

2016

PERFORMANCE EFFECTIVENESS REVIEW

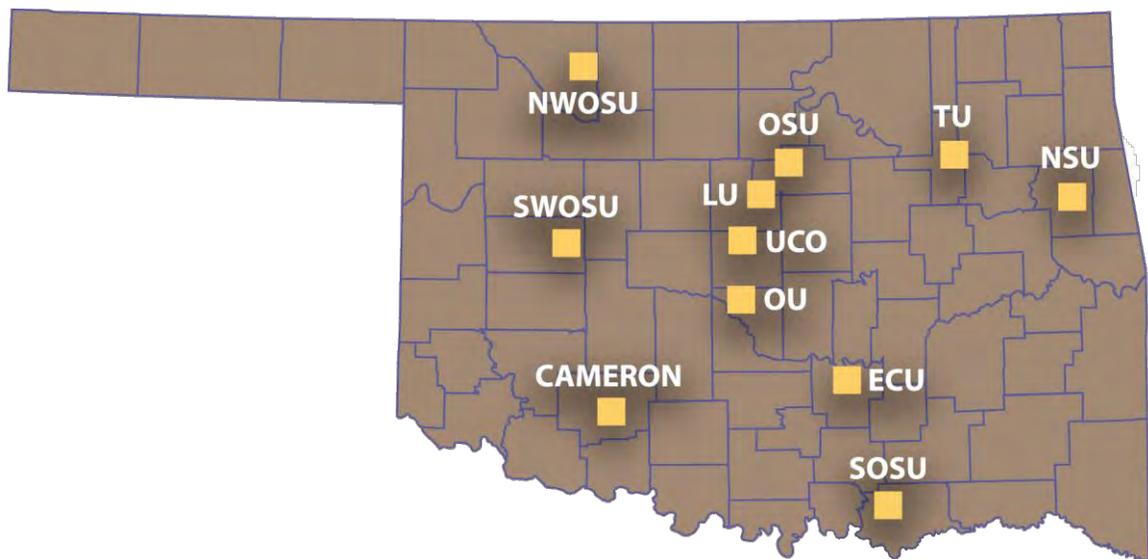
Oklahoma
Louis Stokes Alliance for
Minority Participation
(OK-LSAMP)



Submitted to
The National Science Foundation
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Oklahoma Alliance Institutions



2016
PERFORMANCE EFFECTIVENESS REVIEW
P.E.R.

Oklahoma

Louis Stokes Alliance for Minority Participation
in Science, Technology, Engineering, and Mathematics
(OK-LSAMP STEM)

Submitted by

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INTRODUCTION

Oklahoma continues to meet the NSF goal to increase the number of minority and under-represented students majoring in science, technology, engineering, and mathematics at the 11 alliance institutions.

The Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) program concluded *Year Two* of the five-year National Science Foundation (NSF) grant (HRD 1408748 – 2014-2019). This also concludes 22 years of successful LSAMP activities in Oklahoma.

In 2015-2016, the Oklahoma Alliance had 223 Scholars; of those 47 completed Bachelor of Science degrees and 17 of the graduates were admitted to graduate schools for a total of 36% of scholars. During the academic year 43% of the Alliance scholars participated in research activities, and 26% of the scholars, participated in summer research experiences at national and international locations.

Dr. Jason F. Kirksey, continued to serve as Principal Investigator and through his leadership as Vice President for Institutional Diversity, Oklahoma State University (OSU) received the *Higher Education Excellence in Diversity* (HEED) award for the fourth year (Appendix A). This award honors U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion.

The Data Coordinator, Fara Williams, who held her position for over 10 years, accepted the position as Program Director for the Kentucky-West Virginia LSAMP Alliance, and Kay Porter, Program Manager, retired in July, 2016 after almost 9 years of service to OK-LSAMP.

The 21th Annual Research Symposium welcomed 188 attendees for a day of workshops, poster and oral presentations, ethics training, and guest speakers. Drs. Kathleen Kaplan and Virginia Swindell, from the Air Force Research Lab (AFRL) Office of Scientific Research were the keynote speakers. Our scholars presented 45 posters and had 25 oral presentations.

Oklahoma State University received funding for Cohort VIII Bridge to the Doctorate (BD) program. Currently, it is accepting applications for the program. University of Oklahoma's Bridge to the Doctorate Cohort VI and OSU's Cohort VII fellows continued to make satisfactory progress toward completing graduate degree requirements.

Two OSU Scholars received honors at the National Society for the Advancement of Chicanos and Native Americans in Sciences (SACNAS) conference in Washington, DC for their poster presentations, and one received a free conference pass for the 2016 Conference by correctly answering questions from one of the vendor booths.

OSU continued to collaborate with Louisiana State University and Dr. Randy Duran in the International Research Experience for Undergraduates in Chemistry. Two OSU Scholars spent six months at the Joseph Fourier University conducting research and exploring the country.

Scholars from across the Alliance participated in numerous activities promoting STEM and the OK-LSAMP program. They attended state, national, and international conferences, participated in research throughout the academic year, and many participated in summer research projects. Scholars were admitted to prestigious graduate programs such as the Cornell University, Harvard University and several Scholars received Bridge to the Doctorate funding. OK-LSAMP Scholars continue to be sought out by faculty on each campus and are held in high esteem for their dedication to research and the promotion of STEM programs.

PROGRAM OBJECTIVES AND ACTIVITIES

The Oklahoma Alliance, consisting of 11 institutions of higher education (three comprehensive research institutions, one historically black university, and seven regional universities), proposed a five-year continuation of the Louis Stokes Alliance for Minority Participation activities. Based on 21 years of previous success, the Alliance will continue to support the NSF mission to recruit and retain underrepresented students in the Science, Technology, Engineering, and Mathematics (STEM) disciplines. To accomplish these goals, the following program objectives were proposed and met.

Program Component One

To recruit, retain, and graduate 50% more URM students in STEM fields and increase their matriculation into graduate programs.

Scholar Demographics

The 11 Oklahoma Alliance institutions supported 223 LSAMP scholars in the 2015 - 2016 academic year. The objective was to increase the number of scholars each year of the project. Objective One has been met and OK-LSAMP continues to work toward increasing URM students in STEM programs across the Alliance (Table 1).

Table 1. Comparison Numbers to Meet Stated Goal

Institution	No. Scholars	
	2014-2015	2015-2016
Cameron	9	13
East Central University	16	13
Langston University	36	27
Northeastern State University	8	7
Northwestern Oklahoma State University	4	4
Oklahoma State University	106	85
Southeastern Oklahoma State University	11	12
Southwestern State University	9	7
University of Central Oklahoma	14	11
University of Oklahoma	24	27
University of Tulsa	15	17
Totals	252	223

Year two of Phase Five continued to show more females than males becoming LSAMP Scholars in the Oklahoma Alliance.

Table 2. Comparison of Scholars by Gender

Category	Year	
	2014-2015	2015-2016
Male	120	107
Female	132	116
	252	223

Table 3. Comparison of Scholars by Ethnicity

Ethnicity	2014-2015	2015-2016
African American	80	67
Native American	85	74
Hispanic	58	52
Pacific Islander	2	3
Asian American	6	13
First Generation / Caucasian	21	14
Total	252	223

Table 4. Scholars by Discipline and Gender

Degree Program	Male	Females	Totals
Agriculture	3	7	10
Biological Sciences			
Biochemistry	10	8	18
Biology	17	40	57
Chemistry	12	10	22
Microbiology	3	9	12
Nutritional Science	2	7	9
Zoology	2	2	4
Computer Science	14	2	16
Engineering			
Architecture	2	0	2
Chemical	6	8	14
Civil	4	2	6
Electrical	5	0	5
Mechanical	7	6	13
Environmental	0	2	2
Engineering	10	4	14
Fire Protection	1	1	2
Geology	0	1	1
Mathematics	1	3	4
Physics	8	4	12

On-Site and Community College Recruitment

The recruitment of scholars was evidenced on each of the 11 Alliance institution campuses. Campus Program Managers sought top underrepresented students in the STEM fields. Coordinators used a variety of avenues in the recruitment process. Events such as High School Visitation Days, Freshman Orientation Events, and Parent-Student Campus Tour Days were utilized to identify potential scholars. Additional recruitment was also conducted on-site at high school and community college events. Information tables were set up at science fairs, summer workshops for high school students, tribal events and powwows, as well as personal contact with prospective scholars.

Alliance schools are actively associated with community and tribal colleges in their region. Campus Program Managers 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. Table 5 shows the connections.

Table 5. Primary Community/Tribal College Connections

Alliance Institution	Community/Tribal College Connection	
Cameron University	Western Oklahoma State College Redlands Community College Amarillo Community College, Texas	Vernon Junior College, Texas Comanche Nation College Fort Sill AFB
East Central University	Murray State College Eastern Oklahoma College Seminole Community College Rose State College	Oklahoma City Community College Redlands Community College Center for Health Sciences – Early Entry: Chickasaw Nation
Langston University	Tulsa Community College Rose State College	
Northeastern State University	NSU – Broken Arrow Campus Tulsa Community College	Connors State College Northeastern Oklahoma College
Northwestern Oklahoma State University	Northern Oklahoma College Enid Campus; Tonkawa Campus; Stillwater Campus	Selmon Living Lab
Oklahoma State University	Northern Oklahoma College, Tulsa Community College	Pawnee Nation College Cheyenne-Arapaho College College of Muskogee Nation
Southeastern Oklahoma State University	Murray State College Eastern Oklahoma State College	Higher Education Center Native American Intertribal Grant
Southwestern Oklahoma State University	SWOSU – Sayre Campus Western Oklahoma State College	Redlands Community College Cheyenne-Arapaho College
University of Central Oklahoma	Oklahoma City Community College Redlands Community College	Northern Oklahoma College
University of Oklahoma	Oklahoma City Community College Rose State College	
University of Tulsa	Tulsa Community College	

Campus Program Managers on Alliance campuses continued to use every avenue available to recruit eligible scholars. Methods used include, but are not limited to: high school visitation days, freshman orientation programs, articles in local newspapers, on-campus flyers, faculty mentor inquiries, and invitation by Scholars and BD Fellows to present their research at specific research programs.

Alliance Supplementary Activities

Summer academies/camps, research and bridge programs continue to be a critical part of the Alliance experience and offer a unique time to “get the word out” regarding the OK-LSAMP program and the benefits of being a STEM major and an LSAMP Scholar. Several Alliance institutions held workshops for incoming freshmen and high school juniors and seniors. Each of these workshops offered opportunities for local presentations on the benefits of being a Scholar in the LSAMP program. Many of the summer academies are sponsored by the Oklahoma State Regents for Higher Education (OSRHE). Chancellor Glen D. Johnson stated: “Summer Academies provide Oklahoma middle and high school students the opportunity to experience a college campus environment while exploring new and exciting career options. This program offers young people the chance to study with top professors and explore hands-on learning that exceeds anything they’ve encountered in a traditional classroom” (Appendix B).

Oklahoma State University: As lead institution, OSU continued to participate in several on-campus summer workshops for minority high school students from across the state. OK-LSAMP has close working relationships with several programs. The programs include, but are not limited to:

College of Engineering, Architecture, and Technology Summer Bridge Program – Designed for incoming freshmen engineering students to spend eight weeks on the OSU campus. Students selected for the program take two summer classes and become familiar with transitioning into the academic atmosphere prior to the beginning of the fall semester. The program is supported with LSAMP Scholars as mentors and counselors, living in the dorm with program participants and attending daily group activities. In addition, students have the opportunity to live on the Diversity Engineering floor or the Maude’s Squad floor (Women in Engineering) as part of a Living and Learning Community within Residential Life.

Inclusion Leadership Program (ILP) — The ILP is a year-long leadership program designed to equip OSU students with the skills and knowledge to become effective leaders in a more diversely inclusive society. The program is organized for experiential learning rather than standard teaching. The mission of the program is to provide a supportive environment through mentoring and programming to enrich the lives of our students. The students in the ILP program share their understanding of leadership with teams from select high schools in Tulsa and Oklahoma City. ILP students become mentors to the high school students, and pass on the leadership skills they have developed through the program.

RISE-JumpStart Program – The JumpStart program is a four-week summer residential experience for selected first generation students who have been admitted to OSU for the upcoming fall semester and feel they are in need of academic support. The focus and intent of the RISE JumpStart Program is to provide an environment conducive and supportive for student learning and personal growth. The four-week session allows the students to take a summer college course as a group. The program also provides free room and board, books and supplies, and numerous social and cultural activities for the summer.

Retention Initiative for Student Excellence (RISE) – The RISE program within the Division of Institutional Diversity was designed to assist a select group of talented first year students as they transition from high school to OSU. The program primarily focuses on addressing academic issues that might challenge students. RISE is attentive to the variety of social and financial challenges that students often face in college. Students interested in RISE may also be interested in the summer residential component known as RISE-JumpStart.

Retired Educators for Youth Agricultural Programs (REYAP) – Designed to bring underrepresented youth, ages 14-18, to the OSU campus for a week of activities promoting diversity awareness, advocacy, leadership, and education in the STEM disciplines, particularly agriculture. LSAMP Scholars serve as mentors to the program participants during the week-long residential experience.

The University of Oklahoma: Several residential and day camps for underrepresented youth were organized and offered to underrepresented high school youth throughout the summer. These camps included, but are not limited to:

AT&T Summer Bridge Program – Designed for incoming freshmen students who have been accepted to the University of Oklahoma and who are planning to major in an engineering discipline. The camp has been designed to help students prepare for the first year of engineering and math coursework.

BP DEVAS Summer Camp (Discovering Engineering Via Adventure in Science) – Designed as a residential camp for young women, with a strong interest in engineering, mathematics, science, and/or technology, a curiosity of how things work, or want to help solve big problems of the world.

BP Engineering Academy – A residential camp which encouraged young men who are entering their sophomore, junior, or senior grade level for the fall 2015 semester. The Academy is an opportunity for hands-on exploration in engineering, math, and science.

Alliance Universities and State Collaboration: The regional universities within the Alliance and the community college partners, along with support by the Oklahoma State Regents for Higher Education (OSHRE), sponsored summer academies for high school students interested in STEM programs. Over 17,000 Oklahoma students have participated in summer academies since

1990 and a greater percentage of the participants continue on to college in STEM degree programs and earn degrees at higher rate than other students.

Cameron University: (1) Science Detectives Summer Academy for Grades 8-10; (2) Nano Explorers: A High School Summer Science Academy for Grades 10-12.

Connors State College: Ecological Investigations and Wilderness Adventure for Grades 9-12.

East Central University: Coding Theory, Competitive Strategies, Risk Analysis and Other Mathematical Pursuits for Grades 10-11.

Langston University: Intensive Academy in Math, Science and Technology for Grades 10-12.

Murray State College: 2015 MSC Summer College STEM Academy for Grades 8-9.

Northeastern State University: Get Green for Blue: Outdoor Investigations to Connect Water to You for Grades 8-10.

Oklahoma State University: (1) Biology and Engineering for a Sustainable Tomorrow for Grade 8; (2) Exploring Quantitative Analysis: A Basic Introduction for Grades 8-10; (3) Camp TURF (Tomorrow's Undergraduates Realizing the Future) for Grades 9-10.

Oklahoma State University Institute of Technology: Emerging and Converging Technologies Academy for Grades 8-10.

Oral Roberts University: A Hands-On Program in Mathematics and Science for Grades 8-9.

Seminole State College: Peek Into Engineering (PIE) Academy for Grades 9-12.

Southwestern Oklahoma State University: SSMA: Summer Science and Mathematics Academy for Grades 11-12.

Tulsa Community College: Math and Science in Health Careers (MASH) Camp, Session I and II for Grades 10-12.

University of Central Oklahoma: (1) Discovering Chemistry in Human Health, Session I and II for Grades 8-10; (2) Engineering Physics Exploration, Session I and II for Grades 8-10; (3) CSI: A High School Summer Forensics Academy for Grades 9-12.

University of Oklahoma: (1) Starship: Imagination for Grade 8; (2) Design and the /built Environment: Collaborate, Create, Construct for Grades 9-10; (3) The Oklahoma Mesonet Presents - Meteorology: From Atmosphere to Zulu for Grades 9-10; (4) All Systems Go! Innovating Engineering Systems for the Future for Grades 9-10; (5) STEM to Store: The Chemistry of Medicine for Grades 11-12.

University of Oklahoma Health Sciences Center: Exploring Math & Science Academy (EMSA) for Grade 9.

University of Science and Arts of Oklahoma: Where Does Our Food Come From and How Did it Get Here? for Grades 8-9.

The University of Tulsa: Summer Engineering Academy for grades 8-11.

Data Collection

The collection of data continues to be a priority for the LSAMP program. The on-line application continued to be updated and revised to insure the most accurate collection of information for each application on each Alliance campus. The process seems to be working and students, along with Campus Program Managers, like the new process.

The Alumni Listserv and Database continue to be updated and used to promote LSAMP programs and Scholar accomplishments. Additionally, alumni are sought out to be guest speakers and mentors for current Scholars.

Data collected on each of the scholars in Oklahoma continued to be used to complete information requested by the National Science Foundation (NSF) and the program evaluator. Data were collected continually throughout the year with updates to the program on an as-needed basis. The information collected includes, but is not limited to: degree program, presentations, awards, research projects, completion of degree, and acceptance into graduate school.

Social Media

Social media continued to be an important means of “getting the information out” to Scholars. The Alliance management team continued to send regular updates regarding opportunities from across the nation aiming to reach more students and increase the quality of academic opportunities. Scholars were sent email notifications notifying them of opportunities such as: summer internships, research opportunities, and conferences. In addition, the OK-LSAMP Facebook Group continued to be used for more direct contact with scholars. The Facebook Group page continued to be used for students to post achievements related to research proposals being accepted for national presentations, being admitted to graduate school, accepting internships, and other highlights for the Scholars.

Program Component Two

To provide the support students require, academically and professionally, to ensure they build the connections, skills, and motivation to excel.

Focal points on graduate school preparation included participation in the Graduate Preparation component of the program, interaction with matriculating graduate students, the application process, and research experiences.

- Seventeen 2015-2016 OK-LSAMP graduates were accepted to graduate schools throughout the nation. Examples include, but are not limited to:

Harvard University
Oklahoma State University
Stanford University
University of Georgia
University of Oklahoma
University of Utah
University of Wisconsin

- Graduate school preparation modules are listed on the OK-LSAMP website (www.ok-lsamp.okstate.edu) for all Alliance institution use.
- Scholars continued to take advantage of the on-line Graduate Record Examination (GRE) preparation course offered to the Alliance scholars through Oklahoma State University-OKC. The classes have been developed to provide learning activities to assist students in acquiring knowledge, practicing skills and completing steps necessary to gain admission to graduate school with successful completion. The classes focus on: (1) what is the GRE; why it should be taken, how to prepare; (2) test-taking skills relevant to computer aided test format; (3) practice tests; (4) scoring; and (5) average score requirements for specific fields of study.
- Scholars were also provided with opportunities for free Kaplan review sessions and free practice exams. Kaplan officials provided the free sessions on select evenings and weekend dates to ensure availability for a variety of schedules.
- Scholar meetings, implemented throughout the Alliance, offered a forum for educational speakers and workshops focused on graduate school preparation and career development.
- Support to state, regional, and national conferences to present research projects.
- During academic year 2015-16, scholars have participated in 29 documented presentations. Examples include, but are not limited to:

American Chemical Society National Conference, Los Angeles, CA
American Geophysical Union Fall Meeting, San Francisco, CA
Keystone Symposia Conference: Gram-Negative Resistance, Tahoe City, CA
National Conference on Undergraduate Research (NCUR), Asheville, NC
OK-LSAMP Annual Research Symposium, Stillwater, OK
Oklahoma Research Day at the Capitol, Oklahoma City, OK
Oklahoma Research Day, Tahlequah, OK
Society for the Advancement of Chicanos and Native Americans in Science
(SACNAS) National Conference, Washington, D.C.
Louis Stokes Midwest Center for Excellence, Chicago, IL
Emerging Researchers National Conference, Washington, D.C.

Enhanced Academic Performance

Participants from each Alliance institution are encouraged to take an active part in activities that enhance and assess academic performance, arouse accountability consciousness, and provide other experiences that lend to graduate school and workforce preparation.

- Alliance institutions continue to offer Responsible Conduct in Research (RCR) training for all Scholars. Several institutions offer the program as an on-line, self-paced program, while others offer it as an in-class course.
- GRE resource books are provided to each Campus Program Manager in the Alliance. Scholars used the books to review prior to enrolling in and completing the on-line GRE Preparation course offered through OSU - OKC's Ed-2-Go series.
- Kaplan continued to provide a free study session and a free practice GRE exam to Scholars in the Alliance on a Saturday in September. Attendance was open to any Scholar who wished to participate.
- Scholars throughout the Alliance are encouraged to apply to a minimum of three graduate schools, with a preference of five applications.
- Scholar meetings are means for Scholars to hear and engage in presentations on graduate school preparation, test taking strategies, study abroad opportunities, and summer internships in addition to a variety of other topics relevant to STEM programs.

Annual Research Symposium

The 21th Annual Research Symposium was held September 26, 2015, on the Oklahoma State University, Stillwater campus (Appendix C). The Symposium welcomed 188 attendees for a full day of workshops, posters, oral presentations, and guest speakers.

The Keynote speakers (Dr. Virginia Swindell and Dr. Kathleen Kaplan) for the 21st Annual Research Symposium were employed by the U.S. Air Force Research program. Dr. Virginia Swindell, served as a Mechanical Engineer for the Air Force Research Laboratory Munition Directorate, at Eglin Air Force Base in California. Dr. Kathleen Kaplan, served as lead manager for the overall strategic U.S. Air Force Basic Research Program in Systems and Software in Washington, D.C. Dr. Kaplan had also served on faculty at Oklahoma State University, prior to her military career.

In addition to the keynote speakers, Dr. Matt Gilligan, professor emeritus of Marine and Environmental Sciences at Savannah State University and a specialist with the Institute for Broadening Participation spoke on a marine science research project to encourage Oklahoma scholars to submit applications

Awards were presented to Scholars for first, second, and third place in poster and oral presentations. Winners included:

Katherine Secrist, TU	Natalie Castillo, TU
Ariel Cross, OU	Joana Pantoja, UCO
Skyler Calhoun, OU	Blake Chancellor, TU
Matthew Maxwell, SE	Susan Pham, OSU
Natalie Santa-Pinter, TU	Andres Criado, OSU

Table 6. Annual Research Symposium Attendees by Category

	Attendees	
	20 th Annual	21 st Annual
Undergraduate Students	139	109
Graduate Students	36	13
Faculty	30	31
Staff	15	15
K-12 Students	1	0
Special Guests	15	20
Total	236	188

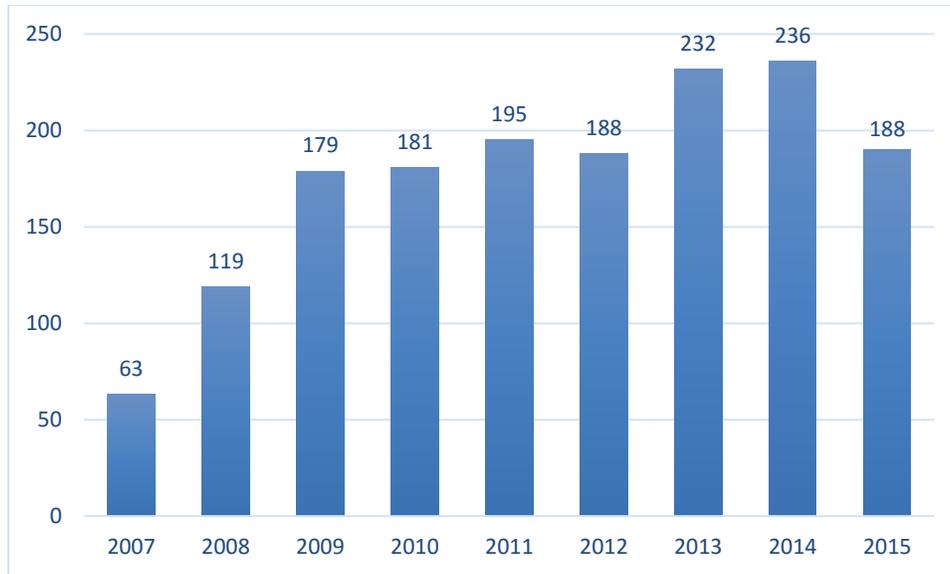


Figure 1. Number of Participants Attending Annual Research Symposium

Monthly Scholar Meetings

Each campus is responsible for holding monthly scholar meetings. The meetings are intended to provide support for the scholars while bringing in guest speakers. In addition to guest presenters, scholars were provided opportunities to present their own research to their peers, learn more regarding financial costs of attending school at both the undergraduate and graduate level, how to apply for summer internships, how to apply for graduate school, how to create application packets without recreating the wheel every time, and various other topics. The monthly meetings also provide opportunities for the scholars to develop relationships with scholars outside of their field of study.

Research / Internship Experiences

Scholars are encouraged to participate in academic year and summer internship programs locally, nationally, and internationally. The academic year research experiences provide opportunities for Scholars to work closely with faculty mentors on their campuses and to learn from some of the best researchers in their field. The summer internship program allows scholars to gain first-hand experiences in their chosen career fields, while learning new skills and acquiring skills that will help them transition from the academic environment into their future work environment. Internships also allow the Scholars to apply what they have learned in the classroom to real-work situations and build their professional networks.

