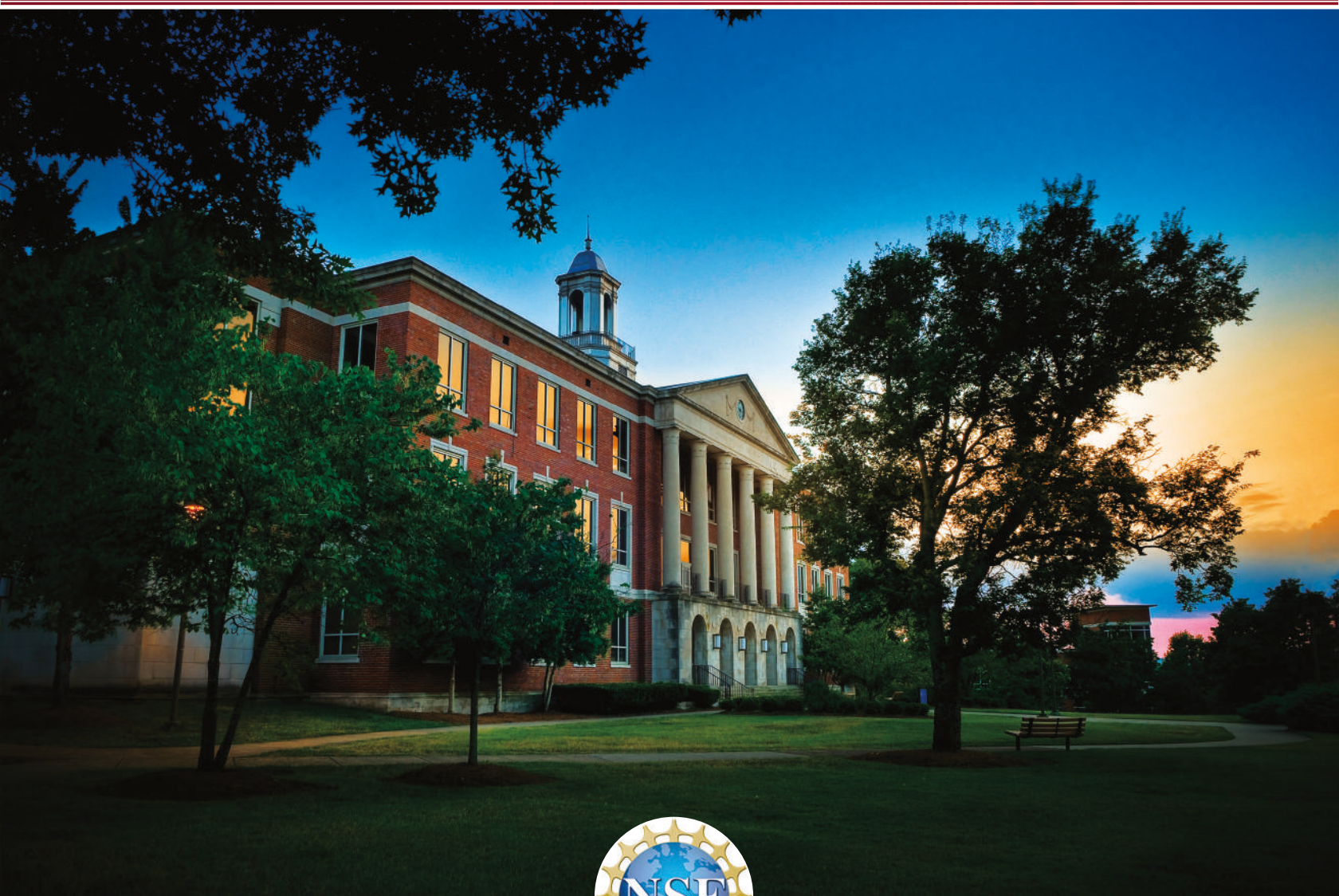


TENNESSEE LSAMP

TENNESSEE LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION



NSF PROJECT IMPACT REPORT

2011

Grant Number HRD-0802540

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HISTORY OF TENNESSEE LSAMP

MIDDLE TENNESSEE STATE UNIVERSITY



During the Spring of 2001, administrators at Tennessee State University (TSU) discussed the idea of TSU taking the lead on a proposal to be submitted to the NSF LSAMP program. Degree and enrollment data were compiled and reviewed by this team of administrators to determine who would be invited to participate. During that summer, the Vice President of Academic Affairs of TSU sent letters to eight academic leaders across the state of Tennessee requesting participation. LeMoyne-Owen College (LOC), Middle Tennessee State University (MTSU), the University of Memphis (UM), the University of Tennessee – Knoxville (UTK), and Vanderbilt University (VU) agreed to join this proposed partnership. The original cast included Lonnie Sharpe, Massie Chair of Excellence Professor at TSU, Mohammad Shafi, Director of Natural Sciences and Mathematics at LOC, Mary Martin, Associate Dean of Science and Technology at MTSU, John Haddock, Vice Provost at UM, James Pippin, Director Minority Engineering Program at UTK, and K. Arthur Overholser, Associate Dean of Engineering at VU. By the time the proposal was completed, Denise Jackson, Professor of Industrial Engineering at UTK had replaced James Pippin and Tom Cheatham, Dean of Science and Technology had replaced Mary Martin. President James Hefner was selected to be the principal investigator for this proposal. The present executive team includes Lonnie Sharpe, Delphia Harris, Director of Natural Sciences and Mathematics at LOC, Tom Cheatham, Henry Kurtz, Dean of Arts and Sciences at UM, Masood Parang, Associate Dean of Engineering at UTK, and K. Arthur Overholser. Dennis Gendron, Provost at TSU is the principal investigator.

Phase I of the Tennessee LSAMP programs was funded by NSF from 2002 to 2007 for approximately \$3.5 million. A similar Phase II award was made in 2008 and will continue through 2013.

TLSAMP LEADERSHIP TEAM



Dr. Lonnie Sharpe, Jr. is the Massie Chair of Excellence Professor at Tennessee State University (TSU). He was appointed to that position in January 2001. This program is sponsored and funded by the Department of Energy and focuses on enhancing the environmental efforts at the institution. Since joining TSU, Dr. Sharpe led the effort to get two \$3.5 million NSF Louis Stokes Alliance for Minority Participation projects funded for the State of Tennessee. He also served as

