

2011 ALSAMP Impact Report

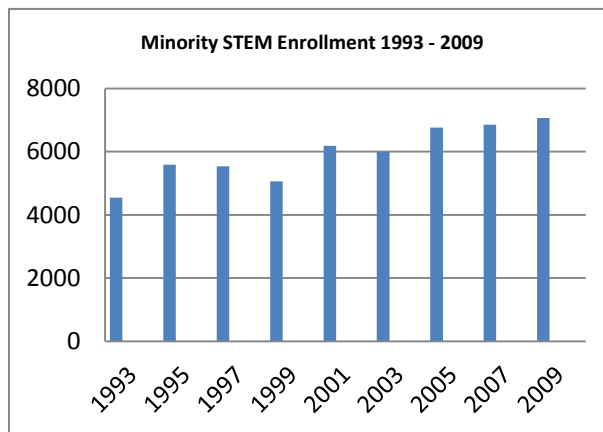
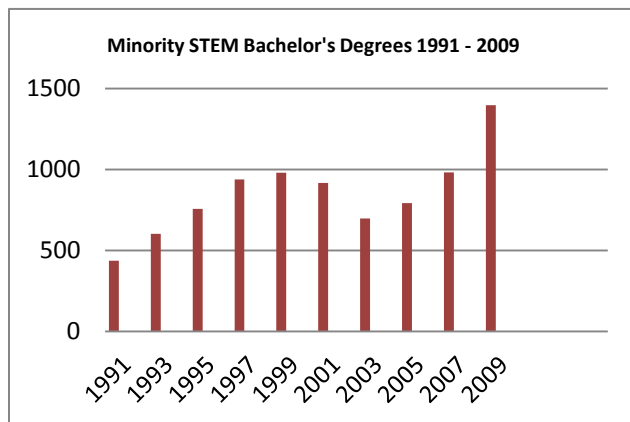
A. Executive Summary

1. The Alabama Louis Stokes Alliance for Minority Participation (ALSAMP) program began in 1991 with nine institutions, a combined underrepresented minority science, technology, engineering and mathematic (STEM) enrollment of 4,549 and a combined underrepresented minority annual STEM bachelor's degree production of 473. Today, the alliance includes 12 institutions with a combined underrepresented minority STEM enrollment of 7,069 and a combined underrepresented minority annual bachelor's degree production of 1,397. In a state where opportunities for minorities were limited 20 years ago, the alliance has been the key that opened the doors of opportunity for a countless number of minority STEM students. The alliance is the only statewide organization with the single goal of increasing the quality and quantity of underrepresented minorities at all educational levels.



An ALSAMP student discusses research with officials at poster session on Capitol Hill

ALSAMP Minority STEM Impact Data



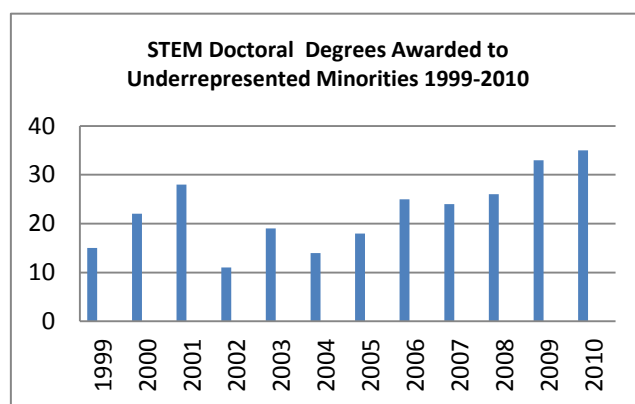
Bridge to the Doctorate (BD) Program Student Summary

Cohort	I	II	III	IV	V	VI	VII	VIII	Total
Number of students in cohort	12	13	13	12	12	13	12	12	99
Completed or entered, Ph.D. programs	7	8	9	9	11	13	12	12	81
In the workforce or still in school	5	5	4	3	1	0	0	0	18

- Combined, ALSAMP institutions have awarded 17,519 STEM bachelor's degrees to underrepresented minority students in Alabama since its inception.
- ALSAMP students are involved in international research activities in China, Egypt, Ecuador and Scotland. Moreover, ALSAMP is a partner in an effort to implement a U.S.-Africa Advanced Study Institute and Workshop Series in Mathematical Sciences.

- The number of ALSAMP students earning Ph.D. degrees increased from 15 in 1999 to 35 in 2010.
- Each ALSAMP institution established connections with one or more community colleges.
- ALSAMP STEM students participated in the 2010 LSAMP Research Conference on Capitol Hill.
- ALSAMP held the first nationwide LSAMP student research conference in 1993 and the first summer bridge program in 1992. Since that time ALSAMP has held summer bridge programs and research conferences annually.
- ALSAMP, in collaboration with the LSAMP PIs, publishes the National LSAMP and BD magazines.

