

OKLAHOMA



NATIONAL SCIENCE FOUNDATION



LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION



**17 YEARS OF IMPACT
1994-2011**

OKLAHOMA

LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

IN SCIENCE, TECHNOLOGY, ENGINEERING

AND MATHEMATICS

(OK-LSAMP)

A HISTORY OF SIGNIFICANT EVENTS

1994-2011

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INTRODUCTION

In 1992, the Oklahoma State Regents, under the leadership of Chancellor Hans Brisch and Vice Chancellor Joe Hagy, organized the Oklahoma Alliance for Minority Participation in Science Engineering and Mathematics (OKAMP-SEM). This alliance consisted of the institutions of higher education in Oklahoma. Dr. Earl Mitchell, Oklahoma State University Professor, was chosen to serve as Chair of the Alliance. In 1993, Dr. Mitchell, with the help of Dr. Ann Ackerman, South Oklahoma City Junior College, wrote and submitted an application to the National Science Foundation for the support of an Alliance for Minority Participation (AMP) in Science, Engineering and Mathematics programs for the Oklahoma Alliance with matching funds from the Oklahoma State Regents for Higher Education to support the regional universities.

In 1994, Oklahoma State University (OSU), as the lead institution, along with seven partner institutions, was awarded a grant from the National Science Foundation (NSF) for the *Alliance for Minority Participation (AMP)*. The program was established to address the critical undersupply of minority students pursuing Bachelor of Science degrees in Science, Mathematics, Engineering, and Technology (SMET). Today, 11 Oklahoma institutions of higher education make up the Oklahoma consortium. During the 17 years Oklahoma has been active, several events have taken place – events that are reflected by a change in the name to include Congressman Louis Stokes as part of the title (Louis Stokes Alliance for Minority Participation-LSAMP), the addition of universities to the consortium, and the increase of students being retained in the STEM disciplines and many continuing on to graduate school.

The Oklahoma Alliance began under the direction of Dr. Earl Mitchell and continued for 13 years until his retirement from Oklahoma State University in 2007. Currently, Dr. Mark Payton, Oklahoma State University, serves as the Principal Investigator/ Program Director for both the LSAMP program and for the Bridge to the Doctorate (BD) initiative. Oklahoma State University serves as the lead institution for the Oklahoma Alliance and for the Bridge to the Doctorate initiative. Currently, OSU and the University of Oklahoma (OU) have Bridge to the Doctorate (BD) programs.

The Oklahoma Alliance began with a baseline of 214 under-represented minority (URM) students completing requirements for the Bachelor of Science degree in the STEM disciplines. The 2010 data reported 1,110 URM students completed degree requirements, indicating a 519 percent increase since the program began in 1994. Oklahoma has positively impacted student achievement for 17 consecutive years.

Historical Highlights of the Oklahoma Alliance Program

PHASE 1: 1994-1999

The *Oklahoma Alliance for Minority Participation in Science, Mathematics, Engineering and Technology (OKAMP-SMET)*, formed under the leadership of Oklahoma State University and the Oklahoma State Regents for Higher Education. It was established to address the critical under-supply of minority students at state higher education institutions receiving science, technology, engineering and mathematics (STEM) degrees. Participating institutions included 3 research universities – Oklahoma State University (OSU), The University of Oklahoma (OU), and the University of Tulsa (TU); Oklahoma’s Historically Black University – Langston University (LU); one large metropolitan and urban university – University of Central Oklahoma (UCO); 9 regional universities of the state system; 11 two-year colleges, including Bacone College – a private American Indian College (became a 4-year institution in 2001); and 3 other private colleges and universities.

- ◆ Oklahoma LSAMP formed in 1993
- ◆ NSF funding awarded in 1994
- ◆ Alliance programs initiated in 1995

Three programs were established for students pursuing Baccalaureate degrees. The program areas were:

1. *Scholarship* – This program was initially active during the fall and spring semesters with minimal support during the summer term. The intended outcome of this support was to reduce the students’ overall level of indebtedness at the conclusion of the baccalaureate degree program, thus minimizing financial limitations to entering graduate study. Scholarships lead to the students being paired with faculty mentors to conduct research. Faculty mentors played a substantial role in the success of the students.

2. *Summer Internship* – The internship program was used to develop serious interest in graduate training and a realistic picture of “what scientists actually do.” The experience of working closely with other researchers provided encouragement for continued education in chosen career fields.

3. *Summer Bridge for Rising Freshmen* – The residential program was held on the Oklahoma State University campus and provided rising college freshmen with an advance start of two “gateway” courses – College Algebra and English Composition.

High school seniors from across the state of Oklahoma were recruited and eligibility determined with 35 students chosen for the initial program.

In addition to the three major programs developed, a *Teacher Preparation Initiative Program* was implemented in 1996 as a supplement to the original proposal. The program focus was to help increase the number of minority teachers in grades K-12 having preparation in the science and mathematics fields.

Phase I of the program (1994 -1999) was comprised of the following: Dr. Earl Mitchell, Principal Investigator/ Program Director, Oklahoma State University and 8 Partner institutions -- *Oklahoma State University* (OSU Lead Institution), *University of Oklahoma* (OU), *Langston University* (LU), *East Central University* (ECU), *University of Central Oklahoma* (UCO), *Northwestern Oklahoma State University* (NWOSU), *Southeastern Oklahoma State University* (SEOSU), and *Northeastern State University* (NSU). Administrative staff job descriptions were created and individuals were chosen to fill these positions. In addition, a campus coordinator was selected to represent each campus.

Table 1. Beginning Administrative Staff and Campus Coordinators

Person	Position
Earl D. Mitchell, Ph.D.	Principal Investigator/ Program Director
Judy Batson, Ph.D.	Program Manager
Yousif Sherif, Ph.D.	Program Data Manager
Carl Rutledge, Ph.D.	Co-Principal Investigator, ECU Campus Coordinator
Kathy Niblett, M.S.	ECU Campus Coordinator
Phillip Schapiro, Ph.D.	Co-Principal Investigator, LU Campus Coordinator
Myron Cherry, Ph.D.	Co-Principal Investigator, NSU Campus Coordinator
Carol Rhoads, M.S.	NSU Campus Coordinator
Billy Stewart, Ph.D.	Co-Principal Investigator, NWOSU Campus Coordinator
Valerie Shangreaux, M.S.	OSU Campus Coordinator
Wayne Steen, Ph.D.	Co-Principal Investigator, OU Campus Coordinator
Sydney Jones, M.S.	OU Campus Coordinator
James Lester, Ph.D.	SEOSU Campus Coordinator
S. N. Rao, Ph.D.	Co-Principal Investigator, UCO Campus Coordinator
David Boliver, Ph.D.	UCO Campus Coordinator

Job Duties

The Program Director was assigned: oversight of the program administration and management, strategic planning and goal setting, policy decision-making, leadership and interfacing with leadership of funding agencies and the governing board, and to convene meetings of partner institutions.

The Program Manager duties were to: serve as assistant to the Program Director, designee for the Director when absent, maintain on-going program operations, maintain program integrity and cohesion, lead efforts to develop and initiate LSAMP programs, seek to form cooperative associations with other programs or initiatives.

The Data Manager established, maintained, and analyzed data on participants and mentors and also established and maintained communications for collection and dissemination of information.

The Program Evaluator performed a comprehensive assessment of the program effectiveness and assisted in developing ways to meet state, regional, and national STEM goals.

The Campus Coordinators were to have oversight of the programs on their respective campuses, work cooperatively with other LSAMP personnel, recruit scholars into the program, and monitor/guide scholar progress.

After initial funding was received from the National Science Foundation (NSF), the program director, administrative staff, and campus coordinators met to design and select a logo for the program (Figure 1). The logo was to be used on publications from the Alliance, be placed on student research project/posters for presentations, and allow for easy identification of the program.

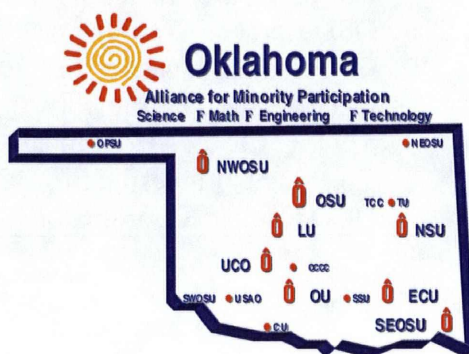


Figure 1. Original Logo for the Oklahoma Alliance.

Historical Goals/Objectives of Program

The Oklahoma LSAMP program aimed to increase the number of students from under-represented populations receiving baccalaureate degrees in STEM fields, thus creating a critical mass of potential STEM graduate students from underserved groups. Additionally, the cultural change was described as “changing students from a concept of vocation or immediate job when completing the Baccalaureate degree to one of planning for graduate education.” The program began with a baseline of 214 students from Alliance institutions. Toward realization of these goals, the program designed activities to incorporate:

1. Avenues for identifying and recruiting qualified and qualifiable students.
2. Summer bridge programs designed to orientate students to college life, coursework, and ‘survival’ skills prior to the beginning of the fall semester and the presence of the entire student body.
3. Retention efforts afforded through academic mentoring, academic support, social support, and staff availability.
4. Collaboration with campus support programs, external community organizations, and tribal offices.
5. Research opportunities with faculty mentors.

The following figures show the 1995 distribution of OKAMP participants by institution, ethnicity, and gender:

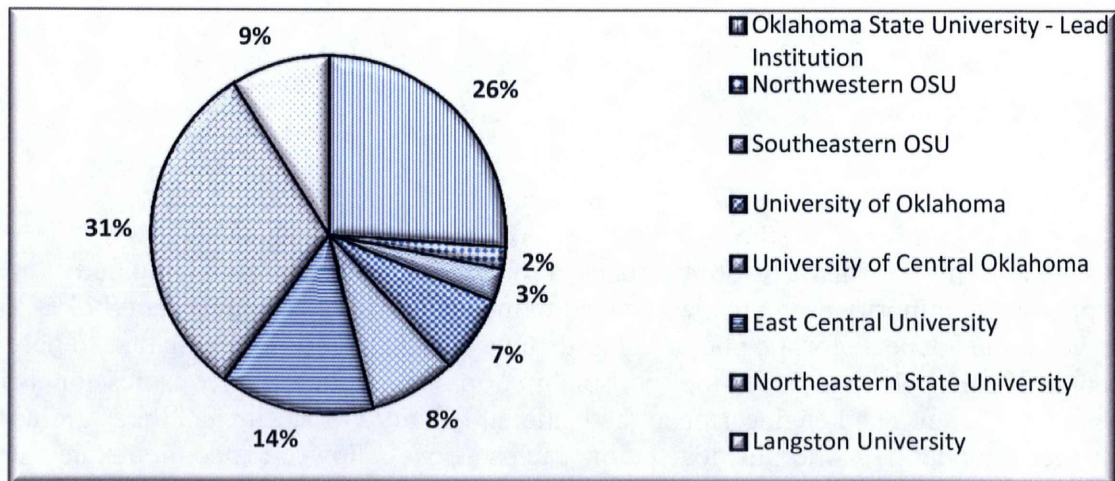


Figure 2. 1995 Distribution of Participants by Partner Institutions.

