars Program in 2009 and became very involved in undergraduate research as a computer science major. He was selected as for the highly prestigious Distributed Research Experience for Undergraduates at Colorado State University in the Networks and Security Research Group and also completed a computer science internship with IBM the following summer. Miguel chronicled his D-REU experience in an online blog (<http://www.cs.colostate.edu/~cazares/index.html>) and he presented this research at the 2011 Great Minds in STEM Conference. Miguel also completed two other summer REUs: one in

mathematics at Texas State (2009) and one in computer science at the University of Texas-Arlington (2010). As an H-LSAMP scholar, Miguel worked with fellow scholar Juan Gonzalez to develop a building-to- building walking app for Texas State students! He also served as an officer on the H-LSAMP Student Executive Board and was an invaluable team member on the student planning committee for the first STEaM Bowl Science Quiz at Texas State that was

organized by the H-LSAMP Scholars Program. Miguel was the president of Sigma Chi Sigma and received numerous honors for his leadership and service excellence in the Department of Computer Science. Miguel plays bass and guitar and also played Guitarrón for about 8 years, including three years in the Mariachi at Texas State University (Mariachi Nueva Generación).

“It is hard to sum up just how profound a positive impact H-LSAMP has had on my undergraduate career. Before H-LSAMP, I had no thought in my head of graduate school possibilities (I didn't really even know what it was about). But, after H-LSAMP, I am now extremely motivated and interested in pursuing a research career. I have just only decided to take a side-road first, gain "real-world" industry skills, then go back to the PhD path as an invigorated and extremely eager computer scientist.”

### **University of Houston – Central Campus**

The current Executive Director of the H-LSAMP program at the University of Houston is Dr. Jeff Morgan. Dr. Morgan assumed the duties of in July of 2012. He is also the Chair of the Department of Mathematics, the Director of the Center for Academic Support and Assessment, and the co-founder and co-director of the teachHOUSTON STEM teacher training program.

At the University of Houston, a key program component of the H-LSAMP, is the Scholar Enrichment Program (SEP). SEP creates collaborative learning communities (Treisman workshops) for students at risk of dropping out or not successfully completing their course work.

Each semester 30 – 40 Academic Excellence Workshops taught by student facilitators are offered in STEM subjects. These workshops focus on gateway classes such as calculus, physics, biology and chemistry – subjects that traditionally have a high student failure rate. These gateway classes are essential to successfully completing STEM degrees. Students also gain support through peer tutoring, research experiences, study centers, and mentor programs.

During the fall 2012 semester, 640 students were enrolled in workshops associated with the following lecture courses: Pre-calculus, Calculus I, II, III, Linear Algebra, Engineering Mathematics, Partial Differential Equations, Freshman Chemistry I,II, Organic Chemistry I,II, Physics I,II, Freshman Biology, Genetics, Evolutionary Biology, and Biochemistry.

More than 200 students each year receive stipends through H-LSAMP to ease the financial burden of rising tuition costs, while an additional 800 students are touched through workshops and other programs. For many students, SEP is the critical link they need to complete their degree and become high-achieving citizens who make significant contributions to our society in the future.

The Executive Summary of a survey of STEM students at the University of Houston is given below.

**University of Houston STEM Student Survey Executive Summary**  
Dr. Martin V. Bonsangue and Dr. David E. Drew - November 2012

In spring 2011 a survey was administered to students majoring in STEM disciplines at the University of Houston, Central Campus. Questions ranged from how students felt they were doing in school, how much they have enjoyed their UH experience, how “connected” they felt with faculty and fellow students, how involved they have been in research projects or internships, and how likely they were to complete a degree in a STEM discipline in a timely way.

Students indicated if they were involved in the Alliance for Minority Participation (AMP) program and if they had participated in an Academic Excellent Workshop linked to one or more of their STEM courses. Of the 535 respondents, 235 were involved in neither the AMP nor the workshops, with 300 students participating in either the AMP (97) or the workshop program (203). Below is a brief summary of the results comparing program and non-program students.

There were no differences between program and non--program students in terms of incoming academic predictors, including high school grade point average and SAT or ACT verbal and math scores. Both groups were comprised of about 25 % transfer students.

