

Louis Stokes Alliance For Minority Participation

OKLAHOMA



21 Years of Impact
1994-2015



National Science Foundation

Introduction

Oklahoma State University (OSU) serves as lead institution for the Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) program for a fifth period (FY14-19). Alliance members are OSU, the University of Oklahoma (OU), the University of Tulsa (TU); Langston University (LU), an Historically Black College or University (HBCU); East Central University (ECU), Northeastern State University (NSU), University of Central Oklahoma (UCO), Northwestern Oklahoma State University (NWOSU), Southeastern Oklahoma State University (SWOSU), Southwestern Oklahoma State University (SWOSU), and Cameron University (CU). Oklahoma Alliance goals, in support of the National Science Foundation (NSF) mission, are to increase the recruitment and retention numbers of Under Represented Minority (URM) students in STEM fields at its institutions over the life of the project and to recruit and retain transfer URM STEM majors through completion of baccalaureate degrees and beyond. Oklahoma LSAMP emphasizes the recruitment and retention of URM students, especially minority women, Hispanics, Native Americans, African Americans, Veterans, and persons with disabilities. The proposed activities strengthen scholar participation in research and international experiences preparing them for global success. Seven Alliance institutions continue to rank nationally in the top 30 institutions granting baccalaureate degrees to Native Americans. NSU ranks first, followed by OSU and OU, ranking third and fourth respectively. Oklahoma LSAMP developed a variety of innovative academic strategies over 20 years, resulting in a dramatic increase in minority STEM undergraduate enrollment, success, and transition to graduate study. Both OSU and OU offer Bridge to the Doctorate (BD) programs and the Alliance provides a committed mentoring cadre of counselors, faculty, staff, and alumni.

Intellectual Merit

Activities are dedicated to building the skills and collegial relationships scholars will need to pursue successful careers in research, teaching, government, and the private sector. As scholars progress through the program they are provided opportunities to develop collaborative leadership skills and a multicultural perspective. Scholars work with peers and senior researchers from around the world; perform basic research; present at academic conferences and publish in peer-reviewed journals. The project provides an increased emphasis for students to travel, learn about, and conduct research in global settings.

Broader Impacts

The Oklahoma LSAMP Alliance activities result in increased numbers of minority groups in the STEM workforce, not only in the United States but globally. The Alliance provides an important national model for promoting the success of all minorities, including Native Americans - one of the least represented groups in STEM careers. Results will be disseminated widely to inform understanding of how to encourage and support minority STEM education. Building on well-established relationships with local, state, and tribal nation authorities, OK-LSAMP expanded its impact into diverse communities. Drawing upon Oklahoma's half century of international outreach experience, students were offered tremendous opportunities for global engagement - an essential asset for career and research success. This program exerted a transformative impact by diversifying and internationalizing the professional scientific community in the United States, particularly with respect to Native Americans and other underrepresented groups. The program ensured that all aspects of America's cultural and ethnic heritage significantly contributed to future leadership in STEM nationwide.

Leveraging activities

Faculty Research:

Faculty throughout the Alliance attribute successful proposal submissions to the fact LSAMP scholars are a part of their research team. Faculty work directly with scholars and well-known researchers from around the world to bring real-world research experiences with resources and cutting-edge tools and technology to push the boundaries of STEM research.

Conferences:

Conferences have provided professionally rewarding experiences for scholars. Scholars have built relationships with other researchers, had opportunities to communicate with nationally known researchers in their field of study, strengthened their own communication and research skills, and have grown their own network of professionals while developing a foundation for the future.

Internships:

Scholars have participated in internships around the world. Oklahoma LSAMP can document over 37 different international locations where scholars have participated in research experiences for eight weeks to six months. These experiences have provided scholars the chance to gain work experience and transferable skills while gaining experience and additional skills in their chosen field of study. These programs often lead to greater opportunities for graduate study, fellowships, and/or leadership positions in industry.

Awards:

Scholars are receiving national recognition in programs such as: Goldwater Scholars, Morris K. Udall Scholars, Graduate Research Fellowship Fellows, Bridge to the Doctorate Fellows, and others. In addition, scholars have been selected for state and local recognition in their chosen fields and departments. These include university top scholars, department outstanding scholars, and student organization leadership roles and honors.