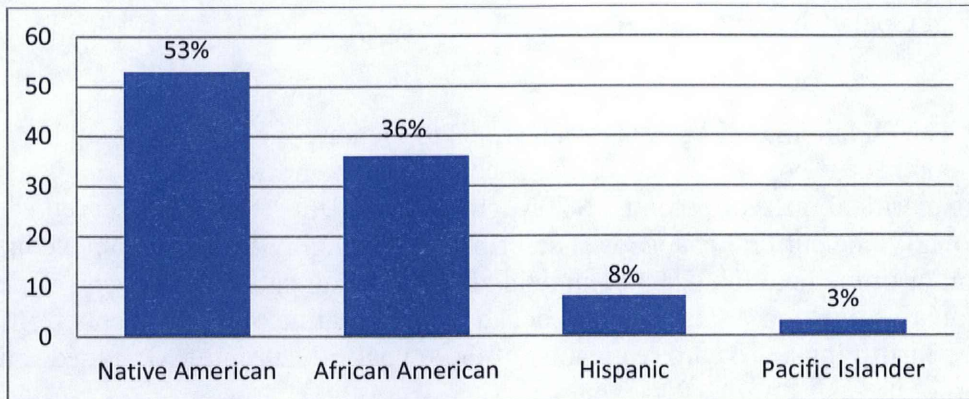


Figure 3. 1995 Percentage of Participants by Ethnicity.

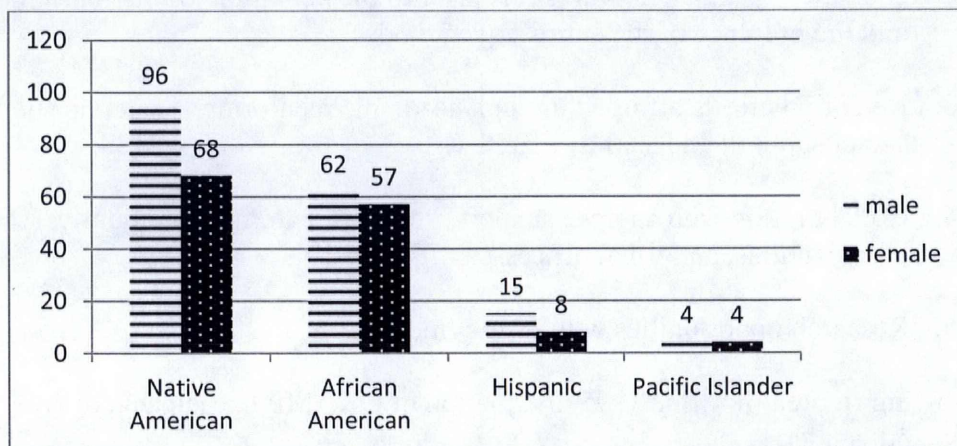


Figure 4. 1995 Distribution of Participants by Gender and Ethnicity.

Name Change

In December 1998, the United States Congress enacted a name change for the AMP Program. The name of Louis Stokes, a former Congressman from Ohio and supporter for minority programs, was added to the official title. Congressman Stokes served as an advocate for the poor and disadvantaged. He sponsored legislation to help people of color which included the sponsorship of programs for minority professionals in health and science and engineering at the National Institutes of Health and the National Science Foundation. After this legislation, each state was allowed to add their state name to the beginning of the title; therefore on December 17, 1998 the *Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP)* became officially recognized.

Alliance Success in Phase I

Phase I graduation rates exceeded the goals set forth in the proposal. Retention rates were up from 75.6 percent to 83.4 percent for under-represented minorities in STEM disciplines, and the average GPA of the scholars was 3.2. Additionally, the Alliance joined forces with the Experimental Program to Stimulate Competitive Research (EPSCoR) to recruit high school junior and senior students for a multi-state conference on science and mathematics. The two-day conference in Lawrence, Kansas, was designed to provide under-represented minorities with information about developing science-related interests, learning more about science fields, and preparing for college.

Student Success in Phase I

At the conclusion of Phase I, the outside evaluator discovered that the 1994 freshman class participants had a higher retention rate. Thus, it was concluded that under-represented minority students were retained at a higher level than before the establishment of the Oklahoma AMP program. The program showed a 47 percent increase from year 1 to year 5 in the number of minority degrees awarded. In addition to generating an increase in degrees earned, the OKAMP program influenced the overall academic culture by encouraging more high quality undergraduate research experiences for a broader pool of students.

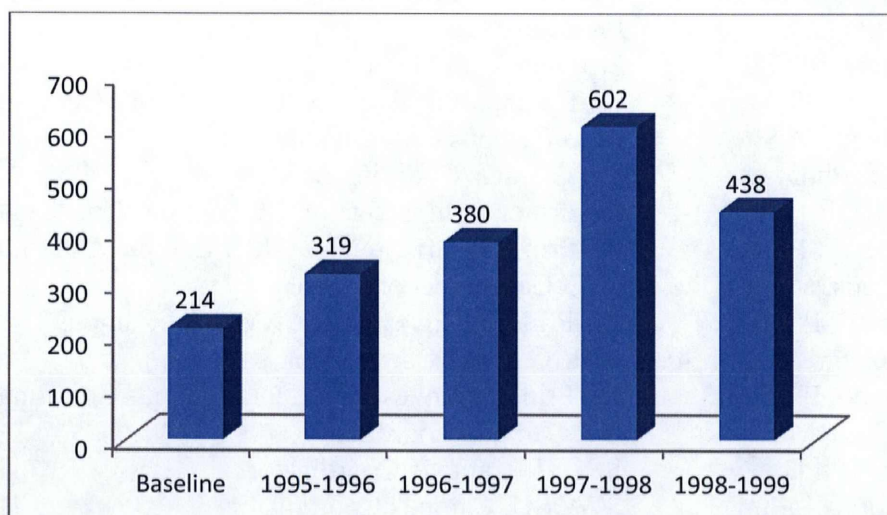


Figure 5. Number of Bachelor of Science URM Degrees Awarded During Phase I.

PHASE II: 1999-2004

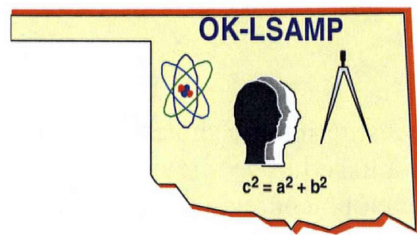
Phase II of the program (1999 -2004) was proposed to emphasize the preparation of minority scholars for graduate education. The major objectives for Phase II were to expand the number of partner institutions from eight to 11 in order to reach more students; expand research experiences through academic year activities with more off-campus and non-academic research sites; increase early preparation for graduate studies through workshops and orientations; establish summer transfer bridge programs with two-year affiliates; and offer a clear and specific discipline-related teacher preparation component to students seeking a degree.

The Phase II program comprised of the following: *Oklahoma State University* (Lead Institution) and 10 Partner institutions -- *University of Oklahoma (OU)*, *University of Tulsa (TU)*, *Langston University (LU)*, *Cameron University (CU)*, *East Central University (ECU)*, *University of Central Oklahoma (UCO)*, *Northwestern Oklahoma State University (NWOSU)*, *Northeastern State University (NSU)*, *Southeastern Oklahoma State University (SEOSU)*, and *Southwestern Oklahoma State University (SWOSU)*. Administrative staff and campus coordinators for Phase II were selected (see Table 2).

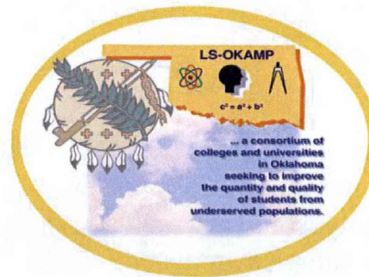
Table 2. Phase II Administrative Staff and Campus Coordinators

Person	Position
Earl D. Mitchell, Ph.D.	Principal Investigator/Program Director
Rosemary Hayes, Ph.D.	Evaluator, Center for Institutional Data Exchange & Analysis
Zola Drain, Ph.D.	Program Manager
Yousif Sherif, Ph.D.	Program Data Manager
Carl Rutledge, Ph.D.	Co-Principal Investigator, ECU Campus Coordinator
Kathy Niblett, M.S.	ECU Campus Coordinator
Ted Snider, Ph.D.	CU Campus Coordinator
Phillip Schapiro, Ph.D.	Co-Principal Investigator, LU Campus Coordinator
Myron Cherry, Ph.D.	Co-Principal Investigator, NSU Campus Coordinator
Carol Rhoads, M.S.	NSU Campus Coordinator
Billy Stewart, Ph.D.	Co-Principal Investigator, NWOSU Campus Coordinator
Valerie Shangreux, M.S.	OSU Campus Coordinator
Wayne Steen, Ph.D.	Co-Principal Investigator, OU Campus Coordinator
Sydney Jones, M.S.	OU Campus Coordinator
Tim Patton, Ph.D.	SEOSU Campus Coordinator
Brian Campbell, Ph.D.	SWOSU, Campus Coordinator
J. C. Diaz, Ph.D.	Co-Principal Investigator, TU Campus Coordinator
S. N. Rao, Ph.D.	Co-Principal Investigator, UCO Campus Coordinator
David Boliver, Ph.D.	UCO Campus Coordinator

Following an initial meeting of the campus coordinators and the Principal Investigator, a new program logo was developed with the name change in mind. The logo was to reflect the overall goals of the Oklahoma consortium, “*LS-OKAMP is a consortium of colleges and universities within the State of Oklahoma developing programs aimed at substantially increasing the quantity and quality of students from under-represented populations receiving degrees in Science, Mathematics, Engineering, and Technology. In the first 5 years or Phase I (1994-1999), more than 640 Native American, African American, Hispanic, and Native Pacific Islander undergraduates participated in the High School-to-College Summer Bridge Program, Scholars Program, and Summer Research Internship Program. Phase II goals (2000-2004) aim to expand the research experience throughout the academic year; incorporate a 2-to-4-Year College Bridge Program, provide a Teacher Preparation component for OKAMP participants who anticipate college-level faculty positions, and emphasize preparation for graduate school admission and success*” (Figure 6).



