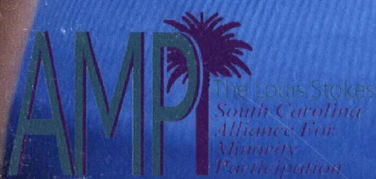


THE LOUIS STOKES SOUTH CAROLINA ALLIANCE  
FOR MINORITY PARTICIPATION PROGRAM

# IMPACT

REPORT 2011



AMM

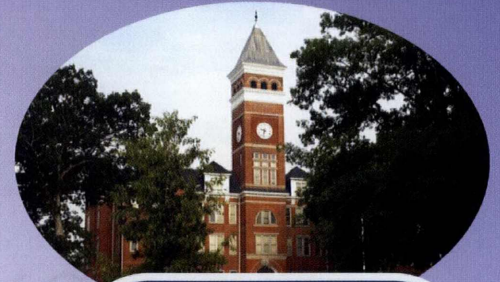
# The Louis Stokes South Carolina Alliance for Minority Participation Alliance Institutions



Clafin University



University of South Carolina



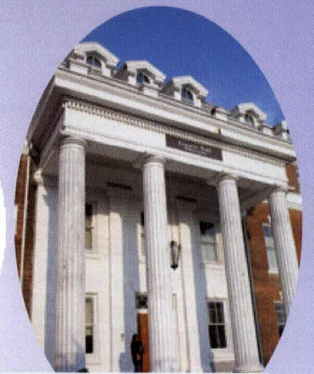
Clemson University



Morris College



Lead Institution



Allen University



Voorhees College



Benedict College



College of Charleston

## LS-SCAMP Technical College Partners



Orangeburg-Calhoun Technical College



Midlands Technical College



Denmark Technical College

THE LOUIS STOKES SOUTH CAROLINA ALLIANCE FOR  
MINORITY PARTICIPATION PROGRAM: IMPACT REPORT

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## FORWARD

Nearly twenty years into the LS-SCAMP program alliance, the program has accomplished its purpose of increasing the number of underrepresented minorities in science, technology, engineering and math (STEM) disciplines. These disciplines and skills are critical to the survival and prosperity of people of color, and indeed, to the international competitiveness of the state of South Carolina and the nation. We proudly provide leadership and direction to LS-SCAMP efforts to insure the best and brightest have doors open for achievement. We must not waiver or hesitate in our mission. The programs outlined in this impact report are a marvel of achievement and testimony to the commitment of faculty, staff and students to continue the promise of opportunity for generations to come.

**George E. Cooper, PhD**  
**President**  
**LS-SCAMP PI**

The Louis Stokes-South Carolina Alliance for Minority Participation (LS-SCAMP) has evolved into the most effective tool for the recruitment, retention, graduation and employment of minority students into science, technology, engineering and math (STEM) disciplines in the state of South Carolina and, indeed, a model for science disciplines in the United States. In the nearly twenty years of the LS-SCAMP program, alliance schools have develop expertise and unique offerings that complement the program; alliance schools have institutionalized or absorbed many of the initial and basic program offerings; and the alliance has expanded from an initial eight schools to 12 of South Carolina's most influential and diverse institutions, committed to partnering the best practices and programs that effectively encourage and graduate minority students desiring the dream of a STEM education. LS-SCAMP exists because we must have our brightest and most promising students pursue STEM careers. It is the foundation for attainment and growth of all classes and people of color – regardless of background or education. If LS-SCAMP did not exist, we'd have to invent a similar approach because excellence cannot be denied or dreams deferred from achieving progress.

Over the past decade, more than 8,326 minority students have graduated from STEM disciplines. As we face the next score of years for the program's future, the challenge is a new generation of strong leadership and commitment among alliance schools to keep hold of the promise of STEM achievement. Our focus on graduate school, PhD production and employment is deliberate. Collaboration will become more precise and unique partnerships the rule. Our goals cannot be less than the past because we're learning more complex interplay and interdependence among all peoples; and more abundant knowledge must be harnessed into the minds of our students. We cannot fail. LS-SCAMP is a gem. It is our hope for future achievement for the brightest of our students. The next pages reveal the diversity and strength of our STEM offerings and results. The report is impressive. Greater achievements lay ahead. The dream of a STEM education for our promising students is alive and well in the LS-SCAMP programs.



**Dr. Judith Salley-Guydon**  
**Executive Director**

## The Louis Stokes South Carolina Alliance for Minority Participation Program

### EXECUTIVE SUMMARY

The Louis Stokes South Carolina Alliance for Minority Participation Program (LS- SCAMP) has been effective in increasing the participation of underrepresented minority students in science, technology, engineering, and mathematic (STEM) disciplines. This comprehensive, multi-institutional, multidisciplinary program in the state has increased the number of baccalaureate degrees awarded and graduate degrees pursued by underrepresented minorities in STEM. Established in 1992 with eight institutions and restructured in 2002, with South Carolina State University as the lead institution, LS- SCAMP consists of twelve South Carolina institutions including six Historically Black Colleges and Universities (HBCUs) [Benedict College, Claflin University, Voorhees College, Morris College, Allen University, and inclusive of SC State University], three majority universities [Clemson University (Research I), the University of South Carolina (Research I), the College of Charleston], and three technical colleges: Midlands Technical College, Denmark Technical College, and Orangeburg-Calhoun Technical College.

Developed to remove the barriers that prevent full participation in STEM fields by minority individuals, the alliance is the longest serving and only program remaining in the state that motivates and trains undergraduate students to successfully achieve in fields where minorities are underrepresented. While the initial eight institutions in 1992 had a combined STEM enrollment of 2,664 with an annual bachelor's degree production of 257, the current alliance of twelve institutions has significantly increased both degree production and enrollment. Today, eighteen years later, 509 STEM bachelor's degrees were awarded and 5,012 underrepresented minorities were enrolled at member institutions (see figures below). The alliance consistently produces 71% of all minority STEM degrees awarded in the state of South Carolina.

### The Following Outcomes Reflect the Success of LS-SCAMP Over All Project Years

**LS- SCAMP partners have graduated a total of 8,326 minority students with bachelor's degrees in STEM over-all project years**

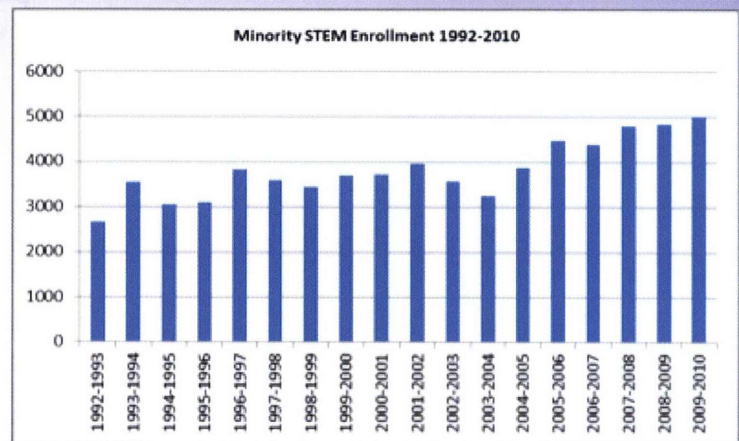
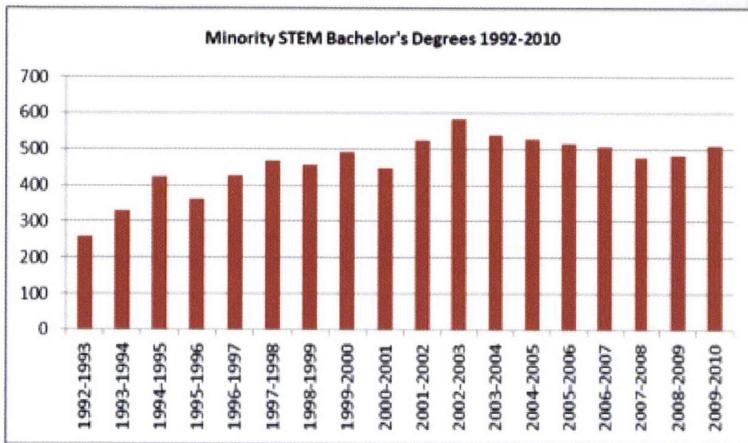
»LS- SCAMP institutions enrolled 68,878 URMs in STEM disciplines during all project years (1992-2010). According to the South Carolina Commission on Higher Education (CHE), the LS- SCAMP institutions enroll over half of all underrepresented students pursuing STEM baccalaureate degrees in the State of South Carolina.

»LS- SCAMP has received exceptional support from the SC State Legislature. Since the project's inception in 1994, \$6.2 million dollars was awarded to support and enhance project activities including scholarships, summer bridge programs, research internships, mentoring, a technical school research bridge and graduate school preparation workshops.

»LS- SCAMP institutions have become the major producers (over 71%) of the STEM baccalaureate degrees awarded annually in the state of South Carolina. The state legislature, by providing a substantial level of educational financial assistance to alliance participants, was critical to LS- SCAMP's ability to maximize the number of minority students obtaining degrees in STEM. The support also enabled the program to increase retention and persistence in STEM majors over sixteen project years.

»LS-SCAMP technical college partners enroll the largest percentage of underrepresented minorities in the state (51 percent).

»The Hispanic STEM enrollment increased from 146 in 2003 to 452 in 2009. This represents 210% increase. This is significant since the state of South Carolina does not have a Hispanic serving institution. According to the 2000 South Carolina Census report, Hispanics are the fastest growing minority population in the state of South Carolina.



**Quick Fact:** Since the inception of the project (1992-93), the State of South Carolina Alliance has awarded an impressive number of minority STEM bachelor degrees (8,570) and has enrolled 53,061 in STEM disciplines. The number of STEM degrees produced by Alliance increased by 64.2% and the STEM enrollment increased by 22.6%.

»The LS-SCAMP Undergraduate Science and Engineering Research Conferences have been held for 7 years over the project period. The 2010 LS-SCAMP undergraduate science and engineering research conference was held at Claflin University in Orangeburg, SC.

## Impact on Economic and Human Capital in South Carolina

### *Impact on Human Capital*

Developed to remove barriers that prevent full participation in STEM fields by minority individuals, the alliance is the longest serving and only program remaining in the state that motivates and trains undergraduate students to successfully achieve in fields where minorities are woefully underrepresented. While the initial eight institutions in 1992 had a combined STEM enrollment of 2,664 with an annual bachelor's degree production of 257, the current alliance of twelve institutions has significantly increased both degree production and enrollment. Today, on the eve of its twentieth program year, 515 STEM bachelor's degrees were awarded and 5,361 underrepresented minorities are enrolled in STEM programs at member institutions. In this nearly two decades of program activity, 8,570 STEM degrees have been awarded at member institutions. The alliance consistently produces 71% of all minority STEM degrees awarded in the state of South Carolina.

# LS-SCAMP

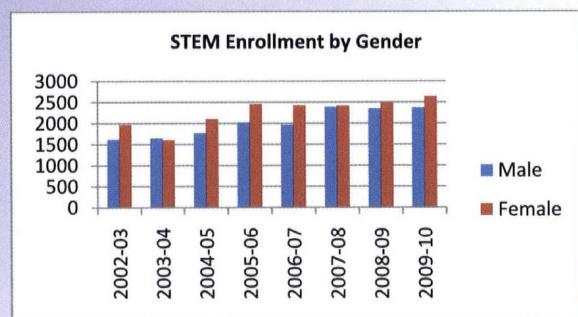
## 2011 Impact Report

Important too, the STEM alliance has clearly reversed a national trend toward declining enrollments in the sciences. Similar to other alliances, the program experienced a roller coaster in enrollments through 2003-2004, but has returned to upward enrollment projections in 2009-2010 through the current year at 5,012. LS-SCAMP plans and anticipates surpassing previous high enrollments over the next program period.

*BS Degrees Awarded by STEM Institution in Academic Year 2009-2010*

Institution	Degrees Awarded
Allen University	13
Benedict College	77
Claflin University	34
Clemson University	89
College of Charleston	21
Morris College	20
South Carolina State University	134
University of South Carolina--Columbia	113
Voorhees College	8
<b>Total</b>	<b>509</b>

A key ingredient in a strong trend line is the number of first-generation college entrants in the sciences, as reported by our partners in the Alliance. This clearly impacts the educational level of minorities throughout the state and quality of life in communities, the quality of citizens and the competency of the South Carolina workforce. In no small measure, the acquisition of a college diploma in the sciences encourages other family members to consider a broader range of career possibilities previously only imagined among minority families. Also important, the Hispanic STEM enrollment increased from 146 in 2003 to 556 in 2010. This increase is significant since the state of South Carolina does not have a Hispanic serving institution. According to the 2000 South Carolina Census report, Hispanics are the fastest growing minority population in the state of South Carolina. Important too, the percent of underrepresented minority women has increased to 53% of program participants.



*STEM Baccalaureate Degrees Awarded by Discipline in 2009-2010*

STEM Discipline	Degrees Award
Agricultural Science	12
Chemistry	34
Computer Science	52
Engineering	147
Geosciences	2
Environmental Sciences	0
Life/Biological Sciences	217
Mathematics	35
Physics/Astronomy	10
<b>Total STEM Discipline</b>	<b>509</b>

Research, internships, mentoring, cooperative learning, tutorials, and other academic, financial and social components are the building blocks needed to facilitate the timely progression of participants towards the undergraduate STEM degree. Successful implementation of these comprehensive program activities have resulted in the training of STEM students who will contribute to the future pool of graduate students and increase the number of individuals entering a diverse workforce.

LS-SCAMP continues to enhance the capacity building for the STEM workforce statewide and nationally. Currently, four Alliance Institutions rank nationally in STEM Degree Production for African-Americans.