**Program students, when compared to their non-program student counterparts, were:**

- Four times as likely to have participated in an undergraduate research project
- Three times as likely to have had an internship
- Twice as likely to report that they felt “involved at school”
- More than 1.5 times as likely to report that they felt “connected with other students”
- More than 1.5 times as likely to state that they would successfully complete their STEM bachelors degree within five years
- Reported an overall university grade point average of 3.43 compared with 3.08

**Non-program students, when compared to their program student counterparts, were:**

- Three times as likely to report that they felt “not at all connected” with other UH students
- Twice as likely to report that they felt “not at all connected” with faculty in their major

Students participating in an AMP or workshop program reported a significantly higher level of academic and social involvement at the university than did students not participating in either program. Program students also expected to complete their STEM degrees more rapidly and with a higher level of achievement than did non-program students despite no significant differences in incoming academic predictors.

In summary, program participation in AMP or the workshop program at UH-C was highly correlated with students’ academic self-efficacy, personal involvement, and individual achievement in their STEM disciplines.

## Program Participants and Undergraduate Research

The chart below shows the growth of the H-LSAMP program at the University of Houston during the past two year.

Year	Students	Diversity
Fall 2011	87	47% Black, 53% Hispanic
Fall 2012	116	49.5% Black, 49.5% Hispanic, 1% Native American

Students in the program benefit from the community aspect of the H-LSAMP program at UH, which includes tutoring, mentoring and study groups, workshops for 19 different undergraduate courses ranging from pre-calculus to organic chemistry, the weekly seminar series covering topics from undergraduate research to advise associated with applying to graduate school and interviewing for jobs, k-12 outreach activities, and undergraduate research. This year's outreach activities include the Bernard Harris Math/Science Summer Camp for middle school students, the Mars Rover program for elementary school students, the Cardboard Boat Races for high school students, the annual High School Mathematics Contest, and the T3 technology conference for future and current high school teachers. Many students in the program will also be involved in the Summer Bridge Program at UH in the summer of 0213. At present, 51 of the students in the program have been involved in undergraduate research, and 4 of these students recently received the Provost's Undergraduate Research Scholarship, in addition to their support from H-LSAMP. Finally, 89 of the students in the program have indicated that they plan to attend graduate school.

### Selected Student Profiles



**Emmanuel Oni\*** is a wonderful example of the well-rounded students participating in HLSAMP. Emmanuel brought a unique perspective to the program after being recruited from Michael E. DeBakey High School for Health Professions. A program scholar from 2006–2010, he also served as a Physics workshop facilitator. Emmanuel's diverse educational journey included earning two B.S. degrees, one in Biology and one in Psychology. Due to his love of cultural arts, he also earned a minor in Studio Arts. As a scholar, Emmanuel participated in research under the direction of Dr. MariVi Tejada-Simon studying the role of the Promyelocytic Leukemia gene on neurodevelopment. He is employed at the Houston Museum of Cultural Arts in the Healing Arts Program and is pursuing a master's degree in Architecture.



**Gosfrey Gutierrez, Jr.** was a program scholar during throughout his enrollment at UH. The program encouraged provided him with the resources to ensure his academic success. Gosfrey graduated with a B.S. in Computer Engineering in 2004. Due to his excellent skill set, Gosfrey was hired after graduation by the University of Houston's College of Natural Sciences and Mathematics where he is employed as a System Administrator. He directly supports the HLSAMP's IT needs. It is nice to have a former student assist in the continued success of HLSAMP.



**Luke Masha** is an amazing success story and testament to the critical academic support HLSAMP provides. Luke made the program an integral part of his educational plan. He participated in workshops and took full advantage of tutoring offered. He adopted the highly promoted concept of proactive education. In addition, Luke participated in undergraduate research under the mentorship of Dr. Gao sequencing *H. pylori* CAG pathogenicity strains. In 2007, Luke graduated Magna Cum Laude with a B.S. in Biochemistry. Luke recently co-authored a scientific paper: S. Bedi, M. Lago, L. Masha, R. Crook, R. Grill, E. Walters "Spinal Cord Injury Triggers an Intrinsic Growth-Promoting State in Nociceptors." *Journal of Neurotrauma*, June 2011.



**Mark White**, a program scholar from 2005-2009, earned a B.S. in Biology with a minor in Global Business in 2010. While a scholar, Mark did research with Dr. Frankino investigating the genetics of wing size to body size ratios in different types of *Drosophila* fruit flies. Mark graduated from the University of Houston's HLSAMP while UH was participating in the Bridge to the Doctorate program. Mark was accepted to the program and is currently working on his Ph.D. in Biology. Mark is a true example of the program's influence on students to look beyond industry and medical school and consider pursuing a Ph.D. We are proud to have Mark in our Bridge to the Doctorate Program.