Presentations:

Presentations allow scholars to share what they have learned and to add to the body of scientific knowledge in their field. In addition, faculty and professionals attending their presentations are able to provide the scholar feedback for becoming a better scientist and/or a better presenter.

History

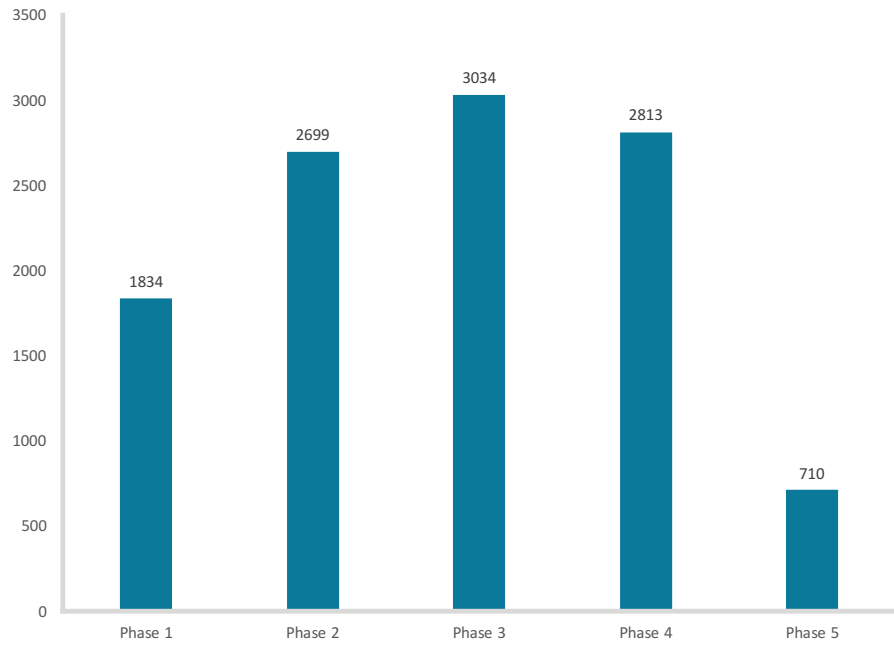
In 1992, the Oklahoma State Regents for Higher Education (OSRHE), along with Dr. Earl Mitchell, Professor, Oklahoma State University (OSU) and Dr. Ann Ackerman, South Oklahoma City Community College submitted a proposal to the National Science Foundation for the Alliance for Minority Participation (AMP). The program received funding in 1994 with matching funds from the OSRHE with OSU designated as the lead institution. Dr. Earl Mitchell served as the Principal Investigator for 13 years, until his retirement from OSU. Dr. Jason F. Kirksey, Vice President for Institutional Diversity and Chief Diversity Officer, serves as the Principal Investigator for the Oklahoma LSAMP Alliance and the Bridge to the Doctorate programs at Oklahoma State University and the University of Oklahoma.

The Oklahoma Alliance consists of 11 colleges and universities located throughout Oklahoma. The Alliance has received funding for five phases of the LSAMP program and funding for seven Bridge to the Doctorate (BD) cohorts.

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 in 1994. Oklahoma has positively impacted student achievement for 21 consecutive years.

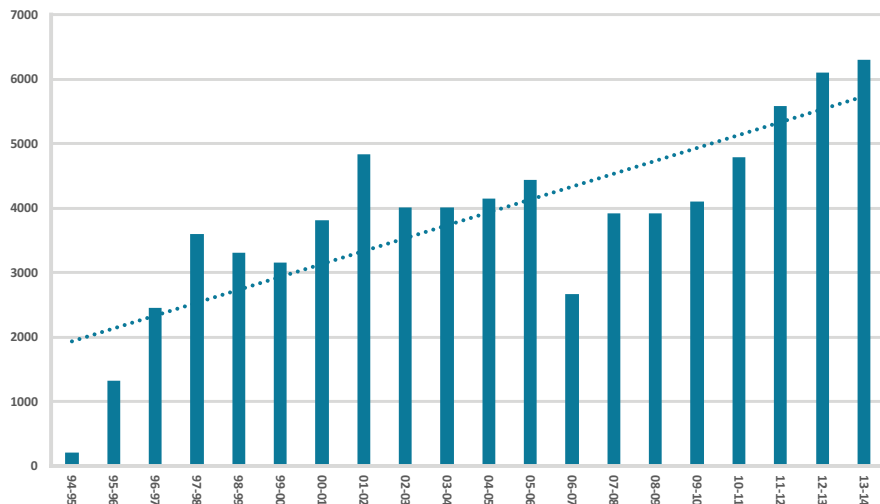
Phase V began in 2014 with a baseline of 710 STEM degrees awarded in the Oklahoma LSAMP Alliance. The 2015 data reflects continued growth.