1999-2000



2000-2003

Figure 6. LS-OKAMP Logos.

Phase II began with a baseline graduation rate of 438 compared to the 1994 Phase I baseline of 214. Over a 5-year period, URM baccalaureate degrees increased by 50% (Figure 7).

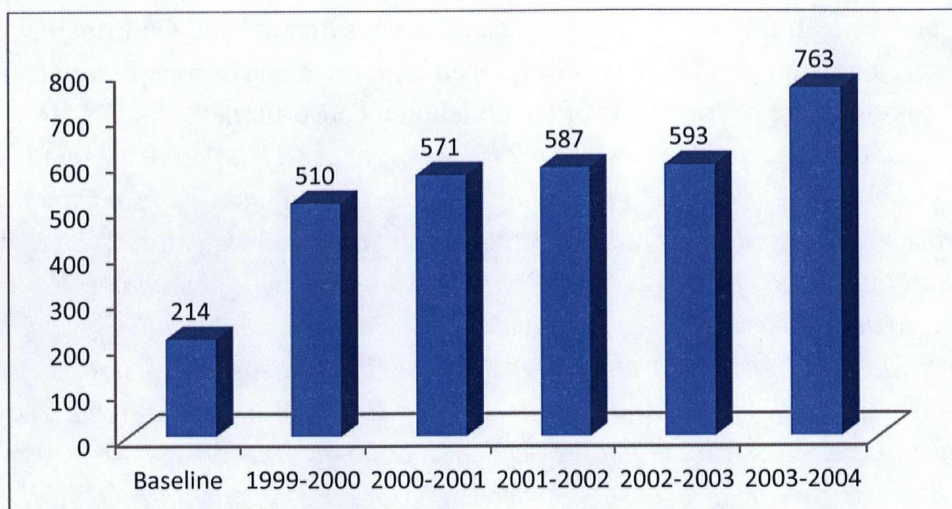


Figure 7. Number of Bachelor of Science Degrees Awarded During Phase II.

Student Success in Phase II

Student success was evident at all Alliance institutions. Scholars were awarded paid summer internships and several had articles published in peer reviewed journals. Additionally, some research activities led to the development and patent of inventions. Selected examples are listed:

Paul De La Cerda was named one of Oklahoma State University's Top Ten Seniors for 2000. In addition, he was included in the National Hispanic Student Leader of the Year and Minority Engineer of the Year Award. He received a patent for his *Pooch Pass Home Security Pet Door* and is President and CEO of Pooch Pass, Inc. Paul was also selected as a Los Angeles 40 Under 40 Award and one of the 51 most influential people in Santa Clarita Valley. He also became the first Hispanic elected school board member for Saugus Union School District, California.

Desmond Harvey, received a Bachelor of Science degree in Chemistry from Langston University and a Master of Science degree as a Bridge to the Doctorate Fellow at the University of Oklahoma. After completing his MS degree, he took a job in industry and has recently returned to complete Ph.D. requirements and serve as the Coordinator of Multicultural Engineering Programs (MEP) at Oklahoma State University.

Cara Cowan Watts, received her Bachelor of Science degree in 1997 and her Master of Science degree in 2002 from Oklahoma State University. She currently is completing requirements for the Ph.D. in Biosystems and Agriculture Engineering as a Cohort I BD Fellow. Cara is serving as an elected Councilwoman for the Cherokee Nation and Deputy Speaker for the Cherokee Tribal Council. Cara has represented the

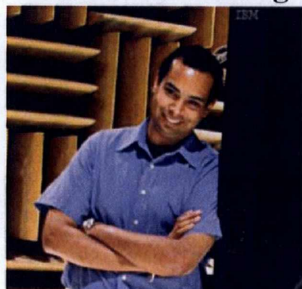
Cherokee Nation and other Native Americans on various state and national committees regarding health care and water rights.

Dr. Daniel H. Wilson, University of Tulsa Scholar, has two Master of Science degrees and a Ph.D. from Carnegie Mellon University. During his undergraduate years, Daniel was awarded a graduate engineering fellowship from the National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM). He formed a software company that designed and distributed a program to area home healthcare providers to manage patient conditions and visiting schedules. Daniel has numerous books published, a TV show on the History Channel, and has sold the movie rights to several of his books including his first book, *How to Survive a Robot Uprising*. In addition, he is writing books for young adults and a screenplay for Nickelodeon Movies.



Tambra Stevenson, Oklahoma State University Scholar, received her Bachelor's Degree in Human Nutrition. She earned her Master's Degree in Health Communication from Tufts School of Medicine/Emerson College Joint Program. Tambra has also completed course work in Health Care Marketing and Entrepreneurial Management at Boston University Graduate School of Management. She has interned at Hill Holiday, CBS Healthwatch, the 2003 Ad Club of Boston Summer Internship Program, and the Boston Black Women's Health Institute. Tambra's master's project was the YO! Health Study which created a youth center, multicultural health career website for the Tufts public health program. She also began the project "Postcards from Katrina" to aid hurricane victims.

Kara & Levisa Chapman, twin sisters, and scholars from East Central University were two of 18 nationally to receive the National Society of Physics Students Scholarship. Their project was to create a video about Einstein's Twin Paradox. The sisters completed requirements for the Bachelor's degree in Physics and are currently enrolled in Ph.D. programs at Texas A&M University. Both will be completing Ph.D. degree requirements in 2012.



Mike Hollinger received his Bachelor's degree in Computer Engineering from the University of Oklahoma (OU). Completing the five-year accelerated BS/MS program in 2005, he received his Master's Degree in Electrical & Computer Engineering. Following graduation, Mike joined IBM's Systems & Technology Group, working in IBM's Austin, Texas, design center. He currently specializes in embedded systems firmware for the IBM System I&P lines of servers. Since joining the company, Mike has several patents pending. In addition to his "day job," Mike is

also an officer of IBM Austin's Emerging Technology and Business Innovation group leading periodic invention roundtables and brainstorming sessions. Mike currently serves as a member of the Dean's Advisory Board on Diversity (DABD) at OU and serves as alumni reviewer for the Student Organization Website Competition.

Dr. Jennifer McLoud-Mann received her Bachelor's degree in Mathematics from East Central University in 1997. She received her Master of Science and Ph.D. from the University of Arkansas also in Mathematics. Since 2002 she has been at the University of Texas-Tyler. Dr. McLoud-Mann is an Associate Professor of Mathematics and Associate Dean of the College of Arts and Sciences. In 2008 Jennifer was recognized by the Texas Section of the Mathematical Association of America with the Faculty Award for Outstanding Contributions to students and in 2009 she was one of three professors to receive a national teaching award through the Mathematical Association of American.

Jade Verdeman received his Bachelor of Science degree in Cell Biology from Northeastern State University. He received his Master of Science degree in Entomology from Kansas State University and currently owns and operates Moses BioLogic, LLC, a company specializing I testing food packaging's tolerance to insects.

Alliance Accomplishments

During Phase II, the Oklahoma Alliance developed Graduate Record Exam (GRE) preparation modules. The modules emphasized: (1) what is the GRE, (2) format and content, (3) why take the GRE, (4) when and where to take the GRE, (5) how to prepare for the exam, (6) test-taking skills and strategies, (7) practice exams, and (8) costs. Regular meetings and workshops were held throughout the alliance by the OSU Graduate College representative and OK-LSAMP staff. Students were required to complete a minimum of two graduate school applications to institutions of their choice.

Campus Coordinator Valerie Shangreaux was named *an Inaugural Year Gates Millennium Scholar*. Valerie is a member of the Oglala Sioux Tribe. She completed requirements for the doctoral degree in Educational Psychology while working with the Oklahoma Alliance as OSU Campus Coordinator. Currently, she serves as Director of Leadership with the Blandin Foundation in Minnesota.

Three former scholars completed Ph.D. degrees in Mathematics, Biology, and Electrical Engineering. Five scholars were enrolled in Ph.D. programs in the areas of Biochemistry, Computer Science, and Chemistry.

Oklahoma Alliance campuses hosted summer bridge programs for each of the summers in Phase II. The bridge programs provided eligible minority students with a jump start on college courses and experiences, as they made the transition from high

school to college. Students were immersed into college life through on campus courses, living in dorms, and participating in social/leadership activities.

The Oklahoma Alliance submitted a proposal to the National Science Foundation for Phase III of the LSAMP award. The grant was awarded to Oklahoma to begin in October 2005. The focus of the grant was on graduate preparation and entrance into graduate programs.

NSF initiated the Bridge to the Doctorate (BD) initiative in fiscal year 2003 as a supplement for Phase III alliances. The program, aimed to ease the transition from undergraduate study to the next level, provided competitive support during the initial two years of graduate study and broadened the opportunity for minority participation in STEM disciplines. In July 2004, Oklahoma LSAMP received funding for the new initiative with Oklahoma State University as the BD site. Twelve fellows were selected for the inaugural cohort.

PHASE III: 2004--2009

Phase III of the program (2005 -2009) was proposed to emphasize the recruitment and retention of minority students as well as preparation for graduate education. The program focused on research activities in the last two years of the undergraduate degree. In addition to forming a strong research experience, scholars were encouraged to participate in two summer research experiences before receiving their BS degree.

The Phase III program continued to be comprised of the following ten partner institutions: *Oklahoma State University* (OSU Lead Institution), *University of Oklahoma* (OU), *University of Tulsa* (TU), *Langston University* (LU), *Cameron University* (CU), *East Central University* (ECU), *University of Central Oklahoma* (UCO), *Northeastern State University* (NSU), *Northwestern Oklahoma State University* (NWOSU), *Southeastern Oklahoma State University* (SEOSU), and *Southwestern Oklahoma State University* (SWOSU).

In 2007, Dr. Earl Mitchell retired from Oklahoma State University and therefore left the OK-LSAMP program as Principal Investigator/Director. Dr. Cornell Thomas, Vice President for Institutional Diversity was appointed as the Principal Investigator and Director for both the LSAMP and BD programs. Dr. Gordon Emslie, Dean, OSU Graduate College, was appointed as Co-Principal Investigator of the BD program. In addition to a change in the Principal Investigator, the staff changed to include only the Program Manager and Data Manager. Several changes also occurred in the positions of the Campus Coordinators (Table 3).