**Colby Kibbe** graduated Magna Cum Laude with a B.S. in Organizational Leadership and Supervision from the School of Technology in 2009. Colby received HLSAMP funding while attending Houston Community College from 2006-2007. He transferred to UH through the HLSAMP alliance between HCC and UH, receiving funding at UH from 2007-2009. Colby participated in undergraduate investigating The Impact Of 20th Century Printing Equipment for Potential Acquisition by the Museum of Printing History. This research prepared him for his current endeavor, obtaining his M.S. in print media at the Rochester Institute of Technology; he plans complete the degree in May 2012.



**Jazmine Okuboyejo** graduated in 2006 with a B.S. in Biology. Jasmine learned about HLSAMP during a UH campus visit and became involved as a freshman. She served as an assistant workshop facilitator and program tutor. Due to her experience as an HLSAMP facilitator, she was recruited by a UH Chemistry professor as a TA for an organic chemistry course. Jazmine also conducted genetics research under Dr. Preethi Gunaratne and participated in the HGSC-SMART program at Baylor College of Medicine in conjunction with Rice University for two summers. She received a Doctorate of Pharmacy degree from the University of Kentucky College of Pharmacy in May 2010, graduating Cum Laude. She is a Clinical Staff Pharmacist at Hospital Corporation of America.



**William Rifenburg\*** graduated Cum Laude in 2010 with a B.S. in Mechanical Engineering. William was recruited from Michael E. DeBakey High School. During his undergraduate studies, he served as a workshop facilitator and participated in wind turbine research with UH professor, Dr. Grigoriadis. William is pursuing a master's degree in Aerospace Engineering at the University of Houston. His research is in medical robotics, concentrating on control methods for haptic form feedback between tele-operation robots.



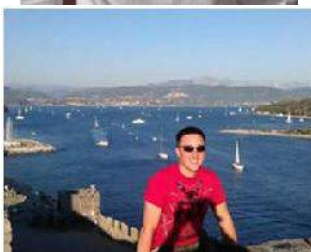
**Joe Derrick** graduated from the University of Houston in 2009 with a degree in Mechanical Engineering. He received program funding from spring 2007 through his graduation in 2009. Joe states the HLSAMP program helped him achieve his goals by enhancing his skills in group learning. As a workshop facilitator, he also improved his teaching ability. Joe credits the program with improving his time management and leadership skills. During his tenure in the program, Joe participated in internships with GE Air Liquide and Jordan & Skala Engineers. Joe continued his education at UH, pursuing both his M.B.A. and M.I.A. He is currently a mechanical designer at Jordan & Skala Engineers.



**Angela Bedoya\*** earned her B.S. in Chemical Engineering and a minor in Petroleum Engineering in fall 2008. While in the program, Angela held various leadership positions in the American Institute for Chemical Engineers (AIChE), the Society for Hispanic Professional Engineers (SHPE), and the Society for Women Engineers (SWE). Angela interned at El Paso Energy, BP, and Lyondell. Upon graduation, Angela was hired by Marathon Oil and moved to Cody, Wyoming. From 2008–2011, she helped oversee four production fields. Angela recently returned to the Houston area and continues as a process engineer at Marathon Oil.



**Ricardo Real** graduated in 2005 with his degree in Mechanical Engineering. He was involved in the HLSAMP program from 2000-2004. He says the program helped him to grow as an individual in the areas of public speaking, time management, and becoming a professional in corporate America. During his time in the program, he interned at Marathon Oil, where he now works as a project engineer.



**Giancarlo Sardi** participated in HLSAMP from 2002-2006. He graduated from the Cullen College of Engineering with a B.S. in Electrical Engineering. Giancarlo interned with Center Point Energy and Hewlett-Packard during his undergraduate career. In 2006, he was hired as a product engineer for Hewlett-Packard. He chose to further his education by earning a master's degree in Electrical Engineering from UH in 2010.



**Nader Zamani\*** was in the program during his four years at the University of Houston. He entered the College of Natural Sciences and Mathematics (NSM) through the Houston Premedical Academy Program, a prestigious four-year Bacc./M.D. track between UH and Baylor College of Medicine. While at UH earning his degree in Biology, he participated in multiple research experiences, including working with Dr. Adam Thrasher in the Department of Health and Human Performance. He also participated in REUs, one at the University of Minnesota and another at the University of Pennsylvania. He presented at several symposiums across the nation. Nader graduated in 2010 as co-valedictorian of NSM. He is a second-year medical student at Baylor College of Medicine. He plans to earn his M.D. in 2014.