Figure 1. STEM Degrees Awarded by Phase in the Oklahoma Alliance.



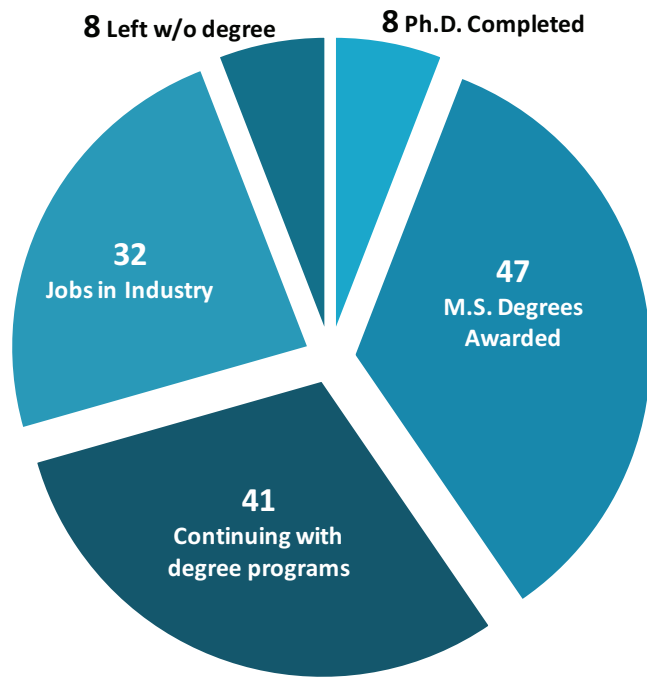
Additionally, due to the impact of the Oklahoma LSAMP, schools in the Alliance have increased undergraduate enrollment by 358 percent over the last 21 years.

Figure 2. STEM Enrollment Over 21 Years in the Oklahoma Alliance



The Bridge to the Doctorate program has welcomed 87 Fellows into both the University of Oklahoma and Oklahoma State University. OSU has hosted four cohorts and OU has hosted three cohorts. Fellows in the cohorts have received 47 M.S. degrees, 8 Ph.D. degrees, and 1 PharmD. Forty-one are continuing with expectations to complete their Ph.D. programs.

Figure 3. Bridge to the Doctorate Degrees Awarded and Anticipated by Cohort.



Alumni

LSAMP scholars and BD Fellows have been successful in numerous endeavors, from degree completion to positions in well established companies, world-renown research laboratories, professors, and presidents of their own companies. The following are examples of success.



Dr. S. Brett Walker, attributes his success to the LSAMP program. He participated as scholar during his undergraduate program at OSU where he completed a degree in mechanical engineering with honors. During his Ph.D. program at University of Illinois he launched *Electroninks* to make and market conductive inks for printed electronics. In January, 2015 *Forbes Magazine* named him as one of the “30 Under 30” recipients in the manufacturing list.

Dr. Daniel H. Wilson is a best-selling author and television host and robotics engineer. Daniel has recently developed a playable story app, *Mayday! Deep Space*, that is available in the App Store. Daniel attended the University of Tulsa where he was an active scholar. He continued his education at Carnegie Mellon University.



Dr. Steven Harris, was a scholar at Langston University and a BD Fellow at The University of Oklahoma. Currently he is a SPIRE Post-doctoral Fellow, University of North Carolina at Chapel Hill.

Cara Cowan Watts, was a BD Fellow in the 2004 cohort. Cara has served as an elected Tribal Legislator for the Cherokee Nation, has undergraduate degrees in engineering and also owns and operates a cattle ranch in northeastern Oklahoma. Cara is a board member of the National Congress of American Indians and is deeply committed to providing quality health care, education, and protecting water quality for Native Americans.



Paul de la Cereda, as an undergraduate developed an electronic doggie door and still maintains the patent for his invention. He is also the first Hispanic to serve on the school board in East Los Angeles, California and is Executive Director and Dean of Academic Affairs-Workforce and Economic Development and CTE-STEM in the Los Angeles Community College District.