Earl Mitchell, Jr.
PI: 1994-2007

Cornell Thomas
PI: 2007-2009



Gordon Emslie
PI: 2009-2010

Mark Payton
PI: 2010-Present



Table 3. Phase III Administrative Staff and Campus Coordinators

Person	Position
Earl D. Mitchell, Ph.D.	Principal Investigator / Program Director– (Retired 2007)
Cornell Thomas, Ph.D.	Principal Investigator / Program Director
Gordon Emslie, Ph.D.	Co-Principal Investigator-BD program
Rosemary Hayes, Ph.D.	Evaluator, Center for Institutional Data Exchange & Analysis
Kay Porter, M.S.	Program Manager
Fara Williams, B.S.	Program Data Manager
Carl Rutledge, Ph.D.	Co-Principal Investigator, ECU Campus Coordinator
Ted Snider, Ph.D.	CU Campus Coordinator—Retired
Keith Vitance, Ph.D.	CU Campus Coordinator—Retired
Frank White, Ph.D.	CU Campus Coordinator
Sharon Lewis, Ph.D.	LU Campus Coordinator
Myron Cherry, Ph.D.	Co-Principal Investigator, NSU Campus Coordinator—Retired
Jody Buckholtz, Ph.D.	NSU Campus Coordinator
Timothy Maharry, Ph.D.	NWOSU Campus Coordinator
Camille DeYong, Ph.D.	OSU Campus Coordinator
Simin Pulat, Ph.D.	Co-Principal Investigator, OU Campus Coordinator
Tim Patton, Ph.D.	SEOSU Campus Coordinator
Brian Campbell, Ph.D.	SWOSU Campus Coordinator—Retired
Tim Hubin, Ph.D.	SWOSU Campus Coordinator
J. C. Diaz, Ph.D.	Co-Principal Investigator, TU Campus Coordinator
Gregory Wilson, Ph.D.	UCO Campus Coordinator

Alliance Highlights

The OK-LSAMP logo underwent another change during Phase III. The logo was redesigned to reflect the logo of each institution in the Alliance (Figure 8). At the top of the logo is the Lead Institution, OSU, immediately to the right and left are logs of the two other research institutions in Oklahoma (OU and TU).



Figure 8. Current Oklahoma LSAMP Logo.

In July 2004, Oklahoma received funding for the Bridge to the Doctorate program at Oklahoma State University. In July 2005, the University of Oklahoma also received funding for the Bridge to the Doctorate program. In 2008, OSU received funding for a second BD program and in 2009 the University of Oklahoma received funding for a second BD. A total of 12 fellows were chosen to participate in each program at each of the schools for a total of 48 fellows being eligible to pursue higher education degrees.

Bridge to the Doctorate

Cohort I: Oklahoma State University: Seven Native Americans, four African Americans, and one Hispanic former LSAMP Scholars were chosen to participate in the Bridge to the Doctorate (BD) program.

Cohort II: The University of Oklahoma: Three Native Americans, seven African Americans, and two Hispanic former LSAMP Scholars were chosen to participate in the Bridge to the Doctorate (BD) program.

Cohort I Fellow	Discipline	Degree Progress
Barrett, Dominic	Zoology	Completed MS
Cowan, Brett	Civil Engineering	Completed PhD
CowanWatts, Cara	Biosystems & Agriculture Engineering	PhD: December 2011
Heppler, Marty	Entomology & Plant Pathology	Completed MS
Manjarrez, Jacob	Biochemistry & Molecular Biology	PhD: December 2011
Patton, Thomas	Electrical Engineering	Completed MS
Peal, Lila	Biochemistry & Molecular Biology	Completed PhD
Rush, Loretta	Biochemistry & Molecular Biology	Withdrew
Sherman, Adrian	Biosystems & Agriculture Engineering	Completed MS
Singleton, Nicole	Physiological Sciences	Completed MS
Wilkins, Brek	Biomedical Sciences	Completed PhD
Wright, Cristee	Microbiology & Molecular Genetics	Completed MS



Cohort II Fellow	Discipline	Degree Progress
Henderson, Jacob	Computer Engineering	Completed MS
Harris, Steven	Chemistry	Completed PhD
Harvey, Desmond	Chemistry	PhD: December 2013
Hughes, Quintin	Industrial Engineering	Completed PhD
James, Kevin	Electrical/Computer Engr.	PhD: December 2012
McCarroll, Shawn	Computer Science	Completed MS
McCuchin, Marshall	Physics	Withdrew
Osisanya, Israel	Petroleum Engineering	Completed MS
Rowland, Marquita	Biology	Withdrew
Vasquez, William	Math	Completed MS
Wallace, T'aire	Microbiology	Transferred/another PhD program
De la Cruz, Felix	Mechanical Engineering	Completed MS

Cohort III: Oklahoma State University: Six Native Americans, four African Americans, and two Hispanic, and one First Generation Female former LSAMP Scholars were chosen to participate in the Bridge to the Doctorate (BD) program.

Cohort III Fellow	Discipline	Degree Progress
Benjamin, Marcus	Chemistry	Anticipated MS: December 2011
Blocker, Tomica	Zoology	Anticipated MS: August 2011
Carpenter, Zach	Electrical Engineering	Anticipated PhD: May 2012
Fine, Scott	Plant & Soil Sciences	Anticipated PhD: August 2012
Gonzales, Erik	Physics	Anticipated MS: August 2011
Gonzales, Jonathan	Electrical/Computer Engr.	Anticipated PhD: August 2012
Hough, Matt	Plant & Soil Sciences	Completed MS: May, 2011
Hughes, Shawna	Food Sciences	Completed MS: July 2011
Ngo, Minh	Forensics	Completed MS: December 2010
Osei, Richard	Computer Sciences	Anticipated MS: December 2011
Pinkerman, Cody	Aerospace/Mechanical Engr.	Anticipated PhD: May 2012
Yarholiar, Doug	Civil Engineering	Completed MS: December 2009
Parkhurst, Molly*	Zoology	Anticipated MS: December 2011

*added using remaining funds through a one-year NSF approved no-cost extension.

Cohort IV: The University of Oklahoma: Four Native Americans, five African Americans, two Hispanic, and one First Generation Female former LSAMP Scholars were chosen to participate in the Bridge to the Doctorate (BD) program.

Cohort IV Fellow	Discipline	Degree Progress
Aguayo, Chris	Aerospace Engineering	PhD In progress
Atkinson, Brittanie	Biochemistry & Molecular Biology	PhD In progress
Dunn, Zack	Engineering Physics	PhD In progress
Franklin, Mario	Industrial Engineering	PhD In progress
Herrera, Juan	Computer Engineering	PhD In progress
Jordan, Lorne	Chemistry	PhD In progress
Jordan, Ryan	Geology	PhD In progress
Liles, Meghan	Biochemistry	PhD In progress
Mace, Chris	Geology	Completed MS: May 2011
Moore, Crystal	Microbiology	PhD In progress
Ong, Shawna	Electrical Engineering	PhD In progress
Watley, Ryan	Chemistry	PhD In progress

Cohort I, II, and III Fellows have achieved the following: Degrees Awarded-- 5 PhD and 20 Master of Science degrees. Eighteen Fellows are completing course work in PhD programs with graduation dates anticipated within the next year. Four Fellows either transferred to another Ph.D. program or withdrew from the program (Figure 9). Cohort IV Fellows are currently completing their third semester of course work and are satisfactorily working toward graduate degree completion.

In addition, one Fellow (**Tomica Blocker**) received the Graduate Research Fellowship Program award to attend graduate school at Oklahoma State University. Tomica received a Bachelor of Science degree from Langston University in Biology and is currently completing her Master of Science degree in Zoology before entering the Ph.D. program.

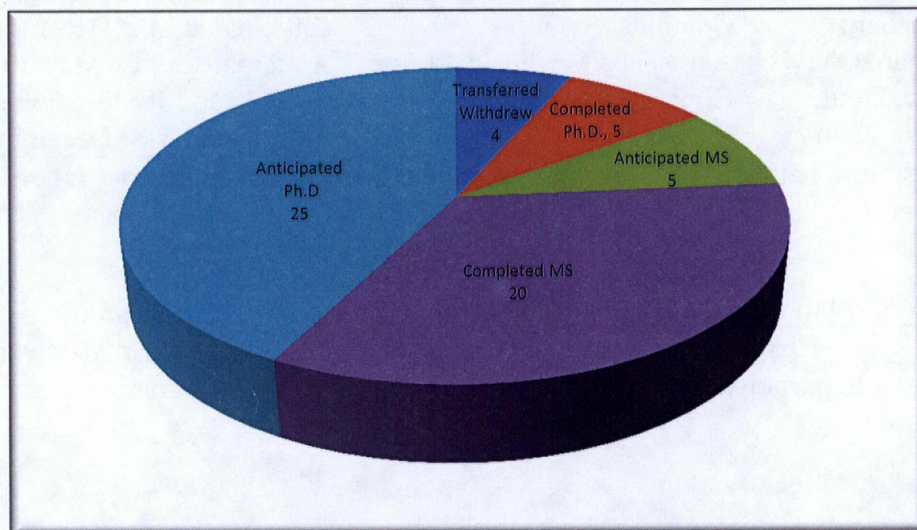


Figure 9. Cohort I, II, III, and IV Fellows.

Student Success

At the conclusion of Phase III, the outside evaluator reported the OK-LSAMP program was achieving stated goals. In fact, the program showed 47 percent of Phase III graduates were accepted to graduate programs. The Oklahoma Alliance continues to meet the NSF goal of increasing the number of students from historically under-represented groups completing degrees in STEM fields. Oklahoma Alliance institutions have awarded 7,959 URM degrees during the 16 years of the LSAMP program for an average of approximately 500 per year.

It should be noted that the drastic change in the number of degrees awarded between 2006 and 2007 was largely due to a change in the Oklahoma State Regents for Higher Education data process.