Table 7. Academic Year Research Experiences

Institution	Spring Semester 2015	Summer Internship 2015	Fall Semester 2015	Spring Semester 2016	Summer Internship 2016
Cameron University	5	0	5	11	2
East Central University	7	3	7	3	2
Langston University	7	6	5	7	13
Northeastern State Univ.	6	0	6	2	6
Northwestern OSU	0	0	0	0	0
Oklahoma State Univ.	43	33	39	26	0
Southeastern OSU	8	6	7	7	3
Southwestern OSU	9	6	6	5	3
Univ. of Central OK	10	2	11	7	0
University of OK	7	3	9	8	11
University of Tulsa	9	11	8	7	19
TOTALS	111	70	103	83	59

Internship Partnerships

Scholars are encouraged to apply for summer internship programs. Many Scholars are accepted into more than one program and must make a decision on the best fit for their career goals. Listed below are selected programs:

Boyce Thompson Institute – Cornell University, Ithaca, NY -- the program focused on developing computational tools and resources to store, analyze and integrate large scale plant “omics” datasets along with unique training in plant genome research.

Brookhaven National Laboratory, Upton, NY - Students participated in a cutting-edge scientific research program, directed by a Brookhaven National Laboratory (BNL) staff member. BNL offers student appointments through a national program titled the Science Undergraduate Laboratory Internship (SULI) developed through DOE. Participants will be placed with members of the scientific and professional staff in an educational program developed to give research experience in areas such as chemistry, high- and low-energy physics, engineering, biology, nuclear medicine, applied mathematics (<https://www.bnl.gov/education/program.asp?q=116>).

Columbia University, New York, NY – Summer Public Health Scholars Program is an eight-week program designed for undergraduates to increase interest in and knowledge of public health and biomedical science careers (www.columbia.edu)

C-DEBI, Center for Dark Biosphere Investigations, Salt Lake City, UT – Ten-week program characterizing the microbial diversity of groundwater aquifers in southern Utah.

CSP Minnesota, Minneapolis, MN - The Center for Sustainable Polymers (CSP) integrates sustainability issues that focus on the science and technology of polymeric materials into research, education, and public outreach initiatives. Members of the center concentrate their research efforts on harnessing the renewable, functional, degradable, and non-toxic ingredients provided by Nature for tomorrow's advanced plastics, foams, adhesives, elastomers, coatings, and other macromolecular materials. To foster innovation the CSP partners with numerous companies that develop, implement, and advance technologies in the sustainable polymer industry. In addition to the research mission of the CSP, members also foster outreach activities to educate future scientists and the public about the science and technology of sustainability. For more about the CSP activities, read our printable overview (<http://csp.umn.edu/>).

Holly Frontier Corporation, Tulsa, OK – Among the largest independent petroleum refiners in the United States with operations throughout the mid-continent, southwestern and Rocky Mountain regions. Subsidiaries of HollyFrontier produce and market gasoline, diesel, jet fuel, asphalt, heavy products and specialty lubricant products. (www.hollyfrontier.com)

Joseph Fourier University, Grenoble, France – The Université Joseph Fourier in Grenoble is a leading University of Science, Technology and Health. It brings together the various stakeholders from Grenoble's healthcare industry (doctors, pharmacists, biologists and chemists, as well as STAPS research professors) working on numerous local or regional research programs, such as NanoBio, Cancéropôle Lyon Auvergne Rhône-Alpes, Rhône-Alpes Genobpole, Neurosciences or Envirhônalp. The diversity of these stakeholders and of the skills found within the CSVSB Centre makes it possible to conduct research programs ranging from basic research to clinical applications. (<http://www.ujf-grenoble.fr/research/chemistry-biology-and-health>)

Love's Travel Stop, Oklahoma City, OK – A chain of convenience stores and travel centers with over 340 locations in 40 states nationwide. Internships in the Oklahoma City area vary depending on the field of study of the scholar (www.loves.com).

Mosaics in Science Diversity. The Internship program provides youth with backgrounds in the sciences, technology, and engineering program with an opportunity to work with the National Park Service in Colorado.

Niblack Research Scholarship Program, Stillwater, OK – The program supports research of undergraduates on the Oklahoma State University-Stillwater campus. Recipients are sponsored by a member of the research faculty to oversee the progress of the research with day-to-day monitoring.

Phillips 66, Los Angeles, CA -- A diversified energy manufacturing and logistics company. With a portfolio of Midstream, Chemicals, Refining, and Marketing and Specialties businesses, the company processes, transports, stores and markets fuels and products globally. (www.phillips66.com)

Research Experiences for Undergraduates (REU) – REU programs are funded by the National Science Foundation and conducted on specific campuses in specific programs. Programs in which OK-LSAMP scholars participated include, but are not limited to: Clemson University, Iowa State University, University of Oklahoma, Oklahoma State University, Alabama A&M University (China), Louisiana State University (Brazil and France), University of Georgia; Washington University School of Medicine, St. Louis. MO, and the University of Wisconsin-Madison.

Program Component Three

To expand and facilitate opportunities for international research experiences and engagement so at least 25% of Alliance scholars gain international experience

International Experiences

In 2015-2016, seven scholars participated in international experiences. To date, Oklahoma scholars have participated in international research experiences in over 37 different locations. The international opportunities enable scholars to broaden their research experiences. Scholars with international research experiences are better prepared for future career opportunities, develop a diverse perspective on experiences in different locations, and help to build relationships that enhance their future career goals.

Table 8. Select Internship Locations Outside the Continental United States –
August 2015 - June 2016

Student	Location
Andres Guerrero Criado	France
Nicholas Means	France
Gretchan Moore	Trinidad & Tobago
Bree Cooper	Turkey
Amber Morgan	Costa Rica
Rachel Grider	China
Michael-Joseph Gorbet	England

For the second year, the Oklahoma LSAMP program coordinated with Louisiana State University (LSU), and sponsored three LSAMP Scholars for an iREU. The 2015 US/France/Belgium iREU Site in Translational Chemistry, directed by Dr. Randy Duran (LSU, Director of the Office of Undergraduate Research) placed a total of 18 LSAMP Scholars in institutions across France.

Andres Guerrero Criado, OSU Microbiology/Cell and Molecular Biology, began a research project in February 2015 at Joseph Fourier University in Grenoble, France. During his stay Andres worked with Dr. Thomas Pfannschmidt in the team plastidial Genome in IRTSV CEA Grenoble, which is part of the GRAL axis 2. He returned to OSU in the fall semester and completed undergraduate degree requirements.

Nicholas Means, OSU Chemistry, began a research project in February 2015 at Joseph Fourier University in Grenoble, France. Nicholas worked with Dr. Serge Cosnier researching electrocatalytic reduction of oxygen by films bilirubin oxidase on graphite electrodes. He returned to OSU in the fall semester and completed undergraduate degree requirements.

ALLIANCE COLLABORATIONS

The inter-institutional collaboration among the 11 Alliance institutions continues to serve as the catalyst for establishing comprehensive and coherent programming aimed at enhancing the academic preparedness of targeted undergraduate students for graduate studies.

In the July 2015 printing of *Diverse Issues in Higher Education*, Oklahoma universities consistently rank in the top for awarding degrees to Native Americans. Seven Oklahoma universities in the OK-LSAMP Alliance rank in the top 30 institutions for Native Americans completing degree requirements.

Forty-seven Scholars completed Bachelor of Science degrees in the 2015-2016 academic year. Seventeen (36%) of the Scholars receiving a B.S. degree have been admitted to advanced degree programs at universities across the United States.

Table 9. Number of Graduates by Institution and Number Attending Graduate School

Alliance Institutions	2014-2015 Graduates		2014-2015 To Grad School		2015-2016 Graduates		2015-2016 To Grad School	
	Male	Female	Male	Female	Male	Female	Male	Female
Cameron University	1	2	0	0	0	3	0	0
East Central University	5	3	0	0	0	0	0	0
Langston University	5	8	4	8	1	3	0	0
Northeastern State University	2	1	2	1	1	1	0	0
Northwestern OSU	0	0	0	0	0	0	0	0
Oklahoma State University	13	14	3	4	15	7	2	4
Southeastern OSU	2	1	0	0	0	2	0	1
Southwestern	0	3	0	3	1	2	1	2
University of Central OK	0	0	0	0	0	0	0	0
University of Oklahoma	7	2	1	0	3	3	0	0
University of Tulsa	1	2	1	2	2	3	2	3
TOTALS	36	36	11	18	23	24	5	12
	72		29		47		17	

- All Alliance institutions offer scholar programs including, but not limited to: (1) financial and academic support; (2) academic year research mentoring components; and (3) a summer research internship program. Across the Alliance, these programs focus on retention, high academic achievement, and graduate school preparation.
- Tutoring is available for students experiencing difficulty with coursework. The OK-LSAMP program provides compensation to the tutor. Scholars were also referred to Student Success Centers to receive tutoring and study techniques as well as peer mentors.
- Fifteen (15) scholars traveled to Asheville, North Carolina, for the 2016 National Conference on Undergraduate Research (NCUR). Annually, this trip is funded, in part, by the Oklahoma Experimental Program to Stimulate Competitive Research (EPSCoR).
- OSU Scholars participated in research projects sponsored by the Office of Scholar Development. Students are selected to participate as a Freshman Researcher, and may advance their research support further by applying for the NIBLACK Foundation (an \$8,000 scholarship) and/or the Wentz Research Project (\$2750 - \$4,500). The scholars are able to conduct their own research during the academic year (sometimes continued into the summer) and present the results at individual research venues.

- Scholars presented posters and oral presentations in addition to taking honors at respective conferences and workshops.
- Scholars participated in summer internship/research positions throughout the nation and the world.
- Inter-institutional collaboration – each summer, a number of scholars conduct internships at Alliance institutions. Each Alliance institution is funded to offer summer internship opportunities on their campus, but, because of inter-institutional collaboration, scholars may also conduct research on Alliance campuses.
- Bridge to the Doctorate Fellows from both OSU and OU participated in the Annual Research Symposium. This allowed scholars to ask individual questions regarding graduate school and receive feedback from someone with whom they can relate.
- Graduate school preparation modules and helpful handouts are located on the OK-LSAMP website for use by all Alliance Institutions.
- Alliance meetings with the program administration and Campus Program Managers are held. The meetings are a forum for ongoing communication on overall program operation and specific program implementations on each campus.
- A web page continued to be maintained by OSU as the lead institution. The page contains active links to the National Science Foundation and Alliance Institutions. Additional links include Alliance activities, forms, current and past newsletters, reports, and graduate school information. The web address: www.ok-lsamp.okstate.edu.
- Program newsletters and other program publications enhance communications between Alliance institutions, maintain the coherence of the program, and provide informational recruiting material for new scholars, mentors, and program supporters.
- The data system developed for the Alliance with information on current and alumni scholars and Bridge to the Doctorate Fellows continued to be upgraded and improved. Information included, but is not limited to: major, presentations at workshops/ conferences, internships, GPA, degrees awarded and graduate school applications.
- An Alumni database continued to be updated with current information. Information returned by alumni will be used to stay connected and to keep alumni informed of upcoming events.

EVIDENCE OF OUTREACH

Scholars are provided opportunities to gain knowledge, insight and experiences in their programs of study and research. These experiences help them to develop better ideas of which directions they may want to pursue and to provide opportunities to work together with their peers. Selected opportunities are identified below.

Louis Stokes Midwest Center of Excellence

The Louis Stokes Midwest Center of Excellence (LSMCE) held its third annual conference in Indianapolis, IN. Four of our scholars were selected to do poster presentations. Nick Means (OSU), Zack Ridge (OSU), Joseph Michael Fields (LU) and Brooke Romine (OSU). Kay Porter and Randy Duran presented a worship on international opportunities with scholar Nick Means as a panel member (Appendix E).

Louis Stokes Alliance for Minority Participation Symposium

The Louis Stokes Alliance for Minority Participation celebrated its 25 years at the National Symposium in Washington D.C. In attendance from the Oklahoma LSAMP were Jason F. Kirksey, Kay Porter and Darlene Croci. The Scholars Troy King and Andres Guerreo-Criado presented their research in the poster presentation. In addition, Dr. Earl Mitchell, former OK-LSMP Principal Investigator was in attendance for the celebration.

National Conference on Undergraduate Research

The National Conference on Undergraduate Research (NCUR) is held annually to provide opportunities and “is dedicated to promoting undergraduate research, scholarship, and creative activity in all fields of study” (NCUR, 2015). In 2016, 15 scholars were accepted to present at the NCUR conference. Six Scholars from the University of Tulsa, one from Langston University, one from Southeastern Oklahoma State University, and seven from Oklahoma State University. Scholars attending also had opportunities to attend a career/graduate school fair and to discover the culture of the area (Appendix D). The 2018 NCUR conference will be held in Oklahoma at the University of Central Oklahoma, located in Edmond. Dr. Greg Wilson, OK-LSAMP Campus Program Manager and UCO Assistant Vice President of Research and Grants, was instrumental in UCO receiving this honor. Scholars attending the conference were Joseph-Michael Fields from Langston University, Troy King, Adrian Saenz, Katelyn Whitaker, Cassidy Gearhart, Mang Chang, Susan Pham and Andres Guerrero-Criado from Oklahoma State University, Matthew Maxwell from Southeastern Oklahoma State University and Katy Riojas, Blake Chancellor, Jonathan Aston, Michaela Flonard, Charles Bales and Nicole Davalos from University of Tulsa.

In addition to scholars attending the 2016 conference, Darlene Croci, grant data coordinator and Kay Porter, grant manager accompanied the scholars. One unique trend in the Oklahoma Alliance is all scholars travel together, regardless of the school they are attending. This develops lasting friendships and helps to promote individual interests.

Oklahoma Research Day

Oklahoma Research Day celebrated its 17th year as a premier annual event celebrating student and faculty research, creative, and scholarly activities. The event has grown in numbers and in stature with contributions from all of Oklahoma’s institutions of higher education, including many collaborative contributions from national and international academic and research institutions. The 2016 Oklahoma Research Day event had over 1,200 registered students, faculty, and guests and featured over 700 unique poster presentations (oklahomaresearchday.com) (Appendix F).

Northeastern State University in Tahlequah, OK hosted the 2016 Oklahoma Research Day event for the second year. The one-day conference provided students with opportunities to present their research and to interact with peers and others in their research fields. The Oklahoma LSAMP Alliance had a total of 11 Scholars participate in the event.

Table 10. Scholars Participating in Oklahoma Research Day by Institution

School	Scholar	Scholar
Cameron University	Alexander Rivas	
East Central University	Elizabeth Apala	Maranda Clymer
Langston University	Joseph-Michael Fields	Nicholas Simon
Oklahoma State University	Brooke Romine Troy King Mary Catlett	Jordan Fleming Andres Guerrero
Southeastern Oklahoma State University	Matthew Maxwell	
University of Central Oklahoma	Joana Pantoja	

Research Day at the Capitol

Oklahoma's top undergraduate researchers participated in the 2016 21th *Annual Research Day at the Capitol* event held in Oklahoma City, OK at the State Capitol. Twenty-five undergraduate students from 18 Oklahoma colleges and universities were nominated by their campus President to present scientific research posters. The event was designed to showcase the outstanding research being conducted by students across the state of Oklahoma. The event is sponsored by the Oklahoma State System for Higher Education, the Oklahoma Chancellor, and Oklahoma EPSCoR through a National Science Foundation grant. **Joseph-Michael Fields**, Langston University, **Michael-Joseph Gorbet**, Southwestern Oklahoma State University, **Skylar Calhoun**, University of Oklahoma, and **Chase Tillar**, East Central University (Appendix G).

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)

The annual SACNAS conference was held in Washington, D.C., October 29-31, 2015 at the Gaylord Resort. For the fourth year, Scholars received travel scholarships to attend the conference and participate in activities; i.e., poster presentations, career fair, Native American PowWow, and the Hispanic Pachanga dance. Fifteen OK-LSAMP scholars and three faculty mentors were in attendance at the conference. Two Scholars were among 100 recognized for their poster presentations. During the recognition ceremony, Dr. Gilbert John, Professor, OSU and SACNAS mentor helped recognize award winners. **Matthew Maxwell**, chemistry major from Southeastern OSU and **Adrian Saenz**, Engineering major from OSU received outstanding poster presentations. **Grant Williams**, Computer Science major from OSU, received a free registration and travel award to attend the 2016 conference based on him solving a mathematical problem during the career fair. The scholars attending the conference wore orange OSU shirts to the opening session for the fourth year. The tee-shirts provided by the Division of Institutional Diversity have become a tradition and help to recognize the students from Oklahoma (Appendix H).

Scholars in Science: Native American Path (SSNAP)

Oklahoma State University continued with the *Scholars in Science: Native American Path* (SSNAP) project. The project, originally sponsored by SACNAS was continued through funds provided by the Vice President for Diversity, and the Center for Sovereign Nations on the OSU campus. The SSNAP opportunity continued to be directed by Dr. Gilbert John and Dr. Donald French, faculty mentors at OSU; and Kay Porter, OK-LSAMP Program Manager (Appendix I).

Women in Science STEM Conference

Scholars from across the Alliance assisted with the Women in Science conference. The 2015 Conference was held in Tulsa, Oklahoma, at the Mabee Center for the second year. The event continued to be hosted by Oklahoma EPSCoR with staff, students, and faculty from universities and colleges across Oklahoma assisting with the day's activities. The conference registered 757 K-12 female students and 105 teachers. Additionally, there were over 266 exhibitors, including representatives from academic, government, business, and the non-profit sector with information regarding college admission, scholarships, and professional activities. Teachers were provided free teaching resources and students had opportunities to visit with various programs as well as experience science first hand in the "hands-on" portion of the day. Several Scholars participated in the "hands-on" room by allowing the students to handle bugs, view a human brain, and make paper airplanes learning more about aerodynamics and flight. Lunch was provided to all attendees with the remaining lunch boxes donated to the local food bank (Appendix J).

Wentz Scholar Research Presentations

The Wentz Scholar Research Symposium was held April 15, 2016. Brooke Romaine, Jordan Fleming, Mary Catlett and Victor Ekehchiadi, scholars from Oklahoma State University presented at the 2016 Wentz Scholar Research Symposium. (Appendix K).

NSF-LSAMP Internship Program at Stanford University

Oklahoma State University was awarded a supplemental grant for the 2016 summer with Stanford University at the Office of Stanford Synchrotron Radiation Light Source (SLAC) National Accelerator Laboratory located in Menlo Park, California. Dr. Gilbert John, professor and faculty mentor from OSU led the project. Two scholars from OSU (Riley Smith, Chemistry junior and, Chelsey Tiger, Microbiology junior, participated in the 10-week program. The project entitled *Crystallization and X-Ray Diffraction Studies of Azoreductase from Clostridium Perfringens and Enterococcus faecium* is a continuation of a project which began in a lab on the OSU campus in 2013. The team worked closely with the Environmental Science Department within BNL. The Scholars and faculty mentor spent ten weeks on the SLAC campus, experiencing research techniques in a national lab, taking part in cultural activities, and participating in a sponsored research symposium. The Scholars were also provided with opportunities to visit universities in the area and visit with research faculty.

NSF-LSAMP Internship at the University of Hull

Southwestern Oklahoma State University (SWOSU) was awarded a supplemental grant for the 2016 summer with the University of Hull, UK conducting research. The program was continuation of research from summer 2015.

FACULTY HIGHLIGHTS AND PUBLICATIONS

Campus Program Managers and mentors are an integral part of the OK-LSAMP program. They not only hold faculty rank at their respective institutions, they also have a dedication to the education of America's underrepresented youth and support the NSF goals and objectives related to the LSAMP program. Coordinators and mentors are continually striving to achieve success within their own career paths. Several highlights are below and in (Appendix L).

Campus Program Managers

Jason F. Kirksey - OSU - (1) received NSF Bridge to the Doctorate grant for Cohort VIII.

Tim Hubin – SWOSU - (1) Oklahoma Foundation for Excellence Boren Outstanding Mentor

Publications:

“Discovery of antischistosomal drug leads based on tetraazamacrocyclic derivatives and their metal complexes” Khan, M. O. F.; Keiser, J.; Amoyaw, P. N. A.; Hossain, M. F.; Vargas, M.; Le, J. G.; Simpson, N. C.; Roewe, K. D.; Carder Freeman, T. N.; Hasley, T. R.; Maples, R. D.; Archibald, S. J.; Hubin, T. J. *Antimicrob. Agents Chemother.* **2016**, *in press*.

“Aspartate-based CXCR4 receptor binding of cross-bridged tetraazamacrocyclic copper(II) and zinc(II) complexes” Maples, R. D.; Cain, A. N.; Burke, B. P.; Silversides, J. D.; Mewis, R.; D’huys, T.; Schols, D.; Linder, D. P.; Archibald, S. J.; Hubin, T. J. *Chem. Eur. J.* **2016**, *in press*.

“Pyridine pendant armed side- and cross-bridged cyclens and their late first row transition metal complexes” Wilson, K. R.; Cannon, D. J.; Burke, B. P.; Archibald, S. J.; Hubin, T. J. *Polyhedron*, **2016**, 114, 118-127.

“Probing the limits of tetraazamacrocyclic-glyoxal condensates as bidentate ligands for copper(II): homocyclam, pyruvic aldehyde, and butanedione condensate analogues” Won, P. D.; Funwie, N. L.; Birdsong, O. C.; Yilmaz Obali, A.; Burke, B. P.; McRobbie, G.; Greenman, P.; Prior, T. J.; Archibald, S. J.; Hubin, T. J. *Eur. J. Inorg. Chem.*, **2015**, 4678-4688.

“Dichloro(4,11-dimethyl-1,4,8,11-tetraazabicyclo[6.6.2]hexadecane)iron(III) hexafluorophosphate” Funwie, N. L.; Cain, A. N.; Fanning, B. Z.; Hageman, S. A.; Mullens, M.; Roberts, T. K.; Turner, D. J.; Valdez, C. N.; Vaughan, R. W.; Ermias, H. G.; Silversides, J. D.; Archibald, S. J.; Hubin, T. J.; Prior, T. J. *Acta Cryst E*, **2015**, *E71*, 1073-1076.

“Synthesis, structural studies, and oxidation catalysis of the manganese(II), iron(II), and copper(II) complexes of a 2-pyridylmethyl pendant armed side-bridged cyclam” Shircliff, A. D.; Wilson, K. R.; Cannon-Smith, D. J.; Jones, D. G.; Zhang, Z.; Chen, Z.; Yin, G.; Prior, T. J.; Hubin, T. J. *Inorg. Chem. Commun.*, **2015**, *59*, 71-75.

“Antifungal and anti-parasitic transition metal complexes of linked, bridged tetraazamacrocycle” Hubin, T. J.; Archibald, S. J.; Jacob, M.; Tekwani, B.; Khan, F. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

“Investigation of the activity and mechanism of DNA cleavage by cobalt-cyclen and -cyclam complexes” Oertel, M.; Hubin, T. J.; Gwyn, L. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

“Copper and nickel complexes as DNA cleavage components for use in artificial nucleases” O'Neal-Johnson, S.; Hubin, T. J.; Gwyn, L. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

“New metals (V, Pd, Ru) and new amide pendant-arms for cross-bridged tetraazamacrocycle oxidation catalysts” Gorbet, M.-J.; Yin, G.; Hubin, T. J. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

“Unsymmetric bis-tetraazamacrocycle transition metal complexes as CXCR4 antagonists” Jones, D. G.; Baker, C.; Garcia, C. D.; Walker, A. W.; Schols, D.; Symmers, P.; Archibald, S. J.; Hubin, T. J. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

“Bis- and pendant armed tetraazamacrocycle transition metal complex dual CXCR4/CCR5 antagonists” Davilla, D. J.; Birdsong, O.; Schols, D.; Archibald, S. J.; Hubin, T. J. 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, **2016**.

Invited Presentations:

“CXCR4 Chemokine Receptor Antagonist SJA5: Anti-Tumor Activity and Tumor Imaging Studies” Hubin, T. J.; Burke, B. P.; Cawthorne, C. C.; Archibald, S. J.; Schols, D.; Khan, A.; Williams, K. J. Stephenson Cancer Center 2015 Cancer Research Symposium, Oklahoma City, OK: January 30, **2016**.

Mentors

Mentors play a vital role in the research experiences of LSAMP Scholars. A listserv has been developed to keep mentors in all 11 campus locations informed of internships, opportunities for Scholars, and any other information that is appropriate. During National Mentor Month, mentors receive “thank you” notes and special recognitions along with highlights of their successes.

Mario Borunda, OSU - publications:

E. J. Heller, Y. Yang, L. Kocia, W. Chen, S. Fang, M. F. Borunda, and E. Kaxiras, “*Theory of Graphene Raman Scattering*,” ACS Nano **10**, 2803-18 (2016).

S. Selvaraju, S. Adhikari, R. A. Hopson, S. Dai*, A. L. Rheingold, M. F. Borunda, and T. L. Nelson, “*Effects of Structural Variations on the Optical and Electronic Properties of Eumelanin-Inspired Small Molecules*,” J. Mater. Chem. C **4**, 3995-9 (2016).

K. L. Utt, P. Rivero, M. Mehboudi, E. O. Harris, M. F. Borunda, A. A. Pacheco, S. Barraza-Lopez, “*Intrinsic defects, fluctuations of the local shape, and the photo-oxidation of black phosphorus*,” ACS Cent. Sci., **1**, 320 (2015).

D. J. Mason, M. F. Borunda[□], and E. J. Heller, “Revealing the flux: Using processed Husimi maps to visualize dynamics of bound systems and mesoscopic transport,” Phys. Rev. B **91**, 165405 (2015).

Joseph Haley, OSU - publications:

"Identification of boosted, hadronically decaying W bosons and comparisons with ATLAS data taken at $\sqrt{s} = 8$ TeV," ATLAS Collaboration, Eur. Phys. J. C **76**(3), 1-47 (2016). [<http://dx.doi.org/10.1140/epjc/s10052-016-3978-z>]

"Search for single production of vector-like quarks decaying into Wb in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector," ATLAS Collaboration, Accepted for publication in Eur. Phys. J. C (2016). [<http://arxiv.org/abs/arXiv:1602.05606>]

“Search for pair produced new heavy quarks that decay into a W boson and a light quark in pp collisions at 8 TeV with the ATLAS detector,” ATLAS collaboration, Phys. Rev. D **92**, 112007 (2015). [<http://dx.doi.org/10.1103/PhysRevD.92.112007>]

Richard Guo, OSU - publications:

Y. Guo and C. Zhao, “Islanding-Aware Robust Energy Management for Microgrids,” accepted for publication in IEEE Transactions on Smart Grid.