the Interim Dean of Engineering in 2008 and 2009. Dr. Sharpe has been involved in many educational and research projects over the years. He secured millions of dollars of funding while at NCA&T and was named to the University's Million Dollar Researcher Program. He was also inducted into the Million Dollar Research Club at Tennessee State University. Dr. Sharpe has authored or co-authored over 50 publications.

Dr. Sharpe received a BSME from North Carolina A&T State University in 1975, a MME from North Carolina State University in 1976 and a PhD in Mechanical Engineering in 1980.



K. Arthur Overholser, Ph.D., P.E., is Senior Associate Dean of the Vanderbilt University School of Engineering and Professor of Biomedical Engineering and Chemical Engineering. After taking his doctorate from the University of Wisconsin, Madison, he was a NATO

Fellow at Imperial College, London, and later a Visiting Scientist at the University of California, San Francisco. With research interests in quantitative cardiovascular physiology, he is a fellow of the American Institute for Medical and Biological Engineering. He chairs the Diversity Task force of the Undergraduate Experience Committee of the American Society for Engineering Education, and is a member of the national Academic Advisory Council of ABET, Inc.



Denise Ford Jackson is an educational consultant, specializing in process improvement. She retired from The University of Tennessee in 2010 after 26 years on the faculty of the Industrial and Information Engineering Department, with the last three years at the Space Institute (UTSI). She received her B.S. degree in Industrial and Systems Engineering from the Georgia Institute of Technology, and her M.S. and Ph.D. degrees in Industrial Engineering from the University of

Tennessee Knoxville (UTK). Prior to joining the faculty at UTK, she worked four years as a systems engineer at Union Carbide Corporation (later Martin Marietta Energy Systems), Oak Ridge, Tennessee. Her affiliations include the following organizations: Institute of Industrial Engineers (IIE); American Society of Engineering Educators (ASEE); Examiner and Editor, Tennessee Quality Awards (TNCPE); Tau Beta Pi Engineering Honor Society, UTK Alpha Chapter; American Society of Engineering Management (ASME); Order of the Engineer; and Delta Sigma Theta Sorority, Inc. Her licensures include: Professional Engineer in the State of Tennessee and American Society for Quality, Green Belt.