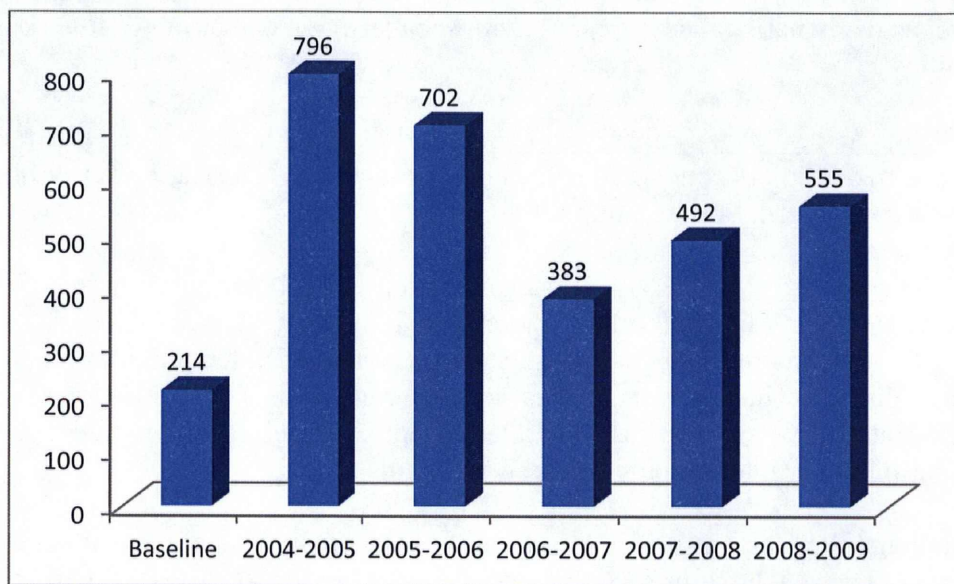


Figure 10. Number of Bachelor of Science Degrees Awarded During Phase III.

The research experience is a program benchmark in which all scholars must participate. The scholars must identify a faculty mentor, develop an approved research project, and devote time to research during the academic year. A large percentage of scholars participate in summer REU (Research Experience for Undergraduates) programs or intern with state and federal agencies and corporations across the country. For scholars remaining at their home campuses during the summer, research projects that are in progress may continue without interruption. The research experience helps to solidify the decision to pursue (or not to pursue) STEM graduate programs in preparation for research/teaching careers. By polling scholars informally, it appears that the research experience is highly valued because it provides great insight into the challenges and rewards of research. The experience requires critical thinking in the application of knowledge, builds confidence, encourages collaboration, broadens networking, and brings students in contact with outstanding researchers at some of the country's most renowned institutions and agencies. We have also observed that scholars generally take advantage of every opportunity to attend conferences for the purposes of exposure and professional development, presentation of research findings, visitations with graduate school recruiters, and networking.

One major example of student research presentations has been the OK-LSAMP Annual Research Symposium. This event has been held on the Oklahoma State University campus each fall and provides an opportunity for professional and social interaction of the entire alliance. Scholars are encouraged to either present a poster or make an oral presentation on the research they have been conducting during the academic year or the summer internship research project. The Symposium is conducted on the same level as many national conferences, with speakers, workshops, and networking opportunities.

Faculty and Student Team (FaST) Grants: During Phase III, one OSU faculty member and two scholars conducted research at Brookhaven National Labs in Long Island, New York, during the summer through FaST grants.

Scholar Publications: Phase III saw an increase in scholar publications. Scholars were represented in 13 different referred journals. T. Andrew Mixson, Zoology and Psychology double major from Oklahoma State University, had ten articles accepted for publication, three of which he was lead author. Lauren White, Zoology major from Oklahoma State University, has had 6 articles accepted for publication in national journals outlining her international research on lizards.

National Scholarships: Scholars were chosen as recipients of several national scholarships. The scholarships included, but were not limited to: Gates Millennium Scholar, Graduate Research Fellowship Program, Goldwater Scholarship, Brad Henry International Scholars Program, UNCF/Merck Fellow, and UDALL Scholarships.

National Conferences: Phase III also saw an increase in the number of national conferences scholars attended as presenters. Conferences such as the National Conference on Undergraduate Research (NCUR) increased from two scholars in Phase II to 25 in Phase III. Scholars participated in the National Society of Black Engineers (serving as officers), Society for the Advancement of Chicanos and Native Americans in Science and Engineering, HBCU-Up Conferences, World Water Resources Conference, National Association of Engineering Student Councils, American Society of Agricultural and Biological Engineers, and Women of Color STEM Conference, and many other discipline specific state, regional, national, and even international conferences.

Internships: Phase III allowed scholars to participate in regional, national and international internships. Scholars conducted research with national laboratories such as Brookhaven National Laboratories, Sandia National Labs, and the Centers for Disease Control. Additional internship locations included, but are not limited to: all the major energy companies (i.e., Devon, Exxon, ConocoPhillips) NASA Space facilities, and universities (University of New York at Rochester, New Mexico State University, Avila University, and Harvard University).



Ryan Jordan on internship assignment in Africa

During Year 5, four scholars participated in international research. One scholar conducted research at the University of Wales, one in Slovenia, and one each in Italy and Dominica.

Pursuing Higher Degrees (PHD) Camp: Forty-two scholars participated in a two-day, intensive camp on how to apply for and be accepted to graduate school. Sessions included topics such as the application process, writing personal goal statements, taking the



Pursuing Higher Degrees (PHD) Camp Participants

Graduate Record Exam, asking for letters of recommendation, and speed mentoring. The concept was used, with permission, from a similar program developed by the University of California-Berkeley. Professional speakers were brought in to speak with the scholars and for “hands-on” assistance. Scholars were provided a “graduate tool box” containing essential supplies and resources for the graduate school application process.



Figure 11. 2010 PHD Camp Participants by Institution and Classification.

PHASE IV: 2009--2014

Phase IV of the program (2010-2014) was proposed to recruit increasing numbers of students into STEM fields using enhanced recruitment strategies: support students academically and professionally, relying on strong mentoring networks and links to research; prepare students for global success; and to strengthen an infrastructure that supports student success and professional development.

The Phase IV program noted several changes in the administrative staff. Dr. Cornell Thomas, who wrote and submitted the proposal as the Principal Investigator, left Oklahoma State University. Following Dr. Thomas' departure from OSU, Dr. Gordon Emslie assumed the role of Principal Investigator/Program Director. At the end of Year 1, Dr. Emslie left OSU. Dr. Mark Payton, Interim Dean of the Graduate College and Professor of Statistics, assumed the position of Principal Investigator/Program Director. The partner institutions remained the same -- *Oklahoma State University* (OSU Lead Institution), *University of Oklahoma* (OU), *University of Tulsa* (TU), *Langston University* (LU), *Cameron University* (CU), *East Central University* (ECU), *University of Central Oklahoma* (UCO), *Northwestern Oklahoma State University* (NWOSU), *Northeastern State University* (NSU), *Southeastern Oklahoma State University* (SEOSU), and *Southwestern State University* (SWOSU). Phase IV administrative staff and campus coordinators are reported in Table 4.

Table 4. Phase IV Administrative Staff and Campus Coordinators

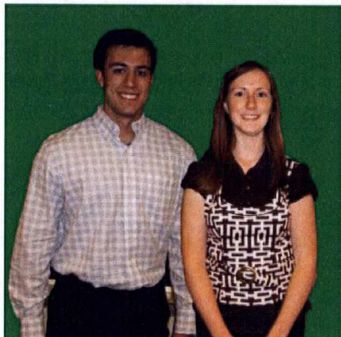
Person	Position
Cornell Thomas, Ph.D.	Principal Investigator / Program Director—left university
Gordon Emslie, Ph.D.	Principal Investigator / Program Director—left university
Mark Payton, Ph.D.	Program Director/Principal Investigator
Rosemary Hayes, Ph.D.	Evaluator, Center for Institutional Data Exchange & Analysis
Kay Porter, M.S.	Program Manager
Fara Williams, B.S.	Program Grant Coordinator
Carl Rutledge, Ph.D.	Co-Principal Investigator, ECU Campus Coordinator
Frank White, Ph.D.	CU Campus Coordinator
Sharon Lewis, Ph.D.	LU Campus Coordinator
Jody Buckholtz, Ph.D.	NSU Campus Coordinator
Timothy Maharry, Ph.D.	NWOSU Campus Coordinator
Camille DeYong, Ph.D.	OSU Campus Coordinator
Simin Pulat, Ph.D.	Co-Principal Investigator, OU Campus Coordinator
Tim Patton, Ph.D.	SEOSU Campus Coordinator
Tim Hubin, Ph.D.	SWOSU, Campus Coordinator
J. C. Diaz, Ph.D.	Co-Principal Investigator, TU Campus Coordinator
Gregory Wilson, Ph.D.	UCO Campus Coordinator

Alliance Highlights

Phase IV has completed two years of funding. A campus coordinator retreat was held along with community/junior college personnel to form an articulation agreement with the community/junior colleges for the students transferring to OK-LSAMP alliance institutions. Students from the community/junior colleges, who are in STEM disciplines and have the minimum grade point average, will be eligible for OK-LSAMP benefits upon full-time enrollment at an Alliance institution. The retreat also brought together Campus Coordinators to share ideas and suggestions for recruitment and retention of scholars. The two-day retreat was the first one held during all phases of the LSAMP program in Oklahoma and was followed up by a visit from the Principal Investigator/Program Director to Alliance campuses to visit with presidents, mentors, and scholars.

Faculty and Student Teams (FaST) Grants: Three FaST grants were awarded to Oklahoma faculty. These grants allowed faculty members to take students with them to national laboratories to conduct research during the summer months. Three grants were awarded to faculty at the lead institution, Oklahoma State University, and one was awarded to a team from Northeastern State University. Thirteen scholars were impacted. Two Native American teams conducted research at Brookhaven National Labs and two Native American teams conducted research at Argonne National Labs.

Graduate Research Fellowship Program (GRFP): In Year 1 of Phase IV, four scholars received GRFP awards from the National Science Foundation. The scholars will continue study in the following areas: (1) Zoology-Oklahoma State University (Tomica Blocker); (2) Microbiology-University of California-Berkeley (Brandon “Bubba” Brooks); (3) Chemical Engineering-Duke University (Erica Brown); and (4) Biology / Chemistry-University of North Carolina (Leethanial Brumfield, III). During Year 2, two additional GRFP awards were presented to scholars: Architectural Engineering-University of Illinois (Andrew Mock), and Biochemistry and Botany – University of Arizona (Lydia Meador).

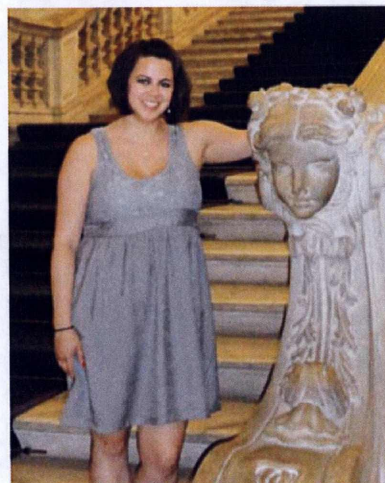


Andrew Mock & Lydia Meador

Bridge to the Doctorate Fellowships: Oklahoma scholars were awarded BD Fellowships to continue graduate studies at the University of California-Santa Barbara, Howard University, and the University of Oklahoma. These BD Fellows are pursuing degrees in Geology, Engineering, and Biomedical Sciences.