Y. Gong, L. Wei, Y. Guo, C. Zhang, and Y. Fang, “Optimal Task Recommendation for Mobile Crowd-sourcing with Privacy Control,” accepted for publication in IEEE Internet of Things Journal.

K. Xu, Y. Guo, L. Guo, Y. Fang, and X. Li, “My Privacy My Decision: Control of Photo Sharing on Online Social Networks,” accepted for publication in IEEE Transactions on Dependable and Secure Computing.

Y. Gong, Y. Fang, and Y. Guo, "Private Data Analytics on Biomedical Sensing Data via Distributed Computation," IEEE/ACM Transactions on Computational Biology and Bioinformatics, Vol. 13, No. 3, pp. 431-444, May/June 2016.

Y. Gong, Y. Cai, Y. Guo, and Y. Fang, "A Privacy-Preserving Framework for Incentive-based Demand Response in the Smart Grid," IEEE Transactions on Smart Grid, Vol. 7, No. 3, pp. 1304-1313, May 2016.

Ulrich Melcher, OSU - publications:

Ding, T. and Melcher, U. (2016) Influences of plant species, season and location on leaf endophytic bacterial communities of non-cultivated plants. PLoS ONE, 11(3): e0150895.

Blagden, T., Schneider, W., Melcher, U., Daniels, J. and Fletcher, J. (2016) Adaptation and validation of E-probe Diagnostic Nucleic Acid Analysis for detection of *Escherichia coli* O157:H7 in metagenomic data of complex matrices. J of Food Protection 79(4), 574–581.

Thapa, V., McGlenn, D. J., Melcher, U., Palmer M.W., and Roossinck, M.J. (2016) Determinants of taxonomic composition of plant viruses at the Nature Conservancy's Tallgrass Prairie Preserve, Oklahoma. Virus Evolution, in press.

McCluskey, K., Alvarez, A., Bennett, A.R., Bokati, D., Boundy-Mills, K., Brown, D., Bull, C., Coffey, M., Dreaden, T., Duke, C., Dye, G., Ehmke, E., Eversole, K., Fenstermacher, K., Geiser, D., Glaeser, J.A., Greene, S., Gribble, L., Griffith, M.P., Hanser, K., Humber, R., Johnson, B. W., Kermod, A., Krichevsky, M., Laudon, M., Leach, J., Leslie, J., May, M., Melcher, U., Nobles, D., Risso Fonseca, N., Robinson, S., Ryan, M., Scott, J., Silflow, C., Vidaver, A., Webb, K.M., Wertz, J.E., Yentsch S., and Zehr, S. (2016) The US Culture Collection Network lays the foundation for progress in preservation of valuable microbial resources. Phytopathology, in press

Hammond, J., Henderson, D.C., Bagewadi, B., Jordan, R.L., Perry, K.L., Melcher, U., Wang, D., Fischer, K.F., and Fauquet, C.M. (2015) Progress in the development of a universal plant virus microarray for the detection and identification of viruses. Acta Hort. 1072, 149-156

Dutta, M., Ali, A., and Melcher, U. (2015) Detection, discrimination and discovery of a new Tobacco streak virus strain. J. Virol. Method 221:15-21.
doi:10.1016/j.jviromet.2015.03.025 Supplemental material (with omitted figures).

Amy N. Schachle, TU - (1) MAA OK/AR Section meeting, Tulsa, OK, April 2015. Elected as Section Chair. (2) TU hosting of the OK-AR MAA Section Meeting. (3) Served as the departmental organizer for this event, in coordination with my position on the Section Executive Committee. (4) Guest speaker at TU student chapter of MAA – "Why I Love Teaching Math". (5) OK-AR MAA Section Executive Committee (2013-present); Section Chair. (6) Sonia Kovalevsky Day - Presented a talk on surprising mathematical connections to middle school girls for this event held at the TCC campus.

SCHOLAR AND BD FELLOW HIGHLIGHTS

OK-LSAMP scholars are among the top students on Alliance campuses and throughout the nation. This year, Oklahoma had Scholars participate in national, state, and local conferences, have articles accepted for publication and numerous other outstanding activities. Additionally, scholars are consistently honored through President and Dean's Honor Rolls, serving as officers and members of student organizations, and recipients of numerous scholarship awards (Appendix K).

Scholar Highlights

Alfa Abame – SWOSU – (1) accepted summer 2016 internship at Colby College, *Undergraduate Research into the Cultural, Economic and Ecological Roles of Church Forests in South Gondar, Ethiopia*; (2) vice president, SWOSU Biology Club; (3) presented research at the 2016 Oklahoma Research Day, Tahlequah, OK; (4) presented research at the Tri Beta Conference.

Alicia Aguilar – OSU – (1) Top 20 Freshmen Women, OSU; (2) received the Julius Caesar Matli Endowed Scholarship; (3) represented OSU at the national Engineering Without Borders Conference, Denver, CO; (4) international project assistant manager, OSU Engineers Without Borders; (5) Sophomore liaison, American Institute of Chemical Engineers; (member American Chemical Society) (6) accepted summer 2016 internship at Scripps Research Institute, La Jolla, CA.

Mayowa Akinuale -- OSU – (1) presented research at the 2016 WENTZ Research Symposium; (2) member of the Cowboy Marching Band, Spirit Band; (3) presented research at the 21st Annual Research Symposium, Stillwater, OK.

Elizabeth Apala – ECU – (1) received first place at the Fall Academy of Science Conference, Oklahoma City, OK; (2) presented research at Oklahoma Research Day, Tahlequah, OK; (3) presented research at the 21st Annual Research Symposium, Stillwater, OK; (4) presented research at the Zone 12 meeting of the Society of Physics Students; (5) presented research at the American Astronomical Society.

Jonathan Aston – TU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC.

Charles Bales – TU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC.

Matheus Barbosa – OSU (1) presented research at the 2015 National Conference on Undergraduate Research; (2) presented research at OSU Research Week; (3) presented research at the 21st Annual Research Symposium, Stillwater, OK.

Skylar Calhoun – OU – (1) received first place at the 2015 OK-LSAMP Research Symposium; (2) selected to represent the University of Oklahoma at the 2016 Research Day at the Capitol; (3) received the Stuart Family Foundation Study Abroad Scholarship; (4) received the President's Community Scholar Alumni Scholarship; (5); Gallogly College of Engineering Tomorrow Engineer Award; (6) President's Honor Roll two semesters; (7) member National Society of Black Engineers; (8) accepted for summer internship at Poe and Associates in Oklahoma City for 2016.

Natalie Ruiz Castillo – CU – (1) In Stars mentor at the Society for Freshwater Science Conference; (2) participated in summer internship; (3) Assisted with TU STEM day, Tulsa, OK.

Mang Chang – OSU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC; (2) member of the OSU Microbiology Club; (3) ORISE Project Spotlight, summer research.

Ariel Cross – OU – (1) received first place in the non-life sciences category at the 2015 OK-LSAMP Annual Research Symposium; (2) received the CBME undergraduate research scholarship, OU; (3) continuing to conduct research during the summer 2016 in the lab of Dr. Sikavitsas at OU.

Maria Castaneda – TU – (1) presented research at the 2014 Joint Meeting of the 17th Annual Student Research Colloquium and the 12th Annual OU-Tulsa Research Forum, Tulsa, OK; (2) received Honorable Mention for her research poster on *Synthesis of Enaminones Utilizing Copper Catalysts*.

Mary Catlett – OSU – (1) presented research at the 2016 Conference for Undergraduate Women in Physics, San Antonio, TX; (2) presented research at the 2016 Undergraduate Research Symposium, OSU; (3) participant in the 2016 International Mentoring Symposium for Students in STEM; (4) received the WENTZ research scholar award for 2016; (5) participant in 2016 Oklahoma Research Day, Tahlequah, OK; (6) selected for summer REU, Oklahoma State University, Physics Department; (7) treasurers of the OSU Physics Club; (8) secretary, OSU Math Club; (9); recipient of the following scholarships: Arts & Sciences Alumni; Daniel Stevens

Blake Chancellor – TU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC; (2) presented research at the ABRCMS National Conference, Seattle, WA; (3) presented research at the American Chemical Society Meeting in San Diego, CA; (4) presented research at the 21 Annual Research Symposium, Stillwater, OK; receiving first place; (5) accepted into the Ph.D. program in Biological and Biomedical Sciences at Harvard University for Fall 2016

Ryan Cloud – ECU – (1) recipient of the Stringfield Centennial Physics Endowment Scholarship; (2) President's Honor Roll.

Andres Guerrero Criado – OSU – (1) Top ten senior in the College of Agriculture and the College of Arts and Sciences; (2) presented at the national SACNAS conference, Washington, D.C.; (3) presented at the National LSAMP meeting, Washington, D.C.; (4) presented research at

the National Conference on Undergraduate Research, Asheville, NC; (5) presented research at Oklahoma Research Day, Tahlequah, OK; (6) participated in the Tribal Health Conference.

Bree Cooper – OU – (1) accepted summer 2016 NSU – REU in Turkey to study bees; (2) member of American Indian Science and Engineering Society (received chapter of the year award); (3) treasurer, Society of Manufacturing Engineers; (4) team welder for the Sooner Racing Team: Formula SAE.

Nicole Davalos - TU - (1) presented research at the National Conference on Undergraduate Research, Asheville, NC.

Sarrysa Eares – SE – (1) presented research at OSU Research Day, Stillwater, OK; (2) received scholarships from the Chickasaw Nation; Alpha Chi Honor Society; (3) chapter president, American Chemical Society;

Victor Ekehchiadi - OSU - (1) presented research at the 2016 WENTZ Research Scholar program; (2) elected vice president to the Biochemistry Club.

Elisa Elizondo - OSU - publication: Elizondo, E., Loss, S.R. 2016. Using trail cameras to study free-ranging domestic cat abundance in urban areas. *Wildlife Biology* In Press (DOI: 10.2981/wlb.00237).

Joseph Michael Fields – LU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC; (2) Oklahoma Research Day; (3) presented at the national SACNAS conference, Washington, D.C.; (3) represented Langston University at Research Day at the Capitol; (4) presented research at Oklahoma Research Day, Tahlequah, OK.

Michaela Flonard - TU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC; (2) accepted 2016 summer internship with Jackson Laboratory, Bar Harbor, MA; (3) research assistant, Aerobiology lab.

Jordan Fleming – OSU – (1) presented research at the National SACNAS Conference, Washington, D.C.; (2) member of the Scholars in Science; Native American Path (SSNAP) program; (3) presented at the 3-minute thesis event, OSU; (4) treasurer, OSU SACNAS chapter; (5) received the WENTZ Scholar research grant; (6) presented research at the 2016 WENTZ Research Symposium; (7) presented research at Oklahoma Research Day, Tahlequah, OK; (8) presented research at the 2016 Regional Science conference; (9) secretary, OSU Pre-Optometry Student Association.

Cassidy Gearhart - OSU – (1) presented research at the National Conference on Undergraduate Research, Asheville, NC; (2) Freshman Research Scholar, OSU; _____

Daniel Henthorn – OSU – (1) participated in the Scholars in Science: Native American Path (SSNAP) program; (2) attended the 2015 National SACNAS Conference, Washington, D.C.; (3) served as the OSU SACNAS chapter president; (4) participated in the HHMI EXROP program.

Troy King – OSU – (1) presented research at the Louis Stokes Midwest Center for Excellence, Indianapolis, IN; (2) presented research at Oklahoma Research Day, Tahlequah, OK; (3) presented at the National Conference on Undergraduate Research, Asheville, NC; (4) selected to present research at the 25th LSAMP Anniversary, Washington, D.C.; (5) presented research at the 2016 ABRCMS National Meeting, Seattle, WA; presented research at OSU Research Week, Stillwater, OK; (6) accepted into the University of Georgia PREP program for infectious disease for Fall, 2016 (one of eight chosen).

Matthew Maxwell – SEOSU – (1) presented a research poster at Oklahoma Research Day, Tahlequah, OK; (2) presented research at the National SACNAS conference, Washington, D.C. – one of 100 to receive top honors, (3) participated in the *Scholars in Science: Native American Path (SSNAP)* program; (4) presented at the National Conference on Undergraduate Research, Asheville, NC; (5) participated in a 2015 summer REU at Oklahoma State University; (6) presented research at the 21st Annual Research Symposium, Stillwater, OK—received third place for poster presentation; (7) accepted a summer REU at Harvard University.

Nick Means – OSU – (1) spent six months in Grenoble, France on a research internship; (2) completed B.S. degree requirements in Microbiology; (3) presentation at the 2016 International Research Mentoring Symposium, Stillwater, OK; (4) presented at the 2016 SACNAS National Conference, Washington, D.C.; (5) presented at the 2016 LSMCE Conference, Indianapolis, IN; (6) student panel member at the 2016 LSMCE Conference, Indianapolis, IN; (7) presented at the French-American Research Conference, Grenoble, France; (8) employed by the Microbiology Department at OSU as a web-designer; (9) accepted to graduate school at University of Oklahoma Center for Health Sciences.

Gretchan Moore – OSU – (1) Outstanding OSU Senior; (2) presented research at the Biochemistry and Molecular Biology Symposium, received first place; (3) awarded the WENTZ Research Scholarship; (4) Tylenol Future Care National Scholar; (5) Outstanding leadership and service pin, residential hall association, OSU; (6) accepted to the OSU Center for Health Sciences to begin DO program.

Maeghan Murie – OSU – (1) Selected at Top Ten Senior in the College of Arts and Sciences; (2) presented research at the National SACNAS conference, Washington, D.C.; (3) selected for a summer internship at the University of Oklahoma's Health Sciences program; (4) Morris K. Udall Scholar; (5) third place, Research Day at the Capitol; (6) member of the Scholars in Science: Native America Path program; (7) one publication in Green Chemistry; (8) accepted to present research at the American Chemical Society National meeting, San Diego, CA; (9) president of the OSU American Chemical Society club, (10) completed B.S. degree requirements; (1) accepted into the graduate program at University of Wisconsin.

Autumn Only A Chief – OSU – (1) Ms. American Indian, OSU; (2) undergraduate research assistant, Eagle Adventure Program; (3) participated in the Scholars in Science: Native American Path (SSNAP) program; (4) accepted to present at the 2015 National SACNAS Conference, Washington, D.C.; (5) received the ONASHE Up & Coming Leader Award; (6) received the Center for Disease Control Scholar award; (7) accepted for summer public health scholars program at Columbia University.

Joana Pantoja – UCO – (1) received third place at the 21st Annual Research Symposium for poster presentation, Stillwater, OK; (2) presented research at the Experimental Biology National Meeting, San Diego, CA; (3) received the Synergy Scholarship Award for research.

Cameron Patterson – OSU – (1) president, AIAS Chapter; (2) represented OSU at the AIAS Forum, National Conference; (3) accepted summer 2016 internship with Perians and Will Architecture Firm in Dallas, TX; (4) received the Tesone Endowed Scholarship; (5) College of Engineering Dean's award for 2016; (7) inducted into Phi Kappa Phi.

Clay Patterson – OSU – (1) received the CEAT Scholarship; (2) participated in the National Association of Engineering Student Councils (NAESC) Central and National Conferences; (2) NAESC Central Region Recruitment Chair; (3) CEAT Student Council; (4) student council representative to the Eta Kappa Nu – Engineering Honor Society.

Melida Perez-Errasquin – TU – (1) member of the Society of Women Engineers; (2) member Society of Petroleum Engineers; (3) member Society of Hispanic Engineers.

Susan Pham – OSU – (1) presented research at the 21st Annual Research Symposium, Stillwater, OK; (2) participated in the *Scholars in Science: Native American Path (SSNAP)* program; (3) presented research at the National SACNAS conference, Washington, D.C.; (4) presented research at the American Chemical Society Conference, San Diego, CA; (5) awarded the WENTZ Research Fellowship for 2016-2017; (6) presented at the National Conference on Undergraduate Research, Asheville, NC.

Nate Richboursy – OU – received the CIS Philip Farish Study Abroad Scholarship; (2) Chemical Engineering Biotechnology Program of Excellence Scholarship; (3) Chevron-Phillips Scholar-Mentor Award for 2016; (4) presented research at the OU Undergraduate Research Day with an oral presentation.

Zach Ridge – OSU – (1) presented at LSMCA Conference, Indianapolis, IN; (2) presented at the National SACNAS conference, Washington, D.C., (3) completed B.S. degree requirements.

Katy Riojas – TU – (1) received the NSF GRFP Award for 2016; (2) presented at the National Conference on Undergraduate Research, Asheville, NC; (3) member TU Women's Soccer Team (4) Outstanding Senior 2015; (4) presented research at the 2015 RESNA conference; (5) vice president, *Make a Difference Engineering* program; (6) president, Tau Beta Pi Engineering Honor Society; (7) recipient of Little Light House Therapy Volunteer of the Year; (8) finalist of NCAA Walter Byers Scholarship; (9) Medicine Wheel Award; (10) accepted to graduate program at Vanderbilt University.

Alexander Rivos – CU – (1) Presented research at Oklahoma Research Day, Tahlequah, OK; (2) completed the NIH DSRTTP program; (3) presented research at the American Chemical Society regional meeting, Memphis, TN; (4) presented research at the American Chemical Society meeting, Bartlesville, OK; received the following scholarships: Chemistry Department and Chemistry Honor Society.

Rendi Rogers – OSU – (1) OSU Institutional Nominee Scholarship recipient; (2) Bureau of Indian Education Tribal Scholarship; (3) presented an oral research presentation at the OAS Annual Technical Meeting; (4) poster presentation 2016 Microbiology and Molecular Genetics Annual Research Symposium; (5) elected at the 2016-2016 SACNAS Secretary.

Brooke Romine – OSU – (1) presented research at Oklahoma Research Day, Tahlequah, OK; (2) presented poster presentation at OSU Research Week; (3) presented at the National SACNAS conference, Washington, D.C.; (4) received the Outstanding Arts & Sciences Student Award; (5) presented research at the 2016 WENTZ Research Symposium; (6) completed B.S. degree requirements; (7) accepted in to the Health Care Administration Master of Science degree program, OSU Health Sciences Center, Tulsa, OK.

Natalie Santa-Pinter – TU – (1) presented research at the National Conferences on Undergraduate Research in Asheville, NC; (2) accepted 2016 summer internship with the OU-TU School of Community Medicine, Tulsa, OK; (3) accepted to the OU National Education for Women's Leadership Institute, Norman, OK; (4) first place Life Sciences Poster, 21st Annual Research Symposium, Stillwater, OK; (5) founder, 2015 TU STEM Fair-*Student Team Engaging Minorities in STEM*; (6) vice president, Engineers Without Borders; (7) Mortar Board National College Senior Honor Society Historian; (8) TU University Ambassador; (9) vice president, Alpha Epsilon Delta Pre-Med Honor Society; (1) received the following scholarships: Catholic Business & Professional Women's Scholarship; Iota Sigma Pi Women in Chemistry Honor Society, Phi Beta Kappa Honor Society, TU Avis Global Trekker.

Adrian Saenz – OSU – (1) presented research at the 21th Annual LSAMP Research Symposium, Stillwater, OK; (2) received a summer internship at the University of Colorado-Boulder in Environmental Sustainability; (3) presented research at the National SACNAS Conference, Washington, D.C.; (4) received Outstanding Poster at the National SACNAS Conference, Washington, D.C.; (5) Passed the Fundamentals of Engineering exam; (6) College of Engineering Saint Patrick Top 5 Graduating Senior; (6) completed year at Mr. Hispanic, OSU; (7) received a graduate research assistantship from the Biosystems Department, OSU; (8) accepted into the Master of Science program at OSU in Biosystems (9) presented at the National Conference on Undergraduate Research, Asheville, NC.

Katie Schwartz – OSU – (1) received Natural Resources Ecology and Management Departmental Honors Award, 2016 (2) vice president, OSU Wildlife Society;(3) member Pre-Vet club; (4) volunteer: Tiny Paws and Operation Catnip; (5) accepted to OSU Veterinary College.

Nicholas Simon, Jr – LU – (1) presented research at Oklahoma Research Day, Tahlequah, OK; (2) received recognition at the 2016 K-INBRE Conference for poster presentation;(3) Historian, Langston University Ambassador Program; (4) member, Biology Club.

Sydni Smith – OSU – (1) HHMI 2016 EXROP Summer program participant; (2) third place research poster presentation in the 2016 Life Sciences Freshman Research Scholars Symposium; (3) presented research at the American Society of Rickettsiology Conference, Bozeman, WY.

Colby Starr – OSU – (1) conducted research with Dr. Erica Lutter on the OSU campus during the summer 2016; (2) Rooted Conferences Logistics Director; secretary to the OSU Pre-Health Professionals Organization; (3) Secretary to No Labels Organization; (4) undergraduate teaching assistant in the microbiology department.

Linzi Thompson – ECU – (1) received the George Nigh Top Senior Award at ECU; (2) Honor student with a 4.0 overall GPA; (3) presented research at the 21st Annual Research Symposium, Stillwater, OK; (4) presented research at the Oklahoma Technical Society Annual Meeting, Oklahoma City, OK; (5) completed B.S. degree requirements with honors; (6) accepted to a Ph.D. program at Stanford University.

Chase Tillar – ECU – (1) represented ECU at Research Day at the Capitol.

Tekenari Tienbeso – OU – (1) accepted a summer internship for 2016 at the Stephenson Center, Norman, OK; (2) received the Undergraduate Research Opportunities Grant Program award for 2016.

Edgar Viveros – OSU – (1) received the College of Engineering Dean's Award Scholarship; (2) received the Hispanic Scholarship Fund Scholarship; (3) received the Lynn T. Miller Scholarship; (4) member of the OSU Marching Band, Symphony band and spirit band; (5) Society of Hispanic Engineers, treasurer.

Kevin Vo – OSU – (1) presented research at the 2015 National Conference on Undergraduate Research; (2) presented research at the 21st Annual Research Symposium, Stillwater, OK; (3) completed B.S. degree requirements; (4) accepted employment with H.W. Lochner Engineering firm in Oklahoma City.

Katelyn Whittaker – OSU – (1) participated in the Scholars in Science: Native American Path (SSNAP) pre- and post- conference workshops; (2) received the Native American Faculty and Staff Scholarship; (3) presented summer research at the Meriel Veterinary Medical Summer National Conference, Los Angeles, CA; (4) member of the Scholars in Science: Native American Path (SSNAP) program; (5) presented at the National SACNAS conference, Washington, D.C.; (6) presented at the National Conference on Undergraduate Research, Asheville, NC.

Amber Ward – CU – (1) accepted summer 2016 internship with Notre Dame Biophysical Society Summer Program; (2) represented Cameron University in Houston at the NASA Kennedy Space Center; (3) accepted to present research at the Women in Physics Conference in San Antonio, TX; (4) accepted to participate as a mentor to the Summer NanoExplorer Summer Camp; (5) presented research at the Baylor University Regional American Chemical Society meeting; (6) secretary to the Cameron University Physics Club; (7) public affairs representative to the Chemistry Club.

Grant Williams – OSU – (1) participated in the Scholars in Science: Native American Path (SSNAP) program; (2) presented his research at the 42st National SACNAS conference in Washington, DC; (3) received recognition at the National SACNAS conference for his problem solving skills; (4) serving as secretary of the OSU SACNAS chapter.

Johnny Williams – OSU – (1) accepted summer internship with the Future Public Health Leader Program, Ann Arbor, MI; (2) member of the OSU Marching Band; (3) president of Phi Beta Sigma chapter.

BD Fellow Highlights

The Oklahoma Bridge to the Doctorate program has received funding for eight programs, with Cohort I and II completed. Cohort III was awarded to Oklahoma State University in August 2008, for two years of NSF funding. Cohort IV, University of Oklahoma, was awarded in April 2009, to begin August 2009. Cohort V, Oklahoma State University, was awarded in October 2011 with fellow support beginning January 2012. Cohort VI was awarded to the University of Oklahoma; Cohort VII was awarded to Oklahoma State University. Cohorts VI and VII began funding participants in fall 2013.

Cohort I and II. Fellows in the program include:

Cara Cowan-Watts - completed Ph.D. requirements, December 2015.

Cohort III. Fellows remaining in the program include:

Tomica Blocker – completed Ph.D. requirements, May, 2016.

Scott Fine – (1) continued to meet Ph.D. degree requirements, with anticipated completion of December 2016.

Jonathan Gonzales – (1) continuing with Ph.D. degree requirements; (2) teaching assistant for ECEN 3314 (Electronic Devices), OSU undergraduate engineering program; (3) Principal Investigator to an NSF grant for Small Business Innovation Research (SBIR).

Cody Pinkerman – (1) teaching assistant for aerospace engineering undergraduate programs; (2) completed Ph.D. degree requirements, May 2016.

Zach Carpenter – (1) continuing to work toward Ph.D. completion, while working full-time in industry.

Cohort IV. Fellows remaining in the program include:

Ryan Watley – continuing with Ph.D. graduate degree requirements.

Cohort V. Cohort V was awarded through the National Science Foundation as grant number HRD-1139824 for a two year period. Six Fellows were selected to begin graduate studies

Spring 2012, two began Summer 2012, and four began in the Fall 2012 semester. Four Fellows completed Master of Science degree requirements and left the program for employment in industry positions. One additional Fellow was selected to begin receiving funds July 2014. Nine Fellows continue to work toward Ph.D. degree requirements, though two (Marissa Rice and Josh McCloud) have transferred from OSU.