Dr. John Haddock has been a full-time faculty member in the Department of Mathematical Sciences at the University of Memphis since 1970. His research areas include integral equations, ordinary and functional differential equations, dynamical systems, STEM

Education. He has received funding on several occasions for his research through the National Science Foundation. He teaches courses at all levels and is also highly interested in mathematics and science education. He has received funding for STEM education projects through the National Science Foundation, Environmental Protection

Agency, and the Tennessee Department of Education. He also produced an award winning documentary film and was guest curator of a award winning major museum exhibit. The film and exhibit dealt with diversity issues related to baseball history.

In addition to faculty activities, he served as an administrator at the University of Memphis for fifteen years and recently served for two years (August, 2004 – August, 2006) as a program officer at the National Science Foundation. Currently, he is co-PI on a 5 year \$2,000,000 grant (2008-2013) through the National Science Foundation's Division of Undergraduate Education's STEP Program to increase the number of undergraduate STEM majors and graduates across the University.



Dr. Delphia Harris, a Physical Chemist, serves as the Chair of the Division of Natural & Mathematical Sciences at LeMoyne-Owen College. In addition administering grants in the division and conducting research, she has served in numerous leadership positions

including Program Chair for the Tennessee Academy of

Sciences Collegiate Division Western Regional Meetings, and the Tennessee Conference of the American Association of University Professors (AAUP) Shared Governance Meeting. She has served as President of the Tennessee Conference of the AAUP and is an alum of the HERS (Denver) Institute for Women in Higher Education Administration. She has 33 presentations at regional, national, and international conferences, including 21 undergraduate student co-authors and presenters, as well as publications with student co-authors.



Tom Cheatham taught mathematics and computer science at Samford University in Birmingham, before accepting a position in the Computer Science Department at Western Kentucky University where he taught nearly every course in the BS and MS programs before leaving in

1990 to become Chair of the Computer Science Department at Middle Tennessee State University. In 1987, Dr. Cheatham was selected as Western Kentucky University's Outstanding Teacher, an honor which he still cherishes. Even as department head of MTSU's Computer Science

Department from 1990-98, teaching was still very much a part of his life and an endeavor to which he committed much energy and time. Dr. Cheatham was honored by MTSU for his work in applying technology to teaching when he was selected to receive the MTSU "2000 Award for Innovative Excellence in Teaching, Learning, and Technology" and in 2000 when he received the "University Outstanding Achievement in Instructional Technology Award." Dr. Cheatham also enjoys cooperative research, learning new technologies. As dean of the largest college at MTSU since 2001, he has worked to create partnerships for the college with business, industry, government, and school systems and encouraged faculty to engage in scholarship and grantsmanship.

TLSAMP ACTIVITIES

In 2002, the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) grant was funded. This partnership includes the major public minority-serving institutions and the only three Carnegie doctoral-granting institutions in the State. Most importantly, the partners share a strong commitment to increasing access and opportunities for underrepresented minority students in science, technology, engineering and mathematics (STEM). The Alliance was formed to substantially increase the number of underrepresented minorities (e.g, African Americans, Hispanic Americans, and Native Americans) earning STEM degrees, beginning with the bachelors degree and continuing to the masters and the doctorate degrees. Sharing a long-term commitment to work together, TLSAMP has played a significant role in increasing the production of underrepresented STEM professionals to meet the needs of government, industry, and academia.

The Tennessee Louis Stokes for Minority Participation (TLSAMP) program is a National Science Foundation (NSF) supported initiative aimed at increasing the number of degrees awarded to underrepresented STEM students. The objectives of the Alliance are to:

- Recruit underrepresented students to pursue science or engineering as a career
- Improve the quality of the learning environment for underrepresented science and engineering students at all schools
- Ensure that a large number of undergraduate students are prepared to enter graduate programs

A strong academic support structure and fabric is woven into the TLSAMP program which increases the expected successfulness of the STEM student. Program coordinators conduct ongoing coordination and communication between academic units.

The TSU TLSAMP Program assists with the retention of students through many retention efforts. Most institutions participate in some form of the following activities:

- **Mentoring Programs**
Faculty and peer mentoring initiatives are intended to develop the student's academic and social skills. Upper class STEM students assist lower class with academic and social problems, while faculty members mentor students on research projects.
- **Curriculum Reform**
The undergraduate curriculum is reviewed periodically to ensure that the students are exposed to the latest technologies and educational resources.
- **Gate Keeping Strategies**
Retention of STEM students in courses that are roadblocks is essential for the success of TLSAMP. Strategies are developed and implemented to ensure the student's success.
- **Tutorial Services**
Tutorial programs are coordinated each semester to assist students with academic difficulties.