**Angelica Cruz** graduated Magna Cum Laude with a B.S. in Mathematics in 2005 from the University of Houston. She attributes her academic success to the small group settings and active mentoring received as an HLSAMP scholar. Angelica chose to become a teacher to inspire young minds to pursue careers in the Science, Technology, Engineering and Mathematics fields. She has been a mathematics teacher at Galena High School for six years.



**Baroness Adams** graduated with a B.S. in Computer Information Systems Technology in 2011. Baroness has an exceptionally special story of challenge and success. During her education at UH, she became a single mother. Instead of letting this change her path, she became further determined. Due to her financial responsibilities, Baroness worked as a part-time staff member in the UH School of Law and held a special projects assignment for the HLSAMP program. Baroness also participated in the AMP Student Association and mentored other students. Due to her amazing dedication and drive, Baroness graduated Summa Cum Laude. She is now a web developer for the UH Law Center.



**Courtney Minor** was recruited from Hightower High School's engineering magnet program to participate as a scholar in the University of Houston's HLSAMP and the Cullen College of Engineering's Industrial Scholar Interns Program. Upon arriving at UH, she immediately took advantage of the program's peer-led workshops, tutoring, and mentoring aspects. Through her participation, she states that she "developed more confidence to pursue a profession in engineering and beyond." Courtney completed internships in industrial engineering and supply chain management. She interned with KBR-Halliburton, FMC Energy, Hallmark Cards, and Proctor and Gamble. Courtney graduated in 2006. Upon graduation, she joined Proctor and Gamble and continues to work there.



**Moises Anchondo\*** entered the HLSAMP program as an Electrical Engineering major. He was recruited from John H Reagan High School's STEM Magnet program. Moises was a scholar from summer 2000 until graduation in spring 2005. Moises graduated Cum Laude. In addition to his stellar academic performance, he interned with the Ford Motor Company. His internship experience and outstanding academics attributed to a generous job offer from Freescale Semiconductor, where he is currently a test engineer.





**Benedict Ifedi\*** graduated with a B.S. in Biochemical and Biophysical Sciences and a minor in Chemistry in spring 2010. He was a program scholar since 2008. Benedict used the program's workshops and resources to master STEM courses he took that were outside of his major. The workshops allowed him to master these subjects to the point that he could teach others. Benedict was a member of the college's elite Ambassador Group and also took advantage of research opportunities. He did research at Howard University with Dr. Jim Gnadt on retrograde, trans-neuronal tracing with a genetically-engineered pseudorabies virus. The goal was to construct a detailed map outlining the extensive network of nerves that function to make the eyes work. He also did research at the University of Colorado at Boulder with Dr. Robert Batey. Benedict attends Baylor College of Medicine and expects to graduate in spring 2014.



**Chandler Pardue** entered HLSAMP in fall 2004 and graduated in spring 2012 with a B.S. in Mathematics. The program provided pivotal support in gateway math and science courses such as Calculus and Chemistry. After his positive experience in the workshops and with the financial assistance, he decided to help others by serving as a Calculus Workshop facilitator for three semesters. Chandler also participated in UH's premier math and science teacher preparation program, teachHOUSTON. He discovered a natural talent and passion for teaching and chose to intern at Westchester Academy for International Studies as a Pre Cal/Calculus Student Teacher.



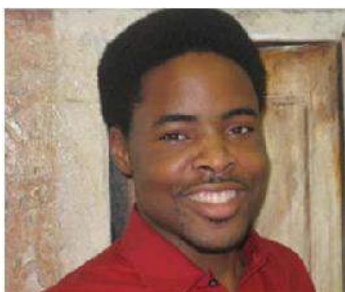
**Denise Lanza\*** was recruited from Sterling High School and became a scholar through the HLSAMP Summer Bridge program in 2006. Denise was a program scholar from 2006–2010. Denise excelled in leadership roles, serving as Vice President and Activities Coordinator for the Scholar Enrichment Program Student Association and as Treasurer for the Society of Hispanic Professional Engineers. Denise also served as a workshop facilitator for the program. In addition, she interned at Pepsico Frito-Lay in operations management. Due to Denise's excellent performance, she held the internship for 23 months prior to her graduation in 2010. Denise graduated with a B.S. in Industrial Engineering and a minor in Mathematics. Prior to graduation, Denise was offered a lucrative, full-time position with Pepsico Frito-Lay as an Operations Manager.