### *Economic Impact in South Carolina*

Since 1992, NSF has invested approximately \$19.6 million in the STEM initiative. Further, state of South Carolina matching resources have added another \$6.2 million directly to STEM alliance institutions for cost sharing to supplement STEM support activities. Although state of South Carolina matching funds were discontinued during the past year, member alliance institutions have managed to provide as many continuing services as possible, including tutor-



# LS-SCAMP 2011 Impact Report

ing, mentoring programs, staff release time, indirect cost and summer enrichment activities, and new partnerships for program delivery. This multiplier effect has annually increased NSF investment by about \$3.6 dollars\* for each NSF dollar distributed to the LS- SCAMP program, for a combined investment of more than \$70.56 million each year in the state of South Carolina STEM disciplines. \*US Chamber multiplier formulas for business investment in the local economy

This investment of capital in the sciences has broadened state of South Carolina efforts to improve economic development by educating its citizenry in disciplines required to attract competitive, international industries to South Carolina. According to New Carolina\* data, recent new business relocations by companies such as Boeing and eBay were influenced by the availability of greater science-literate hires—especially in the education and training of a diverse workforce. The success of STEM program participants has had a direct impact on business decisions to view South Carolina as competitive in qualified human capital for international business development. \*New Carolina is South Carolina’s public-private, state economic development initiative to drive competitiveness across all sectors of South Carolina. Visit website at [www.newcarolina.org](http://www.newcarolina.org).

To successfully accomplish LS-SCAMP goals, the program employed a multi-level approach that leverages resources with new and existing collaborations and partnerships. Strategies such as re-establishing articulation agreements and collaborations with 2-year technical colleges, revitalizing summer bridge programs, providing STEM diverse research internship opportunities, and many other program initiatives broadened the participation of minority STEM students and significantly increased STEM enrollment and degree production at the undergraduate levels.

## Alliance Institutions- National Ranking in STEM Disciplines

Rankings – Diverse Issues in Higher Education- June 2011

Institution	Ranked National	Discipline
SC State	#5	Engineering Technologies and Engineering-Related Fields
	#11	Mathematics and Statistics
	#13	Biological and Biomedical Sciences
	# 26	Computer and Information Sciences and Support Services
	#32	Physical Sciences
USC- Columbia	#10	Physical Sciences
	#11	Mathematics and Statistics
	#29	Biological and Biomedical Sciences
Clemson	#8	Engineering
Benedict	#47	Physical Sciences

Organizational partner	Contributed Activity
USDA-ARS South Atlantic Area	Mentors and summer research opportunities
Oak Ridge National Laboratory	Mentors and summer research opportunities
Westinghouse Savannah River Company	Mentors and summer research opportunities
University of South Carolina	Member LS-SCAMP institution, mentors and summer research opportunities
Medical University of South Carolina	Graduate School provides mentors and summer research opportunities
Clemson University	Member LS-SCAMP institution, mentors and summer research opportunities
South Carolina Department of Natural Resources	Mentors and summer research opportunities
South Carolina Commission on Higher Education	Matching funds to NSF investment through 2010
South Carolina Academy of Science	Sponsor minority undergraduate symposium during annual meeting of South Carolina Academy of Science
Southeastern Alliance for Graduate Education for the Professoriate – University of Florida	Serves as feeder institution to increase pool of minority participants in SEAGEP Alliance
HBCU-UPS	Opportunities for research, training and supplemental instruction
MUSC Hollings Cancer Center	Mentors and summer research opportunities
Department of Energy Mines and Resources	Mentors and summer research opportunities
Department of Energy	Mentors and summer research opportunities

*Collaborative partners in the LS-SCAMP program are deep and wide as illustrated to the right:*



Senator John W. Matthews receives SCAMP Award

# LS-SCAMP

## 2011 Impact Report

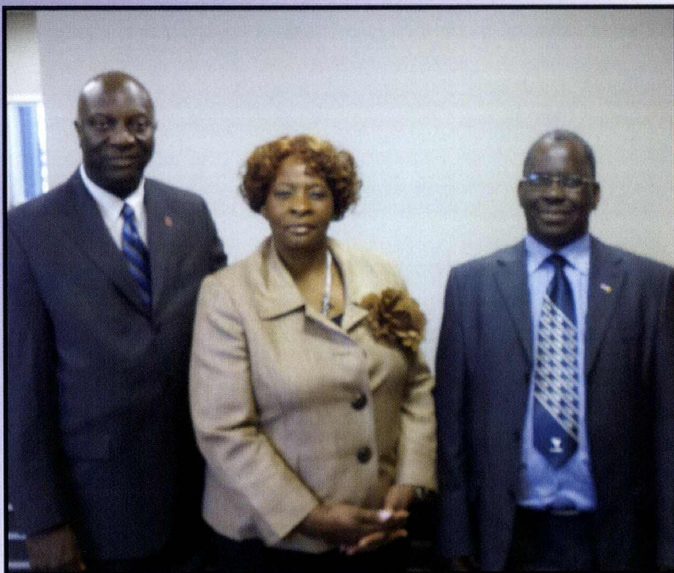
### **Impact of LS-SCAMP Academic and Summer Research Programs**

A total of 2338 students participated in academic year and summer research experiences since 2002. The LS-SCAMP alliance institutions were successful in increasing partnerships and collaborations to positively impact growth in undergraduate research participation.

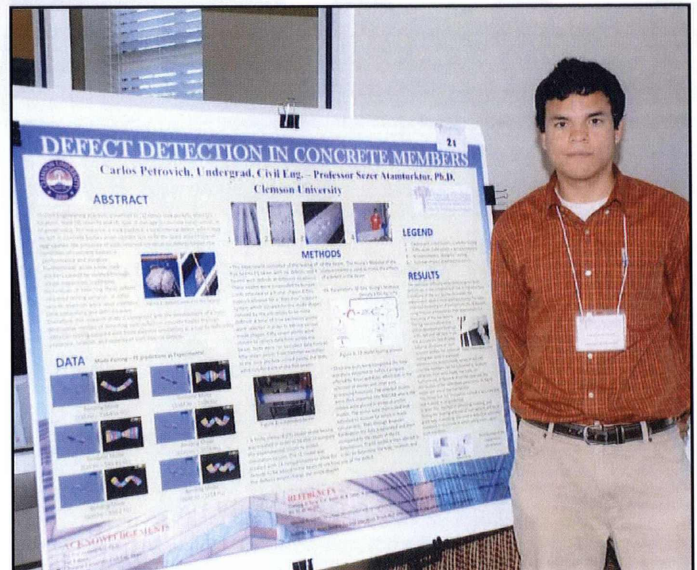
### **Impact of Conferences and Workshops**

The LS-SCAMP Undergraduate Research Conference was successfully held at Claflin University in Orangeburg, SC. There were 74 presenters and 167 in attendance at the oral and poster conference sessions. Faculty served as judges, program coordinators, facilitators and moderators while students from Claflin served as hosts and hostesses. The Annual Science and Engineering Undergraduate Research Conference will be held October 2011 at South Carolina State University.

The LS-SCAMP evaluation and training conference was held at Clemson University in June 2011. The conference purpose was to: (1) provide training to improve annual reports, (2) review annual program activities and outcomes, (3) share best practices, and (4) develop strategies to address program challenges. The program included 16 principal investigators, administrators and staff, including the Clemson University Dean of the Graduate School.



Dr. Fanuel Tagwira (left), Africa University new collaborative partner Mutare, Zimbabwe



Clemson undergraduate poster presentation at 2010 research conference

### **Impact on STEM Future Activity**

It is expected that the state of South Carolina and the nation will develop better informed leadership, enhanced economic development, and better workforce preparation to meet the needs and challenges for the future as a result of the success of the LS-SCAMP program. Many of the alliance institutions rank nationally for the production of African American STEM degrees. LS-SCAMP increases retention and will continue to increase the number of baccalaureate degrees awarded to African American students in the STEM disciplines.

In order to realize the NSF's national goal for STEM, a substantial increase in the rate of BS degree production must occur even further. For the next phase of LS-SCAMP, building on the nearly 20 year experience of Alliance partners, LS-SCAMP, in addition to increasing enrollment and degree production for undergraduates, will enhance the quality of research experience by developing structured international research experiences to prepare undergraduates to compete in the global society. LS- SCAMP has the history and capability to leading the nation in STEM program achievement. It looks forward to the challenge.

## Impact/ Exceptional Opportunities

### **Partnership with the South Carolina Legislature and other Stakeholders**

State government and university resources account for a large percentage of LS-SCAMP's cost sharing funds. There has been an increase in support from corporations and foundations at Allen University, Benedict College, Voorhees College, Claflin University, SC State University and Morris College. Many of the program activities have been expanded and sustained through leveraging resources. The State of South Carolina over the past 16 years has shown exceptional support for AMP activities, appropriating \$6.2 million through the South Carolina Commission on Higher Education since 1994. In fact, the LS-SCAMP was the first state alliance in the nation to receive direct and consistent appropriations from its state legislature. Although reduced over the past years, these funds have enabled the alliance to substantially increase student support in the form of scholarships, research stipends, summer bridge programs, mentoring and travel awards. The rising costs of tuition and fees at most LS-SCAMP institutions made scholarships awards invaluable to those participants fortunate to receive them. NSF support received through LS-SCAMP has been used to implement the majority of the student programs.

Other partnerships/stakeholders include The South Eastern Alliance for Graduate Education and the Professoriate (SEAGEP), Experimental Program to Stimulate Competitive Research & Institutional Development Awards (EPS-CoR), USDA- Agricultural Research Service and the SC Commission on Higher Education. These organizations have consistently provided the support and resources to fund additional opportunities for participants especially research internships.

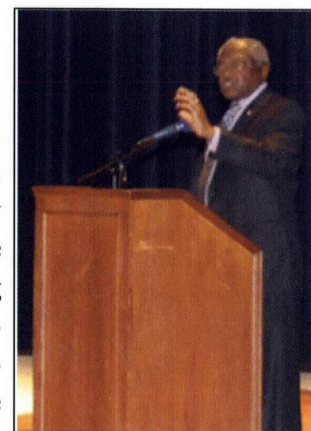
Also, LS-SCAMP universities continue to leverage resources with other STEM initiatives at their home institutions. For example, Claflin University partners with the National Security Administration (NSA) to offer its summer bridge and research programs and HBCU-UP provides travel awards for LS-SCAMP students to attend conference and presentations. Morris College, Allen University, Benedict, Voorhees, SC State and Claflin University recently received funding through the Department of Energy to enhance environmental remediation workforce development on their campuses. LS- SCAMP students serve as research interns. LS-SCAMP students have benefited through training, research, leadership development, conference presentations and career development throughout project years. Long-standing partnerships with the Agricultural Research Service, SEAGEP, MUSC/DOD, Oak Ridge, and Savannah River National Laboratory have positively impacted sustainability of the research and education activities offered by LS- SCAMP.



## Impact/Exceptional Opportunities

### **South Carolina Academy of Sciences**

The 2011 Annual meeting of the South Carolina Academy of Sciences was held April 16, 2011 and was co-sponsored by the LS- SCAMP State Office and South Carolina State University. The Honorable James E Clyburn, Assistant Democratic Leader, US Congress and Dr. Terry Michalske, Director of the Savannah River Site, Aiken, SC served as keynote speakers. The Fourth Annual Undergraduate Research Symposium for LS- SCAMP students was held during the meeting and 109 LS-SCAMP undergraduates, faculty and mentors attended. The symposium included leadership training conducted by Earl Wade, The University of Florida Graduate Admissions Office and undergraduate research opportunities by Anthony Edmund, The



# LS-SCAMP

## 2011 Impact Report

United States Department of Agriculture, a graduate school panel discussion conducted by two graduate students-- one a former Bridge to the Doctorate student from the University of Florida, and the other a Education Advancement Alliance student from the New Jersey Institute of Technology. Summer undergraduate research opportunities were disseminated to students who inquired about research internship placement. The Executive Director of LS-SCAMP, Dr. Judith Salley-Guydon, now serves as President of the South Carolina Academy of Science, the first African American woman to serve in this position.

### Impact/Exceptional Opportunities

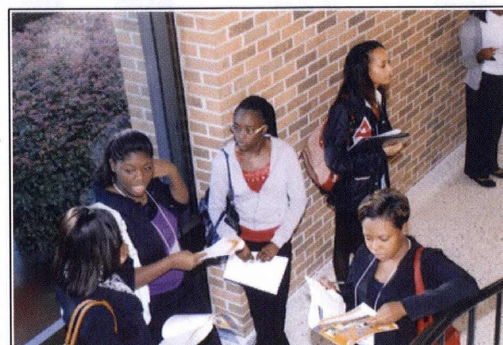
#### **Undergraduate Research**

Through the renewed and increased number of collaborative partnerships, LS- SCAMP enhanced the quality and diversity of research experiences for undergraduates and has seen an increase in the number of students conducting mentored research over the past three years (232 to 275). The alliance directly supported approximately 257 students each year to participate in cutting edge research throughout the nation. Currently 92% of the alliance institutions had students conducting undergraduate research during 2010. Skills development, the awareness of graduate school admissions and training in the use of major laboratory research equipment were additional benefits to students.

### Impact/Exceptional Opportunities

#### **Summer Bridge**

Summer bridge workshops or institutes have been consistently offered at six alliance institutions. Claflin University, College of Charleston, University of South Carolina, Benedict College, Clemson University and South Carolina State University. A number of alliance institutions have designated their summer bridge programs as mathematics workshops. At the College of Charleston, a pre-calculus lab and course is provided for summer bridge participants. At Midlands Technical College, all courses equivalent to or above college algebra have been restructured. All programs offered STEM pre-calculus, calculus or computer science courses for college credit except Benedict College. Cooperative learning sessions often supplemented the instruction in these summer workshops to improve the pass rate for those students enrolled in calculus and other mathematics courses. These programs were the most successful training components implemented over the course of the project.



### Impact/Exceptional Opportunities

#### **Technical Colleges**

Currently, many of the 4-year partner institutions have diversified their strategies for attracting underrepresented minority students to their institutions. They have established innovative collaborative academic initiatives in STEM majors and will continue to employ these strategies. For example, Claflin University and Orangeburg-Calhoun Technical College (OC Tech) have a 2+3 agreement in which students at OC Tech are enrolled in forensic science for two years and transfer to Claflin University for the completion of the STEM degree. Clemson University has initiated a "Bridge to Clemson" program in which high school students who are close to meeting its admission standards are encouraged to attend a local technical college. If students obtain a 2.5 GPA, they will be admitted into the regular freshman class at Clemson University. The University of South Carolina established a "Bridge" program (articulation agreement) with Midlands Technical College expanding some of USC's most successful student programs to the technical college students. Articulation agreements exist between all technical colleges and all 4-year institutions in the state. Alliance institutions are committed to utilizing these agreements for recruitment of STEM students to expand the STEM pipeline in SC. Many of the above initiatives were built upon the successes of the LS-SCAMP program. It is anticipated that these new sources of students will be retained in STEM disciplines and will positively impact the number of STEM degrees awarded.