RaiAnna Paula Arscott Hopson – continuing with Ph.D. program requirements.

Nicole Bryant Parker – (1) continuing with Ph.D. program requirements; (2) presented at the 2015 Arabidopsis International Conference, England;

Eric Butson – continuing with Ph.D. program requirements.

Bill Jones – (1) completed M.S. degree program requirement; (2) accepted full-time employment with Anheiser Busch Industries.

Daron “DJ” Lamkin – (1) continued with Ph.D. program requirements; (2) continued part-time employment with Oklahoma City Public Schools as a STEM Mentor; (3) CEO *Class Matters*, a non-profit organization aimed at increasing STEM among high school students in the Oklahoma City area.

David Supeck – (1) continued with Ph.D. requirements, anticipated Ph.D. completion, July, 2016.

Cohort VI. Fellows remaining in the program include:

Christina Bruxvoot – (1) continuing with M.S. degree requirements in Biochemistry.

Daniel Dixon – (1) continuing with Ph.D. degree requirements in Chemical Engineering.

Robert Donatto – continuing with M.S. degree requirements in Electrical and Computer Engineering.

Alex Moreno – continuing with M.S. degree requirements in Electrical Engineering.

Abigail Ntrel – (1) continuing with Ph.D. requirements in Biochemistry.

Allison Quiroga – (1) continuing with Ph.D. requirements in Civil Engineering.

Cortes Williams – (1) Continuing with M.S. degree requirements in Bio-Engineering;

Sergio Zegarra – Continuing with M.S. degree requirements in Mechanical Engineering.

Jadith Ziegler – (1) Continuing with Ph.D. degree requirements in Microbiology;

Cohort VII. Fellows remaining in the program include:

Gregory Cook – (1) continuing to meet program requirements for the Ph.D. in Biomedical Sciences with an emphasis in immunology.

Joseph Dyer – (1) continuing with Ph.D. program requirements;

Jessica Sunny Evans – (1) continuing to meet program requirements with GRFP funding in the same program.

Brice Fiddler – (1) continuing to meet program requirements for a Master of Science degree in Civil Engineering.

Shelby Fraser – (1) continuing to meet program requirements for a Master of Science degree in Natural Resources, Ecology and Management-anticipated graduation July 2016; (2) third place oral presentation in biological sciences at research week, OSU; (3) people's choice award at the entomology and plant pathology graduate student association (EPPGSA) research symposium, OSU; (4) outstanding master's student in leadership and service; (5) MICAH scholarship for research and work with the elderly; (6) accepted to Ph.D. program at the University of Washington to conduct research on wolves.

Jorge Lightfoot – (1) continuing to meet program requirements for the Ph.D. in Microbiology;

Milecia Matthews – (1) completed Master of Science degree in Aerospace Engineering, May 2016; (2) accepted employment in industry.

Danielle Perryman – (1) continuing to meet program requirements for the M.S. degree in Integrative Biology, with a minor in Avian Biology.

Allison Potts-Sherier – (1) completed requirements for the Master of Science degree in forensics; (2) accepted to the Ph.D. program at the University of North Texas.

Former Scholar/BD Fellow Accomplishments

Scholars who have completed degree requirements, accepted employment in industry and/or continue with graduate programs are highlighted in.

STAFF TRAINING AND DEVELOPMENT

OK-LSAMP support staff is an integral part of the program. Project staff continually seek professional opportunities. Highlights include, but are not limited to:

Kay Porter, State Program Director, Oklahoma State University: (1) Co-Director for Scholars in Science: Native American Path (SSNAP); (2) served on the planning committee for the Oklahoma EPSCoR Women in Science Conference; (3) member, Oklahoma State University Native American Faculty and Staff Association; (4) council member, OSU Alumni Council and Alumni Leadership Council, representing the American Indian Alumni Association; (5) attended the 2015 NSF Louis Stokes Midwest Center for Excellence (LSMCE) conference, Indianapolis, IN; (6) judge for the 2016 FCCLA district and state competition, Stillwater, Oklahoma; (7) attended Oklahoma Research Day, Tahlequah, Oklahoma; (8) attended the National SACNAS conference in Washington, D.C.; (9) attended the National LSAMP meeting, Washington, D.C.; (10) attended the National Conference on Undergraduate Research, Asheville, NC; (10) coordinated grant with LSU and CSU on International mentoring; (11) Retired July, 2016.

Fara Williams, Grant Coordinator, left her position to assume responsibilities as Program Director for the Kentucky-West Virginia Alliance.

Darlene Croci, Grant Coordinator, (1) assumed responsibilities in August, 2015; (2) attended the 2015 NSF Louis Stokes Midwest Center for Excellence (LSMCE) conference, Indianapolis, IN; (3) attended the 2016 National LSAMP meeting, Washington, D.C.; (4) served as judge for the Oklahoma FCCLA district competition; (5) attended Oklahoma Academy of Sciences, Fall Technical Meeting, Oklahoma City, OK; (6) attended Oklahoma Research Day, Tahlequah, OK; (7) coordinated grant with LSU and CSU on International mentoring conference.

Brenda L. Morales, (1) State Program Director, Oklahoma State University, accepted responsibilities in July 2016, replacing Kay Porter.

EVALUATION PROCEDURES

Sandra Whalen, Director for the Center for Institutional Data Exchange and Analysis, located on the University of Oklahoma campus, Norman, Oklahoma, served as the OK-LSAMP outside evaluator for the Oklahoma Louis Stokes Alliance for Minority Participation program.

APPENDIXES

APPENDIX A

HEED AWARD



Fourth year for OSU to receive the award.

The INSIGHT Into Diversity HEED Award, open to all colleges and universities throughout the U.S., measures an institution's level of achievement and intensity of commitment in regard to broadening diversity and inclusion on campus through initiatives, programs and outreach; student recruitment, retention and completion; and hiring practices for faculty and staff.

APPENDIX B

OSRHE SUMMER ACADEMIES

science • technology • engineering • math

SUMMER ACADEMIES



FREE for students in the 8th-12th grade.

Provides students the opportunity to **explore** an Oklahoma college or university for a unique, hands-on learning experience.

Academies are for **all students!** Just be willing to participate and challenge yourself in a fun and exciting learning environment.

Registration opens March 1 and many camps fill up quickly. **Apply early!**



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**SUMMER
ACADEMIES**

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APPENDIX C

21st ANNUAL RESEARCH SYMPOSIUM

Stillwater, OK

Louis Stokes Alliance For Minority Participation

OKLAHOMA



21 Years of Impact
1994-2015



National Science Foundation



Keynote Speaker
Dr. Virginia Swindell

Keynote Speaker
Dr. Kathleen Kaplan



Prize Winners

Posters

Life Sciences Poster:

1st Place - Natalie Santa-Pinter

2nd Place - Andres Guerrero

3rd Place - Natalie Ruiz Castillo

3rd Place - Joana Pantoja



Oral Presentations

1st Place - Susan Pham

2nd Place - Blake Chancellor

3rd Place - Kathryn Secrist

Prize Winners

Posters

Non-Life Sciences Poster:

1st Place - Ariel Cross

2nd Place - Skyler Calhoun

3rd Place - Alicia Aguilar

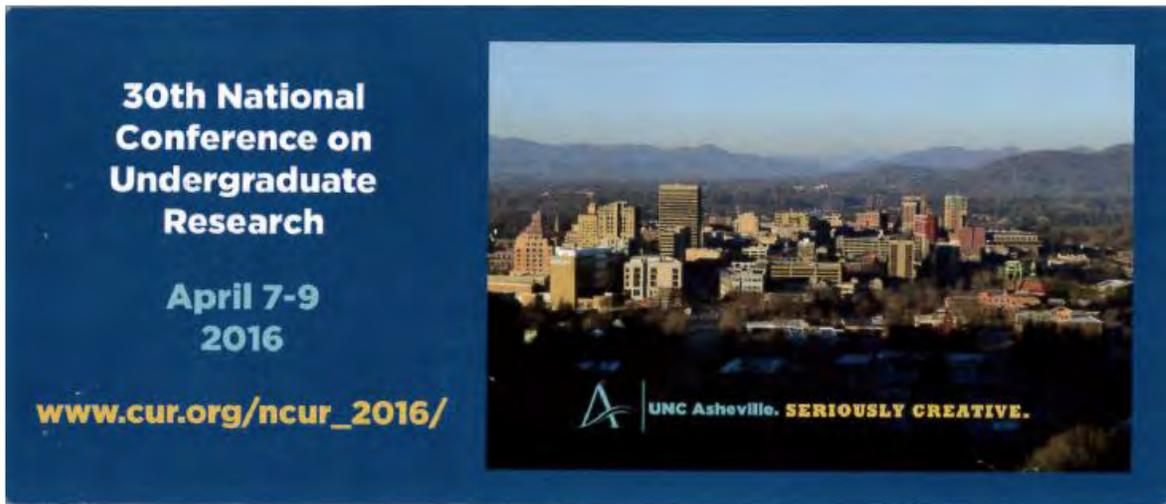
3rd Place - Mathew Maxwell



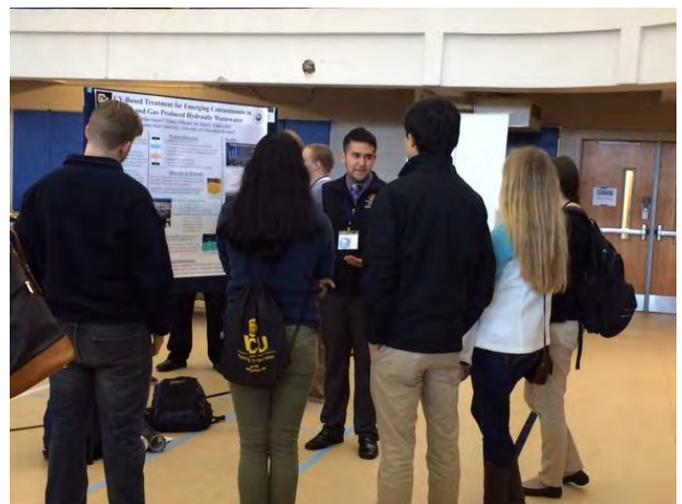
APPENDIX D

NATIONAL CONFERENCE ON UNDERGRADUATE RESEARCH (NCUR)

University of North Carolina
Asheville, NC



Recruiting and representing OSU at NCUR



Adrian Saenz presenting his poster



OSU Scholar presenting her poster at NCUR



Scholars from various OK-LSAMP institutions at NCUR



APPENDIX E

LOUIS STOKES MIDWEST CENTER OF EXCELLENCE

Indianapolis, IN

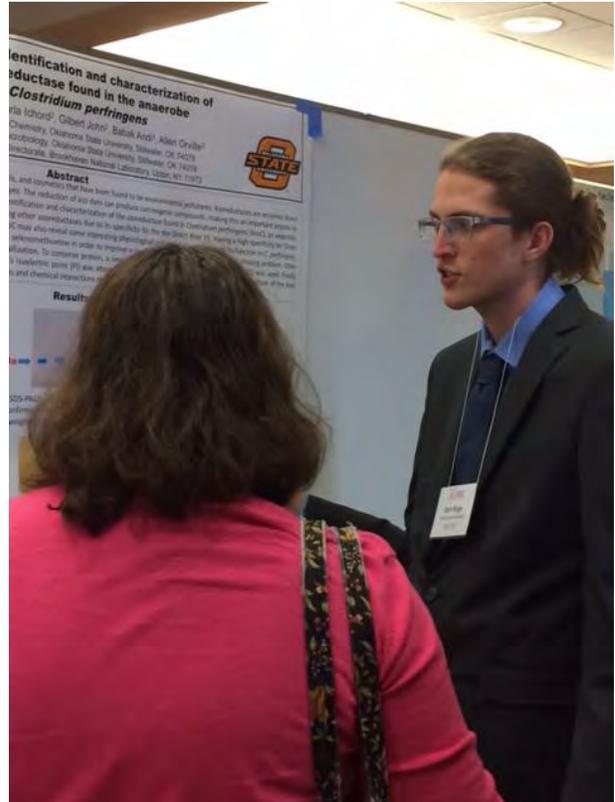
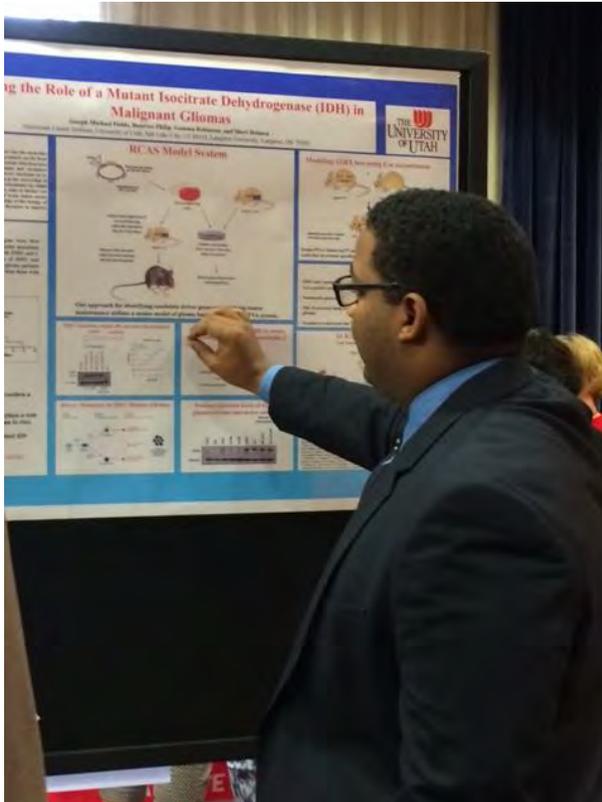


2015 LSMCE Conference Accelerating Diverse Talent Along the STEM Pipeline

October 23-25, 2015 • Wyndham Indianapolis West, Indianapolis, Indiana



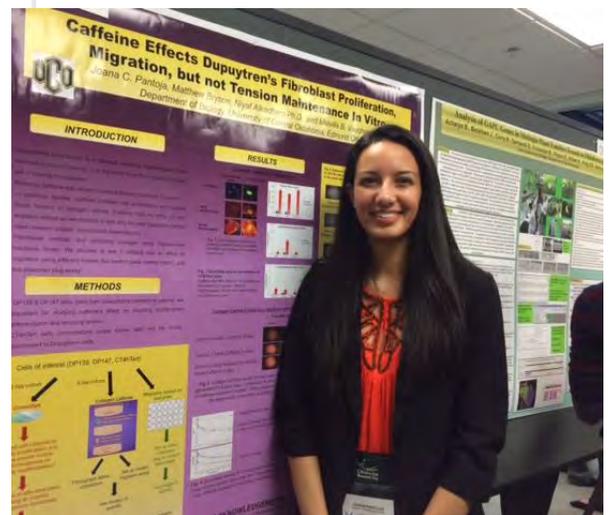
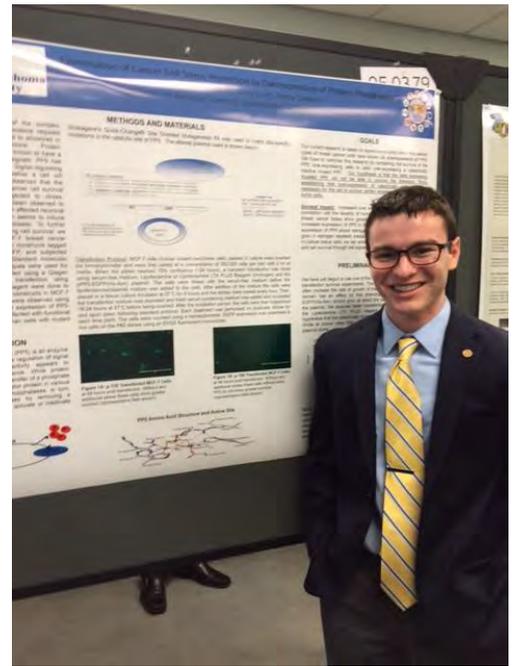
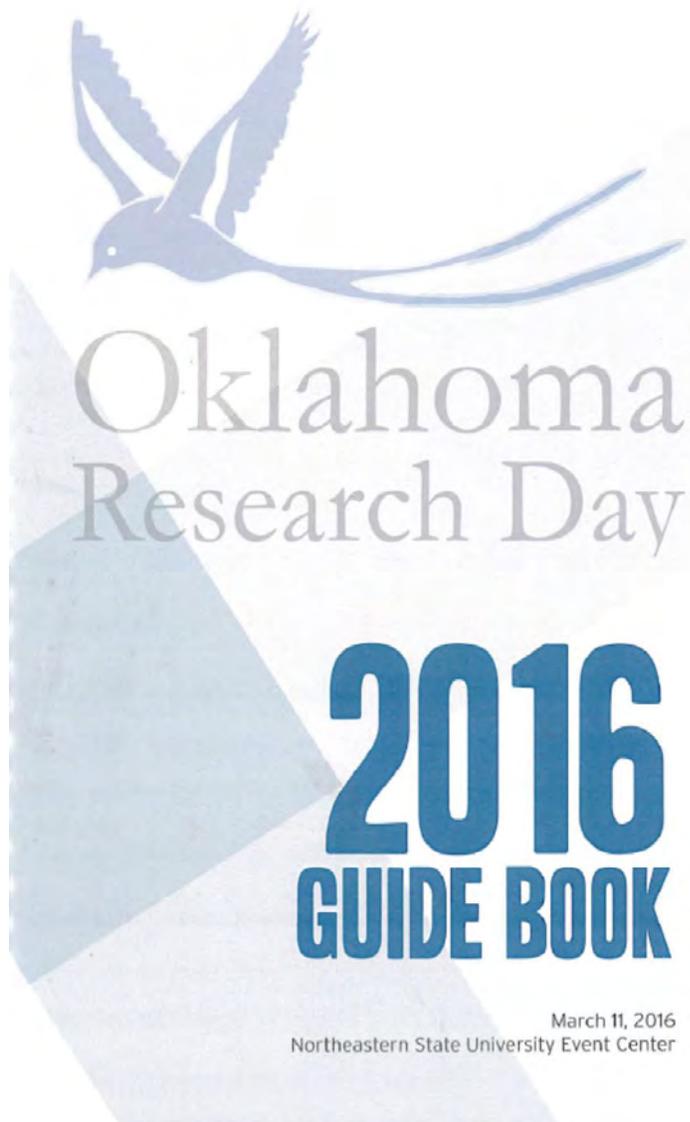
Sponsored by the National Science
Foundation Award #1202563



APPENDIX F

OKLAHOMA RESEARCH DAY

Northeastern State University
Tahlequah, OK



APPENDIX G

RESEARCH DAY AT THE CAPITOL

Oklahoma City, OK

OKLAHOMA
EPSCoR Presents:

21ST ANNUAL
Research
DAY AT THE CAPITOL
MARCH 29, 2016



*Celebrating exceptional undergraduate research
conducted by students representing Oklahoma's
outstanding colleges and universities*



Oklahoma NSF EPSCoR is funded through awards from the National Science Foundation under Grant No. IIA-1301789 and Oklahoma State Regents for Higher Education.

 **21ST ANNUAL RESEARCH DAY AT THE CAPITOL**

TUESDAY, MARCH 29, 2016 * STATE CAPITOL OF OKLAHOMA * OKLAHOMA CITY, OK

PROGRAM OF EVENTS

- 7:00 a.m.** **Student Researchers Check In** (*Rotunda, 4th Fl.*)
- 8:00 a.m.** **Poster Competition Judging Begins** (*Rotunda, 4th Fl.*)
- 8:00 a.m. - 12:45 p.m.** **Scientific Posters on Exhibit** (*Rotunda, 4th Fl.*)
- 11:15 am. - 12:30 p.m.** **Lunch On-the-Go** (*Rotunda, 4th Fl.*)
- 11:30 a.m.** **Poster Competition Judging Concludes**
(*Time Approximate*)
- 12:00 p.m.** **Group Photo on Grand Staircase**
Students, Legislators, Faculty Mentors
(*Time Approx. per Capitol Photographer's Availability*)
- 1:00 p.m.** **Award Ceremony** (*Blue Room, 2nd Fl.*)
Dr. Raymond L. Huhnke, OK NSF EPSCoR Project Director
Dr. Jerry R. Malayer, OK EPSCoR State Director
Dr. Glen D. Johnson, Chancellor of Higher Education
- 1:45 p.m.** **Adjourn**



Special thanks to our poster competition judges:

Dr. Jon Biermacher, Mr. Casey Harness, Dr. Courtney Montgomery, and Dr. Brian O'Dell

Event Sponsors:





Student Participant List & Poster Guide

Poster #	Exhibitor Name	University	Scientific Research Topic	Hometown
1	Oklahoma NSF EPSCoR	Statewide	Climate Variability Research & STEM Education/Outreach	
2	Mr. Lucas J. Adams	Oklahoma Baptist University	Predictive Modeling	Oklahoma City
3	Mr. Dylan Allen	Rogers State University	Obesity Research	Claremore
4	Mr. James M. Brown	Northeastern State University	Cancer Research	Tulsa
5	Ms. Jordan Cox	Tulsa Community College	Neuronal Primary Cilia	Tulsa
6	Mr. Joseph-Michael Fields	Langston University	Cancer Research	Ardmore
7	Mr. Michael-Joseph Gorbet	Southwestern OSU	Catalysis	Weatherford
8	Mr. Aamr Hasanjee	University of Central Oklahoma	Cancer Treatment	Edmond
9	Ms. Megan Knight	Southeastern OSU	Ecological Health of Streams	Caddo
10	Mr. Dakota W. Nail	Connors State College	Spider Diversity	Muskogee
11	Ms. Victoria L. Nevaquaya	Comanche Nation College	Rheumatoid Arthritis Treatment	Apache
12	Ms. Mary Katherine Maraschick Randolph	OKC Community College	Cancer Research	Oklahoma City
13	Mr. Jared R. Stokes	Cameron University	Vertebrate Ecology	Lawton
14	Ms. Morgan Taylor	College of the Muscogee Nation	Water Quality	Morris
15	Mr. Chase W. Tillar	East Central University	Sound Waves	Ada
16	Ms. Carol Abraham	Oklahoma State University	Cardiac Regeneration Therapy	Stillwater
17	Mr. Skylar J. Gathoun	University of Oklahoma	Seismic Hazard Mitigation	Norman
18	Ms. Angela Gibbons	OU Health Sciences Center	Breast Cancer	Duncan
19	Ms. Samantha Grider	Oklahoma State University	Genetic Disorders	Shawnee
20	Mr. Austin Jorski	The University of Tulsa	Cancer Research	Oklahoma City
21	Mr. Logan Kunka	Oklahoma State University	Aerospace 3D Printing	Owasso
22	Mr. Samuel Laney	The University of Tulsa	Robotic Muscle	Tulsa
23	Ms. Christian Ley	Oklahoma State University	Water Quality & Renewable Energy	Broken Arrow
24	Ms. Rosemary Pope	OU Health Sciences Center	Malaria Research	Tulsa
25	Mr. Cole Emmett Townsend	University of Oklahoma	Cancer Research	Ada



APPENDIX H

NATIONAL CONFERENCE:
SOCIETY FOR THE ADVANCEMENT OF CHICANOS AND NATIVES IN THE SCIENCES

Washington, D.C.



APPENDIX I

SCHOLARS IN SCIENCE:
NATIVE AMERICAN PATH
(SSNAP)



SSNAP

Scholars in Science:
NATIVE AMERICAN Path

Mentoring

*Science Scholars: The Native American Path
(SSNAP)*



“SSNAP IS VERY EFFECTIVE BECAUSE IT PAIRS UP STUDENTS BASED ON YEAR. SO FOR ME, AS A FOURTH-YEAR GRADUATE STUDENT, SSNAP IS ABOUT REACHING OUT AND GIVING BACK TO UNDERGRADUATE STUDENTS—GUIDING THEM AND TEACHING THEM WHAT I LEARNED.”

—David Supeck (Cherokee), PhD student, Oklahoma State University—Center for Health Sciences

Oklahoma State University graduate student David Supeck first learned about internship opportunities with the National Institutes of Health (NIH) at 2012 SACNAS when he attended the conference with his SSNAP cohort. “The NIH has an outstanding reputation and does world-class science,” Supeck said. He knew that it was extremely competitive to get accepted as an NIH intern and that’s where the mentoring component of SSNAP was essential. “SSNAP gave me a lot of support during the application process, from mentoring to writing to tips you need to follow.” David was accepted as an NIH Intramural Research Training Award Fellow for summer 2013 in the lab of Dr. Brian Kelsall at the National Institute of Allergy and Infectious Diseases. “It was the perfect fit,” Supeck says, “and I felt like I was prepared, which gave me even more confidence. The experience at NIH was truly remarkable and very inspiring.”

Photo courtesy of Oklahoma State University Center for Health Sciences



Since the award was established by the White House in 1995, 17 SACNAS members and SACNAS itself have won the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM).

This accomplishment is testament to the strong tradition of mentoring that has coursed through SACNAS since its founding.

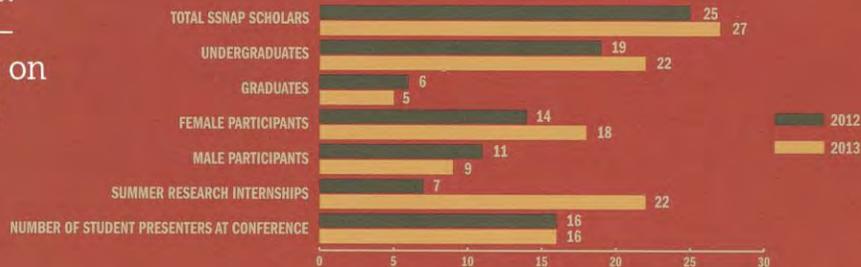
The latest iteration of SACNAS mentoring is the development of Science Scholars: The Native American Path (SSNAP), a year-round effort to facilitate continual mentorship, workshops, networks, and support that fully engages American Indian undergraduate and graduate students in science. In its second year of programming at the pilot institution, Oklahoma State University, students are mentored to prepare an effective abstract, develop professional networks among peers and mentors, apply to and succeed in research programs, and receive support to attend the SACNAS National Conference.