**Myrna Serna\*** was recruited out of Micheal E. Debakey High School for Health Professions and participated in the HLSAMP Summer Bridge. She joined the cohort in summer 2008. As a program scholar from 2008–2012, Myrna maintained a GPA that never dropped below 3.57. Myrna graduated Magna Cum Laude in spring 2012. She also participated in undergraduate research, May 2010 through May 2011, in M.D. Anderson Cancer Center’s Genetics Department doing research on hypogonadotropic hypogonadism in mice. Myrna will enter Baylor College of Medicine in fall 2012.



**Nicholas Thomas\*** was recruited into the program from Madison High School. He completed his B.S. in Chemical Engineering with minors in Business Administration, Mathematics and Chemistry in spring 2012. As a scholar, Nicholas facilitated workshops, served as the computer lab manager, and interned at Air Liquide.



**Victor Mbachu** was a scholar from spring 2009 through graduation in spring 2012. Victor graduated Summa Cum Laude with a B.S. in Biochemistry. He developed an impressive resume of activities, traveling to Washington, D.C., Baltimore, Atlanta, and Miami for summer research and enrichment programs. He participated in Project IMHOTEP, an 11-week public health fellowship at Morehouse School of Medicine’s Prevention Research Center. At Morehouse, he worked with research mentors, Tabia Henry Akintobi, Ph.D., and Lisa Goodin, MBA, to revise a community health needs assessment to better assess the health needs and concerns of people in Atlanta’s low-income communities. He presented his findings and analysis to researchers at the Centers for Disease Control and Prevention. Victor was the first academic chair of the Nigerian Students Association and Vice President of Mu Delta Pre-Health Association. He was inducted into three honors societies.



**Christina King** became a program scholar in fall 2010. The workshops helped Christina gain a better understanding of course material, and the peer-to-peer model allowed her to master difficult concepts. Christina also took advantage of the HLSAMP Seminar Series, learning about a variety of possible research, career, and graduate school opportunities. Christina performed research at UH’s College of Pharmacy with Dr. Romi Ghose. She participated in in-vivo and in-vitro experiments pertaining to liver toxicity and obesity of male mice. Christina earned B.S. in Chemistry with a minor in Biology in spring



2012. She will pursue a Ph.D. in organic chemistry/chemical biology at University of Pittsburgh in fall 2012.

**Kristopher Dow** became a program scholar in 2008. In spring 2012, Kris graduated Cum Laude with a B. S. in Electrical Engineering with an emphasis in defense and space. Kris enjoyed his role as a program tutor and being able to explain concepts to and mentor other students. He took on leadership roles and was involved in the National Society of Black Engineers. He interned at United Space Alliance in the Electronic Products Co-op and also worked as an Electronics Lab Assistant at UH.

**Natalie Ramos** became a program scholar in fall 2004, working toward her degree in computer engineering. While a scholar, she sought assistance in calculus, physics, and chemistry. Natalie found the program resources invaluable. She became part of study networks within the program's student body and feels the program is directly related to her academic success. She was hired as an intern at Marathon Oil Company for three summers -- two spent in Houston and one at Marathon's facility in Cody, Wyoming. Natalie earned her B.S. in Computer Engineering in fall 2008 and accepted a position with Marathon Oil. She still works there.



**Mark Swist** graduated with a B.S. in Electrical Engineering in 2007. Mark joined the program in his sophomore year. The program stipend allowed Mark to work fewer hours and to concentrate on his academics. Mark interned at ABB Control Systems. Upon graduation, Mark accepted a position with Fluor Daniel as a design engineer. At Fluor, Mark helped implement software integration that saved multiple man hours for the company. Mark developed global templates that all offices across the world will use to develop their Loads List, Cable Schedules, and Equipment List. Mark is starting several entrepreneurial ventures, such as the Houston-area Shoot2Score Hoops Basketball Camp for underprivileged boys and girls.



**Ian Murdock** graduated with a B.S. in Electrical Engineering in 2008. He received the program stipend from 2005–2008. During his education, Ian participated in leadership roles in the National Society of Black Engineers, Society of Hispanic Professional Engineers, African American Honors Student Association, and the PROMES Action Committee. Ian interned at Aero Energy as a performance engineer. He also interned as a pipeline integrity international applications and logistics specialist at GE. Ian was hired upon graduation as an ISS systems engineer at SAIC. In 2012, he entered the M.B.A. program at University of Pennsylvania.