Since 2007, five institutions conducted a summer research transfer bridge program for technical college students. In 2010, twelve 2-year college students completed summer bridge research internships with research scientists at 4 year partner campuses and upon completion successfully transferred to begin a BS degree in STEM. Students interned on the campuses of Benedict, Clemson, The University of South Carolina, the College of Charleston and South Carolina State University. The University of South Carolina, and South Carolina State University reported the highest enrollment for STEM transfer students. A total of 93 students Level I and II successfully transferred into STEM disciplines during the project year.

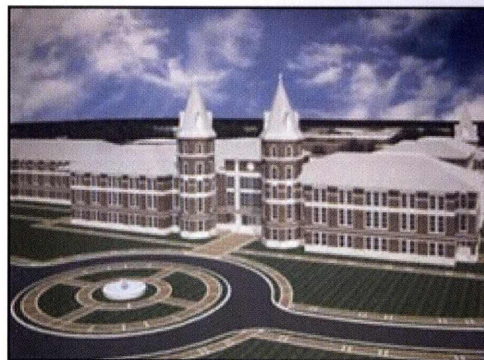
### *Impact/Exceptional Opportunities*

#### ***New Academic Programs and Infrastructure Development***

New academic programs and infrastructures were spurred by the growth of STEM disciplines. Approximately 6 new facilities have been built that augment and improve STEM disciplines, including facilities at Claflin University, College of Charleston and SC State University. New academic disciplines include BS degrees in Nuclear Engineering and Masters in Transportation (unique to the state of South Carolina), and undergraduate degrees in Radio Chemistry, Health Physics, Medical Physics, Professional Land Surveying, and Masters in Bio-Technology and Computer Engineering.



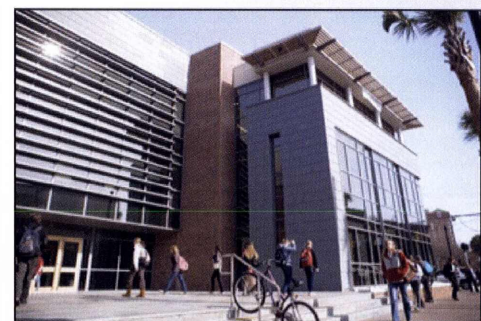
SC State Science Building  
Leroy Davis, Sr. Hall



SC State James E. Clyburn  
Transportation Center



Claflin  
Molecular Science and  
Research Center



College of Charleston  
Science Building

### **Conclusion**

For nearly twenty years LS-SCAMP has served its mission of recruitment, retention, graduation and workforce diversity for underrepresented minorities in STEM disciplines. This alliance impact report outlines successful and creative activities to increase underrepresented minorities in these disciplines throughout the state of South Carolina and the nation's workforce. The energy and passion for our mission is clearly displayed in the pages. We look forward to a new future of even greater impact in the next decade ahead.

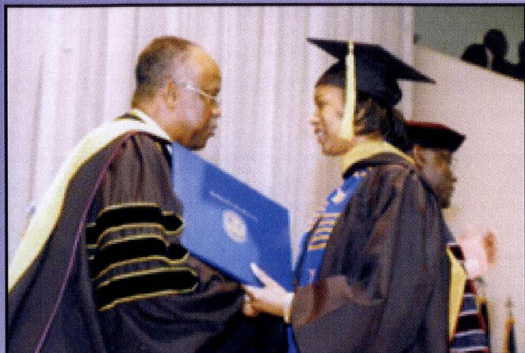
Highlighting



# SOUTH CAROLINA STATE UNIVERSITY

## LEAD INSTITUTION

### Overview



Dr. Hicks congratulates Aundria Blanchard, nuclear engineering graduate, currently pursuing a M.S. degree at Texas A&M University in medical physics.

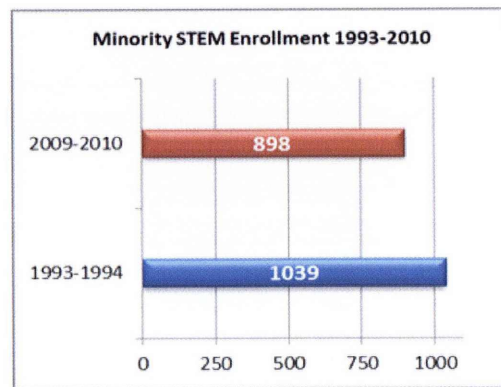
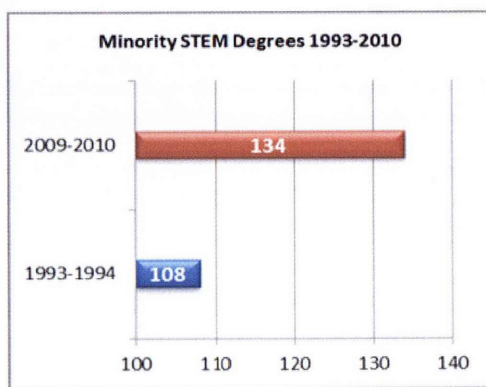
South Carolina State University was a founding member of the Louis Stokes South Carolina Alliance for Minority Participation Program (LS-SCAMP) in 1992. For nearly two decades 16,225 minority students have been channeled through STEM disciplines. When the eight member Alliance was restructured in 2002, SC State became the lead institution. Today, the institution produces 31% of all minority STEM BS degrees awarded in the Alliance. The strong support and consistent funding provided by the National Science Foundation and the South Carolina Legislature has opened doors for minority students to earn STEM degrees.

### Impact

South Carolina State University's URM STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. It is notable that the degree production increased by 24.1% from 108 students in 1993 to 134 students in 2010. South Carolina State is ranked nationally for its degree production of African- Americans in the following STEM disciplines: Biology (#13), Mathematics (#11), Computer Science (#26), Engineering Technologies (#5) and Physical Science (#32) as stated in *Diverse Issues in Higher Education*.

### Quick Fact:

*SC State University is the state of South Carolina's largest producer of African American graduates with baccalaureate degrees in STEM*



## Shaping Lives Through High Impact Experiences

### Summer Bridge

Since 1993, 433 freshmen have completed the bridge program each earning 6 college credits. Many of the SCAMP summer bridge participants complete their course of study in 3.5 years. A number of these students use the additional time to earn a dual degree or participate in student exchange programs and cooperative education experiences with local and national business and industry partners.

*"The summer bridge program gave me what I needed to be successful in my field of interest" says Danzell Smith, sophomore biology major who recently returned from a summer internship at the Medical University of South Carolina in Charleston, SC.*





# SOUTH CAROLINA STATE UNIVERSITY

*Highlighting*

**Major accomplishments in STEM research and education have been realized at the institution and include the following:**

Enrolled more than 16,225 students in STEM disciplines since 1992

Awarded more than 2500 undergraduates STEM BS degrees since program inception

Ranked nationally for the BS degree production of AA in biology, computer science and engineering disciplines by *Diverse*

Increased new undergraduate STEM degree programs such as nuclear engineering, radiochemistry, medical physics, health physics, professional land surveying and a Master's in Transportation program.

The university has the distinction in 2011 of graduating the largest number of African American minorities with BS degrees in nuclear engineering in the nation. Many of the graduates have been LS-SCAMP students.

Ranked in the top 20% of undergraduate institutions in the nation for research by *Forbes*.

Consistently ranked nationally for the BS Degree production of African-Americans in biology, computer science and engineering disciplines by *Diverse*.

## *Research/ Technical College Impact*

SCAMP students had high interest in research and most students completed 2 or more research internships during their three and a half to four year tenure. Notable is the fact that SCAMP students begin their internship experiences at the end of their freshmen year. SC State University has conducted a summer research transfer bridge program for 2 year college students since 2007. Students earned scholarships through the LS-SCAMP program to transfer to a 4-year partner institution. A total of 35 students have transferred from Denmark Technical College, Midlands Technical College and O-C Technical College and 15 have participated in the summer bridge.

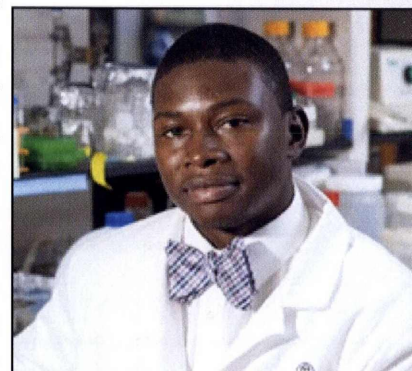
## *Making Dreams Come True*



**Crystal Green**, a sophomore Nuclear Engineering major interned at Lawrence Livermore National Laboratory and won 1st place in the Poster Symposium Competition. Crystal says, "I thoroughly enjoyed the research experience in California. I was amongst a very diverse group of fellow interns from all across the world. The lab sponsored various activities for us such as white-water rafting and sky-diving. I am very thankful for the experience and hope to return next year and work on a publication.

Learn more about Crystal's accomplishments at [http://www.scsu.edu/news\\_article.aspx?news\\_id=1265](http://www.scsu.edu/news_article.aspx?news_id=1265)

**Dr. Ethell Vereen, Jr.**, Postdoctoral FIRST Fellow at Emory University in the Rollins School of Public Health and the Center for Global Safe Water, received a BS degree in Professional Biology in 2002. Attended the University of Georgia and received a MS degree in Environmental Health Science, 2005 and in 2010 he earned a PhD in Ecology. Dr. Vereen credits the SCAMP program and his internships with building a foundation of interest in science, the environment, and academic leadership. His first research internship was through the SCAMP program



at a USDA facility in Athens, GA where he was deemed the Most Outstanding Summer Research Intern and he was selected to be profiled as an 'Amazing Student' at UGA. Dr. Vereen's faith and experiences with the SCAMP program have indeed profoundly and positively impacted his life.



<http://scamp.scsu.edu>

Highlighting



# ALLEN UNIVERSITY

## Overview

Allen University is an academic community which provides students an opportunity to obtain a baccalaureate degree in liberal arts and professional programs. The University has a strong unalterable commitment to teaching in delivery of its baccalaureate programs.

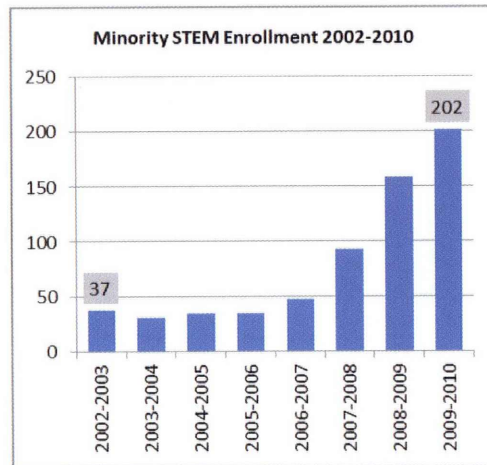
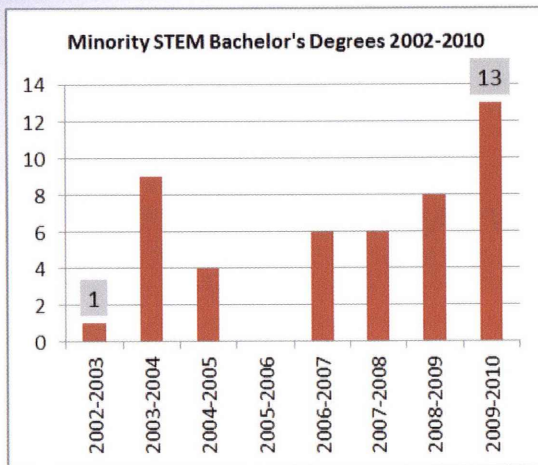
A milestone documenting the impact and success of the LS-SCAMP partnership with Allen University over the past four years was recently achieved. Allen University, the smallest institution, in the alliance in 2002 had only 5 STEM majors. Initially, Allen was a part of the Benedict Cluster with Benedict University serving as the lead campus offering joint LS-SCAMP program activities. In 2004, Allen appointed new leadership in the LS-SCAMP program as well as the Natural Sciences Division and through aggressive and innovative recruitment increased STEM enrollment and became a standalone program. Allen's STEM enrollment grew from 37 students in 2002 to over 202 in 2010.

### Quick Fact:

*Allen University has the fastest growing STEM enrollment in the SC Alliance.*

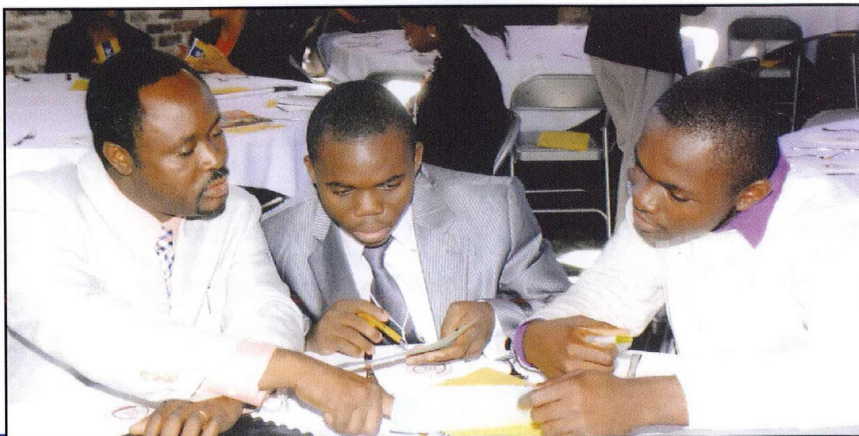
### Impact

Allen University's underrepresented minority STEM enrollment and degree production for the baseline year (2002-2003)\* and current year (2009-2010) is illustrated in Figures 1 and 2. Allen University experienced notable increases in enrollment and degree production. The enrollment increased by 445.9% from 37 students in 2002 to 202 in 2010. The degree production increased by 1200.0% from 1 student in 2002 to 13 students in 2010. *\*Baseline for Restructured Alliance*



## Shaping Lives Through High Impact Experiences

The 2010 research conference was successfully held at Allen University in Columbia, SC and was jointly hosted by Allen and Benedict College. There were 65 presenters and 150 in attendance at the oral and poster conference sessions. The event was covered by local media and TV stations and gave the program statewide exposure.