National Scholarships: Scholars continued to be chosen as recipients of national scholarships. The scholarships included, but were not limited to: the Goldwater Scholarship, the UDALL Scholarship, and the Arthur Ashe Scholarship.

Alumni Awards: Cammi Valdez, a former scholar from Southwestern Oklahoma State University (SWOSU) and a current Ph.D. student at Harvard University was accepted as one of 77 to represent the United States at the 2010 Nobel Laureate Conference in Germany. Additionally, she was one of 7 chosen to represent the United States at the EuroScience Open Forum in Torino, Italy.



Cammi Valdez -- 2010 Nobel Laureate Conference

Internship Experiences: During years 1 and 2, the alliance has seen an increase of 50 percent in the number of scholars participating in the summer internship program. Scholars participated in internships and research experiences for undergraduates at national and international locations. This increase in the number of scholars participating in the internship experience is reflected in the type of research they are conducting and the mentoring experience.

International Experiences: An increase of 275 percent was noted in international experiences for Oklahoma scholars. Scholars participated in research and study abroad activities in the following countries: Canada, France, Brazil, Egypt, Africa, Antarctica, Nicaragua, Honduras, Kenya, Philippines, Hungary, Dominica, Slovenia, Turkey, Spain, and Costa Rica. Internships with National Science Foundation support allowed scholars to participate in the Bucknell's 2011 International Research Experience for Undergraduates in Spain and the Native Americans and Pacific Islanders Research Experience (NAPIRE) in Costa Rica.

Conferences: Scholars throughout the alliance were able to present research at local, state, national, and international conferences. In addition to poster and oral presentations during the national conferences, several scholars have been elected to leadership positions. Examples include the National Society of Black Engineers (NSBE) regional parliamentarian and regional chair for leadership.

Students: **Darron “DJ” Lamkin**, OSU Scholar and Master of Science candidate, Industrial Engineering, was awarded the Leadership in Excellence Award at the 2011 National Society of Black Engineers national conference. **Courtney Garcia**, Southwestern Oklahoma State University, senior



Courtney Garcia

majoring in Chemistry, won the Outstanding Researcher Award at the Oklahoma EPSCoR 16th Annual Research Day at the Capitol for best presentation overall. **Justina Bradley**, Biology major from Langston University, received a first place rating for research in her division.



Justina Bradley

Follow-up

The Oklahoma Alliance has been active for 17 years. During this time, the program has gone through changes and growth. The figures and tables below demonstrate the growth that has taken place during the previous 16 years of the program.

The following chart reflects the change in the number of scholars during each Phase of the LSAMP program. Phases I and II concentrated more on freshman while Phases III and IV concentrate more on college junior and senior scholars.

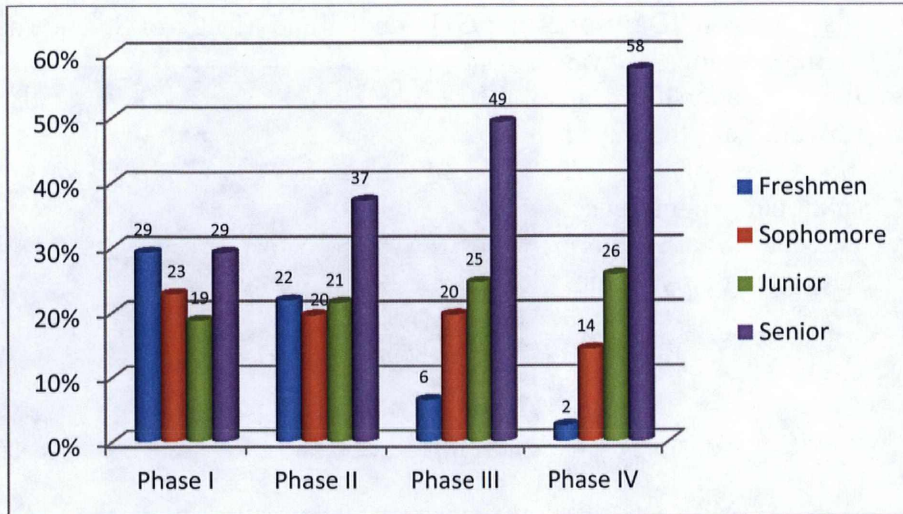


Figure 12. Scholars by Phase by Classification.

Graduation rates for OK-LSAMP Scholars have changed significantly during the 17 years of the program. Overall, the fluctuation of the numbers is attributed to the high dropout rate in Oklahoma. Oklahoma ranks 27th in high school graduation rates nationally.

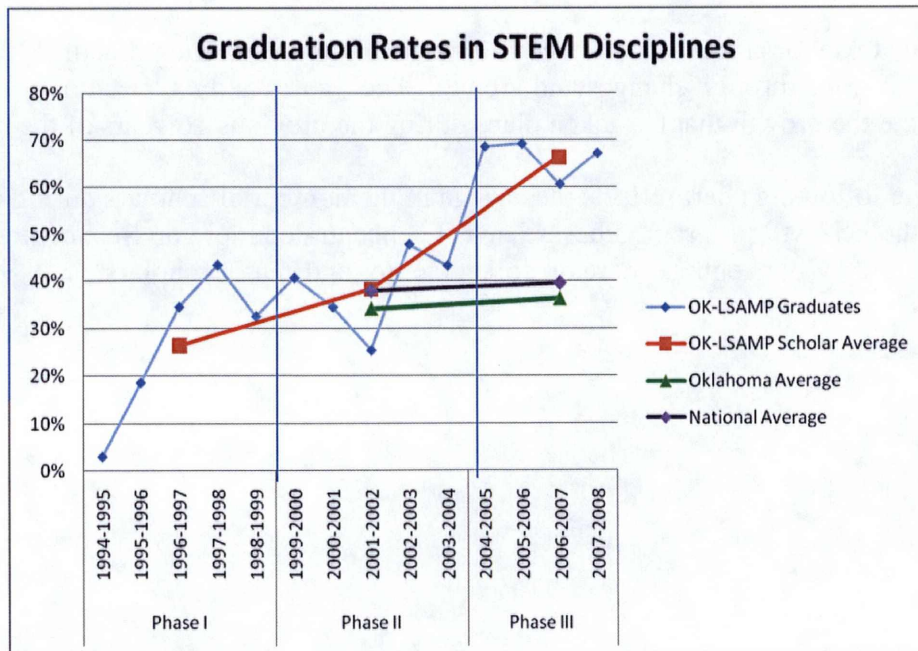


Figure 13. Comparison of Graduation Rates in STEM Disciplines in Phases I-III.

One of the major highlights of the Oklahoma LSAMP program is the Annual Research Symposium. The Symposium is traditionally held on the Oklahoma State University campus with all alliance schools in attendance. A guest speaker is invited along with poster and oral presentations by the scholars. Additional topics presented at the Symposium have included: *How to Apply to Graduate School, Preparing for and Taking the Graduate Record Exam, The Graduate Experience, Research Ethics, Summer Internship, and Q&A Panels.* A



Dr. A. James Hicks, NSF, discusses research with Oklahoma Scholars

A total of 617 oral and poster presentations have been made at the Symposium. Table 5 represents the historical review of participants during the past 17 years.

Table 5. Historical Review of OK-LSAMP Annual Research Symposium Participants

Year	Oral Presentations	Poster Presentations
1995	0	16
1996	0	22
1997	1	31
1998	3	30
1999	4	25
2000	7	19
2001	7	16
2002	17	20
2003	18	39
2004	15	25
2005	17	34
2006	18	18
2007	19	19
2008	14	32
2009	20	40
2010	18	53
TOTALS	178	439

The number of alliance scholars is represented by the chart below. It should be noted that during Phase I and Phase II, summer bridge programs were the reason for the large number of scholars. At the beginning of Phase III, the shift to recruiting junior and senior students and preparing them for graduate school showed a definite drop in numbers. Two years into Phase IV the number of scholars has already exceeded the projected goal of scholars for the five years of the grant.

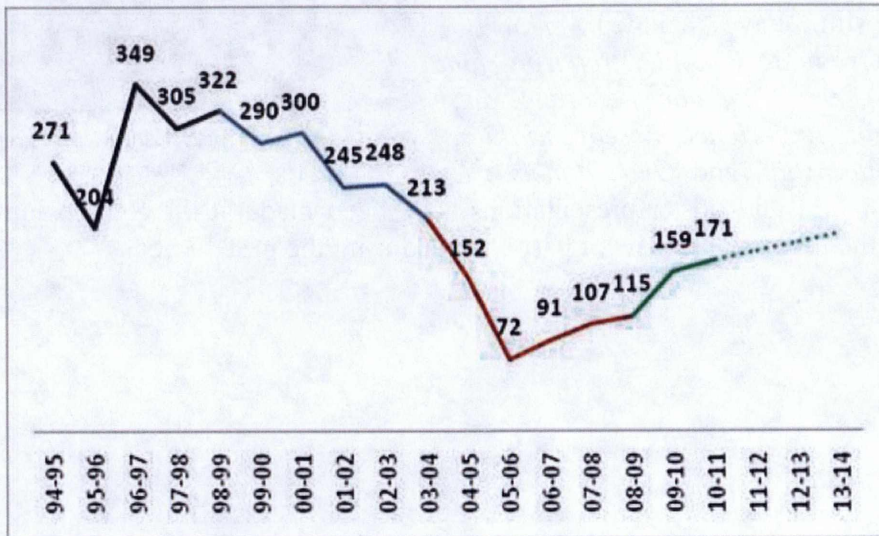


Figure 14. Number of Scholars from Phase I to Phase IV with Projected Five Percent Increase for Years 3-5.

The distribution of scholars by ethnicity/race during the course of the project (Phase I-IV) shows OK-LSAMP continues to recruit and retain a large percentage of Native American students in the STEM disciplines. OK-LSAMP works closely with the four Native American tribal colleges in recruiting students into programs. Campus coordinators are also connected with students, faculty, and industry leaders who are a part of the Oklahoma Native Americans in Higher Education (ONASHE) organization. ONASHE provides opportunities for Native American students and professionals from various institutions across the state of Oklahoma to continue to develop and strengthen their leadership skills by interacting with current tribal leaders, participate in workshops that are relevant to contemporary student and leadership issues, and create powerful networks promoting higher education for Native students.