THEN: SACNAS founding member Dr. Vernon Avila (*far right*) works with students in his lab at San Diego State University in the late '70s.

NOW: Graduate student Cynthia Oronoa (*Mississippi Band of Choctaw*) works in the lab with SSNAP mentor Dr. Gilbert John (*Navajo*) at Oklahoma State University.

FAR LEFT: Graduate student David Supeck (*Cherokee*) in the lab at Oklahoma State University.

Analysis: SSNAP— building on success



Get Involved

Annabel Ortiz
Program Manager,
SACNAS Department
of American Indian
Affairs

831-459-0170, ext. 2
annabel@sacnas.org



APPENDIX J

WOMEN IN SCIENCE CONFERENCE

Tulsa, OK



WOMEN IN SCIENCE CONFERENCE

TUESDAY, OCTOBER 13, 2015 * MABEE CENTER, TULSA, OK

PICTURE YOURSELF IN...



- S** SCIENCE
- T** TECHNOLOGY
- E** ENGINEERING
- M** MATHEMATICS



NSF AWARD NO. IIA-1301789 * WWW.OKEPCOR.ORG * 405.744.9964



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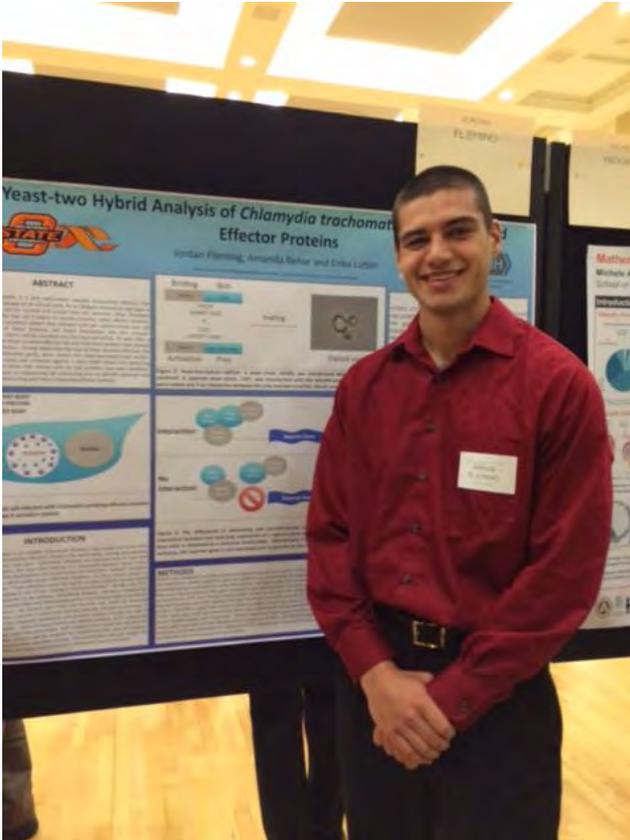
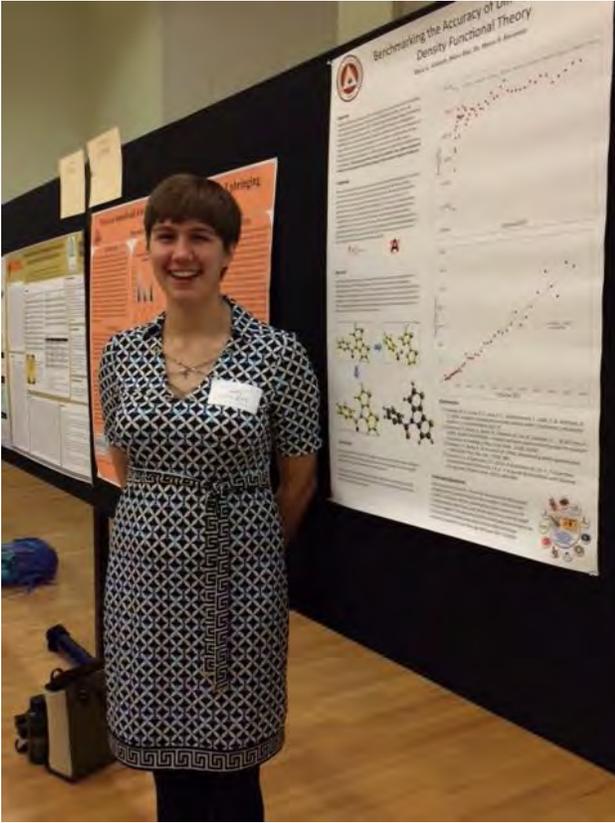
APPENDIX K

WENTZ SCHOLAR RESEARCH PRESENTATIONS

Stillwater, OK



The
**Lew Wentz
Foundation**
at
Oklahoma State University



APPENDIX L

SCHOLAR AND BD FELLOW HIGHLIGHTS



March 25, 2016

INSIDER

From OSU Communications



OK-LSAMP Gives Opportunity to Minority STEM Students

By: ALEX MARIANOS

The Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) brings together Oklahoma colleges and universities to develop programs increasing the number of under-represented populations earning degrees in science, technology, engineering and mathematics (STEM).

Oklahoma State University serves as the lead institution for OK-LSAMP, which includes 10 other Oklahoma higher education institutions.

Kay Porter, program manager, helps recruit and mentor students who are involved in OK-LSAMP at Oklahoma State. The LSAMP program which is funded by the National Science Foundation has been in existence in Oklahoma since 1994.

"As the lead institution, we write all the research proposals and subcontract with the other 10 Oklahoma higher education

institutions," Porter said.

LSAMP works in five-year grant rotations. These grants go to minority students who are majoring in STEM degree programs and involved in LSAMP. Dependent upon how much work and research the student does, they receive a debt-reducing stipend to go toward student loans and paying off their education.

"The program helps students find summer internships and research opportunities at prestigious institutions like Harvard, Mayo Clinic and MIT," Porter said. "Some students are even able to work abroad during their research internship."

Nick Means, a December 2015 microbiology graduate and past member of OK-LSAMP, had an incredible journey with OK-LSAMP. He was able to complete a six-month research internship in France and attributes all of his opportunities to Porter and OK-LSAMP.

"From day one in the program, it has busted open doors for me," Means said. "I would not be where I am today



OSU LSAMP student Katie Schwartz spent last summer helping a graduate student collar and track black bears for a research project on the animal's population in southeastern Oklahoma.

Means has been working as the OSU microbiology department webmaster in anticipation of joining the OU Health Sciences doctoral program in August 2016.

"It was my two research experiences and the crazy story of how I got involved in OK-LSAMP that made me a stand-out candidate for the doctoral program and it was Kay Porter who pushed me to seize all of the opportunities," Means said.

There is no deadline for minority students to apply for OK-LSAMP, but the sooner they apply, the sooner students can begin reaping



Sandra Whalen
OK-LSAMP Evaluator

Miaomiao Rimmer
Project Assistant

University of Oklahoma
Center for Institutional Data
Exchange and Analysis

Oklahoma Louis Stokes Alliance for Minority Participation

Annual Evaluation Report

Summer 2015 through Spring 2016

Introduction

Oklahoma was awarded funding from the National Science Foundation for a five-year continuation of the Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) program. Oklahoma State University serves as the lead institution for the alliance of 11 universities within the state, and the funding cycle covers FY2014 – 2019. This evaluation includes results from the second year of the five-year phase (summer 2015 through spring 2016).

This phase of funding represents Oklahoma's 22nd year of participation in the national LSAMP efforts to increase participation and graduation among underrepresented minority (URM) students in STEM disciplines (Science, Technology, Engineering, and Mathematics). For the purposes of the OK-LSAMP program and this evaluation, underrepresented minority students include Black or African American, Hispanic/Latino, American Indian or Alaska Native, and Native Hawaiian or Other Pacific Islander undergraduates.

Purpose of the Evaluation

The OK-LSAMP program has specific goals and objectives that guide their activities throughout the year. The Center for Institutional Data Exchange and Analysis (C-IDEA) at the University of Oklahoma has prepared this annual report to assess the progress of the program toward meeting its goals and objectives. This formative evaluation is an important component of the program as it offers timely feedback about program progress toward meeting its goals, which then allows time for future adjustments to activities, processes, and procedures if needed. The annual report provides information on the activities and accomplishments of OK-LSAMP scholars participating in the program and offers insights into areas of success as well as others that may need improving.

Evaluation Process

This evaluation includes both quantitative and qualitative components using four key sources of data. The results are described in five sections of the report.

- Section 1: Data on the activities and accomplishments of students participating in the program were provided by OK-LSAMP Program Manager, Brenda Morales, and Grant Coordinator, Darlene Croci. It includes data provided by each of the 11 Alliance institutions and offers insights into the progress of the OK-LSAMP scholars.
- Section 2: The Center for Institutional Data Exchange and Analysis prepared two online Qualtrics surveys which were emailed to OK-LSAMP scholars using a list provided by the OK-LSAMP program office. This section includes both quantitative and qualitative results of the survey.
- Section 3: The Center for Institutional Data Exchange and Analysis prepared two online Qualtrics surveys which were emailed to OK-LSAMP coordinators to obtain feedback about the program.
- Section 4: National STEM data were provided by the Center for Institutional Data Exchange and Analysis.
- Overall Report Summary

Section 1: OK-LSAMP Results Based on Data from Program Office

Introduction

The primary goal for this five-year phase of the OK-LSAMP program is as follows:

to recruit and retain an additional 50 percent underrepresented minority students in undergraduate STEM fields over the life of the project.

This goal pertains to all STEM students in higher education in Oklahoma; however, increased participation of students in the OK-LSAMP program results in more STEM students statewide, thus helping to meet this overall goal. This report addresses the progress of OK-LSAMP students specifically.

Three objectives have been identified by the program to help reach its goal of increasing STEM participation of underrepresented minority students by 50 percent.

- Objective 1: *To recruit, retain, and graduate 50% more URMs in STEM fields and increase their matriculation into graduate programs.*
- Objective 2: *To provide the support students require, academically and professionally, to ensure they build the connections, skills, and motivation to excel.*
- Objective 3: *To expand and facilitate opportunities for international research experiences and engagement so at least 25% of Alliance Scholars gain international experience.*

The Alliance has realized success over the past 20 years in obtaining its goals of graduating URM STEM students who are prepared to enter graduate studies or industry. This five- year phase aims to continue these achievements.

This section of the evaluation uses data on alliance scholars as provided by the OK-LSAMP program office. We address the primary goal of the program as well as the three objectives. To determine whether or not the goal of 50 percent increase in URM students was met, we used the number of OK-LSAMP URM graduates from the 2013-2014 evaluation period as our baseline since those were the data available at the beginning of this five-year phase. During the summer 2013 through spring 2014 evaluation period, 59 OK- LSAMP scholars graduated and, of those, 81% (48) were URM students.

In order to meet the 50 percent goal over the five-year period, the program must attain at least a 10 percent increase in URM STEM graduates each year. If approximately five more URM students graduate per year—with a total of 72 graduating in the final year of the five-year period—the Alliance will have met its goal. Since this is the second year of this phase, the Alliance should graduate 20% more URM students during this evaluation period than the baseline number (48). Therefore, if 58 URM students graduated during the period covered in this evaluation, the Alliance will be on target to attain the five-year goal of 50 percent increase in URM STEM graduates.

Participants

The Alliance is dedicated to providing academic, personal, and professional support for its

students to help them excel in STEM fields. This report examines the ability of the Alliance to achieve its goals during the period of the summer of 2015 through spring 2016. As previously noted, the program is specifically focused on recruiting underrepresented minority (URM) students—Blacks, American Indians, Hispanics, and Hawaiian or Pacific Islanders—but students of other race/ethnicities may also participate. The breakdown by race/ethnicity and class standing of students who participated during this period may be seen in Table 1.

Table 1: *Class Standing and Ethnicity – Summer 2015 through Spring 2016*

Standing	URM	Other	Total
Freshman	8	0	8
Sophomore	20	0	20
Junior	35	2	37
Senior	132	24	156
TOTAL	195	26	221

In the program year under review, the Alliance supported 221 students: 156 seniors, 37 juniors, 20 sophomores, and 8 freshmen. Of these participants, 88% (195 of 221) were underrepresented minority students. Participation of students by class standing and institution is displayed in Table 2.

Table 2: *Participants by Partner Institution – Summer 2015 through Spring 2016*

Institution	Freshman	Sophomore	Junior	Senior	Total URM	Total Non-URM	Total Scholars
CU	0	1	1	11	12	1	13
ECU	1	1	4	7	11	2	13
LU	0	0	4	23	25	2	27
NEOSU	0	1	1	5	7	0	7
NWOSU	0	1	0	3	1	3	4
OSU	3	8	16	57	78	6	84
OU	0	0	1	26	16	11	27
SEOSU	0	2	2	8	12	0	12
SWOSU	0	0	1	6	6	1	7
TU	4	3	4	5	16	0	16
UCO	0	3	3	5	11	0	11
TOTAL	8	20	37	156	195	26	221
Total Percentage	4%	9%	17%	70%	88%	12%	100%

Although the majority of students in the program are juniors or seniors, the Alliance also supports freshmen and sophomores in an effort to encourage these students to move forward with a STEM degree. The data in this section of the report includes all students participating in the OK-

LSAMP program during the specified period, regardless of classification or race/ethnicity.

Alliance Wide Goal and Objectives

The primary goal of the OK-LSAMP program is *to recruit and retain an additional 50 percent underrepresented minority students in undergraduate STEM fields over the life of the project*. They hope to attain this goal by meeting three objectives.

- Objective 1: *To recruit, retain, and graduate 50% more URMs in STEM fields and increase their matriculation into graduate programs.*
- Objective 2: *To provide the support students require, academically and professionally, to ensure they build the connections, skills, and motivation to excel.*
- Objective 3: *To expand and facilitate opportunities for international research experiences and engagement so at least 25% of Alliance Scholars gain international experience.*

In order to maximize the success of students through their undergraduate degree, and to help ensure their success in applying to graduate school, the Alliance determined that it would strive to assist students in a number of ways, including the following:

- Provide STEM faculty mentors
- Require minimum cumulative GPA of 3.0 for participation
- Offer regular group meetings at Alliance institutions
- Encourage summer internships
- Provide online GRE prep course, help with applying to graduate programs, and require scholars to submit a minimum of three graduate school applications
- Host annual Research Symposium and encourage participation in other professional meetings
- Offer financial assistance, workshops, and assistance in obtaining international internships

Results – Graduates

The Alliance fell short of its goal of increasing by 10% annually the number of URM students who achieved a baccalaureate degree in a STEM field and were eligible for graduate school admission and subsequently enrollment. Over the course of this 2015-2016 evaluation period, the number of students who graduated with STEM degrees as compared to the baseline number from 2013-2014 decreased by 5%. In 2013-2014, there were 59 graduates, and in 2015-2016, the number decreased to 56. However, the number of URM students who graduated increased by 6% (48 URM graduates in 2013-2014 and 51 in 2015-2016). See the counts for the past three years in Figure 1.

Of the 56 students who graduated with a STEM degree during the 2015-2016 review period, 32% (18 students) were accepted into graduate school, and 100% of these new graduate students were underrepresented minority students. Moreover, the GPAs, internships, and research experience of the group demonstrates that there were other students that graduated who had the potential to move on to graduate STEM work.

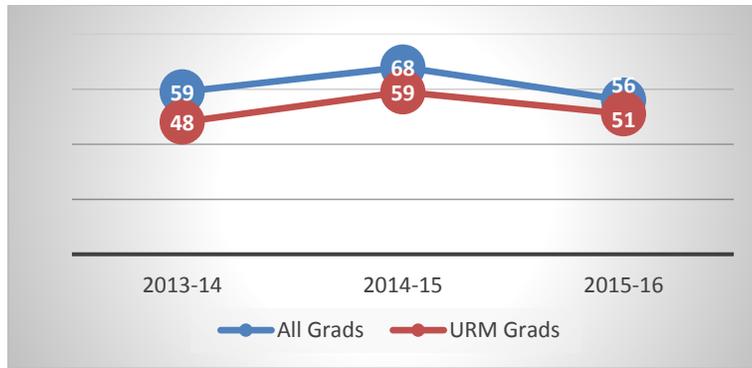


Figure 1: Graduation Counts for 2013-14 through 2015-16

We know that several graduates chose to enter the workforce rather than attend graduate school, although they were capable of pursuing a graduate degree. Although these students are not included in some of the data below, the evaluator believes the success of these students is also a reflection of the work of the Alliance.

The OK-LSAMP graduates accomplished the following:

- 36% of the OK-LSAMP seniors (56 of 156) graduated during this period with the majority of the remaining seniors continuing in the program
- 91% of the graduates (51 of 56) were URM students
- 39% of the graduates (22 of 56) took the GRE
- 32% of the graduates (18 of 56) were accepted into graduate school
- 100% of the graduates (18 of 18) who were accepted into graduate school were URM scholars
- 84% of all graduates (47 of 56) had a GPA of 3.0 or higher
- 59% of all graduates (33 of 56) had at least one full summer internship while participating in the program
- 29% of all graduates (16 of 56) had at least two full summer internships while participating in the program

Of the 16 students who had at least two summer internships while in the program, 11 scholars had two, four students had three, and one had four internships.

Results – All Scholars

Research is a significant component of the OK-LSAMP program that provides an opportunity to develop research skills and build relationships with faculty members. The OK-LSAMP office regularly sends emails to scholars on the list serve informing them of research opportunities and summer internships. OK-LSAMP participants are encouraged to apply to graduate school and are offered support during the process.

Below are the results of the Alliance-wide efforts in providing opportunities for the participants to be successful in their graduate school applications.

- 16% of the junior and seniors scholars (31 of 193) took the GRE or other graduate school entrance exam
- 39% of the fall 2015 students (73 of 185) participated in research that semester
- 44% of the spring 2016 students (86 of 194) participated in research that semester
- 45% of students (73 of 162) who were in the program through summer 2015 participated in an internship that summer
- 11% of the students (16 of 151) who participated in spring 2016 and were planning to continue to the fall 2016 semester were scheduled for summer 2016 internships

In addition to the above data, we looked at how the OK-LSAMP program is meeting the OK-LSAMP objective 3, which focuses on expanding opportunities for international research so that 25% of the scholars will gain international experience while in the program. Based on the data received by the program office, only 4% (8 of 221) of the scholars have international experience, which includes study abroad and internships. If students are unable to go abroad, this objective may also be met if scholars participate in an internationally focused research internship. There may be additional students who fall into this category that were not included in the data received by the evaluator.

Summaries on how each individual Alliance partner contributed to the OK-LSAMP goals can be found in Appendix 1.

Section 2: OK-LSAMP Online Student Survey

The Center for Institutional Data Exchange and Analysis at the University of Oklahoma launched two online surveys—December 9, 2015 and April 13, 2016—using Qualtrics. Each survey was open for two weeks and two emails were sent to each potential survey respondent. The email addresses were provided by the OK-LSAMP program office and contained the names on their list serve, which included students currently in the program, and some former students who expressed a desire to remain on the list serve. The fall 2015 list included 270 email addresses, and the spring 2016 list included 256 names. Because the survey was targeted to students currently participating in the OK-LSAMP program, the first question on the surveys asked if the respondent were a current participant in the program. If the answer was no, their survey ended and they were unable to participate.

The majority of the questions in the survey were related to OK-LSAMP Objective 2, which is to provide the support students require, academically and professionally, to ensure they build the connections, skills, and motivation to excel.

The response rate for the fall 2015 survey was 12% (31 of 270). They includes students from nine of the 11 OK-LSAMP universities. The largest response (45%) came from Oklahoma State University, who had 38% of the OK-LSAMP scholars during the 2015-2016 year. Table 3a provides the number of students who responded from each institution.

Table 3a: *Student Affiliation of Survey Respondents, Fall 2015 Survey*

Institution	#of Respondents
CU	3
ECU	1
LU	1
NEOSU	0
NWOSU	2
OSU	14
OU	0
SEOSU	1
SWOSU	2
TU	6
UCO	1
Grand Total	31

The survey response from the spring 2016 survey was 17% (44 of 256). They represent students from ten of the 11 OK-LSAMP universities. The majority of the respondents (55%) were from Oklahoma State University. Table 3b provides the number of students who responded from each institution.

Table 3b: *Student Affiliation of Survey Respondents, Spring 2016 Survey*

Institution	#of Respondents
CU	3
ECU	1
LU	3
NEOSU	0
NWOSU	1
OSU	24
OU	1
SEOSU	3
SWOSU	1
TU	2
UCO	5
Grand Total	44

In the fall 2015 survey, more than half of the respondents—74% (23 of 31)—began in the OK-LSAMP program before summer 2015, and 94% (29 of 31) were attending their original institution of entry. Two students reported transferring from these institutions: University of Maryland University College and Community College of Colorado.

In the spring 2016 survey, 86% (38 of 44) began in the OK-LSAMP program before spring 2016, and 91% (40 of 44) were attending their original institution of entry. Four students reported transferring from these institutions: Redlands Community College, Tulsa Community College, University of Maryland University College, Oklahoma Wesleyan University.

Recruitment is essential to the growth of the OK-LSAMP program. Students reported the top sources for learning about the OK-LSAMP program were professors, campus recruitment, current participants, and friends or family. The specific programs mentioned were: McNair, TU-STEM-UP, Citizen Potawatomi Nation newspaper, Multicultural Engineering Program at OU, and the RISE program.

Survey Results

The OK-LSAMP program has several strategies in place to help ensure that the objectives are met and the scholars receive the support needed to be successful. The questions on the survey were related to the scholars' experiences with the following aspects of the OK-LSAMP program: attendance at meetings, progress reports, mentoring, the fall 2015 OK-LSAMP Research Symposium and other professional meetings, summer internships, graduate school preparation, and interest in future workshops. Below are the findings, grouped by category.

Regular Meetings

OK-LSAMP scholars are required to attend meetings with program staff at least twice per semester, and encouraged to participate in additional meetings as well. These meetings are organized by each Alliance institution's OK-LSAMP coordinator. Topics in these meetings typically include time management, presentation ideas, graduate school preparation tips, and other matters related to helping the students succeed in their STEM studies. Guest speakers are also a

common feature of these meetings.

Of the 30 students who answered the question on the fall 2015 survey related to attendance at meetings, 90% (27 students) attended at least one meeting and 53% (16 students) attended five or more. Attendance numbers decreased based on the spring 2016 respondents who answered this question. In the spring semester, 80% (32 of 40 students) attended one or more group meetings and 35% (14 of 40 students) attended five meetings or more. For students who did not attend meetings, the main reasons given was that they were not in the program at the time. Appendix 2 provides a list of survey responses related to group meetings.

The helpfulness of the meetings was ranked from 1 to 5 with 5 being the most helpful. The mean score was 4.32 for the fall 2015 meetings and 4.26 for the spring 2016 meetings, indicating that the majority of students thought these meetings were helpful. Figure 2 shows the scholars' responses to how helpful they felt the meetings were for them.

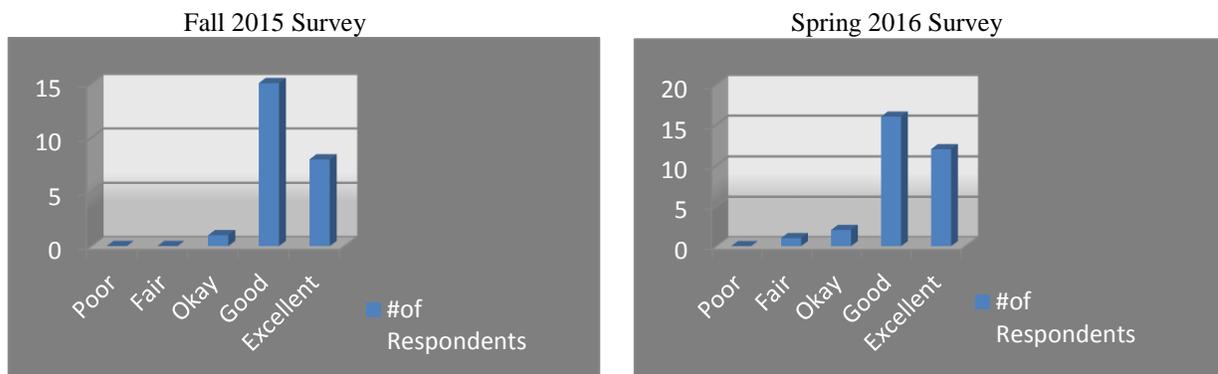


Figure 2: Helpfulness of the Meetings

Mentor Support

One important component of support is providing mentoring for the students. Faculty mentors are key in helping OK-LSAMP students succeed. They work with the students on research projects, encourage them to participate in summer internships, and help them with graduate school decisions.

Of the 30 students who responded to the question pertaining to mentors, 77% of the fall respondents (23 students) indicated that they had a mentor, and the percentage increased to 78% in spring 2016 (32 of 41 students). In fall 2015, all 23 students met with their mentors one-on-one at least once, and 57% (13) of these students met with the mentors more than five times during the fall semester. In spring 2016, the results were very similar: 97% (31 out of 32) of the students met with their mentor at least once, and 44% (14 out of 32) met with them more than five times.

In addition to questioning the students about how often they met with their mentors, we also asked the scholars to rate their mentors on how helpful they were, based on an A-F scale. Out of 23 students who responded to this question in fall 2015, all of them gave their mentor an A or B. In the spring 2016 survey, 87% (27 out of 31) rated the mentors an A or B, and 13% (4 of 31) rated C, D and F. The results of this question on the survey are provided in Table 4.