# ALLEN UNIVERSITY

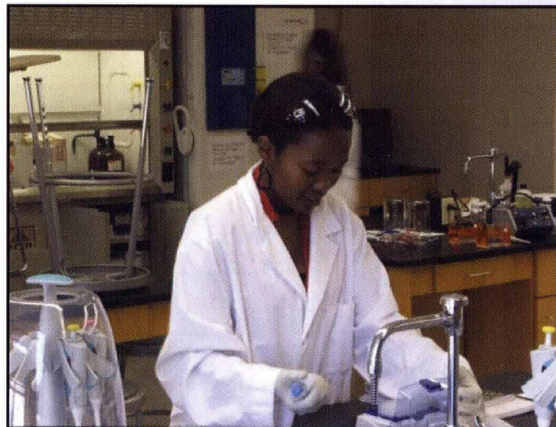
*Highlighting*

## *Academic Year Bridge and Research Program*

The programmatic impact and success of SCAMP has resulted in a milestone in STEM enrollment as well as infrastructure at Allen University. Allen has successfully leveraged SCAMP funds with other programs to significantly increase institutional capacity to conduct research, STEM research and training program activities, grow enrollment and retain students in STEM disciplines. In 2002, Allen had only 5 STEM majors and no funded research projects in STEM. In 2006 the headcount for STEM majors increased to 48. The headcount grew to 93 students, in one year representing a 94% increase in enrollment. Summer undergraduate research participation had similarly increased. In 2007 there were 8 minority undergraduate research students placed in internships. Summer 2008, 25 STEM undergraduates conducted research at various laboratories including the Savannah River site, USDA-ARS, SCSU, and University of Connecticut. This represents a 75% increase in research participation. One of the students, Faith Bupe won first place in the SCAMP Summer Undergraduate Research Conference, another first for this institution.

## *Making Dreams Come True*

Allen University Undergraduate Student **Faith Bupe** made history at the 2008 Annual Science and Engineering Research Conference. She placed first in the division of Biological Sciences I, a milestone for her university. During that year, Allen University was recognized as having the fastest growing STEM enrollment among SCAMP institutions in the state of South Carolina.



<http://scamp.scsu.edu>



**Alycia Albergott** graduated in 2009 and currently doing her Masters' program in the school of Public Health, with focus on Epidemiology. Her Graduate Advisor is Dr. Wilfried Karmaus. Alycia got to know about Dr. Karmaus' research interest during her undergraduate program at Allen University, when Dr. Oluwole Ariyo under the STEM activity invited Dr. Karmaus to come and give a seminar at Allen University. A few months after that Alycia began working in Karmaus laboratory at USC during her undergraduate studies. Her first summer experience was in 2005 at South Carolina State University under the LS-SCAMP program. Then, she worked with Dr. Joe Emily on Microbial source-tracking of E. coli using LCMS. In 2006, Alycia did her summer internship at Allen University, where she served as a tutor. She interned at Los Alamos National laboratory, New Mexico in 2007 and her research was on Bioinformatics. In 2008, Ms. Albergott was privileged to intern at University of Connecticut at the Department of Physiology and Neurobiology working on Brain cells. She graduated from Allen University with a GPA greater than 3.0.

*Highlighting*



# BENEDICT COLLEGE

## Overview

The LS-SCAMP program at Benedict College has been impacting the lives of URM students in STEM fields for nearly two decades. As a member of the original alliance established in 1992, the college's enrollment and graduation rates in STEM have increased tremendously overall project years. While the increase in STEM enrollment is impressive (165%), the rate of BS degrees awarded is even more substantial. The College has tripled its number of URM bachelor degrees (24 in 1992 to 77 in 2010). The strong support and consistent funding provided by the National Science Foundation and the South Carolina State Legislature to Benedict through LS-SCAMP has resulted in the college's national recognition in a STEM discipline. Benedict College is ranked one of the top ten colleges in the nation in producing African Americans with an undergraduate degree in Physics, as reported by the Education and Employment Statistic Division of the American Institute of Physics.

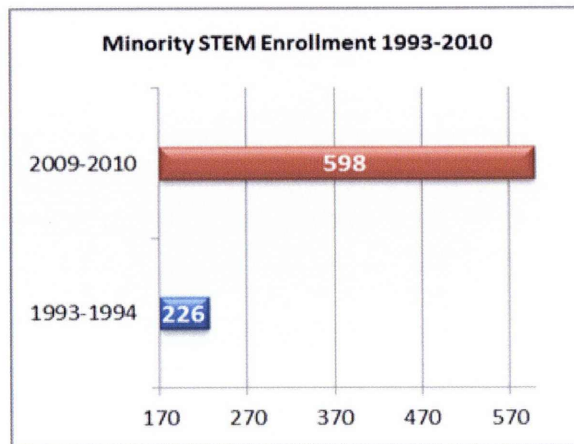
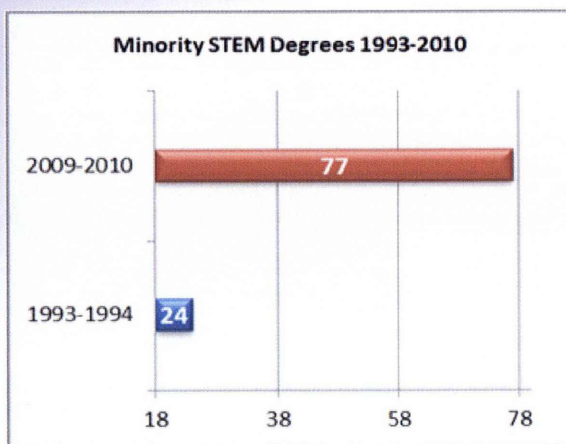
### Quick Fact:

*Benedict College ranks among the top ten nationally in producing African Americans with an undergraduate Physics degree.*

*-Education and Employment Statistic Division of the American Institute of Physics*

### Impact

Benedict College's underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. The enrollment and degree production at Benedict substantially increased over the project period. The enrollment increased by 164.6% and degree production increased by 220.8%.



## Shaping Lives Through High Impact Experiences

### *The Summer Bridge Program*

- » an innovative research based, 5-week residential program for freshmen.
- » early exposure to the dynamics of research.
- » mentoring by professional scientists and research faculty at the home institution and at federal, national and state laboratories.
- » 80 Level I participants since 2002





# BENEDICT COLLEGE

*Highlighting*

## Research

Research internship opportunities provided unique learning and training experiences for graduate school preparation at Benedict. Over the years, SCAMP has greatly impacted the ability to increase the number of students who engage in research at their home institution, partner institutions, local STEM programs and other state, federal and national laboratory sites. LS-SCAMP provided an average support of \$4000 per student per summer internship.



*Sarita Sharp, Sydney Australia*

Sarita Sharp, current senior biology major participated in an international research in Sydney, Australia. She attended the University of Washington Multidisciplinary International Research Training UW (MIRT) program summer 2011.

## Technical College Research Bridge Program

» Focuses on increasing the number of highly prepared STEM majors from community and technical colleges who transfer to four year member institutions.

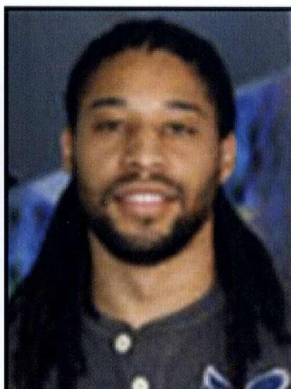
» Since 2009, Benedict College has provided summer research positions to two students from Midlands Technical College who are expected to transfer to Benedict.

## Making Dreams Come True

**Koyett Miles**, graduated in 2007 with a BS degree in physics. He participated in numerous research internships as an undergraduate and won 1st place in the Physics/Engineering division of the SCAMP Undergraduate Science and Engineering Research Conference and the HBCU-UP Research Conference. He is currently working on a MS degree and received the ITT Fellowship at California State University, San Bernardino. Koyett was one of the first undergraduates to participate in the NSF funded SEAGEP (South Carolina Alliance for Graduate Education Program)



Koyett Miles



Kofi Whitney

**Kofi Whitney**, 2004 Graduate Computer Science Major, LS-SCAMP Scholarship Recipient, a PhD candidate in Human Computer Interaction, was the recipient for this year's Iowa African American Hall of Fame, "Future is Now" Award and \$1000.00 scholarship. The award was presented at the Thirteenth (13th) Annual Iowa African American Hall of Fame (IAAHF) Banquet and Induction Ceremony. This event celebrated and recognized the outstanding achievements of African Americans with respect to enhancing the quality of life for all Iowans in the State of Iowa.



<http://scamp.scsu.edu>

Highlighting



# CLAFLIN UNIVERSITY

## Overview

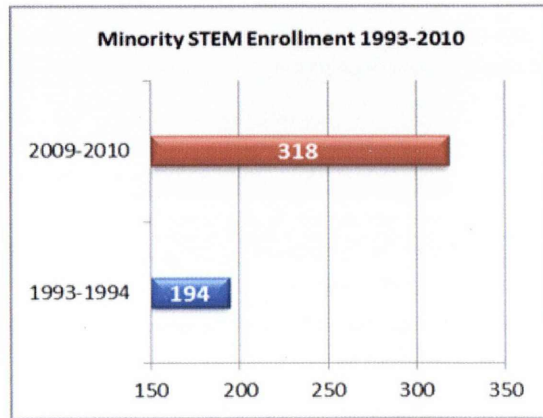
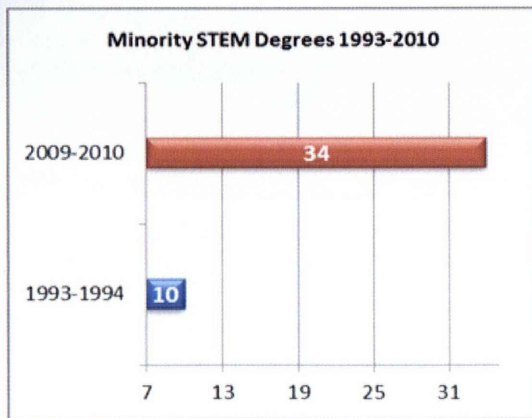
The Louis Stokes South Carolina Alliance for Minority Participation Program (LS-SCAMP) was established on the campus of Claflin University in 1992. Strong members of the alliance, Claflin through the efforts of LS-SCAMP has doubled its STEM enrollment and tripled its graduation rates for underrepresented minorities in STEM (URMs) over the past 19 years. Enrollment increased from 194 to 318 (64%) and BS degree completion increased from 10 to 34 (240%). The strong support and consistent funding provided by the National Science Foundation and the South Carolina state Legislature to Claflin University through LS-SCAMP has impacted undergraduate student research, internship opportunities, conference participation, and graduate/ professional school enrollment. Claflin is recognized and cited as an outstanding institution of higher education by some of the nation's most prestigious national publications to include *The Chronicle of Higher Education* for its excellent retention rate and *The Journal of Blacks in Higher Education* for its high graduation rate. In addition, Claflin University has been ranked for 12 consecutive years, (1998-2010) by the U.S. News and World Report in the "Top Tier" of "America's Best Colleges," and consistently cited for "Best Value," by the same magazine.

### Quick Fact:

*Claflin University has been ranked for 12 consecutive years by US News and World Report as one of America's best colleges.*

### Impact

Claflin University's underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. There was a significant increase in enrollment and degree production at Claflin during project period. The enrollment increased by 63.9% and the degree production increased by 240.0%.



## Shaping Lives Through High Impact Experiences



*Claflin, a founding Member hosted the LS-SCAMP 2010 Undergraduate Science and Engineering Research Conference featuring Dr. Juan Gilbert nationally renowned, IDEaS Professor and Chair of the Human Centered Computing Division, Clemson University as keynote speaker.*



# CLAFLIN UNIVERSITY

*Highlighting*

## *Research and Development*

Claflin University has impacted the economic development in the community and state through new STEM academic programs and infrastructure development. The LS-SCAMP financial support, partnerships and collaborations, have afforded student scholars at Claflin rich and diverse research experiences. Much physical, educational, and instrumental growth has occurred over the years.

» Claflin University established its first graduate degree program in STEM and conducted the first class for the Masters of Science in Biotechnology in 2005.

» Claflin University recently completed the construction of a new state of the art Molecular Science and Research Facility which houses research space for graduate and post doctoral students.

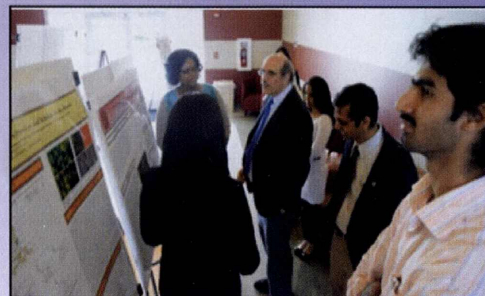
» Claflin University has experienced an increase in research placement at the home institution. From 2002-2010, 167 Level I undergraduate students were supported in research experiences. However, the total number of Level I and Level II students is 365 and demonstrates the level of commitment the institution invests.

» The program has seen a 50% increase in graduate school enrollment from 2002-2010.

» A total of 53 LS-SCAMP students have enrolled in graduate school in STEM disciplines since 2002.

» Interest and participation in local and national research conferences has also increased tremendously.

» In October 2010, Claflin University was the host of the South Carolina LS-SCAMP Annual Science and Engineering Undergraduate Research Conference where approximately 200 faculty and students across the state gathered. Keynote speaker: Dr. Juan Gilbert, IDEaS Professor and Chair of the Human Centered Computing Division, Clemson University.



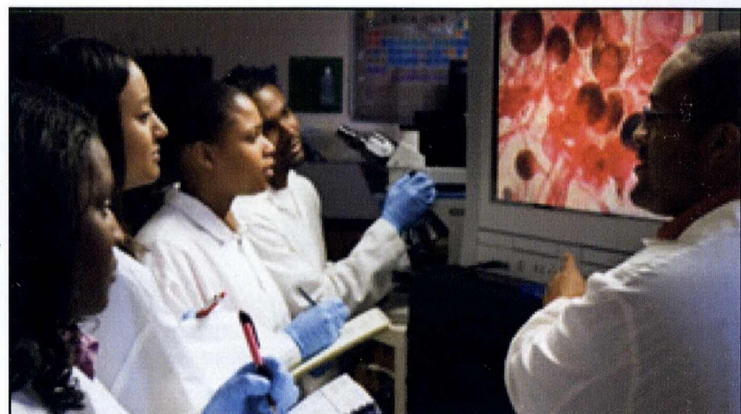
Nobel Laureate visits Claflin

## *Making Dreams Come True*

**Antwanette Carter** – sophomore biology major, has been working on spectroscopic studies of novel quinolone metal containing ligands that can be used to deactivate pathogens such as anthrax. She will present her work at the Southeastern Regional ACS meeting in October, 2011.