- **Supplemental Instruction**

Supplemental instructions are given in some classes. Academic support offering free regularly scheduled study sessions make it easier for students to transition out of selected difficult courses.

- **Financial Assistance**

Undergraduate STEM students with a financial need who have at least a 2.0 GPA and are making satisfactory progress toward graduation are offered financial assistance. Most volunteer to be mentors or research assistants.

All institutions participate in the following three Alliance-wide programs. These collaborative efforts make it easier for facilitation across the entire Alliance.

- **Summer Bridge Program**

The summer bridge program is designed to allow entering freshman STEM students advanced exposure to the freshman STEM curriculum. An intensive three-week program is offered to the students who have an interest in participating. It allows Alliance students a chance to interact and experience students and professors from other institutions.

- **Research Symposium**

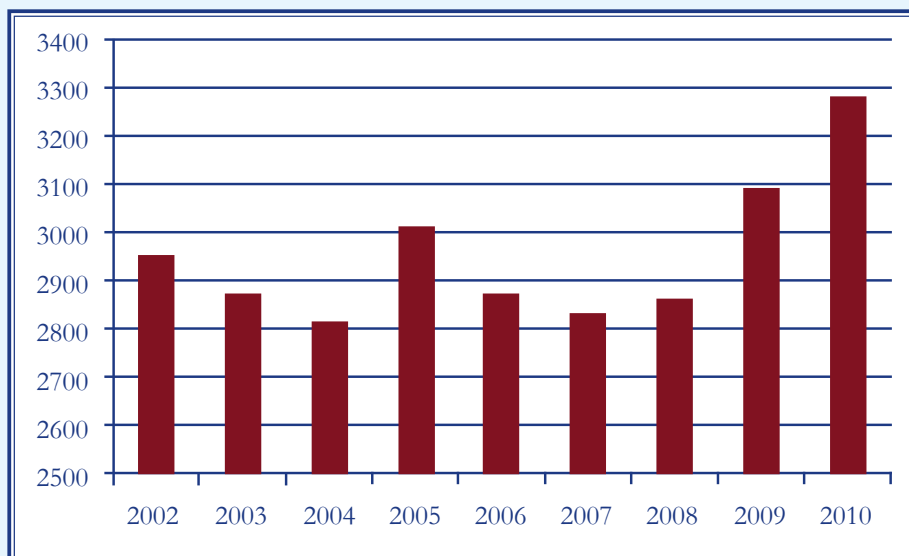
TLSAMP convenes an annual Research Symposium each year and all institutions are expected to host the conference on a rotating basis. Undergraduate student researchers engage in oral and poster presentations. Additionally, graduate students participate in a graduate panel to persuade the undergraduates to enroll in graduate school.

- **Summer Research Program**

Researchers at TLSAMP member institutions make available summer research opportunities for STEM students enrolled at alliance schools. Students are selected through an application process by the research advisor. Students receive a stipend from the host institution as well as an additional cost-of-living allowance from the TLSAMP Office if they leave their home institution for another school within the Alliance.

The Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) program began in 2002 with a combined enrollment of 2955 underrepresented minority science, technology, engineering and mathematics (STEM) students. The fall 2010 enrollment was 3283. TLSAMP continues to make a concerted effort in the recruitment of underrepresented STEM students.

MINORITY STEM ENROLLMENT 2002-2010



During that same period, the degree productivity across the Alliance has remained fairly constant. However, the overall number of degrees awarded increased by 4% from 2009 to 2010. As the enrollment continues to increase, the degree productivity will also continue to rise. The alliance continues to be a window of opportunity for underrepresented minority STEM students. The alliance has awarded 3, 158 undergraduate STEM degrees since inception. Approximately 400 of these have continued into graduate programs.

Level I graduates attend graduate school at a higher rate than the overall STEM students. Since our inception, about 37% of our Level I students have attended graduate school. Additionally, our total graduation rate is approximately 72% while our total persistence, that is, enrollment or degree productivity, is about 84%.