2. **ALSAMP** has had a huge impact on the awarding of STEM doctoral degrees to underrepresented minorities in Alabama as shown in the chart below.



3. **ALSAMP** has positively impacted STEM education in Alabama through a special experimental “Bridge to Teaching” program. The program provided support for 13 ALSAMP underrepresented students to earn a master’s degree and teaching certificate simultaneously. All participants are now certified teachers of mathematics or science in secondary schools and collaboration between schools of education and STEM faculty have been enhanced through this effort.

B. ALSAMP Summer Bridge Program

ALSAMP has conducted a summer bridge program for high school graduates interested in STEM careers since 1992. Because of the success of this program, The University of Alabama at Birmingham (UAB) has begun a summer bridge program for incoming freshmen students housed in the UAB Student Affairs Division and modeled after the one pioneered by ALSAMP. In addition, the UAB School of Business has conducted a summer bridge program for the past two years. The ALSAMP Summer Bridge Program enrolls 30 students to engage in a curriculum consisting of a freshman English course, a freshman mathematics course and a freshman physical science course. In addition, students attend seminars, prepare research projects and make presentations at the concluding summer bridge conference. At the 2010 summer conference, Attorney Vanessa Leonard, a member of the University of Alabama System Board of Trustees served as guest speaker. A link to her comments along with comments from students to the news

media regarding the LSAMP Summer Bridge Program is attached. To view the video, please click on the link below.

<http://main.uab.edu/Sites/MediaRelations/articles/79012/>

At the 2011 Summer Bridge Conference, Dr. Wanda E Ward, Senior Advisor to the Director of the National Science Foundation (NSF) served as guest speaker. The conference was attended by over 200 bridge students, faculty and staff from throughout Alabama.



Dr. Ward with Alabama BD students



Dr. Ward with Summer Bridge Students and Staff

C. Economic and Human Capital Impact in Alabama

1. Human Capital Impact - Minority undergraduate student STEM degree production at ALSAMP institutions increased from 473 in 1991 to 1,411 in 2010 (198%). Minority STEM Ph.D. degrees increased from 10 to 34 (240%) during this period. Minority undergraduate student STEM enrollment at ALSAMP institutions has increased from 4,549 in 1991 to 7,471 in 2010 (64.2%). Dramatic increases in enrollment are normally followed by increases in jobs at a university and increases in degrees are followed by increases in the quality of the workforce. An increase of 99 new STEM graduate students from around the country in an eight year period in Alabama is certainly having an impact on graduate education, especially since these students are supported by NSF. This has caused an increase in credit hour production and faculty workloads. The long term impact is the potential for Alabama to produce 99 new minority Ph.D. degree recipients in STEM. In a few years the ALSAMP program will be graduating approximately 12 STEM Ph.D. degrees each year. This will be a great feat for the NSF, the nation and Alabama.

The table below provides the total number of underrepresented minorities receiving undergraduate and graduate degrees since 1991.

Type of STEM Degree	Undergraduate	Master's	Doctoral
Number Degrees since 1991	17,519	1,236	280

In terms of human capital, the increase in the educational level of minorities in Alabama impacts the quality of life in communities, the quality of citizens and the competency of the general

workforce. Further, the acquisition of a college degree in a family encourages others in the family, especially younger siblings, to think of a college degree as an option.

2. Economic Impact - Over the life of the ALSAMP program more than \$30,000,000 has come into Alabama in support of undergraduate and graduate students. These funds have provided tuition and stipend support for students, housing, new faculty, faculty and staff salaries, travel costs and indirect cost revenues for the twelve members of the alliance. NSF support has an economic impact on both the institutions and the state as shown below:

Item	New Students	Tuition and Fees	Stipends	Indirect Costs	Staff Release time
Institution	State provides enrollment based revenue to institutions	Provides revenue for institutions	Revenue for books, room and board	Provides revenue for institutions' infrastructure	Revenue to hire new faculty and adjuncts
City and State	State collects sales taxes on goods, services, licenses		Taxes on goods and services		Taxes on goods and services

UAB economists and experts estimate that every dollar coming into UAB generates three dollars and twenty cents for the state, or 3.2 dollars. *Consequently, by this estimate, over the life of the ALSAMP program, the approximately \$30,000,000 coming to UAB from NSF has generated \$96,000,000.* These funds have created jobs in Alabama and raised the educational level of its citizens.