Elizabeth Saladin, M.D. is a family medicine doctor in Cherokee, North Carolina. She received her medical degree from Howard University College of Medicine and has been in practice for five years.

Cammi Valdez is the Assistant Director of Undergraduate Research at Harvard University. She received a Ph.D. in Biological Chemistry and Molecular Pharmacology in 2014. In 2010, she was selected as one of 77 U.S. students to attend the Nobel Laureate Conference and one of seven to attend the Euroscience Open Forum.



Marty Heppler discovered a new organism during her graduate work as a BD Fellow at OSU. She is employed with the Monsanto Company.

Lila Peal, Assistant Professor of Chemistry, Langston University returned to her alma mater following completion of her Ph.D. from OSU. Additionally, she also serves as the Langston University LSAMP co-campus coordinator.



Heather Hannah, completed her Ph.D. at Notre Dame and returned to her alma mater, East Central University, as an Assistant Professor of Mathematics.

Jennifer McLoud-Mann, Ph.D. Associate Professor of Mathematics at the University of Washington, Bothell hosts a summer Mathematical REU targeting LSAMP scholars.



National Awards

Oklahoma LSAMP scholars have been successful in receiving national awards in various programs.



Tomica Blocker
Zoology
GRFP



Erica Brown
Biomedical Engineering
GRFP



Brandon Bubba Brooks
Plant And Microbial Biology
GRFP



Leethanial Brumfield
Chemistry
GRFP



Sunny Evans
Entomology & Plant Pathology
GRFP



Lydia Meador
Biological Design
Goldwater Scholarship



Marisa Rice
Evolutionary Biology,
Neuroscience, and Ecology
GRFP



Josh McLoud
Biological Sciences
GRFP



Andrew Mock
Civil Engineering
GRFP & GROW



Katy Riojas
Mechanical Engineering
Goldwater Scholarship



Mason Linscott
Evolutionary Biology
GRFP



Maeghan Murie-Harting
Chemistry/Biochemistry
Morris K. Udall Scholarship

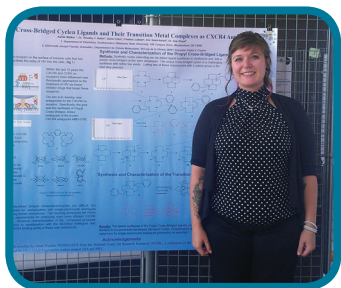
International Experiences

The Oklahoma LSAMP Alliance has been successful in linking scholars and mentors in numerous accomplishments. Scholars have participated in REU programs, conferences, and research activities, not only in Oklahoma but around the globe.

OSU, as lead institution has connected with Louisiana State University (LSU) through an international REU program in France. Currently three scholars have completed six months of research at the Joseph Fourier University in Grenoble, and one scholar completed three months at the Institut Pasteur de Lille. These experiences have resulted in scholars being accepted into graduate programs at the Mayo Graduate School, Kansas State University, along with publications in national journals.

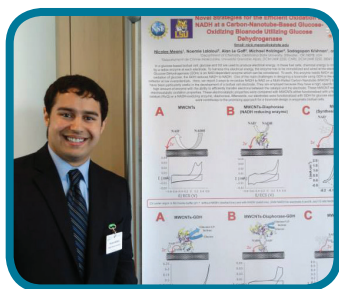


Andres Guerrero Criado, Biological Sciences major from Oklahoma State University presented his research at the French-American Research Conference, July 2015.

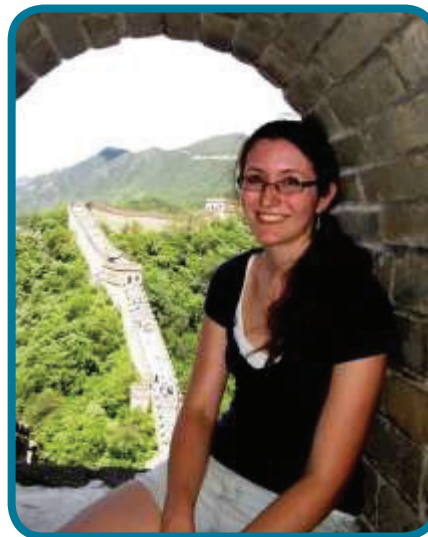


Ashlie Walker, Chemistry major from Southwestern Oklahoma State University presented her research at the 2014 French-American Research Conference, July 2014. Currently, she is working on a Ph.D. at Kansas State University.