**Kayla Felix and Aja Moss** – sophomore biology majors, have been working on the 300 MHz NMR studying metabolomics. They will also present their work at the Southeastern Regional ACS meeting in October, 2011.

**Aaron Shepard and Jillian Harrison** – junior biochemistry and biology majors, recently participated in a University of Florida NMR summer internship. They learned to use the 700MHz NMR in Florida and will continue their work at Claflin. This is collaboration between Claflin and the University of Florida's National High Magnetic Field Lab.



<http://scamp.scsu.edu>

*Highlighting*



# CLEMSON UNIVERSITY

## Overview

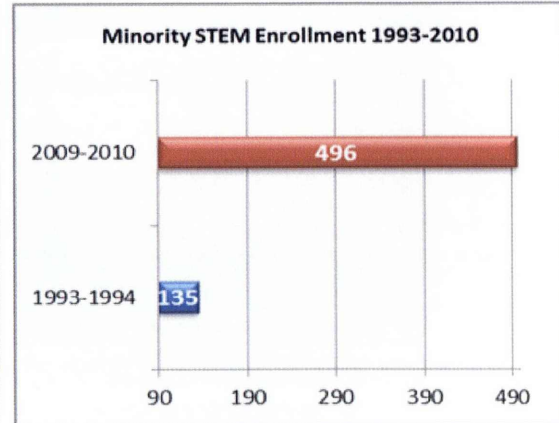
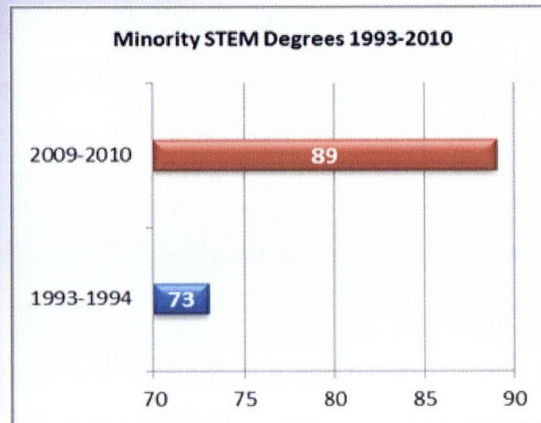
The Louis Stokes – South Carolina Alliance for Minority Participation (LS-SCAMP) is an integral part of the Clemson University campus. Clemson, a founding member of the alliance in 1992 is a predominately white institution (PWI), and consistently ranks in the top 20 nationally of PWIs in number of African American engineers graduated each year. (Most of the predominately white institutions ranked above Clemson have significantly larger undergraduate enrollments). In the years since 1992 Clemson has graduated 1781 undergraduate minority students in STEM disciplines.

### Quick Fact:

*Clemson is ranked #8 nationally for its degree production of African-American Engineers as stated in Diverse.*

### Impact

Clemson University's underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. The enrollment and degree production increased during the project period. The enrollment increased by 267.4% and the degree production increased by 21.9%. Clemson is also ranked #8 nationally for its degree production of African-American Engineers in Diverse Issues in Higher Education.



## Shaping Lives Through High Impact Experiences

### Math Excellence Workshop

*Award-winning summer bridge program called, Math Excellence Workshop(MEW), have higher graduation rates than counterparts and earn higher grades in summer Calculus classes*

- » The Math Excellence Workshop (MEW) has been presented at Clemson since 1990.
- » Supported by LS-SCAMP since 1992 and other sources allowing incoming students the opportunity to take their first math credit course free.
- » Since 2002, 375 students have taken part in MEW



*Math Excellence Workshop '11 Students, Counselors and Tutors, with Clemson LS-SCAMP PI Sue Lasser*



# CLEMSON UNIVERSITY

*Highlighting*

*Math Excellence Workshop (cont.)*

» Research data shows that 83% of the URMs who participated in the workshop in 2002 graduated from the university in six years.

## *Research*

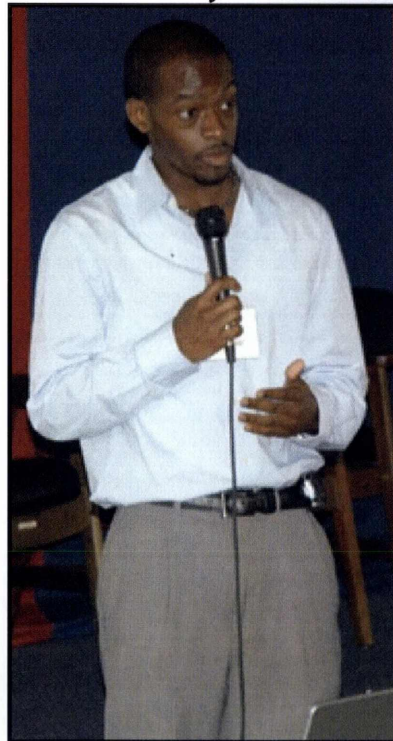
LS-SCAMP at Clemson has supported summer undergraduates' research program that has grown every year, from one participant in 2005 to 10 in 2011. Through partnering with other departments on campus and other institutions, LS-SCAMP at Clemson has helped to provide undergraduate research experiences to 40 Clemson students and, in summer 2011, one Midlands Tech (two year institution) student was supported through the Transfer Research Bridge program. Of the 40 students who have participated in undergraduate research, 11 are known to be currently attending or have completed graduate programs in STEM disciplines.

An innovative approach to attracting minority students to the professoriate, the Academic Internship (SEAGEP Shadowing Program), has been presented through LS-SCAMP since 2006. The internship is designed to provide undergraduates with an "up close and personal" look at the life of a college research professor. For eight weeks, Academic Interns shadow their chosen mentors. At Clemson, academic interns have taught classes, held office hours, accompanied faculty mentors to meetings, graded papers, and worked in their mentors' labs.

In one-on-one conversations with their faculty mentors, academic interns have discussed topics ranging from their mentors' own journeys into academia, to selecting a graduate school, to the joys and frustrations of teaching, to navigating departmental politics.



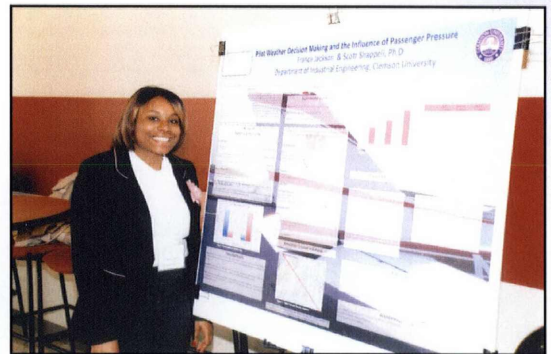
## *Making Dreams Come True*



**Jason Donnell Ellis** presents at the 2006 LS-SCAMP Research Conference. Mr. Ellis is currently a PhD candidate in Electrical Engineering at Clemson University.



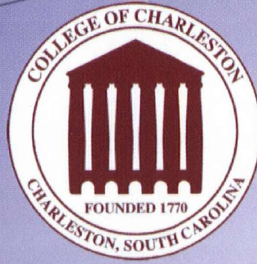
3 Ph.D Candidates participate in the graduate school forum at the undergraduate research conference



Clemson student presents at undergraduate research conference.

**AMPI** The Louis Stokes South Carolina Alliance For Minority Participation  
<http://scamp.scsu.edu>

*Highlighting*



# COLLEGE OF CHARLESTON

## Overview

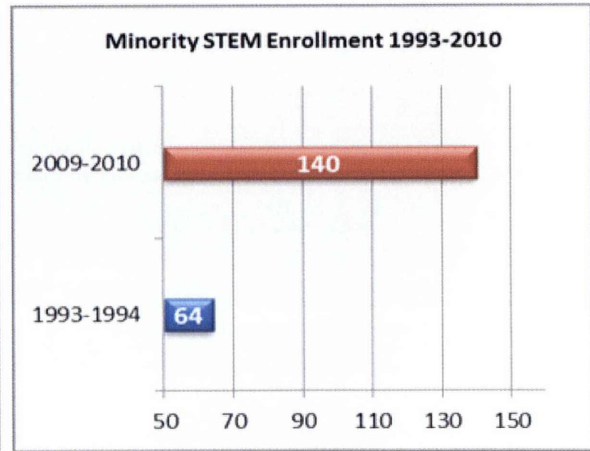
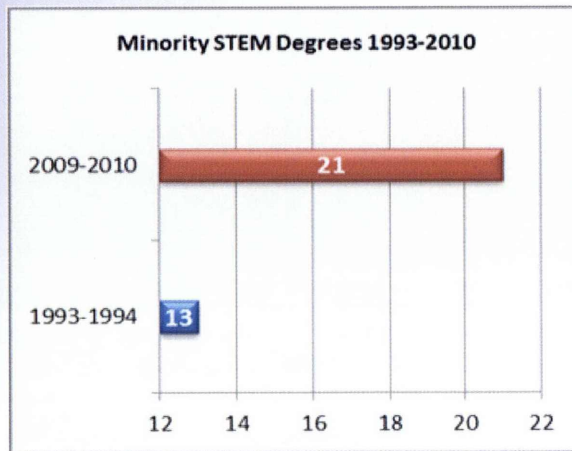
The LS-SCAMP program at the College of Charleston has positively impacted hundreds of students' lives and careers. The graduation rate at the College of Charleston rose slightly over the last 5 year project period. The success of the LS-SCAMP program has been undergirded by strong support from the college as a whole. In an effort to broaden participation in the sciences, the LS-SCAMP program formed powerful partnerships with two partners, School of Sciences and Mathematics and the Multicultural Students Program and Services to leverage funds to increase the quantity and quality of program activities. The School of Sciences and Mathematics is firmly committed to LS-SCAMP and the Multicultural Student Programs and Services is the largest direct contributor to the program assisting students with tuition, room and board, tutoring, instructor salary, and assistance with the research conference. One of the discernable evidences of the program's effectiveness is its remarkable growth. The total number of students slated to receive Level 1 support this year has increased to 54, compared to recent years of about 40.

### Quick Fact:

*LS-SCAMP program doubles in size! Largest class completes summer bridge in 4.5 weeks.*

### Impact

College of Charleston's underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. The enrollment and degree production increased during the project period. The enrollment increased by 118.8% and the degree production increased by 61.5%.



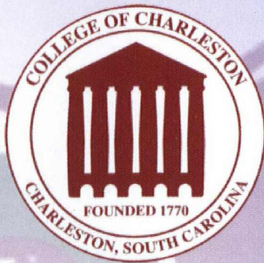
## Shaping Lives Through High Impact Experiences

### Summer Bridge Program

For 16 years, the LS-SCAMP program has welcomed entering minority freshmen into its Summer Bridge Program. The curriculum of Pre-calculus/Lab paired with another course has been a proven formula for success. The multifaceted Summer Bridge program for LS-SCAMP scholars is a subset of the college-wide transition program for minority students. Therefore, it receives both the financial and programmatic support from the Multicultural Student Programs and Services. This summer's Bridge Program was the largest in several years, as 17 students completed the program in 4.5 weeks. (<http://news.cofc.edu/2011/07/05/scamp-program-doubles-in-size>) In addition to academics, students experience cultural, leadership, and community service activities during the summer. In the ensuing fall semester, students are required to take Calculus and a special Lab.







# COLLEGE OF CHARLESTON

*Highlighting*

## *Science Club Successful in Bonding Students Together as a Community of Scholars.*

Students who join LS-SCAMP during the Summer Bridge program start a bond that can be enduring and very helpful as they traverse the rigors of their science curriculum. The Student Science Society provides that necessary structure.



## *Research*

During the course of LS-SCAMP, many students engage in diverse experiences that expose them to other professions such as professional research scientist, university professor, and others that require earning a PhD. Quite a number of students have changed their minds about the medical profession after going through those high impact research internship experiences.

One of the strong partners in research efforts over the past two years is the Ronald McNair Scholars program providing funding for 7 of LS- SCAMP's undergraduate researchers. Other research partners include Grice Marine Laboratory,

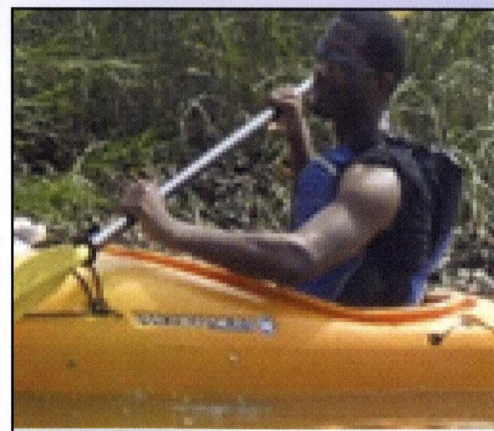
Howard Hughes Medical Institute, Dept. of Natural Resources MIMES Program, and numerous faculty mentors at this institution and others.

## *Technical College Impact*

The LS-SCAMP program has supported several technical college graduates over the years. In recent years, stipends were paid to 4 technical college transfers to assist them with the transition. Summer 2010, the program funded and supported a Denmark Technical College student to conduct research. The student, Byron Singletary, is now enrolled at the University of South Carolina pursuing an engineering degree.

## *Making Dreams Come True*

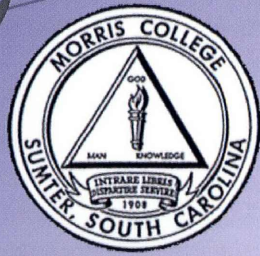
**Dion Foster** received a BS in Biology from the College of Charleston in 2010. Dion says, "I wanted to be a physician growing up but by the time I had completed my undergraduate degree in Biology, I realized that I loved science on a molecular level more than I could have ever imagined!" Some of his special experiences as an undergraduate student included: tutoring in the SCAMP summer bridge program and Supplemental Instruction leader for Biology courses. His ultimate goal is to obtain Ph.D. degree in Biomedical Sciences from the Medical University of South Carolina and conduct research in Pathology and Cancer Biology.