3. Research and Development - Undergraduate research has become a more common experience than before the establishment of the ALSAMP program. Research as an enhancement and enrichment experience has caused curricula changes. Greater opportunities have been made available to minority STEM students for participation in research on the campuses of other institutions, at government research laboratories and at various industrial research facilities. Participation by minority STEM students in professional statewide, national and international conferences, as well as in UAB sponsored study abroad opportunities, has increased. The ALSAMP program focuses on strengthening the skills of these students and continues to encourage and motivate them as they prepare to apply to graduate programs and successfully earn terminal degrees.

Summary - ALSAMP has had a profound impact on the economy, students, faculty, staff and parents in Alabama and across the country as these students take jobs in STEM areas nationwide. Many of the students involved in the program would not have earned STEM degrees without interaction with professional scientists, researchers and exposure to scientific facilities made possible through this outstanding program.

D. Community College Impact

A NSF sponsored 2009 Community College Workshop held at UAB was designed to engage in a national dialogue on the *best practices* for the recruitment and transition of engineering and science students from community colleges to four-year institutions. The workshop included guest speakers, panels of experts and special topic breakout sessions. The dialogue involved NSF personnel, presidents, faculty, staff and students from both community colleges and four-year institutions, and principal investigators from the NSF LSAMP Program. Each LSAMP program was asked to bring at least one of its community college partners. The response to the workshop invitation was overwhelming considering that this was the first of its kind sponsored by NSF. The workshop attendance data included the following:

Number of Participants:	147	Universities Represented:	45
Community Colleges Represented:	32	States Represented:	30



Dr. A. James Hicks
LSAMP Program Director



Dr. Omnia El-Hakim
Engineering Program Director

The workshop resulted in signed partnership agreements between Alabama LSAMP institutions and Alabama community colleges.

ALSAMP Institution/Community College Pairings

ALSAMP Institution Site Coordinator	Community College Partner Contact	ALSAMP Institution Site Coordinator	Community College Partner Contact
<i>Alabama State University</i> Dr. Carl Pettis	<i>Wallace State</i> Dr. Elijah Pugh	<i>Tuskegee University</i> Dr. Herman Windham	<i>Chattahoochee Valley</i> Dr. Salman Elawad
<i>Auburn University</i> Dr. Overtoun Jenda	<i>Southern Union State</i> Dr. Mary Jean White	<i>The University of Alabama</i> Dr. Viola Acoff	<i>Shelton State</i> Dr. Frieda Dale
<i>Miles College</i> Dr. James Langie	<i>Lawson State</i> Dr. Karl Pruitt	<i>The University of Alabama at Birmingham</i> Dr. Carolyn Braswell	<i>Lawson State</i> Dr. Bruce Crawford
<i>Oakwood University</i> Dr. Kenneth LaiHing	<i>Calhoun</i> Mr. James Duke	<i>The University of South Alabama</i> Dr. Alexandra Stenson	<i>Bishop State</i> Dr. Katherine Malone <i>Faulkner State</i> Mr. Tremaine Pimperl
<i>Talladega College</i> Dr. Evelyn White	<i>Gadsden State</i> Mr. Carl Byers		



The University of Alabama at Birmingham



Tuskegee University



The University of South Alabama



Oakwood University



The University of Alabama



Shelton State Community College

Alabama LSAMP Student Transitions/Community College Partnerships



Southern Union State Community College



Auburn University



Bishop State Community College



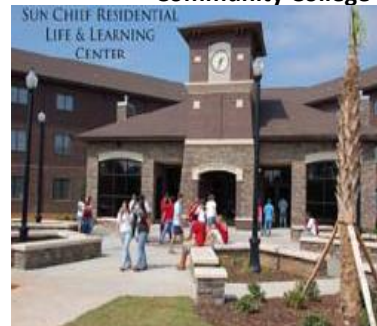
Gadsden State Community College



Alabama State University



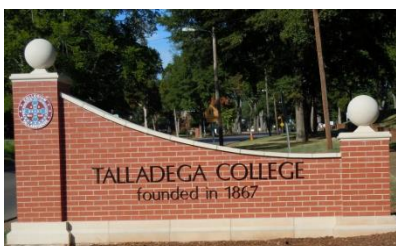
Calhoun Community College



Faulkner State Community College



Wallace Community College



Talladega College



Chattahoochee Valley Community College



Miles College



Lawson State Community College

E. International Research Activities

ALSAMP students have and continue to participate in many international research activities through study abroad programs, exchange programs and research conferences.



China



Candace Watson

Candace Watson, a UAB BD Fellow, presented an engineering research paper in Xi'an, Shaanxi, China in 2010.