Table 4: *Helpfulness of the Mentors*

Fall 2015 Survey

Spring 2016 Survey

Score	#of Respondents
A	17
B	6
C	0
D	0
F	0

Score	#of Respondents
A	26
B	1
C	2
D	1
F	1

Appendix 3 provides students' comments related to experiences with their mentors, including how they were helpful and how they could improve.

Progress Reports

OK-LSAMP scholars are required to submit progress reports to the OK-LSAMP coordinators at each Affiliate campus each semester that they participated in the program. In fall 2015, 57% of the students reported that they were asked by their coordinator to submit a progress report, while in spring 2016, this percentage decreased to 44%.

Research Symposium and Other Professional Meetings

Participation in professional meetings is another way that the OK-LSAMP program supports its scholars. Students receive financial support for travel to present at conferences, which offers them experience in a professional setting and opportunities for networking with other STEM students.

The OK-LSAMP Research Symposium is a full-day, statewide symposium held each fall to provide an opportunity for scholars to participate in a professional meeting. Students who have conducted research are required to present either an oral or poster presentation highlighting their research. Scholars may also serve as moderators or volunteers at the event. Attendance at the symposium is required for all scholars, regardless of whether they are presenting. In the fall 2015 survey, 78% (21 of 27) of the students who responded to the question attended, and 76% (16 of 21) of these students presented.

Of the 26 students in the fall 2015 survey who responded concerning participation in other professional meetings, 62% (16 scholars) reported they attended other meetings during summer or fall 2015. Of these, 31% (5 students) attended three or more professional meetings during this time, 63% (10 students) reported that they received financial assistance from OK-LSAMP to attend the meetings, and 50% (8 students) presented at the meetings. The eight students who presented at these meetings reported an average number of presentations as three.

Forty-two percent (16 of 38) of the spring 2016 respondents to this question attended other meetings during the semester. Of those 16 scholars, 13% (2 students) attended three or more professional meetings, 44% (7 students) reported they received financial assistance from OK-LSAMP to attend the meetings, and 69% (11 students) presented at the meetings. The 11 students who presented at these meetings reported an average number of presentations as two.

Internship Participation

Another aspect of the OK-LSAMP program that prepares students for future graduate school or industry employment is the opportunity to participate in summer internships. The program requires students to apply for a minimum of five summer internship programs annually.

When asked about their internship experiences, 96% of the respondents in the fall 2015 survey reported they were encouraged to participate in summer internships and 92% of the spring 2016 respondents reported being encouraged to participate in a summer internship. They learned about these opportunities from a number of sources, but the majority of scholars stated that mentors and OK-LSAMP program office emails were their sources of information. Other sources included personal research, USA jobs, Office of Undergraduate Research, professors on campus, previous internship mentor, NSF REU search, mentors from MSPHD’s GEO REU program, and Hire Sooner.

Survey respondents were allowed to select more than one source. The results are seen in Figure 3.

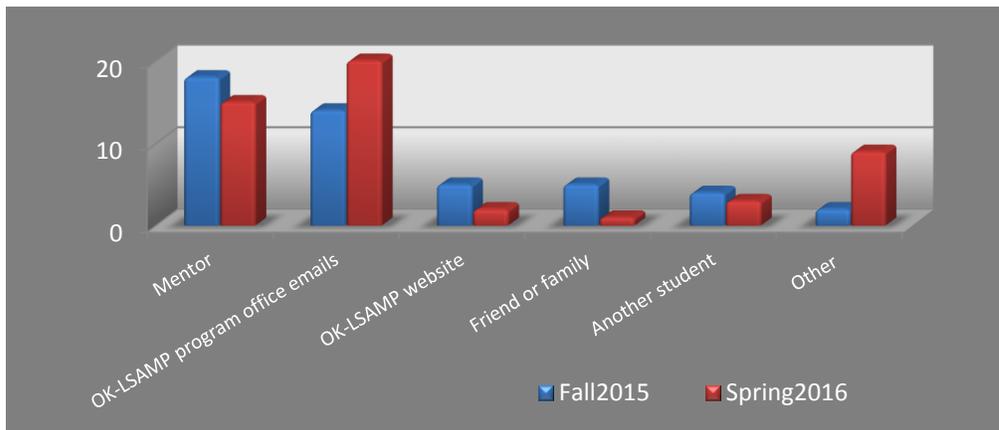


Figure 3: Sources for Learning About Internship Opportunities

Eighty-one percent (21 of 26) of the fall 2015 survey respondents indicated that they either participated in an internship in summer 2015, or were planning to do an internship in summer 2016. In the spring 2016 survey, the percentage decreased to 61% (23 of 38 students).

In the fall 2015 survey, 77% (17 of 22) of students who indicated that they were juniors or seniors participated in a summer internship during summer 2015 or 2016, as indicated in Table 5a.

In the spring 2016 survey, 65% (17 of 26) of the juniors and seniors reported that they participated in a summer internship during summer 2015 or 2016, as seen in Table 5b.

Table 5a: Junior/Senior Summer Internship Crosstabulation (Fall 2015 survey)

	Summer Internship	
	YES	NO
Junior/Senior	17	5
YES	17	5
NO	4	0

Table 5b: Junior/Senior Summer Internship Crosstabulation (Spring 2016 survey)

	Summer Internship	
	YES	NO
Junior/Senior	17	9
YES	17	9
NO	6	6

Graduate School Preparation

Preparing OK-LSAMP scholars for graduate school is a crucial component of Objective 1: *To recruit, retain, and graduate 50% more URMs in STEM fields and increase their matriculation into graduate programs.* If scholars indicated on the survey that they were either a junior or senior, we asked them a few questions related to the GRE. Of those who responded in the fall 2015 survey, 86% (19 of 22) reported that they were encouraged to take the GRE; 50% (11 of 22) received help from the OK-LSAMP program in preparing for the GRE; and 36% (8 of 22) of the scholars had already taken the GRE at the time of the survey.

Of the scholars who responded to these questions in the spring 2016 survey, 77% (20 of 26) reported that they were encouraged to take the GRE; 54% (14 of 26) received help from the OK-LSAMP program in preparing for the GRE; and 35% (9 of 26) of the scholars had already taken the GRE at the time of the survey.

Some examples of how students indicated that the program was helpful with graduate school preparation are seen below. Appendix 4 provides a full account of student responses to the survey question.

- *“Locations/directions on where to find things”*
- *“Funding and GRE prep books”*
- *“Test prep programs”*
- *“Prep class”*
- *“Information about help opportunities”*

Workshop Interest

The OK-LSAMP program is committed to conducting a Ph.D. Camp that would offer complete training on how to successfully prepare for and apply to graduate programs, and a day-long workshop each semester on international travel to provide guidance with passport and visa information and travel rules, regulations and expectations. Students who responded to questions related to these topics reported interest in participating in these opportunities.

Eighty-five percent of the scholars (22 of 26) responding to the fall 2015 survey were interested in participating in a Ph.D. Camp and the same percentage were interested in attending the workshop. The spring survey responses showed that 79% (30 of 38) were interested in the Ph.D. camp, and the same percentage were interested in the workshop. Student responses are seen in Tables 6 and 7.

Table 6: *Interest in Participating in a Two-day Ph.D. Camp*

Fall 2015 Survey

YES	14
NO	4
Maybe	8

Spring 2016 Survey

YES	16
NO	8
Maybe	14

Table 7: Interest in Participating in an International Travel Workshop

Fall 2015 Survey

YES	11
NO	4
Maybe	11

Spring 2016 Survey

YES	15
NO	8
Maybe	15

Overall Satisfaction

The scholars were asked to evaluate their experiences with the OK-LSAMP program in six specific areas, all important components of the program. The score ranking was from 1 to 5 (1=Poor and 5=Excellent). In the fall 2015 survey, all six areas had a mean ranking of over 4.0, with “Staff availability” being the strongest area (4.5) and “Interactions with other students in the program” being the weakest. (4.1).

The spring 2016 survey results were very similar. All six areas had a mean ranking of over 4.0, with “Staff availability” being the strongest area (4.6) and “Opportunity to work with community organizations” being the weakest (4.2). Figures 4a and 4b provide the counts of responses in each category and Appendix 5 offers student responses to the question “What can be improved” in reference to the six areas listed in these figures.



Figure 4a: Number of Student Responses for OK-LSAMP Experiences (Fall 2015)

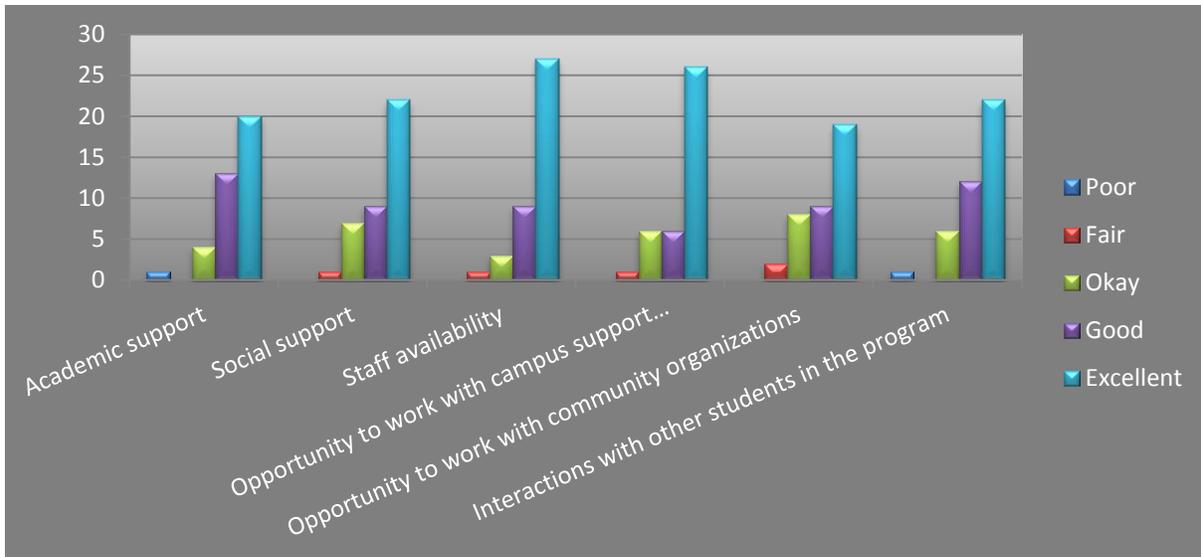


Figure 4b: Number of Student Responses for OK-LSAMP Experiences (Spring 2016)

In addition to the specific areas noted above, the students rated their overall satisfaction with all areas of the OK-LSAMP program on a scale of 1 to 5, with 5 being the most satisfied.

The mean score from the fall 2015 survey results was 4.8, and 85% (22 of 26) of the scholars gave a score of 5. When asked how helpful the OK-LSAMP program was to their academic career, 65% (17 of 26) of the scholars gave a score of 5, with the mean score of 4.4.

For the spring 2016 respondents, the mean score for overall satisfaction was 4.7, with 74% (28 of 38 students) scoring 5. The mean score for the helpfulness of OK-LSAMP to their academic career was 4.3, with 50% (19 of 38 students) giving it a score of 5. See Tables 8 and 9 for the responses. Appendix 6 offers student responses to strengths and weaknesses of the program, and overall satisfaction.

Table 8: Overall Satisfaction with the OK-LSAMP Program

Fall 2015 Survey

Scores	Count
1	0
2	0
3	1
4	3
5	22

Spring 2016 Survey

Scores	Count
1	0
2	0
3	2
4	8
5	28

Score: 1= Not Satisfied; 5=Very Satisfied

Table 9: Helpfulness of OK-LSAMP Program on Academic Career

Fall 2015 Survey

Scores	Count
1	1
2	1
3	1
4	6
5	17

Spring 2016 Survey

Scores	Count
1	1
2	0
3	5
4	13
5	19

Score: 1= Not Helpful; 5=Very Helpful
OK_LSAMP Evaluation 2016

Discussion and Recommendations

The results of our online surveys indicate that the majority of the OK-LSAMP scholars feel supported by the program and are being helped in their academic careers.

Regular Meetings

Ninety percent of the fall 2015 survey respondents indicated they participated in at least one meeting during the semester; while 80% of the spring respondents did so. Based on the scholar's responses, more than half of the students attended at least five meetings during 2015 fall semester and the participation decreased to 35% for the 2016 spring semester. The evaluators do not have data concerning how many of these required meetings were held at each Affiliate institution; however, this response rate is positive and shows that the meetings are being held and the students are attending.

In addition to simply attending the meetings, the students indicated that the meetings were helpful for them. Based on the open-ended questions related to the meetings (see Appendix 2), the students appreciated the opportunity to get to know other students in the program, hearing the diverse speakers and topics, receiving guidance with graduate school applications, and learning about internship opportunities. There were a handful of responses indicating the students had no meetings on their campus. Since this is a required component of the OK-LSAMP program, the evaluator recommends that each of the Alliance institutions hold regular meetings for their students as they are shown to be helpful to the scholars.

Mentor Support

More than three quarters of the students stated they had a mentor in both surveys, with 100% (fall 2015) and 97% (spring 2016) indicating that they met with their mentor at least once during the semester. Of these, about half of the scholars met with their mentor five times or more. The majority of scholars who had a mentor reported that these faculty members were helpful. They mentioned receiving help with letters of recommendation, staying on track with reports, research guidance, obtaining internships, graduate school advice, and more. When asked how their mentors could improve, most indicated they were great and no changes were needed. Despite the fact that about one-fifth of the students indicated that they did not have a mentor, the scholars received the help they needed and felt they were being supported and encouraged in the program. Appendix 3 provides students' comments pertaining to experiences with their mentors.

Progress Reports

Although scholars were required to submit progress reports to their OK-LSAMP campus coordinator, 57% of fall participants and 44% of spring participants indicated they were not asked for a report. Regular progress reports are an important and required part of the OK-LSAMP program to help ensure that students are successfully moving forward in their STEM degree programs. The evaluator recommends that the Affiliate institutions obtain progress reports, either written or verbal, from students each semester in an effort to regularly assess their progress toward degree.

Research Symposium and Other Professional Meetings

Half of the students who reported participating in other professional meetings indicated that they presented an average of three times in the fall 2015 survey and 69% presented an average of two times in the spring 2016 survey. This is a positive indicator of the success of the OK-LSAMP

program in encouraging its students to do research and present, in preparation for graduate study. Seventy-eight percent who responded to the question about the Research Symposium attended the fall OK-LSAMP Research Symposium. This is a requirement of all students, not just those presenting research. Understanding that there are always going to be conflicts, this is a very strong representation at the Symposium. Affiliate institutions are doing a good job of encouraging their scholars to attend and present, not only at the OK-LSAMP Symposium, but also other venues.

Internship Participation

The students overwhelmingly indicated that they were encouraged to participate in summer internships for both surveys (more than 90%). Well over half (81% in fall 2015 and 61% in spring 2016) reported doing internships in either summer 2015 or summer 2016. These results are very encouraging and show the importance that the OK-LSAMP program is placing on these internships. Although the evaluator does not have data concerning whether or not the students applied for the required minimum of five internships, it seems clear that this aspect of the program is successful based on the results of the student survey. Since international internships are a focus during this funding period, and 85% of the scholars in the fall survey, and 79% in the spring survey indicated that they are interested in attending a workshop assisting them with passport, travel, insurance, and other topics related to international internships, the evaluator recommends that the OK-LSAMP program pursue this activity.

Graduate School Preparation

Scholars are required to submit a minimum of three graduate program applications, according to the project plan. This survey did not ask how many applications the student submitted since this information is reported by the OK-LSAMP office. However, juniors and seniors reported that they were encouraged to take the GRE (86% in fall 2015 and 77% in spring 2016 survey) and about half of them received help in the process, but only 36% and 35% of them had taken the GRE at the time of the survey (December 2016 and May 2016, respectively). The evaluator recommends continued encouragement, GRE preparation, and financial support to the OK-LSAMP scholars to help increase the number of these students who attend graduate school.

Approximately 80% of the survey respondents were interested in participating in a Ph.D. camp related to graduate school assistance, so the evaluator recommends that the OK-LSAMP program consider moving forward with this event.

Overall Satisfaction

The overall response from the scholars showed that the OK-LSAMP program is succeeding in supporting its students in many areas: academic support, social support, staff availability, graduate school preparation, internships, working with campus support programs, working with community organizations, interacting with other students in the program, and more. These are all crucial components that can help lead to successful graduation of the scholars, and eventual graduate school attendance. The students are pleased with their mentors, feel supported by the program, attend meetings for support and guidance, and are doing research and presentations. Appendix 6 lists open-ended responses from scholars relating to overall success of the program.

Limitation of Online Student Survey

In an effort to increase the number of respondents as compared to last year when we sent only one survey at the end of the spring semester, this year we conducted two surveys—late in the fall and spring semesters. We believed that the students would have better recall of the fall activities if we surveyed them at the end of the semester rather than waiting until the end of the academic year. However, the response rate was lower than last year, so in the coming year, we will consider returning to just one survey, sometime in the late spring.

Section 3: OK-LSAMP Coordinator Survey

In an effort to report on the success of the OK-LSAMP program from the Alliance campus coordinators' point of view, this year we gave them two opportunities to submit feedback. We used Qualtrics to collect online responses, and each survey was open for about ten days; the fall survey launched on December 11 and the spring survey on April 18. Coordinators from eight Alliance institutions responded. The questions were the same in the two surveys, except for a few references to the specific semester.

Most of the questions allowed for open-ended responses, which are presented in Appendix 7 as a reference for all coordinators as they attempt to recruit, retain and graduate their students. Below is a brief summary of the results.

Recruiting

Survey Response

Campus coordinators used a variety of methods to recruit new students to the program. Word of mouth; on-campus emails and brochures; mention of the program in classes as well as group and one-on-one meetings with fellow faculty members, departmental chairs and others on campus; and social media are a few of the approaches used by the respondents.

Evaluator Comments

It appears that the Alliance institutions have been successful in recruiting new scholars to the program. The coordinators may also consider implementing additional approaches, as outlined in the Phase 5 OK-LSAMP project plan. Emphasis was given in the plan to the connections with two-year institutions and tribal colleges, yet none of the respondents mentioned using this approach. Only three of the scholars who responded to the student survey indicated that they transferred from a two-year institution. Inviting students from these institutions to group meetings and meeting with them before they transfer may add new participants to the program who are prepared for the rigorous STEM programs in the four-year institutions.

Other recruiting ideas noted in the project plan include: recruiting at summer academies such as engineering camps; distributing materials at tribal events and state-wide STEM activities; and using the Oklahoma Career and Technology Education STEM Initiative to recruit students at state technology centers

Group Meetings

Survey Response

According to the project plan, Alliance coordinators are required to hold at least two group meetings with their scholars per semester. The results of the survey indicated that all but one campus held meetings at least twice per semester, and that institution conducted one meeting during the semester.

The coordinators were asked to provide comments about the meetings, including which topics they felt were most meaningful to the scholars. Several respondents indicated that one-on-one meetings were more productive than group meetings, although they did hold at least two meetings during the semester.

The meeting topics coordinators believed to be most helpful to students included: graduate school preparation and research tips and REU information; conference presentation guidance; OK-LSAMP funding, and learning about support networks.

Evaluator Comments

Many of the topics that the coordinators believed to be helpful to the scholars were confirmed based on the student responses to their survey. Some additional topics students believed were helpful or that they would like to see included in future meetings were: resume development; library presentations; speakers from professionals in STEM fields, including industry, other faculty members and former LSAMP scholars; and networking with other LSAMP scholars. See Appendix 2 for the student responses.

Although some of the coordinators noted that one-on-one meetings are more productive, a number of the scholars indicated they would like to have more group meetings on their campus. These gatherings provide the scholars with opportunities to get to know other students in the program, hear from professionals in the field, and learn more about graduate school. Several students suggested having scholars get involved in organizing the events. This could relieve some of the organizational responsibilities of the coordinators, and provide opportunities for students to gain leadership skills.

Many of the scholars expressed a desire for more connections with other OK-LSAMP students in the program, both at the individual institution and on other campuses. We saw similar comments in last year's student survey. We have included more comments on this topic below in the Student Connections section.

Progress Reports

Survey Response

Five of the eight coordinators received progress reports from the mentors. The others maintained regular communication with the mentors and did not receive written reports.

Evaluator Comments

Progress reports are required according to the project plan. However, the plan does not specify that these must be written reports. It appears that the coordinators are staying abreast of the research activities of their students.

Scholar Funding

Survey Response

The survey included a question related to the criteria used to distribute funds to OK-LSAMP scholars. Some of the responses were: number of research projects and attendance at national meetings, using a spreadsheet and point system, application to graduate school, and GPA.

Evaluator Comments

Some of the distribution criteria used at the Alliance institutions are more detailed than others. These methods may help avoid any questions or conflicts that may arise concerning funds distribution procedures.

RCR Training

Survey Response

Survey participants were asked to provide their thoughts about including RCR training during the annual Fall Research Symposium. The training was available to scholars in past years, but is no longer being offered. All of the respondents indicated that they may be interested in this option, but expressed concern that the training might not apply to their campus and that there may not be enough time to conduct the training at the Symposium.

Evaluator Comments

We recommend that the OK-LSAMP office explore this as an option, after reviewing the comments from the respondents in Appendix 7 to address the concerns of the coordinators.

Student Connections

Survey Response

Several of the questions on the coordinator survey related to student networking within the OK-LSAMP program. In both last year's and this year's student surveys, the results indicated that a number of students were interested in having better connections with OK-LSAMP scholars, both on their own campus as well as at other Alliance institutions.

Seven of the eight coordinators indicated that they were interested in pursuing ways to help the students connect with scholars on other campuses, and two of the respondents offered suggestions for helping to promote more interaction among the scholars.

Another question referred to conference attendance of scholars. There are some occasions where scholars from more than one OK-LSAMP campus attend the same conference, but the students do not know each other. We asked the coordinators if they were interested in helping connect these students prior to the conference. All but one of the respondents indicated an interest in this, and several provided ideas for how to make it work.

Evaluator Comments

There is interest from the respondents to help connect their students to provide networking opportunities. The main hesitation expressed was time commitment for both the coordinators and scholars. Several coordinators offered suggestions for helping promote more interaction among scholars, as well as ways to help them connect prior to conferences, as seen in Appendix 7. Using Skype to meet before the conference or having a short time set aside at the beginning of the conference were potential ways to meet this need.

Final Suggestions/Comments

Survey Response

The coordinators who participated in the survey were given the opportunity to provide comments about what the OK-LSAMP program office at OSU could do to help them throughout the year, and also to make any overall comments or suggestions for the program. Responses were very

positive about the support from the program office, with only one request for the program office to provide meeting suggestions to help with planning at the institution. One respondent noted that the online application process can be frustrating for students because some of them are dropped from the system.

Evaluator Comments

Based on the results of this survey, the OK-LSAMP program office staff have been very supportive of the coordinators and are offering their assistance throughout the year.

Section 4: The National STEM Retention and Graduation Data

In August 2016, the Consortium for Student Retention Data Exchange published the annual national STEM retention study, *2015-16 CSRDE STEM Retention Report*. This report is based on survey data collected from 183 colleges and universities. In past years, data for each of the Oklahoma public institutions were provided for the annual STEM report by the Oklahoma State Regents for Higher Education. The Regents did not submit the data for this reporting period; however, data for Oklahoma State University, The University of Oklahoma, and The University of Central Oklahoma were submitted directly from the institutions and were included in the national report.

The survey data were collected on first-time, full-time, baccalaureate degree-seeking freshman cohorts of 2005 through 2014 who indicated intent to major in a STEM field. The Classification of Instructional Programs (CIP) codes used to identify the majors were selected in cooperation with the National Science Foundation when this survey was developed in the late 1990s, and have been updated periodically over the past two decades. In capturing the retention and graduation rates of these STEM students, we used the following approach. First, we collected the retention and graduation rates of these STEM cohorts in any major at their institution. If students initially indicated an interest in majoring in a STEM discipline, but later changed their major to a non-STEM field, they were included in this section of the survey, along with those students who remained in the STEM majors. Next, the survey captured the rates at which the cohorts continued and graduated within STEM fields at their institution. This dual tracking allows us to see within a campus the migration of STEM majors out of STEM fields and into other majors. It also allows us to see the general departure rate of students.

The CSRDE also publishes an annual national retention report that provides data on all first-time, full-time, baccalaureate degree-seeking students, regardless of major. The following summary provides the status of STEM retention and graduation data as well as retention and graduation data of all first-time students at the 183 institutions observed in the 2015-16 CSRDE retention reports, regardless of major. It includes the data from Oklahoma State University, The University of Oklahoma, and The University of Central Oklahoma.

Graduation Rates

In the following discussion, three types of graduation rates are provided for the Total cohorts and the URM cohorts:

- **All Majors** – All Majors identifies the percent of first-time, full-time students who began and graduated within six years in **all majors** at their institution.
- **Any Major** - Any Major identifies the percent of students who began as freshman STEM majors and graduated within six years in **any major** at their institution.
- **STEM Major** - STEM Major identifies the percent of students who began as freshman STEM majors and graduated within six years **specifically within a STEM field** at their institution.

In Table 10, the six-year graduation rates are provided for the 2009 cohorts of all students in the national study as well as OU, OSU, and UCO. The data for underrepresented minority students

are shown as well.