TLSAMP Level I Student Degree Tracking				
Year	Level I Students	% Graduated	% Persisted	% Graduate School
2002-2003	87	60%	63%	31%
2003-2004	364	76%	82%	33%
2004-2005	450	75%	79%	33%
2005-2006	494	70%	80%	36%
2006-2007	477	63%	85%	42%
2007-2008	569	41%	82%	44%
2008-2009	565	30%	88%	35%
2009-2010	422	17%	94%	40%

SUMMER BRIDGE

The TLSAMP Summer Bridge program provides graduating high school seniors an opportunity to gain first hand exposure to the typical university academic, cultural, and social environments. The intensive four-week program is designed to ease and strengthen the transition from high school to the university. The primary goal of the annual Summer Bridge program is to bridge the gap between high school and college. Through participating in the program, science, technology, engineering, and mathematics (STEM) students are exposed to academic concepts in mathematics, science; and language arts and participate in hands-on science and engineering experiments. In addition, career and personal development skills are addressed in order to enhance the students' all around college knowledge. Students attending the Summer Bridge program receive instruction and information to give them a "jumpstart" on academic success for their upcoming year in college. They also participate in field trips to further enhance the classroom instruction. TLSAMP has hosted a summer bridge program every year since 2004. These programs are rotated among the institutional membership.

The 2009 Summer Bridge program was hosted on the campus of Tennessee State University. A total of 35 students participated and were acclimated to college life as a STEM student. The theme for this program was Educating Leaders for the Next Dimension. Field trips included visits to Oak Ridge National Laboratory, Mammoth Cave, and the MTSU Aerospace and Horse Science Facilities.



Bridge students attending lectures and preparing for class

SUMMER BRIDGE



Bridge Tour: MTSU Aerospace Facility



Bridge Tour: MTSU Horse Science Facility



2009 Summer Bridge Closing Banquet at TSU

The TLSAMP Summer Bridge program has proven to be a success in preparing underrepresented students for STEM majors. An analysis of the 2008 Summer Bridge program produced supporting data.

The demographics of the 2008 Summer Bridge Program student population consisted of twenty-four (24) females and eighteen (18) males. The majority were engineering majors (22) with biology being the second major of choice (11). The other stated majors were chemistry (5), computer science (3), and mathematics (1). The majority of the students were from the state of Tennessee (30) with others (12) coming from as far as Illinois or Michigan or as

close as Kentucky or Alabama. The average ACT-Composite score for this group was 23 and average ACT-Math score was 24. The average SAT- Composite score was 1195 and SAT-Math was 615. Of these 42 students, thirty-nine (93%) are presently enrolled in college and thirty-seven (88%) are still enrolled in STEM majors.

The Summer Bridge students received English and Math instruction for the duration of the program. Data collected depicting the performance of the TLSAMP Summer Bridge students in their first Math and English courses were as follows:

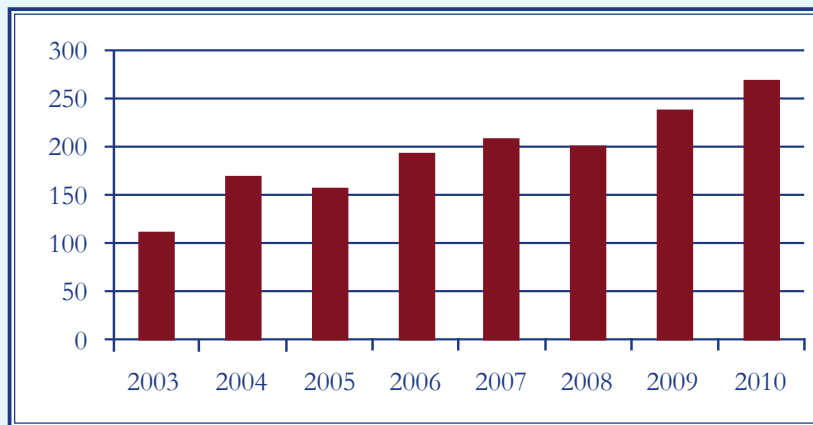
Math- C average and above- 86%
D, F, W- 9%
No Information- 5%

English- C average and above- 86%
D,F,W- 5%
No Information- 9%

UNDERGRADUATE RESEARCH CONFERENCE

The Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) program hosts an annual Undergraduate Research Conference that rotates among the partnering university campuses. The two-day Research Conference provides TLSAMP students an opportunity to competitively present research findings, allow students to develop successful presentation skills, an understanding of professional protocol for attending and presenting at conferences and workshops, and present an environment for students to engage in social networking with other STEM students, faculty, and administrators.