**Stephen Scott** graduated with a B.S. in Chemistry and a minor in Mathematics in 2007. During his tenure at UH, Stephen was a member of student chapter of the National Society of Black Engineers and played football for the university. At graduation, he was hired by Kraft Foods where he is working on advancing existing breakthrough/next-generation programs toward commercialization and developing products for new product platforms. He is working on a master's degree in Food Science at the University of Illinois, Urbana-Champaign.

**Enrique Lopez-Llamozas** transferred to UH from San Jacinto Community College, an HLSAMP Alliance Partner, in fall 2003. He was awarded the HLSAMP scholar stipend in fall 2004. While in the Cullen College of Engineering, Enrique assisted in developing an interactive internet control system of a shape memory alloy actuator. He graduated with a B.S. in Electrical Engineering in 2008, becoming the first in his family to earn a college degree. He is currently a utilities specialist in the Miami/Fort Lauderdale area.



**Antonio Pontifes** transferred to UH from the Lone Star College System in summer 2008. Antonio acclimated quickly, becoming an Organic Chemistry workshop facilitator. He graduated Cum Laude in spring 2012 with a B.S. in Chemistry. While at UH, Antonio conducted research with Dr. T. R. Lee on the preparation of self-assembled monolayers from polyfluorinated alkane thiols. HLSAMP welcomed Antonio's younger brother, Aaron, as a program scholar in 2010.



**Ruben Calderon** graduated with a degree in Civil Engineering. At UH, he was an active and successful scholar. Ruben is currently employed at CobbFendley, a Houston firm owned by two UH alumni. During his career, Ruben has continued to achieve, becoming a Registered Professional Land Surveyor. His recent projects can be seen on US Highways 59, 77, 83, 54, 87, and 45.



**Ehidiamen Anetor** graduated with a degree in Biochemistry. He joined the program as a scholar in spring 2002 and continued through graduation. Ehidiamen took on various roles in student organizations, developing his leadership skills. He also gained confidence in his math and science courses and found mentoring to be a key to success. Ehidiamen conducted research at the University of Texas Medical Branch as an undergraduate. Upon graduation, Ehidiamen attended and graduated from medical school and will complete his pediatric residency in summer 2012.

**Iroque Igbiosa\*** was recruited into the program from Michael E. DeBakey High School, a targeted HLSAMP high school. Iroque found that the program's resources, sense of community, and the opportunity to meet students with similar goals made a significant contribution to his

success. Through the program, he also participated in seminars and conferences, gaining a strong communication skill set. Irogue participated in Minority International Research Training in Dominica, West Indies through the University of Pittsburgh. He also participated in the University of Cincinnati Summer Research Training Program at the Hoxworth Blood Center. Irogue graduated with a B.S. in Biology in 2006 and went on to attend Baylor College of Medicine.



**Giang (Tina) Vo** graduated with a degree in Chemical Engineering in spring 2012. Tina was an asset to the program and the students around her, serving as a Physics and Engineering Math workshop facilitator and tutor. Tina interned with Dow Chemical and Chevron while in the program. In addition, she served as treasurer of the National Society of Black Engineers and president of the Society of Asian Scientists and Engineers.



**Antonio Marroquin** graduated with a B.S. in Electrical Engineering in 2006. While a scholar, Antonio was involved in the student chapter of the Society for Hispanic Professional Engineers. He also participated in many program field trips, taking the opportunity to network. Antonio is fluent in both English and Spanish. Due to his excellent skill set, he was offered a position with Dow Chemical. He is currently an electrical maintenance and reliability engineer for Dow at their Freeport, Texas, plant.



**Jason Zamora** transferred from Houston Community College, an HLSAMP alliance partner, in 2007. In addition to being an HLSAMP scholar, he was in the Industrial Scholar Interns Program. He took on multiple roles in Omega Chi Epsilon and the student chapter of the American Institute for Chemical Engineers. Jason also facilitated workshops in Thermodynamics, Fluid Dynamics and Chemical Processes. Jason earned a B.S. in Chemical Engineering with minors in Petroleum Engineering and Chemistry. He is currently enjoying a successful career as a process engineer at KBR, Inc.

**Charity Halphen** graduated Summa Cum Laude with a B.S. in Biology, a minor in Chemistry, and a second minor in Spanish. Charity was a model HLSAMP scholar with an academic performance that kept her on the Dean's list. After graduation, Charity attended Baylor College of Medicine graduating in 2010. She is currently an ophthalmology resident at The University of Texas Southwestern Medical Center.