Six LS-SCAMP students who are currently pursuing post graduate studies include: Traci Gunter, Florida State Univ. , PhD, Math Erica Flores, Miami Univ. , PhD., Marine Biology, Brittany Johnson, NC State Univ. , Ph.D. Computer Science, Onica Washington, Duke University, Ph.D., Biochemistry, Danielle Brandon, MUSC, Dion Foster, MUSC, Masters, Dept. of Pathology and Laboratory Medicine



Highlighting



# MORRIS COLLEGE

## Overview

Prior to the advent of large federal programs (HBCU-UP, DOE-EM) on Morris College campus, the **Louis-Stokes South Carolina Alliance for Minority Participation (LS-SCAMP)** was already on campus (since 2002) supporting STEM majors financially and providing research opportunities both on-campus and off-campus. The program also made it possible for our students to attend national and state research conferences and annual meetings. And through the Scientific Lecture/Role Model Series, the program made it possible for our small liberal arts college students to interact with imminent scientists and professionals ranging from a Nobel Laureate (Dr. Kenneth Wilson) to the State Naturalist (Dr. Rudy Mancke), to a songbird specialist (Dr. Erich Jarvis), to Morris College graduates in various fields of academe and other professions. The LS-SCAMP resources, with leverage from HBCU-UP and DOE-EM, made it possible for our graduates to gain access to major academic and research institutions such as **MIT, Notre Dame, Duke, MUSC, USC, Tuskegee and Clemson**. Without LS-SCAMP's early and uninterrupted support, the gains made by LS-SCAMP students today would not have been impossible.

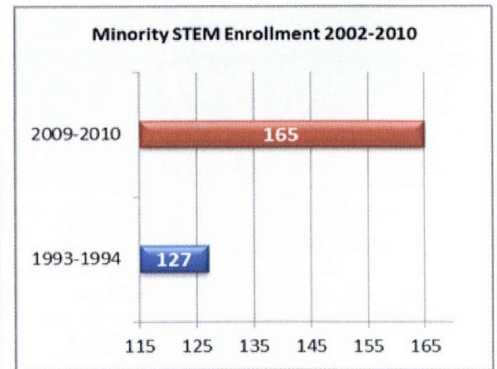
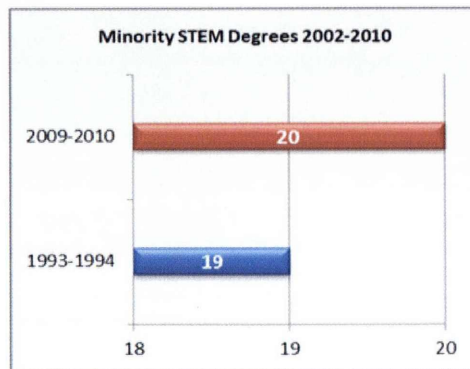
### Quick Fact:

#### Making Dreams Come True

*Among the Morris College LS-SCAMP Level I graduates, four are presently pursuing (at different levels) doctorate degrees in prestigious institutions: Terrell Gibson (Class of 2006) at Texas Southern University (Environmental Toxicology), Shekila Baccus (Class of 2010) at MIT (Biotechnology), Morgan Perry Davis (Class of 2010) at Tuskegee University (Computer Engineering), and Jessica McCoy (Class of 2011) at the University of Notre Dame (Electrical Engineering).*

### Impact

Morris College became a member of the Alliance in 2002. Its underrepresented minority STEM enrollment and degree production for the baseline year (2002-2003)\* and current year (2009-2010) is illustrated in Figures 1 and 2. Morris experienced increases in enrollment and degree production during the project period. The enrollment increased by 29.9% and degree production increased by 5.3%. \*Baseline for restructured Alliance



## Shaping Lives Through High Impact Experiences

### Scientific Lecture Series

» A Scientific Lecture Series is offered at Morris College to expose students to professional researchers, scholars and role models. Four lectures are offered each year to all STEM majors on campus.

» Since 2006 a total of 122 students have participated in the program activity.



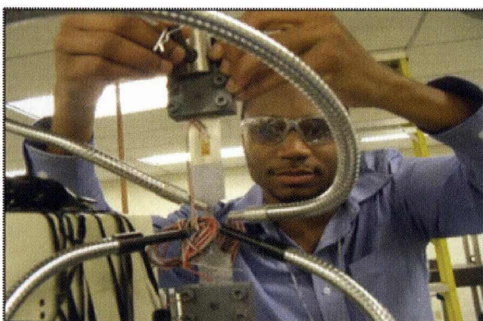


# MORRIS COLLEGE

*Highlighting*

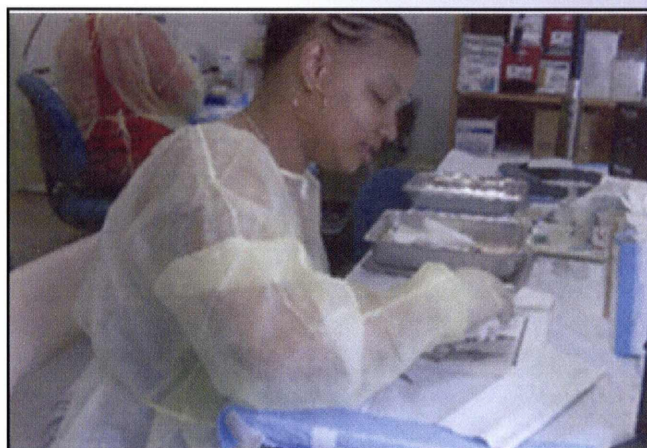
## Research

Morris College offers its undergraduate LS-SCAMP students research internship opportunities on campus and at off campus sites to include state, federal and national laboratories. Research Internships have been completed by 109 students from 2002 – 2010. Morris College prides itself on preparing students for scientific research conference participation. Student researchers Shekella Baccus and Morgan Perry Davis won the Undergraduate Research Excellence Award from the South Carolina Academy of Science in April, 2009. This is significant as the competition is statewide with participants primarily from major research institutions; Morris College is not a research intensive university. The students are now co-authors with their research mentor, Dr. David Magnin of Morris College, of an article titled “Synthesis of Fatty Acid Binding Protein Inhibitors: A New Approach for Diabetes Treatment” published in the Journal of the South Carolina Academy of Science, 2009 (Vol. 7(2)–1). Over the years, the LS-SCAMP Program provided student financial assistance to attend the South Carolina Academy of Science annual meetings. On average, 12 students attended annually, and 3-4 students per year presented their research projects. Book awards helped needy students purchase their academic textbooks and enabled them to graduate with their cohort members. For example, in 2009, 10 needy students received \$600 book awards that enabled them to succeed academically. A total of 52 students between 2002 and 2010 enrolled in graduate school to pursue STEM degrees.



**Oliver Holmes** junior mathematics major was selected to participate in the summer research at the Oak Ridge National Laboratory, in Oak Ridge, Tennessee. His research project entitled “High Rate Tensile Testing of Nickel 270” was supervised by Dr. Donald L. Erdman III. Oliver was featured on one of the Oak Ridge National Laboratory’s videos this summer (July 25, 2011). His mentor, Dr. Erdman, has invited him to return next summer to continue his significant work. Oliver plans to obtain a PhD in mathematics.

## Making Dreams Come True



**Shekella Baccus** a native of a small town (Summerton) in South Carolina, joined the HB-CU-UP and SCAMP programs at Morris College in the summer of 2006 and soon rose to become a star among her peers. She participated in on-campus research projects beginning on her freshman year, and after her

sophomore year, she joined Dr. Edward Levin of Duke University Medical Center to test the hypothesis that “Adolescent nicotine addiction serves as a gateway to cocaine abuse in adulthood” during the summer of 2008. In 2009, she won a \$10,000 UNCF-Merck Undergraduate Science Research Scholarship award and during that summer, she participated in a research project at

Merck. She was among 23 candidates invited to attend the MIT’s Converge 2009 Program, selected from among 102 applicants from across the nation. She joined MIT in the fall of 2010 after graduating from Morris College Summa Cum Laude in May 2010. Her PhD education in Biotechnology is funded by the Novartis Institutes of Biomedical Research.



<http://scamp.scsu.edu>

*Highlighting*



# UNIVERSITY OF SOUTH CAROLINA

## Overview

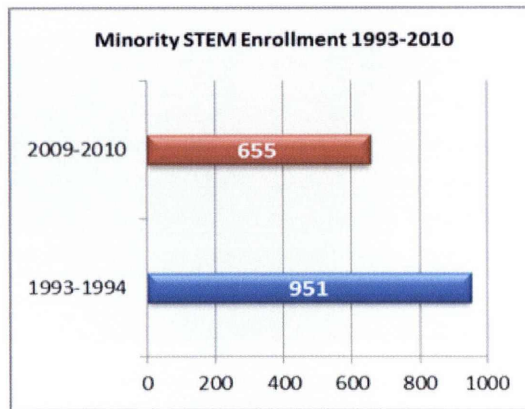
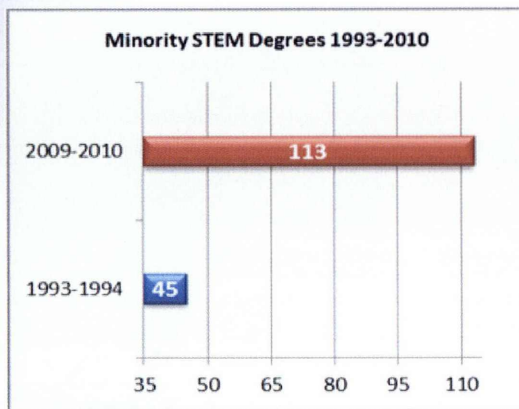
Since its beginnings in 1992, LS-SCAMP has had a significant and lasting impact on underrepresented minority students at the University of South Carolina. The LS-SCAMP program has been instrumental in driving curriculum reform, developing student support innovations, and pioneering transfer partnerships with technical colleges and 2-year campuses. Taking advantage of the University's nationally recognized freshman orientation program, LS-SCAMP was the driver in establishing freshmen orientation classes specifically for science and engineering majors. LS-SCAMP's academic research initiatives have been a model for research opportunities for the University's undergraduate students. In the years since 1992, over 1,700 minority students have graduated in the STEM fields at the University of South Carolina.

### Quick Fact:

*A founding member and initial lead institution of the Alliance, The University of South Carolina was a trailblazer in Curriculum Reform initiatives that became Best Practices throughout the LS-SCAMP alliance. Scientific and Engineering Orientation Courses and Mathematics Reform are two that continue to impact alliance programs today.*

### Impact

The University of South Carolina's underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. The degree production increased significantly during the project period. It is notable that the degree production increased by 151.1%. The University of South Carolina is ranked nationally for its degree production of African-Americans in the following STEM disciplines: Physical Sciences (#10), Mathematics (#11) and Biology (#2) in *Diverse Issues in Higher Education*. \*Baseline for restructured Alliance



## Shaping Lives Through High Impact Experiences

### Scientific 101- Freshman Seminar

» In 1992 as lead institution of the alliance, USC established sections of the freshmen seminar course specifically for science and math majors to increase retention not only at the University level but also in the majors.

» Through the LS-SCAMP program, the first UNIV 101 Science and Math sections of the course were piloted and 168 minority students enrolled.

» The University 101 Freshmen Seminar course at USC is a national model for first year seminars and is consistently named by US News and World Report as a "program to look for" as it consistently gives evidence of increased retention and graduation rates.





# UNIVERSITY OF SOUTH CAROLINA

*Highlighting*

## *Mathematics Reform*

The initial Summer Bridge Program of LS-SCAMP at USC included a Calculus Workshop that served as a model and the basis for mathematics instruction and allowed students to collaborate on challenging problems in an environment of high expectations. Since that time, the workshops have been incorporated into mathematics instruction at USC and have been adapted at a number of the alliance partner institutions who offer summer bridge programs.

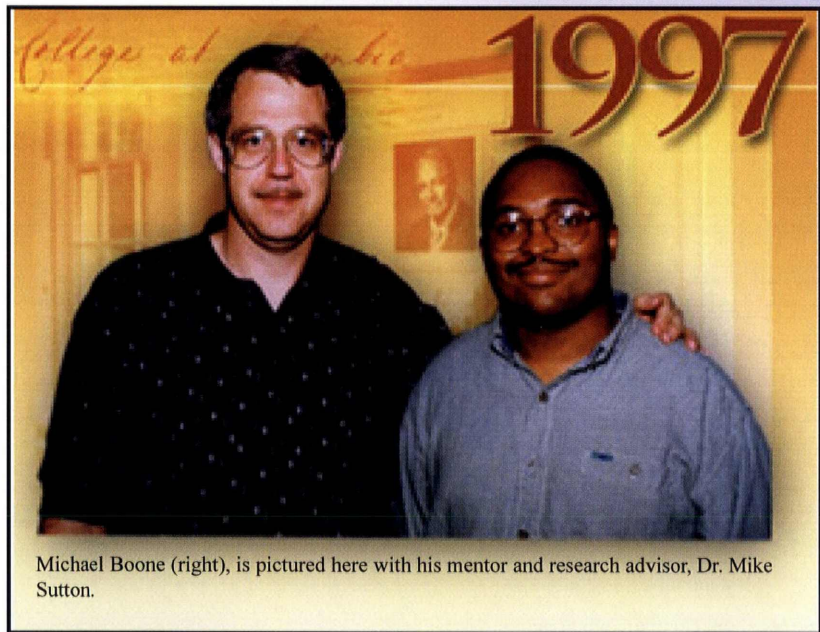
## *Summer Bridge/Technical College Impact*

In 1992, USC had its first Summer Bridge Program and enrolled **40** minority students all of whom were accepted to the Colleges of Engineering and Science and Mathematics. The initial curriculum consisted of a non-credit Pre-Calculus class and evolved into a Pre-Calculus and Calculus course offered for credit to participants. In addition, the students had instruction in computer basics and college survival skills and were exposed to mentoring of upper-class students, most of whom were previous Bridge students. Currently, the Summer Bridge Program has shifted its emphasis onto assisting transfer students from the state's Technical College System and USC's regional campuses. LS-SCAMP and USC's STEPS to STEM program now collaborate in this effort. **Eighty - nine** underrepresented minority students have successfully completed the summer bridge or mathematics excellence workshops from 2002-2006.

## *Research*

A program to provide opportunities for undergraduate students to work with professors in the STEM disciplines at USC has been a strong component of the LS-SCAMP for a number of years, and over 200 research positions have been made available to USC LS-SCAMP students just since 2002. Students researchers are required to participate in the LS-SCAMP Undergraduate Research Conference held each year at a partner institution. USC winners are pictured below:

## *Making Dreams Come True*



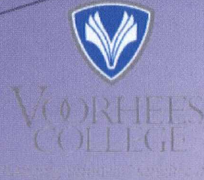
Michael Boone (right), is pictured here with his mentor and research advisor, Dr. Mike Sutton.