CONFERENCE PARTICIPATION RATE 2003-2010



TLSAMP RESEARCH CONFERENCE ATTENDANCE

Host Institution(s)	Year	Conference Theme	Participants
Tennessee State University	2003-2004	<i>"Education and Research: Parallel Paths to Excellence"</i>	112
University of Memphis LeMoyne-Owen College	2004-2005	<i>"Developing the Next Generation of Leaders in STEM"</i>	162
University of Tennessee-Knoxville	2005-2006	<i>"Taking Leadership Steps and Making Progress in Science, Technology, Engineering and Mathematics"</i>	154
Middle Tennessee State University	2006-2007	<i>"Increasing Diversity in Science, Technology, Engineering and Mathematics"</i>	189
Vanderbilt University	2007-2008	<i>"Celebrating Excellence in STEM (Science, Technology, Engineering and Mathematics)"</i>	207
University of Memphis LeMoyne-Owen	2008-2009	<i>"Expanding Horizons in Science, Technology, Engineering, Mathematics-STEM"</i>	201
Tennessee State University	2009-2010	<i>"Pathways to Excellence in STEM"</i>	236
University of Tennessee-Knoxville	2010-2011	<i>"Education and Research: Parallel Paths to Excellence"</i>	270

A total of 236 students, faculty, staff, and guests attended the 2009 Research Conference. There were 17 oral presentations and 23 poster presentations made by the undergraduate students. TLSAMP Principal Investigator, President Melvin N. Johnson, delivered the keynote address. He also accepted a Proclamation from the State of Tennessee that was presented by State Senator Jim Tracy.

TLSAMP RESEARCH CONFERENCE



Senator Jim Tracy presents proclamation to President Johnson and Dr. Sharpe at 2009 Conference



2009 Student Poster Presenters Sherene Robinson and Karla Ward

TLSAMP RESEARCH CONFERENCE



TLSAMP students enjoy activities at the 2010 Annual Research Conference



2006 TLSAMP Research Conference Participants

TLSAMP RESEARCH CONFERENCE



2008 TLSAMP Research Conference Participants.



TLSAMP students interacting with Dr. A. James Hicks at the 2010 Annual Research Conference

SUMMER RESEARCH

Students are involved in research at an Alliance institution under the guidance and direction of research faculty. Their research consists of independent explorations, cooperative learning, and composition and synthesis of data into a viable presentation. Students receive a stipend from the host institution as well as an additional allowance from TLSAMP.



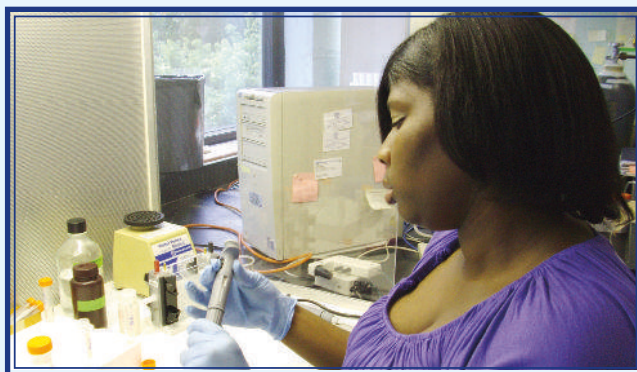
Ike Okafor of MTSU working under the direction of Dr. Margaret Whalen of TSU.



Kellee Hill of TSU working with Dr. Chong of MTSU.



Karla Ward and Sherene Robinson of TSU participated in the FaST summer research program at ORNL with Dr. Nsoki Phambu.



Veronica Shields of LOC working under the direction of Dr. Margaret Whalen of TSU.

INSTITUTIONAL HIGHLIGHTS

TENNESSEE STATE UNIVERSITY

TSU TLSAMP student Warren Dean V was elected Student Body President of the TSU Student Government Association. Warren was a double major in Biology and Chemistry. Warren has an interest and passion for science and aspires to become a physician-scientist (M.D.-Ph.D.). He participated in the Minority Access to Research Careers (MARC) Scholars program, Beta Kappa Chi Scientific Honors Society, Collegiate 100 Black Men of Tennessee State University, American Medical Student Association, Monroe Harding Project Share mentoring program, and the University Honors Program.



TSU TLSAMP students and Professor Tom Byl pose with Democratic House Leader Gary Odum at Posters on Capitol Hill. Posters on Capitol Hill is a showcase of Tennessee Board of Regents (TBR) schools and the undergraduate research conducted on the campuses. Students are allowed to set up posters in Legislative Plaza and meet political representatives. The political representatives include Governor Phil Bredesen, Democratic House Leader Gary Odum, and other state representatives.