**Obinna Nwokem** graduated Cum Laude in spring 2012, earning a B.S. in Biochemical and Biophysical Sciences with a minor in Chemistry. He completed his degree with distinction. Obinna was awarded the HLSAMP stipend from 2009-2012. He gives credit to the program for impacting his personal growth, for teaching him how to wisely manage his time, and for helping him stay determined and focused. His growth in these areas was evidenced by his ability to maintain good grades while facilitating an HLSAMP Chemistry workshop and working as a tutor for the UScholars Program and Learning Support Services. Obinna also took part in clinical research in the Academic Associates Program in conjunction with Baylor College of Medicine under the direction of Dr. Lindsey Chase.

**Ian Bailey** graduated with a B.S. in Electrical Engineering in 2007. Throughout Ian's academic career, he served as a mentor to and supporter of those around him. He served as an HLSAMP workshop facilitator and tutor and participated in various student organizations. In addition, he interned at KBR and Hamilton Sundstrand. He also participated in a summer co-op with LyondellBasell. Ian currently works for KBR in the Houston area.



**Oluwasegun (Segun) Ojetayo** transferred to UH from Houston Community College, an HLSAMP alliance school, in 2006. Segun excelled academically, graduating Cum Laude with a B.S. in Chemical Engineering and a minor in Chemistry. Fluor Daniel hired him immediately after graduation, and he worked as a process engineer while earning his master's degree in Petroleum Engineering from UH in 2009. He has since changed positions and is currently a facilities engineer for SBM Atlantia.



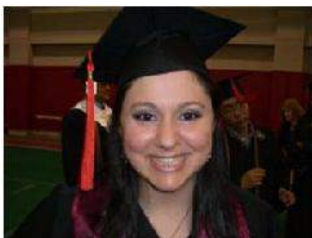
**Ashley Devon Jones** came to UH from Waltrip High School and became a scholar in spring 2008. She was both an assistant and full facilitator. In addition to HLSAMP, Ashley participated in teachHOUSTON, which provided the opportunity for the choice of a career in industry or in affecting future mathematicians and scientists in the classroom. Ashley graduated with a B.A. in Chemistry and a minor in Biology. She is now an 8<sup>th</sup> grade science teacher.



**Julio Salinas** completed his degree in Electrical Engineering in December 2008. While an undergraduate, he suggested, planned, and implemented a new collaborative learning workshop for students enrolled in ECE 3336, an introductory circuits course for non-electrical engineering majors. Julio led the workshop for four semesters, serving 74 students. He was also a member of the Society for Hispanic Professional Engineers, attending

national networking conferences. He has been employed as a drilling field engineer at Schlumberger since his graduation.

**Antonio Lazo** graduated in May 2008 with a bachelor's degree in Mechanical Engineering. He is currently pursuing a master's degree in Petroleum Engineering at UH and is employed as a design engineer at Baker Hughes. While an undergraduate Antonio served as a facilitator for the Mechanics I workshop.



**Maricruz Silva\*** completed her bachelor's degree in Electrical Engineering in December 2006, joining Rohm and Haas as an electrical maintenance engineer after graduation. She is currently employed as a reliability engineer at Dow Chemical. As an undergraduate, she was active in the Society of Mexican American Engineers and Scientists and was inducted into the Engineering Honor Society, Tau Beta Pi.

**Ivan Castro** graduated with a bachelor's degree in Industrial Engineering in May 2008. While an undergraduate, he was an active member of the Program for Mastery in Engineering Studies, which is the Cullen College of Engineering's student success community. Ivan served in a leadership role as president of the UH student chapter of the Society of Mexican American Engineers and Scientists.

\* Student attended a high school that is part of the grant's targeted cohort.

### **Selected Quotes from Past Scholars**

Myrna Serna: "The HLSAMP program enabled me to not only focus on doing well in my classes, but also strive to be an active student on campus, do volunteer work, and think outside the box. Additionally, it also taught me the importance of studying in groups and passing it forward by helping others with difficult classes. Throughout my four years of being involved in HLSAMP, there has always been a person more than willing to help me understand a difficult concept, and I can only hope to be as helpful to others as well."

Denise Lanza: "Everything about the program and people leading the program helped me achieve my goals. I am grateful of being part of such a fantastic program."

Kristopher Dow: "This exposed me to National Society of Black Engineers and piqued my interest in being involved with a leadership role. Overall, HLSAMP has developed my skills as a leader."

Nicholas Thomas: "It provided me with an opportunity to gain additional knowledge and skills that I could not obtain in a classroom. It provided a peer-oriented learning experience that was very beneficial to my success as a student."