<http://scamp.scsu.edu>

**Michael Boone**, a 1997 graduate, LS-SCAMP research student and a mechanical engineering major won more than \$225,000 in national awards including fellowships from the National Science Foundation, the Department of Defense, Goldwater, and NASA, among others.

Highlighting



# VOORHEES COLLEGE

## Overview

Voorhees College’s mission “aims to offer each student a comprehensive general educational experience coupled with professional education in the values-centered liberal arts tradition.” The College’s participation in the Louis Stokes South Carolina Alliance for Minority Participation (LS-SCAMP) program has had tremendous impact in assisting with the realization of this mission. More specifically, LS- SCAMP has been positive locally and nationally by increasing the quality and quantity of undergraduate minority students completing baccalaureate degrees in science, technology, engineering and mathematics (STEM).

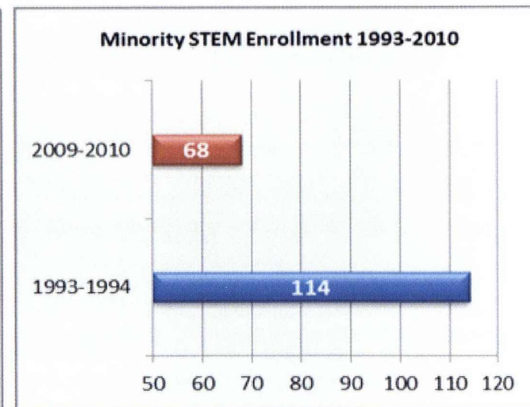
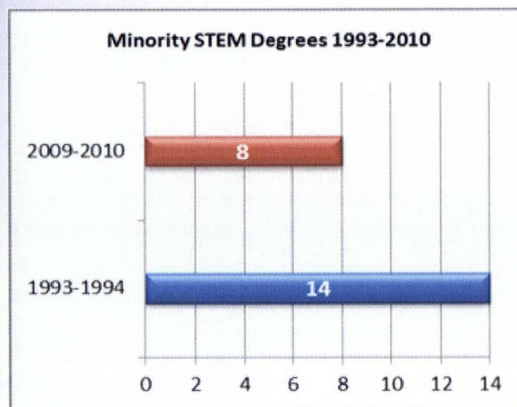
### Quick Fact:

#### Technical College Impact

*In recent years (2007-present), the Research Bridge program has focused on recruitment and retention, with major emphasis on enrolling students transferring from technical colleges. Voorhees College has re-enacted its “2+2” articulation with Denmark Technical College (2009) and since that time, STEM transfers have increased by 15%.*

### Impact

Voorhees College’s underrepresented minority STEM enrollment and degree production for the baseline year (1993-1994) and current year (2009-2010) is illustrated in Figures 1 and 2. There was a change of -40.4 % in enrollment and -42.9% in degree production for the project period. However, 2009 and 2010 data shows the number of degrees awarded is trending upward.

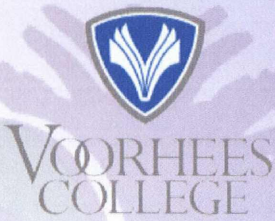


## Shaping Lives Through High Impact Experiences

### Academic Success Center (ASC)

- » In an effort to improve the overall student retention, the College re-vamped it’s ASC and pooled resources with LS-SCAMP’s to help at-risk students by assigning peer tutors as well as faculty tutors.
- » LS-SCAMP supported students make up approximately 55% of peer tutors.



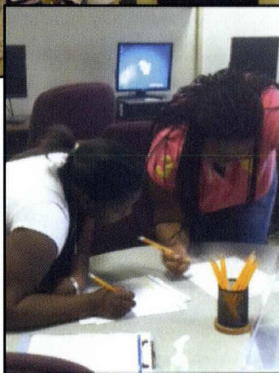
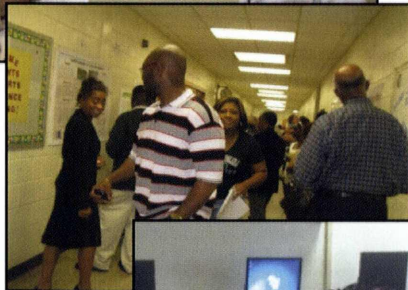
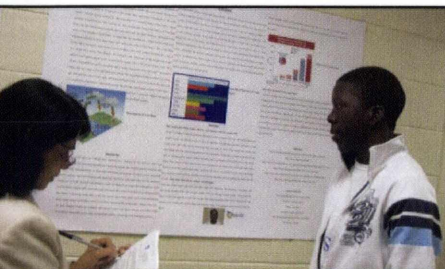


# VOORHEES COLLEGE

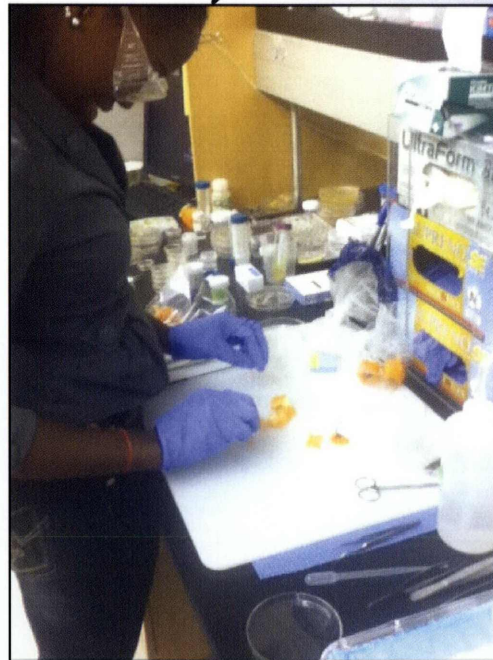
*Highlighting*

## *Academic Year Bridge and Research Program*

Research has shown that an important determinant in the successful graduation rates in STEM programs of under-represented groups is participation in undergraduate research. Voorhees College Bridge Program is conducted throughout the academic year and the summer. During the academic year, the program is focused on retention and graduate school preparation. Because Voorhees College is not a research-intensive college, LS-SCAMP participants are required to take part in laboratory intense courses that provide exposure to techniques and procedures used in laboratory research. LS-SCAMP participants are strongly encouraged to participate in summer internships at research-intensive universities and are required to present their research in a Seminar Series that is held in the Division of Arts and Sciences. Selected students from this pool are then chosen to present their work at regional and/or national conferences. Voorhees College was successful in placing 83% of its seniors in summer undergraduate research internships. According to Tyquan Parker, 2011 graduate and native of Blackville, SC, "After my sophomore year at Voorhees, with internship experience and the curriculum, I knew I could make a difference through STEM."



## *Making Dreams Come True*



In 2010, Voorhees College initiated a collaborative agreement with New Mexico State University, also a participating LS-SCAMP institution whereby students are awarded an opportunity to participate in undergraduate research and bridge activities at a research-intensive university. Summer 2011, two Voorhees College students participated in undergraduate research at New Mexico State University. **Monica Johnson**, (shown at left) a native of Kingstree, SC is a Junior Biology major. Monica's presentation was entitled "The Accumulation of Capsain in habanero Peppers." The other student participant was **Dominique Hinson**, a Junior

Biology major from Philadelphia, PA. Her presentation was entitled "Doubts about Sprouts (*Medicago sativa L.*)" Using various electron microscopic techniques, she investigated variation in biofilm formation. The students are scheduled to return to New Mexico in September 2011 for participation in the New Mexico AMP Research Conference.



<http://scamp.scsu.edu>

*Highlighting*



# DENMARK TECHNICAL COLLEGE

## Overview

At Denmark Technical College, the Louis Stokes South Carolina Alliance for Minority Participation Program (LS-SCAMP) has had a major academic and economic impact on the College and those participants that major in STEM disciplines (i.e., Electromechanical Engineering, Electronics Technology, Computer Technology, and Associate in Science Program). Since its increased participation, the College has seen successful retention, graduation, and placement rates amongst underrepresented minority students that received scholarships, stipends, and engaged in research, professional development and other learning opportunities offered by LS-SCAMP. In the last two years, LS-SCAMP has provided an array of activities and opportunities for students that major in a STEM discipline at the College. Specifically, LS-SCAMP has provided support services for approximately eight African-American students (5 African-American males and 3 African-American females) within the last two years, at least 50% of those students that participated in the South Carolina Minority participation Program transferred to a four year college/university to pursue a career in STEM or a STEM related field.

### Quick Fact:

*The only public HBCU 2 year college in the state of South Carolina.*

## Shaping Lives Through High Impact Experiences

» In the College's efforts to produce a robust and quality workforce, LS-SCAMP has assisted the College by providing additional financial and student support services needed to accomplish its goals.

» The eight week summer research internship program was used as a means to transition students into four year alliance institutions. When students conducted internships at 4 year institutions they were given the opportunity to meet with university admissions personnel and various academic administrators to assist with successful transfer. Scholarships were offered to those technical school students who successfully enrolled.

» Other financial assistance provided by program included book awards, academic year internships and summer school tuition assistance.

» In 2011, the LS-SCAMP state office funded tuition scholarships for two African American male STEM students who graduated from the College and transferred to South Carolina State University

» The table below provides the total number of minority students that graduated in STEM discipline in 2009-2010 and 2010-2011 academic years.

	Graduation(2009-2010)	Graduation (2010-2011)	Total
Computer Technology	4	4	8
Associate in Science	15	16	31
Electronics Technology	3	3	6
Electro-mechanical	5	3	8
Total	27	26	53





# DENMARK TECHNICAL COLLEGE

*Highlighting*

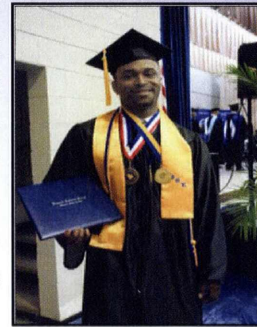
## *Research Opportunities*

In 2009-2010, David Graham and Byron Singletary who are engineering majors had an opportunity to participate in a STEM research project at South Carolina State University in Orangeburg, South Carolina. Mr. Graham and Mr. Singletary had an opportunity to present their research at the LS-SCAMP Conference hosted by Claflin University in October 2010. In 2011, Mr. Byron Singletary also had the opportunity to participate in summer research at the College of Charleston where he engaged in research relative to tissue oxygenation. Mr. Michael Easterday had an opportunity to participate in summer research at South Carolina State University where he engaged in research relative to censor usage in robotics. These research opportunities have exposed students to baccalaureate level research and prepared them for a seamless transition into a four-year STEM program.

*“The LS-SCAMP Scholarship was a beneficial asset for my educational expenses for this semester. Besides the cost of books and materials that I will need for my classes, the scholarship will allow me to pay for the practice test and study guides for the Professional Engineer Exam for Mechanical Engineering,”* says Mr. Edgar Hosey.

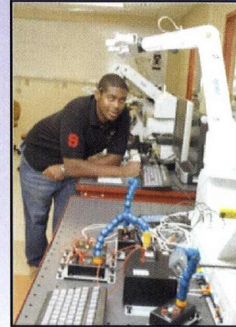
## *Making Dreams Come True*

**Mr. David Graham** graduated salutatorian of the 2011 class of Denmark Technical College with an Associate Degree in Electromechanical Engineering. Mr. Graham is currently enrolled at South Carolina State University in Orangeburg, South Carolina where he will continue to pursue a bachelor’s degree in Engineering.

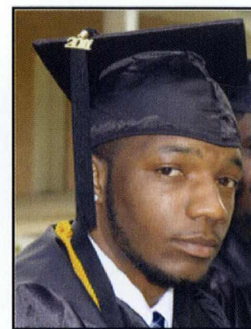


David Graham  
Electromechanical  
Engineering Major

**Mr. Byron Singletary** was an honor graduate of the 2011 class of Denmark Technical College with an Associate Degree in Electromechanical Engineering. Mr. Singletary is currently enrolled at the University of South Carolina where he will pursue a bachelor’s



Byron Singletary  
Electromechanical  
Engineering Major



**Edgar Hosey**  
Electromechanical  
Engineering Major

**Edgar Hosey** is a 2011 Electromechanical Engineering graduate of Denmark Technical College. Mr. Hosey graduated from Denmark Technical College with a 3.1 GPA. He is currently enrolled at one of the LS-SCAMP Alliance schools (South Carolina State University) where he is pursuing a bachelor’s degree in Mechanical Engineering. Mr. Hosey is also a 2011-2012 LS-SCAMP scholarship recipient at South Carolina State University in Orangeburg, South Carolina.



<http://scamp.scsu.edu>

*Highlighting*



# MIDLANDS TECHNICAL COLLEGE

## Overview

Midlands Technical College (MTC) has been a partner of the LS-SCAMP alliance since its inception in 1992. The only technical college included as a founding member, has served as a feeder of 2 year college students to partner institutions for nearly two decades. The students at the college have greatly benefitted from the financial support and collaborative opportunities provided over the years. Many students enrolling at MTC have an interest in transferring to a four-year college or university to obtain a baccalaureate degree in a field related to STEM. These students enroll in the Associate of Science Transfer Program. An LS-SCAMP stipend is offered to minority students who express an interest in transferring into a STEM degree program and serves as incentive to encourage them to pursue a baccalaureate degree.

### Quick Fact:

*Ranks number 1 in the Carolinas in associate degrees to African-Americans*

» LS-SCAMP stipend helps to accelerate students through their general education, math and science courses required during the freshman and sophomore years.

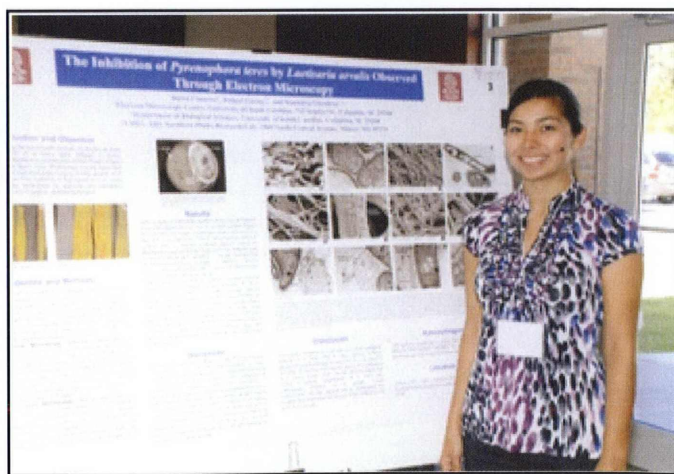
» The Statewide Articulation Agreement of 86 courses approved by the South Carolina Commission on Higher Education for transfer from two-to four-year public institutions is applicable to all public institutions in the state.