Table 10: *Six-year Graduation Rates – 2009 Total and URM Cohorts*

Category	Total	URM
All Majors		
National	62.0%	50.4%
OU	66.2%	57.0%
OSU	61.6%	49.1%
UCO	39%	30.2%
Any Major		
National	65.0%	51.5%
OU	66.4%	55.5%
OSU	65.9%	50.5%
UCO	36.6%	29.8%
STEM Major		
National	46.2%	30.3%
OU	44.0%	28.5%
OSU	36.2%	26.9%
UCO	13.7%	7.5%

To better understand how the three Oklahoma institutions are doing compared to similar institutions nationally, Table 11 provides data based on institutional selectivity. The table shows the six-year graduation rates for the following 2009 URM cohorts by selectivity: 1) students in all majors, 2) students who begin as a STEM major and graduate within any major at the institution, and 3) students who begin as a STEM major and graduate within STEM majors. Selectivity as defined in the CSRDE research is a categorization of institutions based on the average ACT or SAT admission test scores of incoming students. OU and OSU are included in the Highly Selective category, and the UCO is grouped as Moderately Selective.

- *Highly Selective institutions:*
ACT scores above 24.0 or SAT scores above 1100
- *Selective institutions:*
ACT scores from 22.5-24.0 or SAT scores from 1045-1100
- *Moderately Selective institutions:*
ACT scores from 21.0-22.4 or SAT scores from 990-1044
- *Less Selective institutions:*
ACT scores below 21.0 or SAT scores below 990

Table 11: Six-year Graduation Rates by Selectivity – 2009 URM Cohort

Category	Highly Selective	Selective	Moderately Selective	Less Selective	All URM
All Majors					
National	63.9%	44.9%	39.3%	39.7%	50.4%
OU	57.0%				
OSU	49.1%				
UCO			30.2%		
Any Major					
National	62.6%	46.1%	37.3%	35.6%	51.5%
OU	55.5%				
OSU	50.5%				
UCO			29.8%		
STEM Major					
National	39.5%	25.4%	17.3%	18.4%	30.3%
OU	28.5%				
OSU	26.9%				
UCO			7.5%		

Table 11 indicates that the graduation rates for underrepresented minority students are positively related to the selectivity of the institution for the cohort in all three categories, with one exception. Students attending Less Selective institutions graduated at a higher rate than those at Moderately Selective institutions in two of the three categories. We also see that more than half (51.5%) of URM students who began as a STEM major graduated within any major in their institutions, STEM or non-STEM. In the Moderately Selective institutions, which includes the University of Central Oklahoma, more than half of the underrepresented minority students left the STEM disciplines and graduated in a non-STEM major.

The University of Oklahoma’s six-year graduation rates are generally above the average for all URM students; however, when compared to other institutions with similar selectivity, the graduation rates of their URM students are lower. On the other hand, Oklahoma State University and The University of Central Oklahoma’s six-year graduation rates are below the average of all URM students in all categories (All majors, Any majors, and STEM majors) when compared with all URM students.

Table 12 provides the six-year graduation rates for all majors, within any major and within STEM majors for the Total 2009 cohort by selectivity.

Table 12: *Six-year Graduation Rates by Selectivity – 2009 Total Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	Total
All Majors					
National	72.8%	55.7%	47.9%	46.7%	62.0%
OU	66.2%				
OSU	61.6%				
UCO			39.0%		
Any Major					
National	73.4%	56.3%	47.6%	42.9%	65.0%
OU	66.4%				
OSU	65.9%				
UCO			36.6%		
STEM Major					
National	53.7%	38.0%	29.4%	28.9%	46.2%
OU	44.0%				
OSU	36.2%				
UCO			13.7%		

In both Table 11 and Table 12, the average graduation rates of all students who began college with an intent to graduate in a STEM major, both Total and URM cohorts, are higher than those who began college in any major.

In Figures 5-7, the national data for the 2009 URM cohort and the Total cohort are provided for comparison, based on the percentages listed in Tables 11 and 12. Figure 5 provides the graduation rates for all students, regardless of their major when they began college. Figure 6 shows the data for students who began as a STEM major at the institution and graduated in any major at the institution. Figure 7 provides the rates for students who began as a STEM major at the institution and graduated within a STEM discipline.

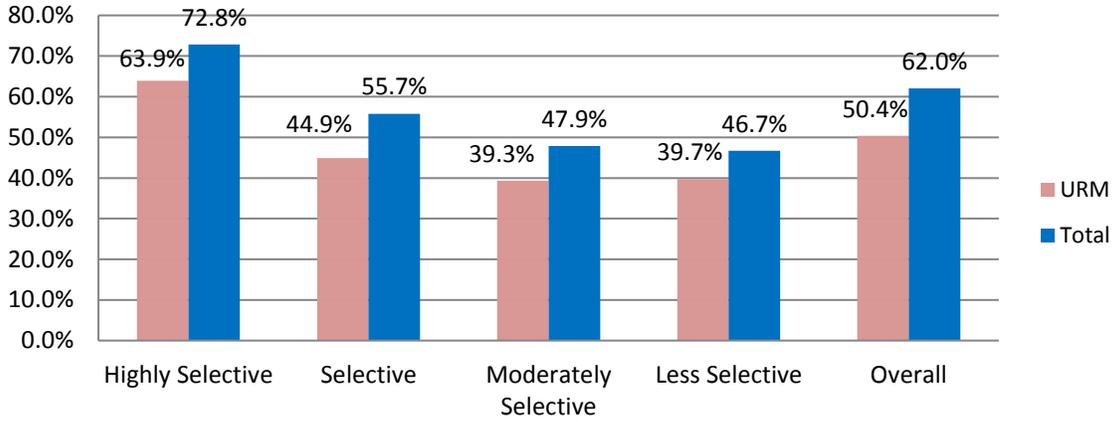


Figure 5: Six-year Graduation Rates by Selectivity – All Majors
2009 Total and URM Cohorts

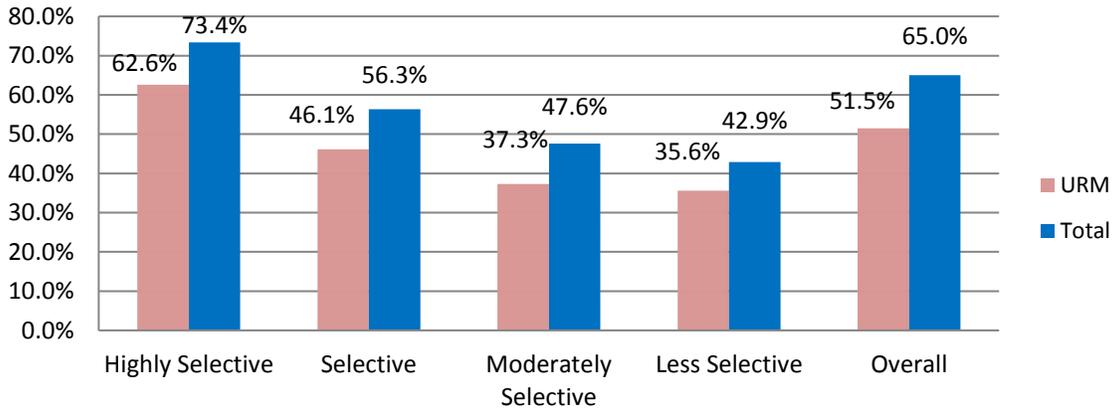


Figure 6: Six-year Graduation Rates by Selectivity – Any Majors
2009 Total and URM Cohorts

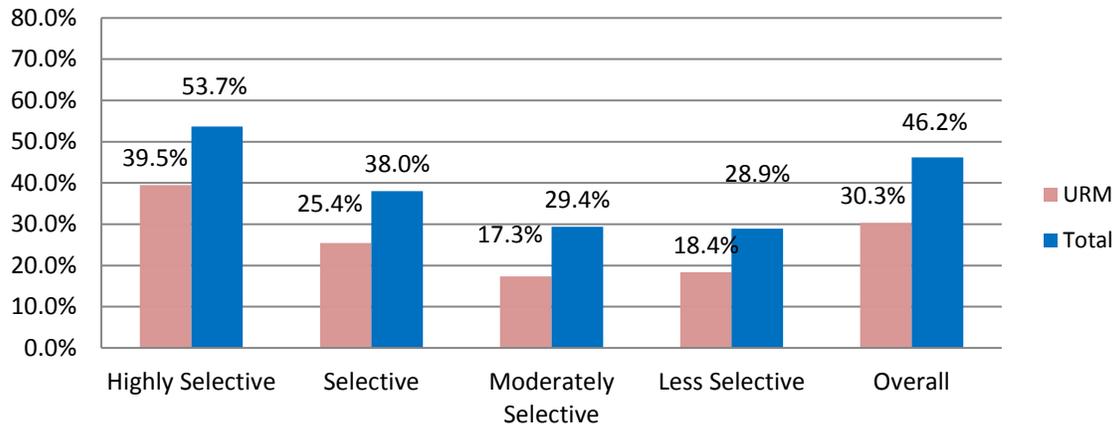


Figure 7: Six-year Graduation Rates by Selectivity – STEM Majors
2009 Total and URM Cohorts

As seen in Tables 11 and 12 and Figures 5-7, the graduation rates of the Total cohort of students decrease as the selectivity of the institution decreases. However, URM students in Less Selective institutions graduate at a higher rate than the URM students at Moderately Selective institutions in STEM majors. The gap between the graduation rates for URM students and the Total cohort of students is considerable in all institutions, but the difference is smaller within the Less Selective institutions.

Retention Rates

Retention is defined as the rate at which the first-time, full-time fall cohort returns to the institution the following fall. The first year is a critical period in the success of students, and typically this is the point at which departures occur most frequently at many institutions across the country.

In the following discussion using the CSRDE national STEM data, as with the graduation tables, there are three types of retention rates provided for the Total cohorts and the URM cohorts:

- **All Majors** – All Majors identifies the percent of first-time students who began in all majors and continued to the second academic year at their institution.
- **Any Major** - Any Major identifies the percent of students who began as freshman STEM majors and continued to the second academic year in **any major** at their institution.
- **STEM Major** - STEM Major identifies the percent of students who began as freshman STEM majors and remained **specifically within a STEM field** at their institution as they moved into their second academic year.

In Table 13, the first-year retention rates are provided for the 2014 cohorts of all students in the national study as well as OU, OSU, and UCO. The data for underrepresented minority students is shown as well.

Table 13: *First-year Retention Rates – 2014 Total and URM Cohorts*

Category	Total	URM
All Majors		
National	83.3%	79.5%
OU	86.1%	84.2%
OSU	81.1%	75.9%
UCO	62.4%	61.3%
Any Major		
National	85.9%	81.5%
OU	86.0%	84.1%
OSU	82.3%	75.3%
UCO	64.7%	63.3%
STEM Major		
National	73.5%	67.5%
OU	69.7%	65.3%
OSU	72.8%	65.7%
UCO	37.5%	38.4%

As with the graduation rates, in order to gain a better understanding of how the three Oklahoma institutions are doing compared to similar institutions nationally, Table 14 provides the retention data based on institutional selectivity. The table shows the first-year retention rates for all majors, within any major and within STEM majors for 2014 URM cohorts by selectivity.

Table 14: *First-year Retention Rates by Selectivity – 2014 URM Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	All URM
All Majors					
National	85.4%	77.7%	73.4%	76.2%	79.5%
OU	84.2%				
OSU	75.9%				
UCO			61.3%		
Any Major					
National	85.9%	78.8%	75.5%	76.7%	81.5%
OU	84.1%				
OSU	75.3%				
UCO			63.3%		
STEM Major					
National	71.9%	64.4%	61.2%	63.4%	67.5%
OU	65.3%				
OSU	65.7%				
UCO			38.4%		

Table 14 indicates that the retention rates for underrepresented minority students are generally positively related to the selectivity of the institution for all cohorts of students, regardless of major. Generally, the URM students at more selective the institutions have higher retention rates. However, the URM students at Less Selective institutions are retained at a higher rate than those at Moderately Selective institutions in all categories.

The University of Oklahoma, Oklahoma State University, and The University of Central Oklahoma’s first-year retention rates are below the average for URM students within their selectivity groups. However, the University of Oklahoma retention rates are higher than the national average for all URM students in all categories except those students who began as a STEM major and remained in a STEM discipline.

Table 15 provides the first-year retention rates of the Total 2014 cohort by selectivity for the national data as well as the three Oklahoma institutions that participated in the study.

Table 15: *First-year Retention Rates by Selectivity – 2014 Total Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	Total
All Majors					
National	88.5%	79.7%	75.5%	76.5%	83.3%
OU	86.1%				
OSU	81.1%				
UCO			62.4%		
Any Major					
National	89.7%	81.1%	78.6%	77.4%	85.9%
OU	86.%				
OSU	82.3%				
UCO			64.7%		
STEM Major					
National	77.8%	68.0%	64.6%	64.8%	73.5%
OU	69.7%				
OSU	72.8%				
UCO			37.5%		

Tables 14 and 15 show that both URM students and the Total cohort of students who started as a STEM major are more likely to continue their education to the second year as compared to those students who start in any major at the institution, regardless of selectivity. Retention rates of URM students are below the average rate among all races. However, the gap between the retention rates of URM students and the total cohort of students is much smaller for the first-year retention rate than it is for the six-year graduation rate, indicating that more URM students are leaving the STEM disciplines after their second year and before they graduate than the total cohort of students.

In Figures 8-10, the national data for the 2014 URM cohort and the Total cohort are provided for comparison, based on the percentages listed in Tables 14 and 15 above. Figure 8 provides the first-year retention rates for all students, regardless of their major when they began college. Figure 9 shows the data for students who began as a STEM major at the institution and returned for their second year in any major at the institution. Figure 10 provides the rates for students who began as a STEM major at the institution and continued to their second year within a STEM discipline.

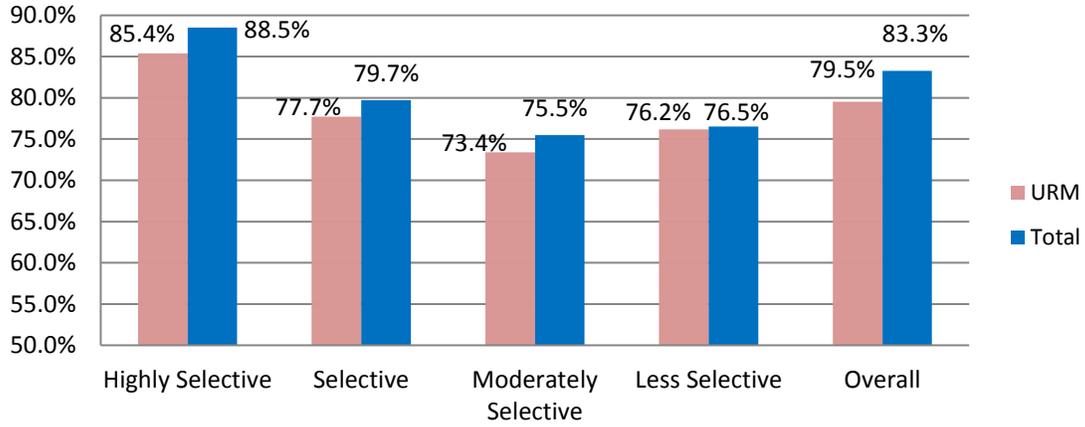


Figure 8: First-year Retention Rates by Selectivity – All Majors
2014 Total and URM Cohorts

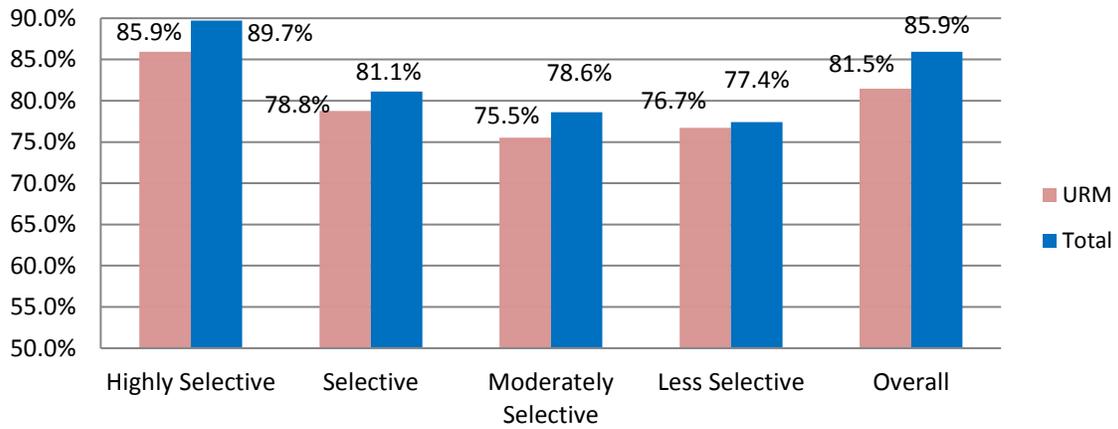


Figure 9: First-year Retention Rates by Selectivity – Any Major
2014 Total and URM Cohorts

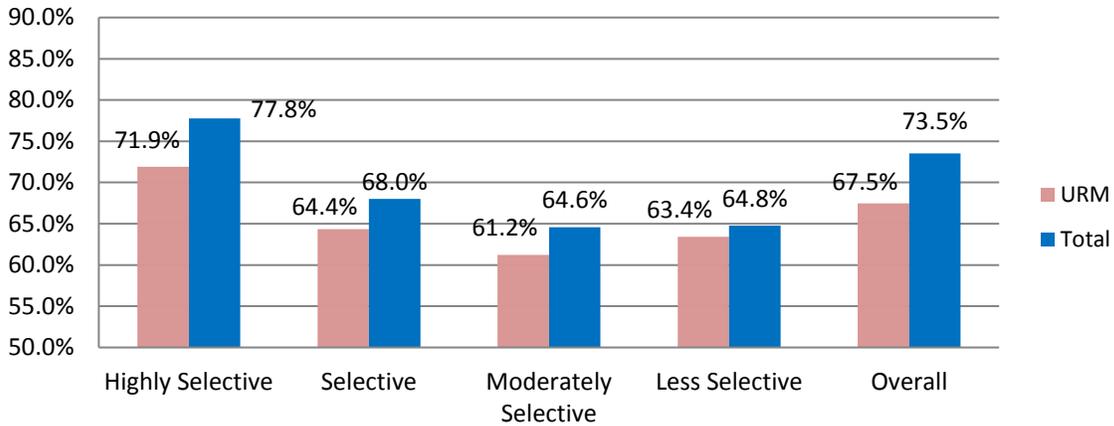


Figure 10: First-year Retention Rates by Selectivity – STEM Majors
2014 Total and URM Cohorts

Summary

Providing a comparison between the retention rates of the national freshman cohorts and the retention of students in the OK-LSAMP program is difficult due to the focus on upperclassmen in this project. However, we can look at the retention of OK-LSAMP scholars within the evaluation period covered in this report. Of the 185 students who participated in fall 2015, ten students graduated and 94% (165 of the remaining 175 students) continued to spring 2016.

A total of 194 students participated in spring 2016, which includes the new students who started the program that semester. Of those 194 scholars, 41 graduated, one was scheduled to graduate in summer 2016, and only three left the program, resulting in the spring 2016 to fall 2016 expected retention rate of 98% as of the time of this report.

These retention rates are a strong indication that the OK-LSAMP program is succeeding in helping its students graduate with STEM degrees. The support the OK-LSAMP program provides these students is proven to be effective.

Section 4: Overall Report Summary

Over the course of the project, the OK-LSAMP institutions have attempted to support URM students participating in the program as they move through their academic undergraduate careers as STEM majors. Review of the participation data from the OK-LSAMP Alliance coordinators shows that if students are in the program as upperclassmen, they most certainly will graduate in a STEM discipline. This evaluation shows that 37% of the seniors (56 of 156) graduated during this evaluation period, and 51 of these graduates were URM students (91%).

Although the goal to increase the number of STEM graduates by 10% was not met during this evaluation period, the program did graduate more URM students than the 2013-2014 baseline year (51 during this evaluation period vs. 48 URM graduates in 2013-2014). The goal would have been met if only two more URM students had graduated during this period.

All of the 18 students reported to have been accepted into graduate school were URM graduates, which is a testament to the quality of the students and the faculty mentorship they receive in the OK-LSAMP program.

The seniors who did not graduate during the 2015-2016 project year appear to be on track for graduation and graduate-school readiness as well. Of the 95 seniors who participated in the program in spring 2016 but did not graduate, 74% (70 of 95) had a GPA of 3.0 or greater, and over half had participated in at least one summer internship.

Based on the results of our online student surveys conducted in December 2015 and May 2016, the scholars are pleased with their experiences in the program. They rated their mentoring experiences very high, they feel that the group meetings they are attending are helpful in their STEM studies, they are participating in summer internships, are attending and presenting at professional meetings and conferences, and are being encouraged to take the GRE and apply to graduate school.

Recommendations for continued success in the OK-LSAMP Program

1. Increase research opportunities for scholars

Data from the OK-LSAMP program office indicate that 47% of the seniors (73 of 156) identified during this evaluation period participated in research during at least one semester, and 62% of these (45 of 73) participated in both semesters. Students doing research during this period attended conferences at a higher rate than those who did not conduct research. The numbers are similar for juniors: 43% (16 of 37) participated in research at some point during this evaluation period. Only three of the juniors not doing research attended the 2015 OK-LSAMP Symposium, but did not attend other conferences.

Over half of the juniors and seniors during the evaluation period did not work on research. Since participation in research typically results in better participation at conferences, increasing the research opportunities for the OK-LSAMP scholars should help provide more opportunities for conference participation, which could eventually lead more students to graduate school to further their research and studies.

2. Reduce support for non-URM students

During the 2015-2016 evaluation period, 221 students participated in the OK-LSAMP program. Of these, 88% (195 scholars) were underrepresented minority students. The other 12% (26 students) were not included in the results of the URM students' success since they were not identified as underrepresented minority students. In addition, 20 of the 26 non-URM students received some type of funding from the program, which represents 9% of all students in the evaluation period this year. Since the overall goal of the program is to "recruit and retain an additional 50 percent URMs in undergraduate STEM fields over the life of the project", we recommend that the Alliance attempt to recruit and support more URM students rather than non-URM students.

3. Host a Ph.D. camp to help with the graduate school process

The OK-LSAMP program office has expressed their commitment to conducting a Ph.D. camp to provide guidance in the graduate school process. The majority of students who responded to the online survey both last year and this year indicated an interest in this opportunity. Based on their comments about topics they would like to see covered in group meetings at their institutions, a one- to two-day camp focused on graduate school preparation would be well-received. This gathering would also fulfil the desires of the students to get to know scholars from other Alliance institutions.

4. Host a half- or full-day workshop for increasing international experience

One of the objectives of the OK-LSAMP program is to increase the number of students participating in international internships and study. Based on the data the evaluator received from the OK-LSAMP program office, only 4% of the current scholars (8 of 221) had international experience during this academic year. The majority of students who responded to the survey expressed an interest in a workshop, so we recommend that the program office consider hosting a workshop to help scholars learn more about these opportunities and potentially participate. A day set aside to focus solely on this topic should help increase the number of scholars participating in international internships.

Appendix 1: Institution-Specific Activities

Below is a summary of activities for each of the OK-LSAMP institutions. For each institution the numbers of participants are identified as well as a few data points related to scholar support. These data are based on data from the OK-LSAMP program office. Not included in this report is a list of the titles of the papers, presentations, and research projects that the participants completed. This data is available from the Alliance Office at Oklahoma State University.

Cameron University

Participants

- 13 students were included in this evaluation
- 1 student was a sophomore, 1 was a junior and 11 were seniors
- 12 of 13 scholars (92%) were URM students

Support

- 2 of the 8 students (25%) who were in the program through summer 2015 participated in an internship that summer
- 2 of 5 graduates (40%) participated in at least one summer internship while in the program. One of the graduates participated in two or more while in the program.

Graduate School Preparation

- 11 of 12 students (92%) who participated in fall 2015 conducted research
- 10 of 12 students (83%) who participated in spring 2016 conducted research
- 5 of 5 graduates (100%) had a minimum GPA of 3.0

Results

- 5 of 11 seniors (45%) graduated, one in December 2015 and four in May 2016
- 5 of 5 graduates (100%) were URM students
- 0 of 5 graduates (0%) were accepted to graduate school

East Central University

Participants

- 13 students were included in this evaluation
- 1 student was a freshman, 1 was a sophomore, 4 were juniors, and 7 were seniors
- 11 of 13 scholars (92%) were URM students

Support

- 3 of the 7 students (43%) who were in the program through summer 2015 participated in an internship that summer

Graduate School Preparation

- 3 of 8 students (38%) who participated in fall 2015 conducted research
- 3 of 13 students (23%) who participated in spring 2016 conducted research

Results

- No students graduated during the evaluation period

Langston University

Participants

- 27 students were included in this evaluation
- 4 students were juniors and 23 were seniors
- 25 of 27 scholars (93%) were URM students

Support

- 11 of the 18 students (61%) who were in the program through summer 2015 participated in an internship that summer
- 1 of 6 graduates (17%) participated in at least one summer internship while in the program.

Graduate School Preparation

- 7 of 26 students (27%) who participated in fall 2015 conducted research
- 7 of 27 students (26%) who participated in spring 2016 conducted research
- 5 of 6 graduates (83%) had a minimum GPA of 3.0

Results

- 6 of 23 seniors (26%) graduated, in May 2016
- 6 of 6 graduates (100%) were URM students
- 4 of 6 graduates (67%) were accepted to graduate school

Northeastern State University

Participants

- 7 students were included in this evaluation
- 1 student was a sophomore, 1 was a junior and 5 were seniors
- 7 of 7 scholars (100%) were URM students

Support

- 0 of the 5 students (0%) who were in the program through summer 2015 participated in an internship that summer
- 0 of 2 graduates (0%) participated in at least one summer internship while in the program.

Graduate School Preparation

- 2 of 6 students (33%) who participated in fall 2015 conducted research
- 2 of 7 students (29%) who participated in spring 2016 conducted research
- 2 of 2 graduates (100%) had a minimum GPA of 3.0

Results

- 2 of 5 seniors (40%) graduated, in spring 2016
- 2 of 2 graduates (100%) were URM students
- 0 of 2 graduates (0%) were accepted to graduate school

Northwestern Oklahoma State University

Participants

- 4 students were included in this evaluation
- 1 student was a sophomore and 3 were seniors
- 1 of 4 scholars (25%) were URM students

Support

- 0 of the 3 students (0%) who were in the program through summer 2015 participated in an internship that summer
- 0 of 1 graduates (0%) participated in at least one summer internship while in the program.