Brandon Cobb explains research to Governor Phil Bredesen, while classmates Loreal Spear, Warren Dean, and Jameka Johnson listen intently.

INSTITUTIONAL HIGHLIGHTS

MIDDLE TENNESSEE STATE UNIVERSITY



MTSU TLSAMP senior student Deandre Reese is pictured in the Engineering Technology machine shop performing research under the supervision of Dr. Ahad Nasab. Funded with monies from NASA, one of the goals of this research titled **Effect of Carbon & Co2 on Enrichment of Planetary Soil Simulants** is to determine if the concept of “living off the land” or in-situ resource utilization (ISRU) is viable on the planet Mars.



Computer Science major Justice Amankwah is shown leading the assembly team at the Center for Aviation Training at Middle Tennessee State University. The MTSU Aerospace program is conducting computer scenario based research funded by NASA.



MTSU TLSAMP Biology major Christian Swett introduced Captain Vernice Armour, America’s First African-American Female Combat Pilot, at the Middle Tennessee State University Black Alumni Award Reception in February 2008. Ms. Armour flew the AH-1W SuperCobra attack helicopter in the 2003 invasion of Iraq and eventually served two tours in support of Operation Iraqi Freedom.

INSTITUTIONAL HIGHLIGHTS

VANDERBILT UNIVERSITY



Four Vanderbilt University TLSAMP students won first place in the National Society of Black Engineers Region III Academic Technical Bowl Competition. They won first place in the Academic Technical Bowl Competition in Atlanta, Ga., November 6-8, 2009, during the NSBE Region III Fall Conference. The Vanderbilt team of Kyle McMillan, Derrick Pugh, Gyanba Davis and Douglass Dobbins-Carlock received complimentary registration and a travel stipend to compete in the National NSBE Technical Bowl Competition in Toronto, Canada.



Jessica Haley was an outstanding participant of the TLSAMP program. She received both a Bachelor of Chemical Engineering Degree and a Masters Degree in Environmental Engineering in May 2010. Currently, Jessica is enrolled as a Ph.D. candidate in the Chemical Engineering at Vanderbilt. Jessica spent her summers interning and gaining research experiences. At NASA SHARP she performed research in the Earth and Planetary Science Department by collecting and analyzing water samples, by utilizing quality assurance and by quality control measures. At Alabama A&M Physics Department she performed thorough research in the area of Nanotechnology and coauthored a research paper. Jessica served as the TLSAMP tutor coordinator. Additionally, she was the advisor chair for Vanderbilt Undergraduate Honor Council, treasurer for the Society of Women Engineers, and the publicist for the V-Squared Mentor student organization.

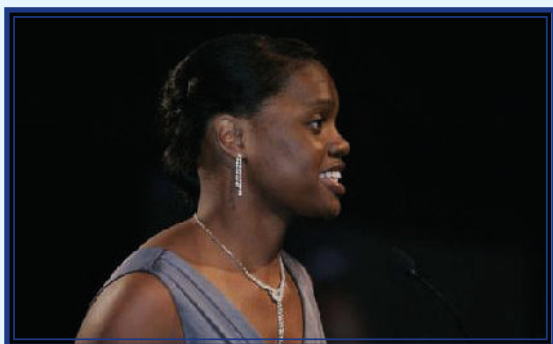
INSTITUTIONAL HIGHLIGHTS

UNIVERSITY OF TENNESSEE - KNOXVILLE



Adeleye Ademola, Chemical & Biomolecular Engineering freshman from the University of Tennessee, Knoxville, recognized as a Board of Corporate Affiliates (BCA) Scholar by the National Society of Black Engineers at the 37th Annual National Convention held in St. Louis, Mo., on March 23-27, 2011.

Aeron Glover, Industrial Engineering senior from the University of Tennessee, Knoxville, recognized as a Board of Corporate Affiliates (BCA) Scholar by the National Society of Black Engineers at the 37th Annual National Convention held in St. Louis, Mo., on March 23-27, 2011.



Andrea Williams, Industrial Engineering junior from the University of Tennessee, Knoxville, recognized as a G.E. Lloyd Trotter African-American Forum Scholar by the National Society of Black Engineers at the 37th Annual National Convention held in St. Louis, Mo., on March 23-27, 2011.

Honest Mrema, Aerospace Engineering junior from the University of Tennessee, Knoxville, was recognized as a Board of Corporate Affiliates (BCA) Scholar by the National Society of Black Engineers at the 37th Annual National Convention held in St. Louis, Mo., on March 23-27, 2011.