» MTC has also developed a formal "Bridge Program" for students planning to transfer to the University of South Carolina. The Bridge Program provides a streamlined transfer process for MTC-USC Bridge students. The University of South Carolina has expanded its student-oriented programs and services to MTC for students interested in enrolling at the Columbia campus. At MTC, USC Bridge students are able to receive information on admissions, financial aid and scholarships, and academic support programs at USC.

## Shaping Lives Through High Impact Experiences

» The number of qualified students directly supported by LS-SCAMP has steadily grown over the years.

Associate science students are eligible to participate in the LS-SCAMP Technical School Research Summer Bridge Program. Selected students perform research during the months with a research mentor from one of our alliance 4 year partner institutions. These opportunities are in high demand by students and result in a high degree of transfer to four year institutions. This experience helps to direct students into a particular area of study and provides the motivation to persevere through their program of study. Students present their research in the LS-SCAMP Science and Engineering Undergraduate Research Conference.



Undergraduate Research Conference Winners 2010 Claflin University



# MIDLANDS TECHNICAL COLLEGE

*Highlighting*

## 2010 STEM Undergraduate Research Students

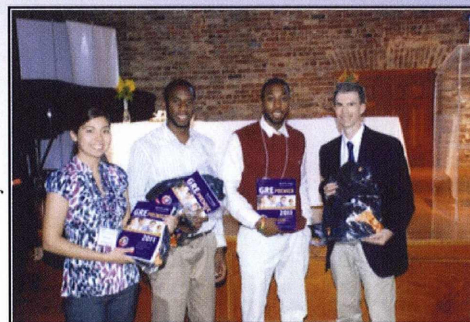
Student	Undergraduate Research (Title)	College/Agency	Research Mentor/Supervisor
Dawn Cisneros	Testing the reliability of the Charge Compensator of an electron microscope	USC- Electron Microscopy Center	Dr. Soumitra Ghoshroy
Gabrielle Jenkins	Estimation of Carboxymethyl Deoxyadenosine (CMdA) In Human Urine Specimens	SCSU	Dr. Mahtabuddin Ahmed and Dr. Lila
Sherry Kinley	Biogas Production	Benedict College	Dr. Samuel Darko
Preston Eargle	Web Service Security Issues	USC- REU Program	Dr. Csilla Farkas
Dedric Guest	Comparing existing tools for web site screening	USC- REU Program	Luara Bocanfuso and Dr. Carolina Eastman
Takim Henry		SCSU	Dr. David Scott

During the past 20 years, the SCAMP grant has allowed MTC to pay special attention to the needs of students interested in STEM majors. MTC has awarded scholarships, hosted workshops, sponsored trips to senior colleges, and placed students in summer internships. In addition, the college has provided a variety of mentors for SCAMP students. As an added benefit, the SCAMP grant has led to increased interaction between MTC faculty and their counterparts from four-year colleges and universities. These interactions were key in developing and revising articulation agreements between MTC and four year colleges. As a result, MTC students saw an increase in the number of options available to them at four year institutions. SCAMP has been a great success for our students and our college. The grant has provided valuable services for many students while they were enrolled at MTC and served as their bridge to a STEM major at a senior institution leading to a four-year degree. For many of these students, none of this would have been possible without the SCAMP grant.

*Dr. Ronald Drayton  
Vice President for Academic Affairs  
Former Campus PI, LS-SCAMP*

## Making Dreams Come True

*"The SCAMP program at Midlands Tech made my collegiate experience a little easier. Besides the much needed extra scholarship funds, I was able to network with a lot of students with similar disciplines to mine. I feel like it is so important to have a group*



*of people around you that understands the struggles of being an engineer major or math major. Also, SCAMP has provided me with opportunities that might not have been available to me had I not been involved with the program. I was able to take part in a Summer Research at the University of South Carolina. Before the research, I was undecided about what specialty I would pursue as a Computer Engineer. But after that research experience that included a tour of SPAWAR and Scana Corp, I gained a huge interest in Network and Internet Security. All in all, the SCAMP program at Midlands Tech was and is continuing to be a huge boost to me in my pursuit of my engineering degree," commented Deric Guest.*



<http://scamp.scsu.edu>

*Highlighting*



# ORANGEBURG-CALHOUN TECHNICAL COLLEGE

## Overview

The mission of Orangeburg-Calhoun Technical College (OCtech) is to provide quality and affordable comprehensive education programs that will have a positive social and economic impact on the lives of the citizens of Orangeburg and Calhoun Counties and the state of South Carolina. Orangeburg-Calhoun Technical College is an associate degree-awarding two-year public institution. Serving students with diverse backgrounds and ability levels from a primarily rural region, enrolling approximately the institution enrolls 2,900 – 3,300 credit students and 3,000 non-credit students annually. Orangeburg-Calhoun Technical College. Orangeburg-Calhoun Technical College (OCtech) became partners when the LS-SCAMP alliance when it was restructured in 2002. The former principal investigator at OCtech has been recently named the college president. OCtech has been one of the largest feeder schools of 2 year transfer students to partner institutions Claflin University and SC State University both located in close proximity to the technical college campus.

### Quick Fact:

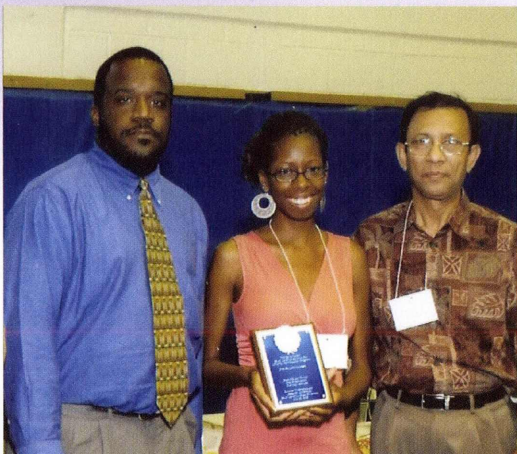
*OC Tech, member of the Community Higher Education Council (CHEC), partners with SC State and Claflin to allow students the opportunity for academic persistence in degree attainment.*

## Shaping Lives Through High Impact Experiences

### *Technical School Research Bridge*

This program activity has been effective in transitioning students from the technical school environment to the four year campus STEM departments.

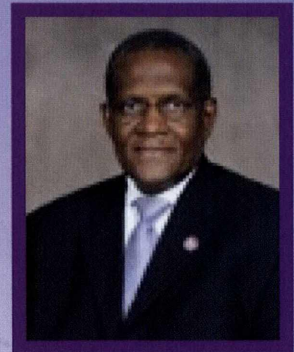
- » Since 2002 Associate of Science degree seeking students have been recruited to participate in the LS-SCAMP technical school research bridge.
- » Students were matched with research mentors according to their majors and research interests for an eight week experience.
- » Admissions and financial aid counselors introduce interns to the application process.
- » The research bridge has been an effective vehicle for recruitment.
- » 50% of the technical school research interns successfully transfer to the four year partner institutions.
- » Scholarship offers are incentives to transfer.
- » An average of 3 students each summer have successfully completed internships.
- » Interns participate in the LS-SCAMP Undergraduate Science and Engineering Research Conference..



## *Making Dreams Come True*

First OCTech student wins research award at the annual LS-SCAMP conference held at SC State University

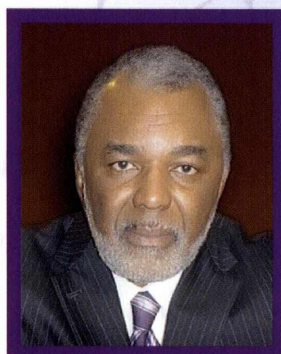
# THE LS-SCAMP GOVERNING BOARD PRESIDENTS OF ALLIANCE INSTITUTIONS



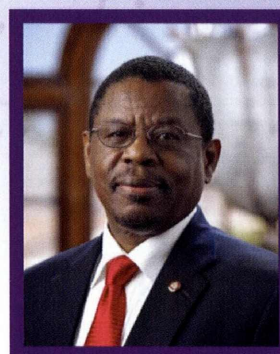
Dr. George E. Cooper  
South Carolina State University



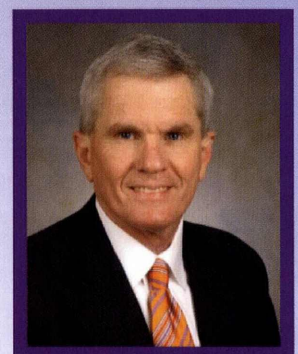
Dr. Pamela Wilson  
Allen University



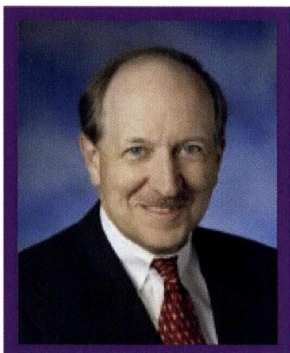
Dr. David Swinton  
Benedict College



Dr. Henry Tisdale  
Clafin University



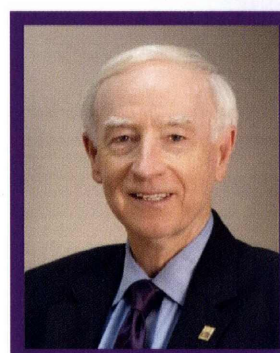
Dr. James Barker  
Clemson University



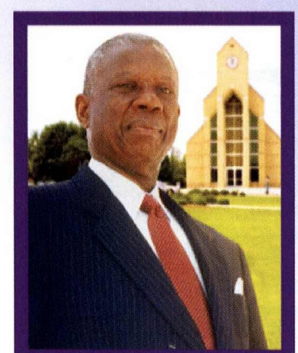
Dr. George Benson  
College of Charleston



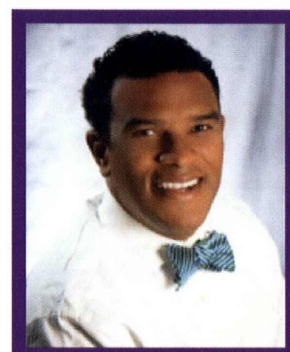
Dr. Joanne Boyd  
Denmark Technical College



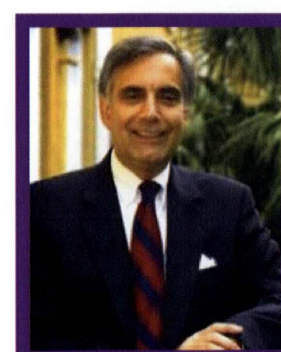
Dr. Sonny White  
Midlands Technical College



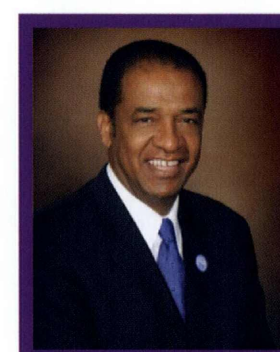
Dr. Luns Richardson  
Morris College



Dr. Walt Tobin  
Orangeburg-Calhoun  
Technical College



Dr. Harris Pastides  
University of South Carolina



Dr. Cleveland Sellers  
Voorhees College



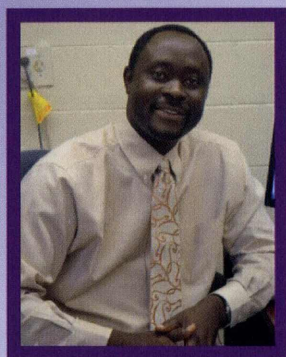
Dr. Judith Salley-Guydon,  
Executive Director  
South Carolina State University



Dr. Judith Salley-Guydon,  
Executive Director  
South Carolina State University

# THE LS-SCAMP EXECUTIVE COMMITTEE

## CAMPUS PRINCIPAL INVESTIGATORS



Dr. Oluwole Ariyo  
Allen University



Vivan Counts  
Benedict College



Dr. Angela Peters  
Claflin University



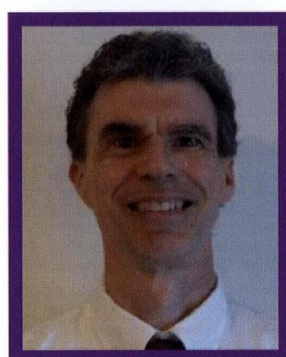
Sue Lasser  
Clemson University



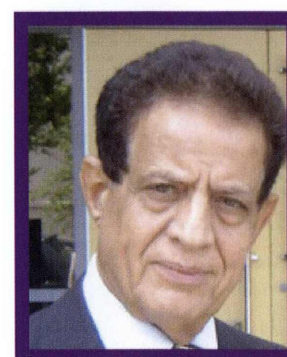
Christine Moore  
College of Charleston



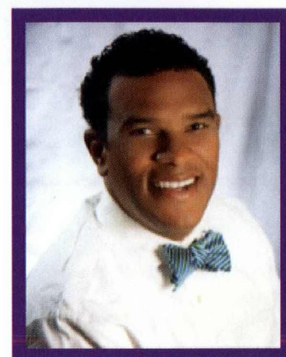
Tarshua Teresa Mack  
Denmark Technical College



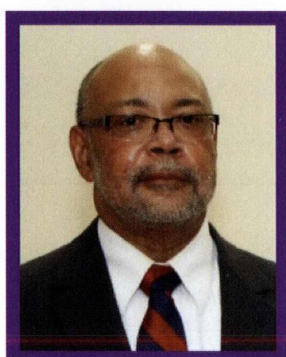
Rick Bailey  
Midlands Technical College



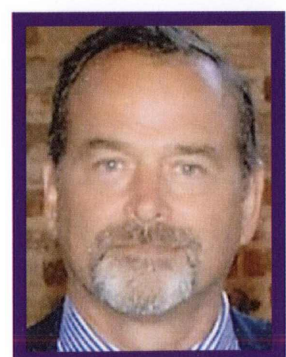
Dr. Radman M. Ali  
Morris College



Dr. Walt Tobin  
Orangeburg-Calhoun  
Technical College



Dr. James Myers  
South Carolina State University



Dr. Michael Perkins  
University of South Carolina



Dr. Doris Ward  
Voorhees College



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