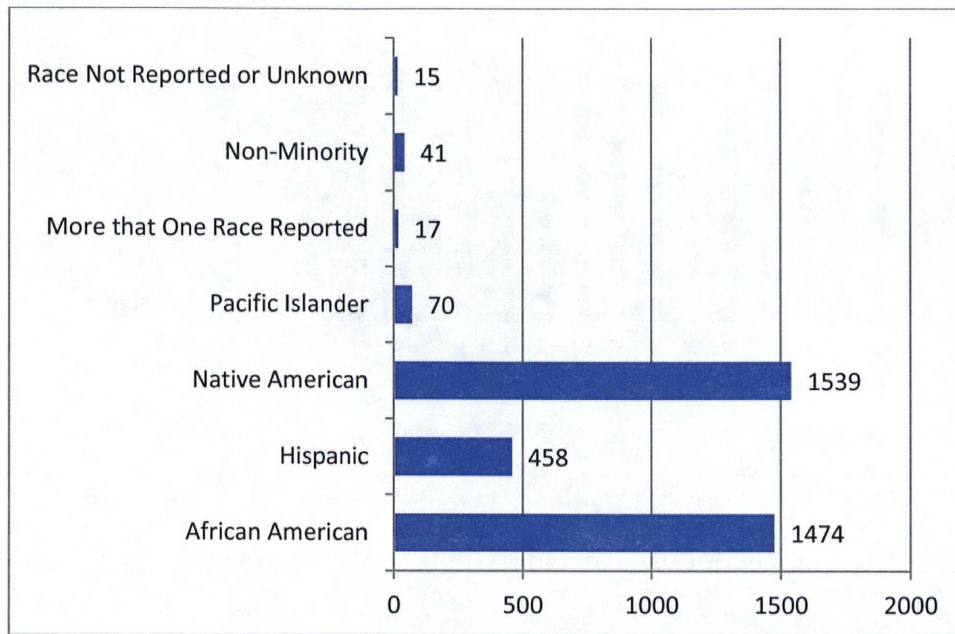
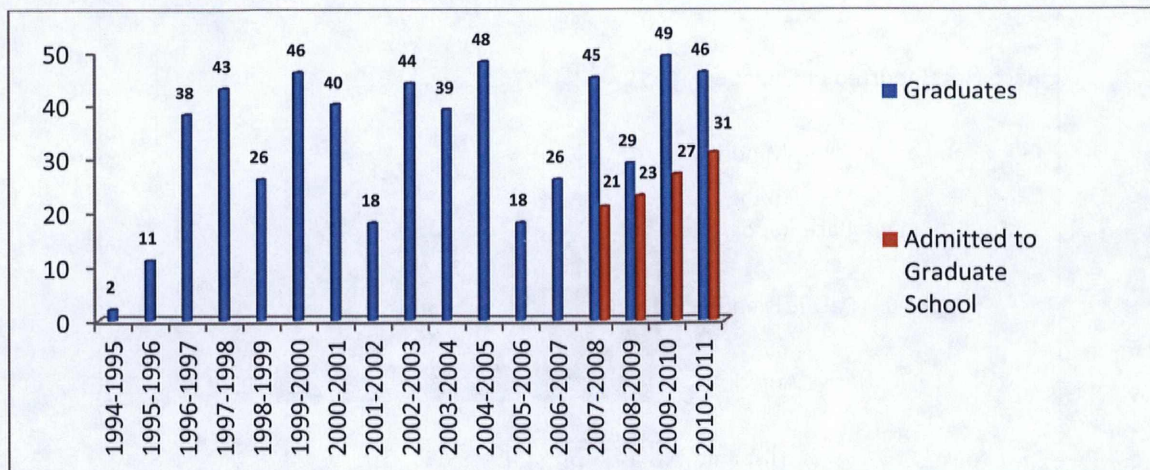


Figure 15. Scholars by Ethnicity/Race for Phases I-IV.

OK-LSAMP continues to provide students from all under-represented populations with the support and guidance needed to successfully graduate in STEM disciplines. Data on the number of OK-LSAMP graduates attending graduate school prior to Phase III are not available. The information in Figure 15 shows the number of OK-LSAMP graduates by year and the number admitted to graduate programs for the past four years. There has been a steady increase in the number of scholars being retained until graduation and the number being admitted to graduate programs. Additionally, it should be noted that six scholars have received funding from the Graduate Research Fellowship Program to continue studies and others accepted into Bridge to the Doctorate programs following graduation.



*Data not available prior to 2007-2008

Figure 16. Number of Graduates and Number Admitted to Graduate Programs.

Economic Impact Statement

Oklahoma educators recognize that higher education is critical to the economic growth in the state, not only in the number of degrees earned and the number who stay in the state, but to compete globally as well. Higher education indirectly and directly accounts for approximately 23 percent of the state's economy. The Oklahoma State Regents for Higher Education (OSRHE, 2011) indicated that for every \$1 of state-appropriated funds spent on higher education in Oklahoma, an additional \$5.15 is pumped into the state's economy. The majority of students (82 percent) earning a bachelor's degree were employed in Oklahoma one year after graduation. Five years after graduation, 62 percent were employed in Oklahoma, while fewer master's, professional, and doctoral graduates remained (OSRHE, 2008). Five years after graduation, bachelor's degree recipients employed in Oklahoma were earning \$40,079 on average followed by master's degree recipients (\$50,871), and doctoral degree recipients (\$60,780). Among bachelor degree recipients engineering and computer science graduates were paid the top salaries, averaging, \$51,584 annually.

Although the vast majority of graduates of Oklahoma public higher education institutions remain in Oklahoma, the "out" migration is evident in technical fields of study such as engineering, computer science, and physical sciences. Progress is being made, however, and results for 2001-02 bachelor's degree holders in mathematics, biological sciences, computer science, engineering, and architecture show higher percentages remain in-state after five years than was true for graduates of previous studies. Creating opportunities for students to enroll in Oklahoma higher education is one

step toward producing more graduates and increasing the state’s intellectual capital. It is equally important that students who enter college actually continue to the point of graduation.

In the Fall 2010, Oklahoma institutions of higher education reported an overall enrollment of 193,462 students in all degree programs. The 11 institutions in the OK-LSAMP alliance reported minority and under-represented students accounted for 10 percent of the overall enrollment. Science, technology, engineering, and mathematics (STEM) enrollments at alliance institutions totaled 4,094 students. The breakdown by ethnicity/race is: Black/African American (1260), Hispanic (770), Native American (1969), Pacific Islander (7), and More than one race (88).

The OK-LSAMP program began in 1994-1995 with overall minority enrollments in STEM totaling 1325. In 2009-2010, the overall minority enrollment in STEM was 4094, a **209 percent increase** in minority STEM enrollments at Oklahoma alliance institutions. Hayes (2011) stated in her evaluation report “**Students that enter this program almost without exception graduate within STEM and 50% or more go on to graduate school.**”

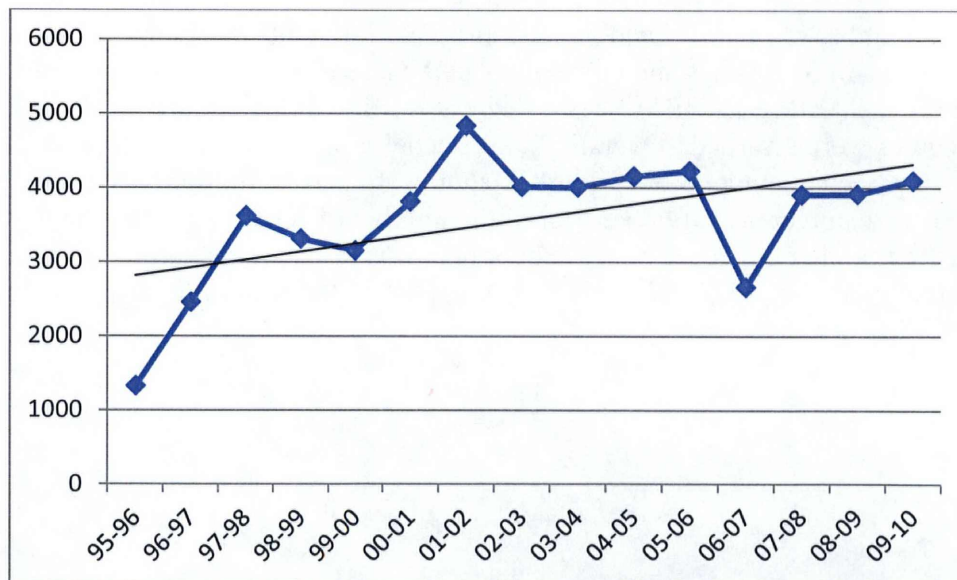


Figure 17. URM STEM Enrollment, Alliance Institutions, 1994-2010.

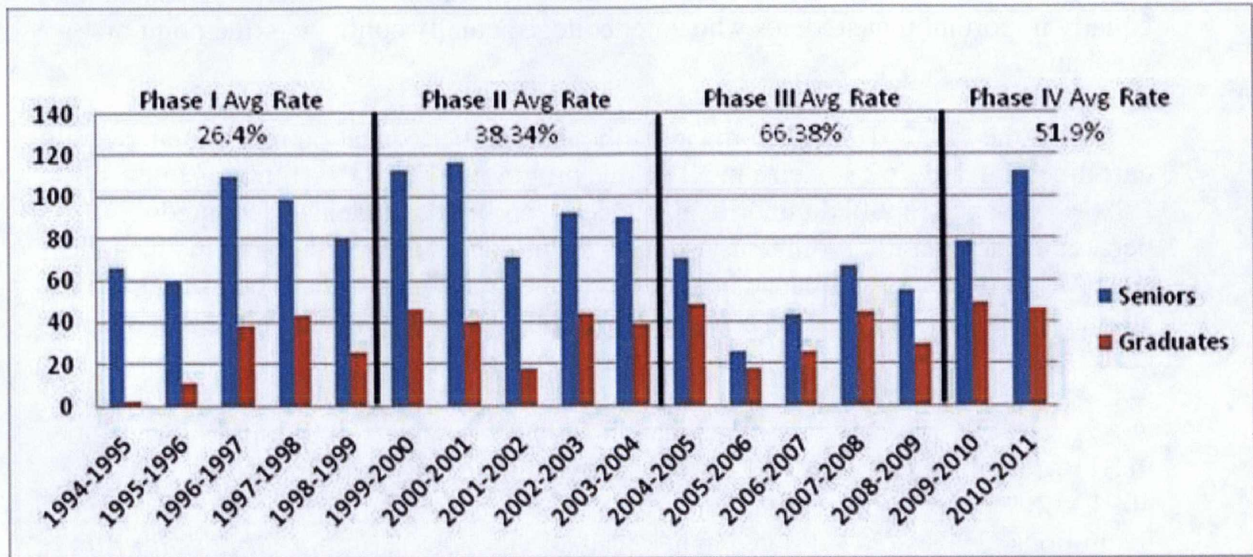


Figure 18. Percent of Senior Scholars Completing Degree Requirements.