Keely Redhage, Biological Sciences major from Oklahoma State University spent three months at the Institut Pasteur de Lille. Currently, she is working on a Ph.D. at Mayo Graduate School.



Nick Means, Chemistry major from Oklahoma State University presented his research at the French-American Research Conference, July 2015.



Linzi Thompson, Environmental Health Sciences and Chemistry major from East Central University participated in ecological research at the Nanjing Forestry University, China.



Since 2008 Oklahoma has had ten scholars participate in the Native American and Pacific Islanders in Research Experience in Costa Rica.

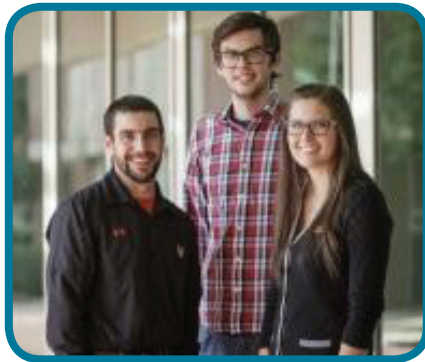
Scholars in Science

One major program is a collaboration between the national Society for the Advancement of Chicanos and Native Americans (SACNAS) and OK-LSAMP. The pilot program entitled *Scholars in Science: Native American Path* (SSNAP) was designed to guide Native American students in pursuing degrees in Science, Technology, Engineering and Math (STEM). A pre-conference workshop provided opportunities for the students to participate in training sessions focused on academic success and professional development. As a result of the SSNAP program, Oklahoma has had national award recipients for two years at the national SACNAS Conference. The Oklahoma SSNAP program has been featured, along with scholars, in national SACNAS reports and publications.



Adrian Saenz, OSU, Engineering, and Mathew Maxwell, SEOSU, Environmental Sciences, each received recognition for their research presentations during the 2015 SACNAS conference in Washington, D.C.

OK-LSAMP scholars featured in a national SACNAS publication.



Shane Morrison, OSU, Zoology, was one of ten graduate students honored for his oral presentation in environmental sciences. Amber Anderson, OSU, Microbiology and Molecular Biology and Grant Williams, OSU, Physics, were recognized for their outstanding poster presentations in the health and physics categories during the 2014 SACNAS conference in Los Angeles, CA.

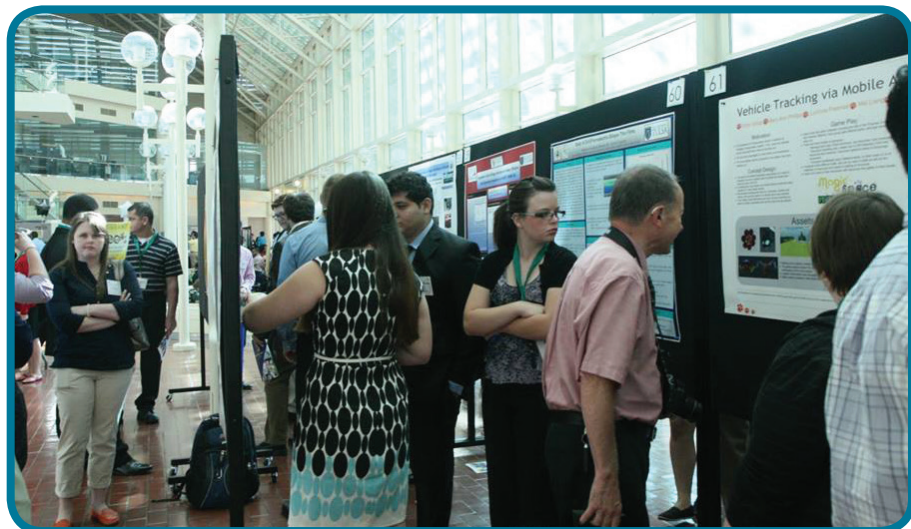
Alliance Schools and Scholars

Alliance schools and scholars are actively associated with community and tribal colleges in their region. Campus coordinators work closely with faculty at the community/tribal college to bring students to their campus to complete four year degree programs in the STEM fields. One such program that is enriched by the OK-LSAMP program is the Cherokee Nation College Preparatory Institute (CCPI). This program is designed to provide Native high school students with opportunities to learn more about higher education from institutions, not only in Oklahoma, but throughout the nation, including Harvard University, Yale University, Duke University, and Dartmouth College.