INSTITUTIONAL HIGHLIGHTS

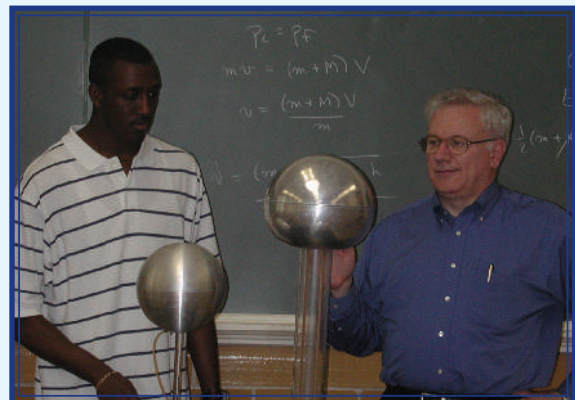
LEMOYNE-OWEN COLLEGE



Crystal Boston, a native of Atlanta, GA, is a 2008 graduate of LeMoyne-Owen College with a Bachelor of Science degree in Computer Science. Boston credits the TLSAMP program for affording her the opportunity to become a National Science Foundation Bridge to the Doctorate Fellow. She attends Jackson State University where she is currently working toward a Master of Science Degree in Computer Science.

UNIVERSITY OF MEMPHIS

Courtney Ward of the University of Memphis and his faculty mentor, Dr. Don Franceschetti, are shown working on one of their research projects.

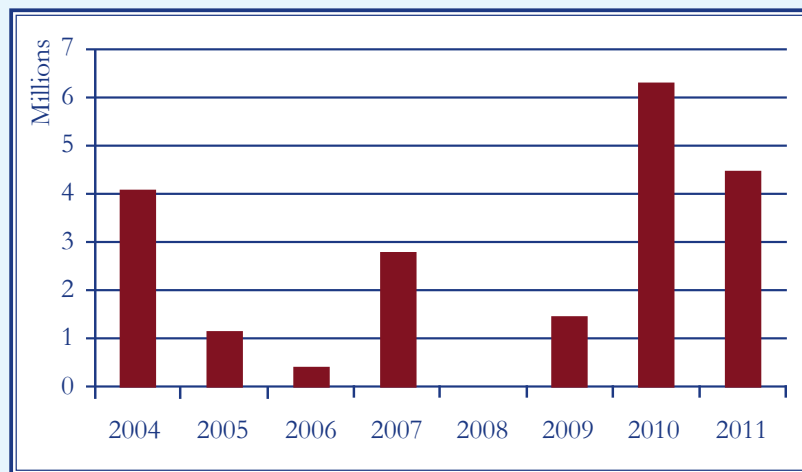


ECONOMIC IMPACT

TLSAMP is described as the single best collaboration among institutions across the state of Tennessee. TLSAMP is truly making a difference in the lives of many citizens across the State of Tennessee. TLSAMP has made a tremendous impact on underrepresented undergraduate STEM education in the state of Tennessee. During the 2009-2010 year, a total of 345 bachelor's degrees were awarded. Since our inception in 2002, TLSAMP has graduated approximately 3200 minority STEM students. Due to the positive collaborations among the members of the alliance and the impact TLSAMP has made across the state of Tennessee, Tennessee Technological University and East Tennessee State University have expressed interests in becoming partners of our alliance.

Since 2004, TLSAMP institutions have received in excess of \$20.7 million through leveraging and partnerships. Many of these funds have been used to support undergraduate and graduate research opportunities. Some have been used to support middle and high school initiatives.

FUNDS LEVERAGED



The impact from our graduates has been overwhelming. For the 2010-2011 school year, the average starting salaries for the engineering graduate at Vanderbilt and the University of Tennessee was \$59,592 and \$56,309, respectively. For the same period at TSU, the starting salary for all STEM graduates was \$50,895. If the assumption is made that the average salary for all of these STEM graduates was about \$50,000, then these graduates would have earned over \$801 million since graduating in 2002.

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

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

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

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

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

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

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TENNESSEE LSAMP

Lead/Administrative Office Located at:

Tennessee State University ♦ 3500 John A. Merritt Blvd.
411 Crouch Hall, Box 9508 ♦ Nashville, Tennessee 37209-1561
Phone (615) 963-1398 ♦ Fax (615) 963-7492

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