Egypt



Jaquice Hughes and TaShundra Robinson

BD Fellows **Jaquice D. Hughes**, **TaShundra Robinson** and **Candace Watson** were selected to participate in the UAB Study Broad Program in Egypt. The UAB Department of Civil, Construction, and Environmental Engineering and Misr University for Science and Technology (MUST) in Egypt had a partnership program designed to focus on the emerging fields of sustainability and green building construction.



TaShundra Robinson

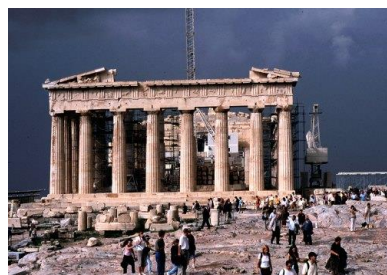


Candace Watson



Jaquice Hughes

Greece



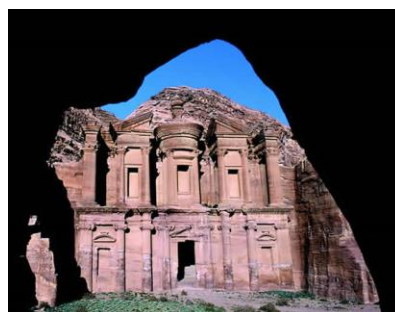
Hadiyah-Nicole Green, a BD Fellow/Physics Graduate Fellow, was awarded 1st place in the poster competition at the *Third International Conference on Nanoparticles, Nanomaterials, Nanodevices and Nanosystems*, on Crete Island, Greece. In addition to recognition of her work to be the best among her peers she was awarded a one year membership in the Electrochemical Society and \$1,000.00 travel award to the Society 2012 meeting in Seattle.

Japan



Simone Ridgeway, an ALSAMP Scholar, participated in the UAB Study Abroad Program in Japan which furthered her interest in diabetes research as a biology major.

Jordan



Ryan Devon Lang, an Oakwood University student, conducted maternal/infant global health research in Amman, Jordan in the summer of 2010. He will present his research abstract at the American Academy of Pediatrics National Conference in Boston, MA in October 2011.

The Auburn University ALSAMP site coordinator has been funded for the U.S.-Africa Advanced Study Institute and Workshop in Mathematical Sciences. The institute and workshops will be held in Livingstone, Zambia, December 1-14, 2011. BD students will be invited to attend the workshop with international scientists and mathematicians.

F. Bridge to the Doctorate Impact

The NSF BD activity began in 2003. ALSAMP was successful in receiving an award that year. Students selected for the BD program attend the NSF Joint Annual Meeting (JAM) and meet formally with the other BD students to discuss program activities and to network. Recruitment strategies, student support systems, retention mechanisms and financial resources are important factors to ensure the success of BD students. ALSAMP BD programs have graduated a number of underrepresented minority students. A summary is listed below:

Auburn University Ph.D. Recipients:

1. Angela Bell	Auburn University	Ph.D., 2006	Chemistry
2. Nicole Harris	Auburn University	Ph.D., 2006	Biology
3. Charmaine Porter	University N. C.	Ph.D., 2007	Biology
4. Kelvin Tolliver	Auburn University	Ph.D., 2010	Computer Science
5. Carl Pettis	Auburn University	Ph.D., 2006	Mathematics
6. Kim Kendricks	Auburn University	Ph.D., 2007	Mathematics
7. Carma Cook	Auburn University	Ph.D., 2009	Biochemistry

University of Alabama in Huntsville Ph.D. Recipients:

1. Tameka Walker	UAH	Ph.D., 2011
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The University of Alabama at Birmingham Ph.D. Recipients:

1. Stephanie Watson	UAB	Ph.D., 2010
2. Candace Watson	UAB	Ph.D., 2011

Alabama BD Summary

Cohort	I	II	III	IV	V	VI	VII	VIII	Total
Number of Students in Cohort	12	13	13	12	12	13	12	12	99
Completed, entered, or plan to enter Ph. D. Programs	7	8	9	9	11	13	12	12	81
Workforce or school	5	5	4	3	1	0	0	0	18

Note: Eleven students have earned STEM Ph.D. degrees and 69 are currently in the pipeline.

As indicated by this chart, the number of students remaining in the program after two years has reached 100% for each of the last three years. In a few years the Alabama LSAMP program will be graduating approximately 12 STEM Ph.D. degrees each year. This will be a great feat for the NSF, the nation, Alabama and the underrepresented minorities who live here.

H. Alabama LSAMP Individual Institutions' Impact (See the following pages)



The National Science Foundation



Alabama Louis Stokes Alliances for Minority Participation



September 2011

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