The number of minority and under-represented students receiving Bachelor of Science degrees in STEM has shown changes in the last 17 years. During the initial period of OK-LSAMP, 319 URM STEM degrees were awarded; in 2010, 458 URM STEM degrees were awarded. Overall, 7,989 Bachelor of Science URM STEM degrees have been awarded to students attending Oklahoma alliance institutions. In 2008-2009, the alliance had an increase of 68 percent of the number of scholars graduating with STEM degrees and 162 percent increase over previous years on the number of scholars accepted into graduate programs. This is due, in part, to the shift of focus from incoming freshmen to juniors and seniors.

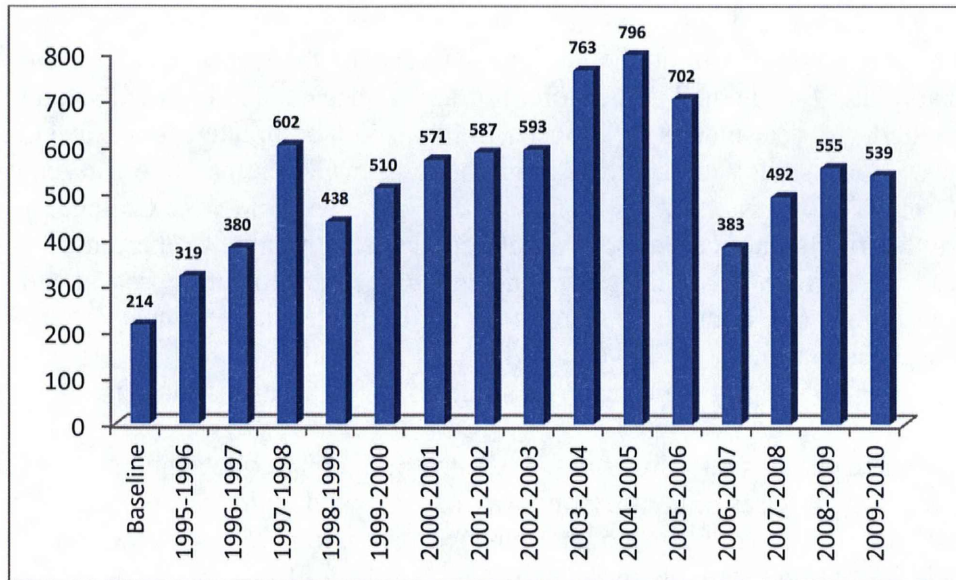


Figure 19. URM STEM Degrees Awarded in Oklahoma.

Community College Relations

The Oklahoma Alliance connects with the 14 community colleges throughout the state. The Oklahoma State Regents for Higher Education articulation agreement and policy “guarantees transferring students successfully completing Associate of Science or Associate in Arts degrees into higher education institutions in the Alliance.” According to a report by the OSRHE (2003), “the benefits of a robust economy are many: jobs for the young, increased business revenues, greater availability of public investment funds, and eased tax burdens. The activities of the 14 Oklahoma Community College Districts benefit state businesses directly by raising the skill level of the state labor force and providing opportunities for direct contract training of employees. State businesses benefit as well because the presence of a trained labor force works to attract new industry and increase the efficiency, competitiveness and output of existing industry. All these together spell a more effective and robust state economy.”

The OK-LSAMP Alliance has worked closely with community colleges for the past 17 years. Specific examples include, but are not limited to: (1) Oklahoma State University collaborates with Northern Oklahoma College (NOC) in the NOC-OSU Gateway Program. The program is located on NOC’s Stillwater campus. Students who have applied for freshman admission to OSU, but do not meet current admission requirements may qualify for admission to the NOC-OSU Gateway Program. Gateway courses transfer as equivalent to specific OSU courses and meet general education requirements. Students in the NOC-OSU Gateway Program are eligible to be OK-LSAMP Scholars and be paired with a faculty mentor. (2) OSU also has two branch campuses that offer Associate’s degrees. Students in STEM degree programs are

encouraged to continue at OSU and to become Scholars. (3) The “dual enrollment” program between Tulsa Community College (TCC) and OSU continues to be successful. Students applying for the dual admission program are accepted at both TCC and OSU. Once admitted, a 4-year plan is developed. Students will complete courses at TCC before attending OSU, thus allowing students to graduate from Oklahoma State University. (4) East Central University (ECU) works closely with Seminole State College. (5) Southwestern Oklahoma State University connects with Sayre Community College to recruit students in the STEM disciplines and encourage enrollment in programs in the respective schools. (6) Four Native American colleges (Bacone, Pawnee Nation, Muscogee-Creek Nation, and Cheyenne-Arapaho) each have articulation agreements with Alliance schools to support the transfer of students to four-year institutions.

Alliance campus coordinators work with community college and Native American college staff in their areas to identify minority students and under-represented STEM majors who are transferring to Alliance four-year institutions. Overall, the statewide economy is affected by students in the community colleges from the day-to-day operations and from students who enter the workforce with increased skills and through continued enrollment at four-year institutions.

Bridge to the Doctorate Program

Oklahoma has supported four cohorts for the Bridge to the Doctorate (BD) program. Forty-eight former LSAMP scholars have been admitted to graduate programs at the University of Oklahoma and Oklahoma State University. To date 5 Fellows have completed Ph.D. requirements. Fellows completing Ph.D. requirements are currently employed as Professional Engineers, conducting post-doctoral research, and teaching at universities. The 27 Fellows who have completed MS degree requirements consist of 16 returning to the workforce following graduation. Eleven Fellows continued in Ph.D. programs with anticipated Ph.D. degrees to be awarded within the next year. In addition, the remaining Fellows are making satisfactory progress toward Ph.D. requirements.

International Experiences

Over the course of the past 17 years, the LSAMP program in Oklahoma has experienced changes that reflect the dynamic nature of the world in which we live. More and more scholars are seeking international experiences for summer internships and study abroad opportunities. International activities help to prepare scholars for future careers by adding experiences that can help build relations with foreign clients and add diverse perspectives and experiences to the research skills they acquire during their academic career. The international experience also demonstrates a global awareness and understanding and the ability to face new challenges, and adapt to new environments.

International experiences help to set scholars who are seeking employment and/or graduate programs apart from other applicants.

Oklahoma scholars have had experiences in the following countries:

Antarctica	Azerbaijan	Bolivia	Brazil
Canada	Costa Rica	Dominica	Egypt
Ethiopia	France	Honduras	Hungary
Italy	Kenya	Mexico	South Korea
Nicaragua	Philippines	Scotland	Slovenia
Spain	Sweden	Thailand	Turkey
Wales	Zambia		

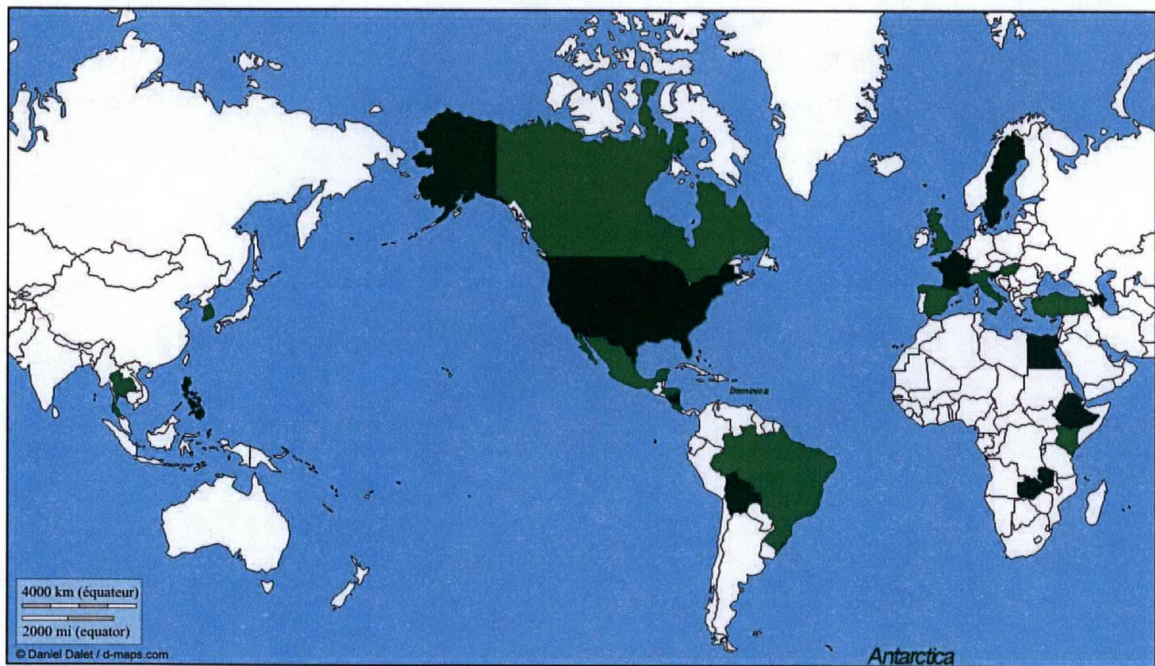


Figure 20. International Experience Locations.

Conclusions

In a state that is often remembered for barren landscape of the “Dust Bowl”, there is clear evidence of growth and change that is opening up opportunities for under-represented minority students. Just as many of the settlers of Oklahoma saw the opportunity to homestead as chance to develop a better future, increasingly URM students in Oklahoma, supported by the Alliance institutions, are seeing the opportunities in STEM fields. This opportunity for success is not without hard work. The partners in the Alliance have seen time and again that when standards for excellence are defined and supportive structures are put into place, URM students rise to meet the challenge. Students within the Oklahoma Alliance almost without exception graduate within STEM fields. Almost 50% of these students go on to graduate school.

But even for the students that do not go to graduate school, the completion of a college degree is a major accomplishment. According to the most recent study on the retention and graduation rates of first-time full-time freshman cohorts conducted by the Consortium for Student Retention Data Exchange at the University of Oklahoma, the ten year graduation rate for Blacks, Hispanics, and Native Americans are 50.3%, 56.3% and 45.6% respectively.

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