Antonio Pontifes: "HLSAMP was pivotal in helping me to achieve my goals. In fact, I promote this program to my friends and family more than any other program on campus at UH."

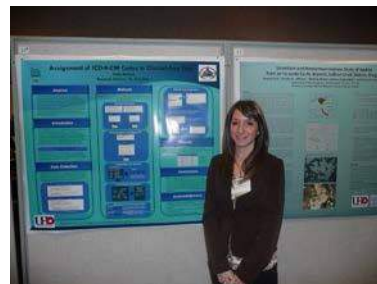
Angela Bedoya: "The program provided many advantages, including priority registration and workshops which assisted me in better understanding my class material."

## University of Houston Downtown Campus

Dr. Richard Alo is the Director of the University of Houston Downtown program of H-LSAMP.

### Student Profiles

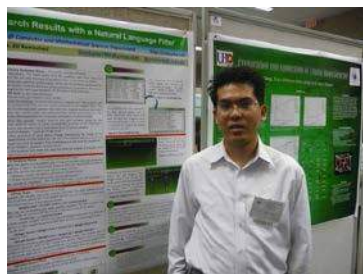
**Araly Barrera:** Aside from the early exposure to graduate school, the Scholars Academy and FemProf programs also exposed Araly to essential research and presentation opportunities that are sought in graduate school today. Her involvement in research programs such as SURP and CASHI prepared Araly for graduate research and had a major influence on the work she now does in graduate school. “My interest to continue research in graduate school would not have even been possible without much of the mentorship and encouragement given to me from programs like these. Much of what I had at UHD through all of this has simply composed some of the most memorable and rewarding experiences of my undergraduate career.”



**Jonathan Gamez:** The LSAMP Scholarship and Scholars Academy offered by, and in conjunction with, CCSDS impacted his success in Graduate School. “The LSAMP Scholarship supported me financially so that I wouldn’t have to work elsewhere, and consequently, allowed me time to conduct research. Furthermore, the CCSDS and Scholars Academy helped me network, provided resources for my research, and gave me an opportunity to present my research orally at the Student Research Conference.”



**LaToya Green:** LaToya graduated from UHD in December 2011 with a major in computer science. As an LSAMP scholar, she participated in REUs at the Carnegie Mellon University in summer 2010, Disney World in fall 2010, and University of Houston in summer 2011. After graduating from UHD, she was accepted to the Louisiana State University where she participates in the Bridge to Doctorate program.



**Liem Loung:** Liem was recruited as a tutor and peer mentor of the Collaborative Learning Center. “My golden opportunity came from networking with STEM professionals at the Hispanic Engineer National Achievements Awards Conference held in Houston in 2009. As an AMP scholar, I was able to network outside of school, which was a key to the success of my career. The following summer, I was offered my first internship with the Boeing Company. The things you learn in college are different from industry exposure. I demonstrated leadership skills and a good attitude at Boeing.” As a result of his hard work, Liem was offered a full-time position at Boeing. He learned that if you work hard to accomplish your goals, it will pay off in the end.



**Obadiah Kegege, Ph.D.:** In 2002, Obadiah received his B.S. in control and instrumentation electronics design summa cum laude from UHD. As a Scholars Academy member, he actively participated in research and presented in the Annual UHD Student Research Conference. He states, “This research experience opened doors to my graduate education, a Ph.D., and later to a professional career with NASA.” Obadiah earned his M.S. in electrical engineering in 2006 from the University of Texas- Pan American and a Ph.D. in 2009 from the University of Arkansas (Dissertation: Design and Verification of Integrated Reconfigurable Driver and Current Sensor for Extreme Space Environments). His experiences include performing electrical and instrumentation systems design, development, and testing in petrochemical refineries and manufacturing plants. Currently, Obadiah is an electronics engineer in the Systems Engineering and Analysis Division at NASA Glenn Research Center where he is part of the Space Communications and Navigation Team.



**Andrew Schad:** A control and instrumentation engineering technology major at the University of Houston-Downtown, Andrew plans on working in the field after graduation. He feels that the benefit of the AMP Scholars Program is being connected to a community of students that are striving toward the same level of academic success.

**Amie Albanese:** Amie is a math major at UHD. Her plans after graduate school are to do research and to become a mathematics professor. “Being an AMP scholar has benefitted me in many ways. I was introduced to so many people in industry and education. The opportunities presented to AMP scholars are infinite.” Amie feels that the AMP program provides essential resources for students to attend graduate school -- not only financial resources but also preparation for graduate education or other endeavors. Preparation is the key to success.