Students participating in the CCPI summer event.

Annual Research Symposium



Throughout its 21 year history the annual research symposium has seen continuous growth in its participants.

National Lab Connections

Oklahoma LSAMP mentors and scholars have been successful in completing five Faculty and Student Team (FaST) programs. Native American faculty mentors have taken Native American scholars to Brookhaven National Laboratories and Argonne National Laboratories to provide research experiences with nationally known scientists in state-of-the art research facilities.



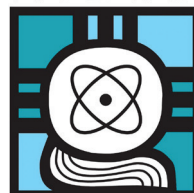
Zack Ridge and Marla Ichord, OSU, participated in a summer Faculty and Student Team with their mentor, Dr. Gilbert John. The 2015 team was the fourth to participate in the program at Brookhaven National Labs.

Faculty and Student Teams participated in summer research experiences at Argonne National Labs.



National Conferences

Scholars participate in national conferences throughout the year, often receiving awards and recognition for their efforts. Examples include:

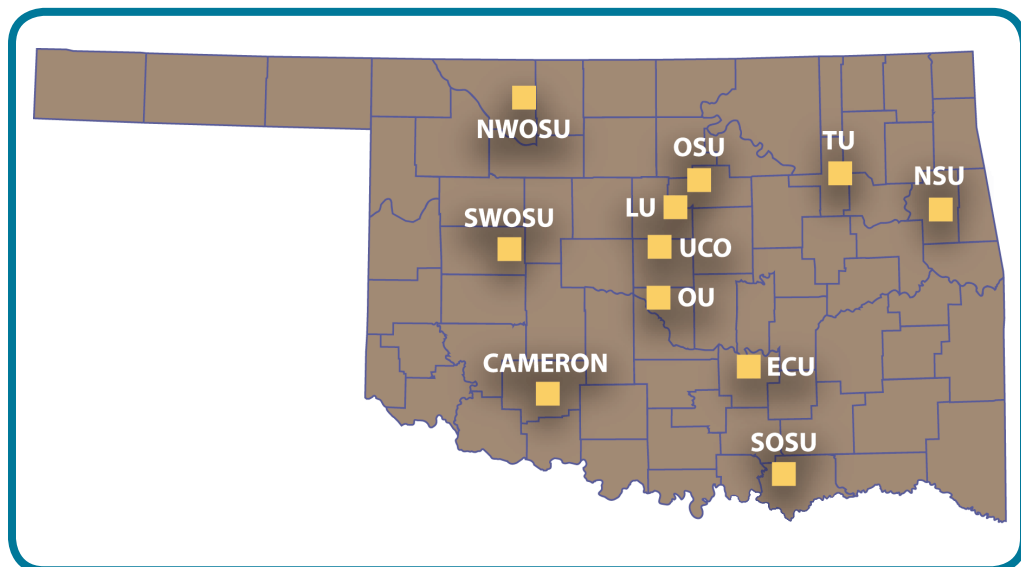


Campus Highlights

Each campus in the Oklahoma LSAMP Alliance can document grants and research programs with funding, that would not have been possible without the assistance of the LSAMP program providing scholars to assist with the research. Faculty mentors also received funding for summer internship programs.

Over 150 faculty mentors from across the Alliance work with scholars on a daily basis, whether directing research or helping scholars prepare personal statements for graduate school applications and/or contributing to journal articles. Faculty mentors help to broaden students' communication and research skills.

Oklahoma LSAMP staff have been active in attending and participating in the Louis Stokes Midwest Center for Excellence (LSMCE) conference for the last three years. The Principal Investigator, Jason Kirksey, presented a workshop in 2014 and Kay Porter presented a workshop, along with faculty from Louisiana State University at the 2015 conference. Four Oklahoma scholars received travel grants to attend the conference in Indianapolis, Indiana, October 23-25, 2015. In addition to presenting research posters, one scholar participated on a panel during a breakout session. Additionally, an Oklahoma mentor, Ms. Angela Vivar, presented a workshop to the students in attendance on Professional Dress and Conference Etiquette.



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