Graduate School Preparation

- 0 of 4 students (0%) who participated in fall 2015 conducted research
- 1 of 4 students (25%) who participated in spring 2016 conducted research
- 1 of 1 graduates (100%) had a minimum GPA of 3.0

Results

- 1 of 3 seniors (33%) graduated, in spring 2016
- 0 of 1 graduates (0%) were URM students
- 0 of 1 graduates (0%) were accepted to graduate school

Oklahoma State University

Participants

- 84 students were included in this evaluation
- 3 students were freshmen, 8 were sophomores, 16 were juniors and 57 were seniors
- 78 of 84 scholars (93%) were URM students

Support

- 30 of the 68 students (44%) who were in the program through summer 2015 participated in an internship that summer
- 19 of 25 graduates (76%) participated in at least one summer internship while in the program. Nine of the graduates participated in two or more while in the program.

Graduate School Preparation

- 14 of 75 students (19%) who participated in fall 2015 conducted research
- 26 of 70 students (37%) who participated in spring 2016 conducted research
- 18 of 25 graduates (72%) had a minimum GPA of 3.0

Results

- 25 of 57 seniors (44%) graduated, two in summer 2015, seven in December 2015 and 16 in May 2016
- 24 of 25 graduates (96%) were URM students
- 6 of 25 graduates (24%) were accepted to graduate school

Southeastern Oklahoma State University

Participants

- 12 students were included in this evaluation
- 2 students were sophomores, 2 were juniors and 8 were seniors
- 12 of 12 scholars (100%) were URM students

Support

- 6 of the 7 students (86%) who were in the program through summer 2015 participated in an internship that summer
- 1 of 3 graduates (33%) participated in at least one summer internship while in the program. The graduate participated in two or more while in the program.

Graduate School Preparation

- 8 of 9 students (89%) who participated in fall 2015 conducted research
- 8 of 11 students (73%) who participated in spring 2016 conducted research
- 3 of 3 graduates (100%) had a minimum GPA of 3.0

Results

- 3 of 8 seniors (38%) graduated, in May 2016
- 3 of 3 graduates (100%) were URM students
- 1 of 3 graduates (33%) were accepted to graduate school

Southwestern Oklahoma State University

Participants

- 7 students were included in this evaluation
- 1 student was a junior and 6 were seniors
- 6 of 7 scholars (86%) were URM students

Support

- 5 of the 6 students (83%) who were in the program through summer 2015 participated in an internship that summer
- 2 of 2 graduates (100%) participated in two or more summer internships while in the program.

Graduate School Preparation

- 4 of 4 students (100%) who participated in fall 2015 conducted research
- 5 of 5 students (100%) who participated in spring 2016 conducted research
- 2 of 2 graduates (100%) had a minimum GPA of 3.0

Results

- 2 of 6 seniors (33%) graduated, both in summer 2015
- 2 of 2 graduates (100%) were URM students
- 2 of 2 graduates (100%) were accepted to graduate school

University of Central Oklahoma

Participants

- 11 students were included in this evaluation
- 3 students were sophomores, 3 were juniors and 5 were seniors
- 3 of 3 scholars (100%) were URM students

Support

- 3 of the 8 students (38%) who were in the program through summer 2015 participated in an internship that summer
- 1 of 1 graduates (100%) participated in at least one summer internship while in the program.

Graduate School Preparation

- 8 of 11 students (73%) who participated in fall 2015 conducted research
- 7 of 7 students (100%) who participated in spring 2016 conducted research
- 1 of 1 graduates (100%) had a minimum GPA of 3.0

Results

- 1 of 5 seniors (20%) graduated, in December 2015
- 1 of 1 graduates (100%) were URM students
- 0 of 1 graduates (0%) were accepted to graduate school

University of Oklahoma

Participants

- 27 students were included in this evaluation
- 1 student was a junior and 26 were seniors
- 16 of 27 scholars (59%) were URM students

Support

- 2 of the 20 students (10%) who were in the program through summer 2015 participated in an internship that summer
- 2 of 6 graduates (33%) participated in at least one summer internship while in the program.

Graduate School Preparation

- 8 of 20 students (40%) who participated in fall 2015 conducted research
- 9 of 25 students (36%) who participated in spring 2016 conducted research
- 5 of 6 graduates (83%) had a minimum GPA of 3.0

Results

- 6 of 26 seniors (23%) graduated, one in August 2015, one in December 2015 and four in May 2016
- 3 of 6 graduates (50%) were URM students
- 0 of 6 graduates (0%) were accepted to graduate school

University of Tulsa

Participants

- 16 students were included in this evaluation
- 4 students were freshmen, 3 were sophomores, 4 were juniors and 5 were seniors
- 16 of the 16 scholars (100%) were URM students

Support

- 11 of the 12 students (92%) who were in the program through summer 2015 participated in an internship that summer
- 5 of the 5 graduates (100%) participated in at least one summer internship while in the program. Three of the graduates participated in two or more while in the program.

Graduate School Preparation

- 8 of 10 students (80%) who participated in fall 2015 conducted research
- 8 of 13 students (62%) who participated in spring 2016 conducted research
- 5 of 5 graduates (100%) had a minimum GPA of 3.0

Results

- 5 of 5 seniors (100%) graduated, one in December 2015 and four in May 2016
- 5 of 5 graduates (100%) were URM students
- 5 of 5 graduates (100%) were accepted to graduate school

Appendix 2: Scholar Responses About Group Meetings

How were the meetings helpful?

Money

I like getting to know other students as a support group.

Library presentation.

Learning more based on the situation of wanting to help people become someone powerful.

Exposure to new thought.

Advice on different REU internships opportunities.

Being exposed to what a lot of the other students are doing.

It help (sic) prepare for poster and oral presentations.

Inspirational stories, reminds me to keep moving forward.

Getting info on conferences.

Speakers and internship opportunities.

Availability of mentor and members.

Ability to talk to sponsors.

The resources provided by OKLSAMP are incredible. Everything from GRE prep to help with service hours to contacts with potential employers.

We discussed reimbursement and group travel options.

Information about publishing.

My mentor explaining responsibilities and getting to meet the other participants.

Just being able to relate to other students and getting encouragement from them.

The information shared at the meeting

When {Guest Speaker} came and discussed publications

Nothing

The workshop on resume development

Fellowship with the other students

The lectures by the speakers

The professional development presentations about graduate school preparation and speakers that gave their research experience were extremely helpful.

Hearing different people speak about interviewing and networking

Organization

The different speakers that have already graduated and have been accepted into graduate school

Hearing speakers talk about their undergrad experiences

Addressing the students (sic) concerns

Meeting our students who are interested in the program. Getting information about REU I could apply for.

All of the emails {Program Coordinator} sent out nearly daily (oftentimes more) notifying us of different internships, campus-wide research opportunities, and professional growth and networking opportunities.

Getting to know who took care of what

Professors coming to talk about their research and answering questions

What would you change about the meetings to make them more helpful?

More meetings maybe

More student interaction. Snacks. More professional development. How to write an abstract, poster, or PowerPoint. How to fill out an REU application to be successful.

GRE prep

Incorporate knowledge for students for all placement opportunities

Invite more senior undergrads to speak to freshman undergrads about research opportunities

A little culture, something OK-LSAMP

Group meetings would be cool for more ideas for projects.

More direct info on REUs

More talks from different research professors

More possible meetings

More guests from industry

More about the history of OK-LSAMP

Nothing at all

More life scientists

Nothing

More things for pre-meds

More icebreakers and getting to know you events. The speakers are nice but I would like to get to know the other scholars. You only get to really met (sic) the other scholars at conferences.

N/A

Maybe one meeting a semester where we meet and get to know other scholars.

Perhaps have meeting with other OKLSAMP schools

Ask students to fill out a doodle poll for the best time to meet for meeting. Make them a requirement.

More social events would be fun and a great way to welcome new members to the program.

Snacks!

Appendix 3: Mentor Support

How did your mentor help you?

He was readily available and always had great feedback.

He's always there for me!

Provide funding and support on a research opportunity.

He helped me with my OK-LSAMP poster.

Research expertise and advice.

With keeping me informed with the most recent information for events and internships regarding to the program for the arts and science category STEM. (sic)

My mentor supported me in everything research related that I did.

My mentor gave me knowledgeable advice.

By letting me know when events were coming up and keeping me up to date on events to present the research.

Absolutely!

Updates frequently.

He help (sic) me keep in track with graduate school applications. He also keep (sic) me in track with conference deadlines and important events.

He wrote letters of recommendation.

Kept me updated with funds for research and helped me discuss ways to work on projects efficiently.

Encouraged and provided funding for conferences.

Helped by keeping me updated with different internship opportunities and different programs to join.

{Mentor Name} was very helpful and never short or annoyed.

He made sure I stayed focused throughout the semester and was very encouraging.

I worked with her on our research project and she found scholarships for me to apply.

He helped write letters of recommendation and inform me of wonderful research potential within the {Department Name} at {Alliance Institution}

My mentor has given me all the equipment necessary to perform my research, as well as being very helpful when I run into problems.

Explained the application process and expectations

He helped me by providing many opportunities to perform research and encouraging me in my research and academics.

Gave me advice on how to apply to graduate school.

My mentor helped me by giving me research to learn and do since I have been a part of the LSAMP program

Keeping me updated on everything happening and always supporting me

Walked me through the process of signing up

He is amazing. He is very encouraging, and is there to answer any question.

I was in need of 2 more credit hours this semester to complete my degree program and I was very interested in a certain class that they do not offer often and I went to him and expressed how I would like to take this class if they could offer it. This semester they decided to hold the class even though only one other student and myself were taking the class because he went to the board for me. I really appreciated it.

He guides me in every step of my research and allows me to answer my own questions using the tools I have been given.

She help (sic) me learn about opportunities available to me.

Most answers to questions like these fall in one of three categories: there has been a considerable amount of instances of something happening and the most important instances stick in your mind to be answers to this sort of question (the ideal case), there has been little to no instances and you have to make something up, or in rare cases, there's been so many that they all seem to blur together. This is one of those rare cases. Honestly, I've started taking their help for granted somewhat. Although, I can't piece together all the different times my mentor has helped me, I can tell you that, if I write a book someday, it would be incomplete without a special thank you to them in the forward.

My mentor was not helpful in troubleshooting experiments or judgment in experimental proceedings.

Helped me with my research poster, and answered any questions I had.

He helped me go to conventions, network, with my classes, and other problems I may have had. He is also the first to show me the whole research process.

Set up posters for the spring convention. Lead research. Gave guidance in academic career. Helped me find out if I were eligible for this scholarship

Introduced me to a great team of people and an interesting project.

With my research

Encouragement

In helping me with continuing my research and formatting my poster for the Day at the Capitol event.

He provided a lot of mentoring toward personal problems/goals, academic goals, and research related problems.

They explained how deadlines worked and were always able to provide recommendation letters.

By providing support for events and helping to get travel plans understood.

Figure out research project

How could your mentor improve?

Can't think of anything.

Don't think it's possible.

He could hold meetings for the LSAMP students on campus.

Well, she's doing a fantastic job.

Meeting a little more often would have been nice. Monthly meetings at least.

For my mentor to be more available.

Honestly, I don't know.

More projects.

No idea comes to mind.

Wonderful, no need for improvement.

Be more organized.

Couldn't improve.

She is excellent in her duties.

He could organize/prioritize his calendar better

{Mentor Name} is great.

He could email us to check up on our progress.

Nothing, she is awesome.

He's the best

NA

Impossible. He cannot improve.

No improvements

N/A

It would be helpful if she could find more {topic} related opportunities instead of just engineering

N/A

He could improve by developing his mentoring and constructive criticism skills.

Follow-up with students.

Our relationship is working pretty well.

In no way does she need to improve. {Mentor Name} did very well.

Communication throughout the semester, having time to meet more frequently.

More openness

Having more time for students

They should require a monthly mentor-student meeting that way we are both building a relationship and are on track.

N/A

She is awesome

Appendix 4: Graduate School Preparation

How did the program help with GRE preparation?

Practice test

Knowledge on best practices

Access to an online website for help and flashcards

Online course

Opportunities for GRE prep

Books

Study materials and prep advice

Test prep

I received instruction over taking and studying for the GRE.

They paid for my enrollment in the GRE prep course

Information about online prep courses

Helpful websites and program information

A book

GRE practice material

They reimburse class fees.

Learned about free tutoring

Free study material / Kaplan test prep suggestions

GRE prep course

Links to GRE Prep

{Alliance Contact Person} promised GRE prep assistance

GRE prep workshops, GRE reimbursements

Study guide from office

Appendix 5: Support in Six Areas

What can be improved in the areas of academic and social support, staff availability, opportunities to work with campus support programs and community organizations, and interactions with others students in the program?

More student peals (sic) in the physical sciences and more booths.

More social events to get to know the other students.

My school needs to actually hold meetings.

More social gatherings outside of meetings throughout the year.

I just got accepted mid semester. I haven't had any opportunities to interact yet. I feel my evaluation does not accurately provide feedback given my circumstances.

I absolutely love this program. Its (sic) giving minorities the rights to be successful and i wish i would've find (sic) this program earlier before my senior. Thank you for your help and support.

I think the OK-LSAMP does a great job in all aspects.

I would like to see socials during the beginning of school year to build community amongst scholars.

More trips to present research.

More social events so that scholars can better interact with each other

More scholarship information

Nothing. I feel like OK-LSAMP is great!

I haven't been involved with the program very (sic) so I haven't had much experience with it.

Everything is great. Most of the services just don't really apply to me.

More Social Activities

The only thing I can remotely think of is that it would nice to have more consistent speaker schedules, but I also realize that is party (sic) out of their control, and it isn't bad as it is.

N/A

Have meetings at {Alliance Institution} at least one time a month.

N/A

Having more meeting (sic) throughout the semester. Possibly appoint students who help coordinate events with {Alliance Contact Person} so we can meet more often to discuss research and presentation skills.

More social interactions other than meetings.

Appendix 6: Program Strengths, Weaknesses, Recommended Changes, and Final Comments

What are the strengths of the OK-LSAMP program?

Support

Lots of opportunities sent out by email.

They have provided me with opportunities to present around colleagues, they have helped me with internships, helped me with preparing for the OK-LSAMP meeting.

Exposure and prestige.

I think it provides great opportunities.

Giving steps into learning how to be successful.

The program facilitators are top notch.

Being supportive and guiding its students in the right path.

It really provides the tools needed to get further out of research and tells you what to expect to succeed.

It gives you the opportunity to research by helping financially. It also helps with the opportunity to present your work in various conferences.

Very caring and helpful coordinators.

Opening up opportunities that would likely not have been pursued or acknowledged. And scholarship to help ease financial burden.

Many emails about opportunities that I wouldn't be able to find on my own!

Different connections and opportunities.

Provide a program full of likeminded people.

The program provides incredible opportunities for students.

Providing opportunities I would not be able to participate in regularly or be aware of regularly.

It pushed me to not become complacent.

The OK-LSAMP program is great at providing assistance for student travel to conferences and for keeping students aware of summer internships.

A great team of coordinators that go above and beyond to help their students

Very helpful to all the students

Opportunity for research.

Getting students tons of REU opportunity info and workshops to prepare for graduate school and highlighting ways to be academically successful

Very organized.

Very into the students.

Being from a diverse ethnic background it is reassuring to say that I belong to a program aimed at helping minorities pursue an advanced degree.

The staff are very helpful.

Helping students be aware of all the possible opportunities they have, and encouraging them to participate in research and symposiums

Friendly, willing to help

Love receiving the emails notifying us about opportunities

The opportunities im (sic) given to do research.

Helps connect many students with the same interests, and aids with travel to present at conferences out of state.

They provide opportunities upon opportunities. {Alliance Contact People} are always there for you.

Networking, professional development, annual conferences, graduate school of prep (sic)

Provided me with opportunities I would not have known of.

The friendly environment. It promotes laughter and a good time, but we still get things done.

Networking and opportunity

The program does a good job of inspiring and pushing students for higher standards and the

extra aspects of a student career

Helps me financially as I focus on my major courses.

Constant updates with internship opportunities, help with the cost of GRE, insight into various careers.

No. 1 strength is definitely the help with finding an internship

Being there for students

The availability of research opportunities here on-campus. The assistance in preparation for graduate school.

Informing students of really unique and valuable opportunities that we may not have found out about otherwise.

They are like a support system

The opportunities that they are able to provide is essential.

What are the weaknesses of the OK-LSAMP program?

It's small.

I still don't know the other students. It's not student run at all.

I would like to see mandatory meetings for my university.

I am not experienced enough to comment.

N/A

None

I couldn't say honestly.

New transition of new mentor.

Needs more meetings or available meetings or talks to include all members.

Maybe a little too undercover.

Not enough opportunities for pre health students.

OK-LSAMP has no weakness.

I don't really know a lot of the other scholars

We are a small group

Guidance for the program

I do not know any

It could be explained a little bit better.

Nothing at all.

That is (sic) only helps those in STEM.

I could not participate as much because my schedule conflicted.

None

The programs do not really apply to me sometimes. I feel like sometimes I am wasting my time.

Not enough things for those who are in the nutritional sciences.

I don't feel as involved with the program apart from attending the annual meeting in the fall.

N/A

N/A

NO meetings at my institution.

Some of the presenters aren't the most inspiring or talented of speakers or have messages that don't quite benefit us.

None

Mentors may have too many things going on at one time

The lack of communication between students in the program and the faculty operating OK-LSAMP.

Students knowing when to take the GRE and how to prepare for the GRE.

It would be great if some more of the forms we have to turn in were online.

I can't think of any right now

Limited time. Not much can be done for students who come as juniors or later.

If you could make changes to the OK-LSAMP program, what would those / changes be?

Fix the budget to be higher cause I need to get paid better.

Add officer positions to organize the meetings. Informational and socializing meetings. Funds to support research travel that isn't advertised from OK-LSAMP. If I find something independently it'd be nice to know I could have some support as well.

More publicity.

N/A

A bit more judges for the symposium.

Nothing at all.

All it needs is to keep going and building.

Have more available meetings to inform how to apply for internships and workshops for grad school that are easily accessible for all students.

None

I would change nothing about OK-LSAMP.

More social events

Actively recruit more members to the group

Have more guidance and meetings.

N/A

More information sent about the program.

Nothing at all.

I would also help those who are wanting to become secondary educators in STEM, since they will be the ones to help future students pursue a degree, and also since this is what I would like to do.

Incorporating a master's in education into the bridge to doctorate program would help tremendously in getting my master's of education paid for and provide new and unique opportunities for other students like me who are unsure of pursuing a doctorate in STEM

What (sic) can't OK-LSAMP support professional schools in general rather than just graduate schools?

More workshops that spoke on things for Pre-meds

A clearer, perhaps formulaic explanation of the points system would be nice.

N/A

Have monthly meetings.

Have a session that is for us to get to know each other more.

Higher caliber presenters/meeting topics

None

Nothing that I can think of

I would model this program similar to the McNair program.

Adding more social events/chances for program members to share ideas and collaborate together.

Have study hours mandatory

Any other final comments?

I hope this was helpful.

Again, i was accepted in the late fall, I have not had opportunities to accurately rate this program. Thank you very much for this program.

No.

I am very grateful to everything that OK-LSAMP has done for my research career.

I always strongly encourage other (sic) to consider research and OKLSAMP

Thank you {Alliance Contact Person} for your help!

OKLSAMP is the greatest reason I've decided to pursue (sic) a masters degree. The support and

resources they have provided my future are unrivaled by any other resource on campus.

This is a fantastic program

Nope.

If I am not participating in LSAMP next year I would just like to say thank you for the opportunity, especially to {Program Coordinators} for all the emails over the years.

Thank you for everything you do!

Thank you

I'll miss {Program Coordinator}.

It would be a great idea to reach out to students in nearby community colleges to let them know about the program. It would have been of great benefit to me if I had learned about OK-LSAMP as soon as I transferred to university.

No

You guys rock. Thanks so much for all you do.

I am very thankful for OK-LSAMP. It had helped me so much financially and has allowed to me work less outside of school and focus more on my research.

Nope!

I like to see the program to become more of a community for students and faculty members to know what research is being conducted at the university.

Thank you SO much OK-LSAMP! You've made my college experience much richer and more fulfilling!

Appendix 7: OK-LSAMP Coordinator Responses

In what ways did you recruit students to your OK-LSAMP program?

Word of mouth / Email to department chairs requesting nominations / Email to eligible majors with minority status

I went to the faculty members in Biology, Chemistry, and Nutritional Science to encourage them to accept minority students into their research labs. Since most of our faculty do not have funding for paying undergraduate students, the money that OKLSAMP provides is great incentive to recruit research students.

I normally recruit students who receive an A in my {Name of class}. These students are normally interested in graduate or professional school. Also, the biology club announces the scholarship during their meetings. Also, students who do research with me in either of my research classes are added to OK-LSAMP. All the {subject} majors know about the scholarship as soon as they declare the {name of major}.

E-mails and pdf pamphlets sent to appropriate department Chairs to help identify potential scholars. Speaking at student club and honor society meetings in the STEM disciplines. Fliers were hung in the campus Science Complex. Approaching students in classes.

Announced our program at the College of Health & Science faculty meetings. Posted announcements on bulletin boards. Recruited students in person. Announced program in classes.

Inter-departmental collaboration with faculty about prospective students, followed up with a personal contact. / Collaboration with registrar's office; using the university database to identify prospective students by minority status and major; following up with a personal contact. / Collaboration with the director of the university's Native American center; identifying prospective students by major; following up with personal contact.

Through social media (Facebook, Twitter) and newsletters from the office. At every workshop I talked about LSAMP, and at any class talks about undergraduate research, LSAMP was mentioned as a potential source of funding. We also had a table at the diversity event in engineering this spring.

On-campus advertising, recruitment by faculty mentors, word of mouth

Do you have comments about the group meetings?

Sometimes it is easier for me to meet with individual research groups, in order to keep up with what the students are doing.

I normally have about 30 students. These students are involved in so many organizations that it is more

productive for me to send them weekly emails, but also for them to visit my office since each of them have individual needs based on their applications to graduate and professional school. I write letters of recommendation for each of these students so the one on one visits are more productive.

Our university does not have a history of consistent meetings, but I am in the process of developing monthly meetings with scholars.

I know our students individually so having lots of group meeting is not necessary. I also communicate with them in person and by email.

Other than needing to have formal meetings more often, I've held professional development workshops throughout the semester. Every Wednesday at 4:30pm I offer a workshop and have invited LSAMP students to attend.

Group meetings are helpful because it allows the students to gain a better understanding about the goals of the program.

What meetings/topics seemed most meaningful to your students?

Kay Porter does a wonderful job sending interesting and varied internship opportunities. She also includes my {Alliance Institutional} students when she makes reservations to attend professional meetings. The most meaningful information for my students is knowing that LSAMP provides money to put them in a seat at a graduate or professional school upon graduation. My students know that they will be reimbursed if they provide me with a receipt for paying for the GRE, MCAT, DAT, applications to professional and graduate school, travel to airport/baggage/and other out of pocket expenses when they attend professional meetings. My students do not have family members who can provide the financial support that OK-LSAMP can provide to take these students to the next level of education.

Tips on initiating research, preparing for the GRE, and how to find appropriate graduate schools.

Telling them about REU's they can apply for and how to go about it. Advising them to apply for graduate school and take the GRE. We also had some of our students speak to our Society of Physics Students but this isn't counted as a group meeting.

1. Discussions about each scholar's area of research. / 2. Discussions about potential summer research opportunities (REU's). / 3. Social interactions between students of different schools/majors.

Poster workshop, conference workshop (what to do/how to dress when attending)

I think they enjoyed learning about the support network in place at the university (associated with the program) that will provide them with resources to stay engaged.

Comments on student progress reports

I check in periodically throughout the semester with the mentors

I don't need progress reports. I need posters and PowerPoint presentations. That tells me the progress that the mentors are making.

But not from all scholars.

No written reports, just personal communication. We all know each other in the sciences here.

Student progress reports are required at the end of each academic semester.

What criteria did you use to distribute funds to your students?

Time in the program / Participation in Research / Participation in Summer Research / Money Available

I pay them \$12 per hour for a fixed number of hours per week that has been agreed to by the student and the mentor. I check in with the mentors to make sure that the student is regularly meeting their obligations.

I have a spreadsheet that I use. The students know exactly how much they will be rewarded for each activity. / / Summer Internship = \$400 / / GPA over 3.0 = \$100 / / Attendance at OK-LSAMP Annual Research Symposium = \$100 / / Attendance at Oklahoma Research Day Symposium = \$100 / / GRE reimbursement = \$195 / or \$100 if the students go to Financial Aid and receive a stipend / / MCAT reimbursement = \$300 / / Reimbursement for travel/baggage/gas/food not provided at meetings/etc., for scientific meetings to include NCUR and SACNAC = varies / / Professional and Graduate School Application Reimbursements = cost varies

Amount awarded depended on level of overall activity with an emphasis on: Completing the online application process, participating in active research with a mentor, attendance of the OK-LSAMP Symposium or other professional meetings, maintaining an appropriate GPA, and providing a semester update.

GPA, meeting attendance, presentations at meetings, attending Oklahoma Research Symposium, application to graduate school

1. Research projects/activities. / 2. Meeting attendance. / 3. Discussions and recommendations with research mentors. / 4. State/National meetings.

I used a point's sheet that reflect student engagement. The more activities a student reported (and was confirmed), the more their stipend. Activities included conference attendance/presentations, number of research hours, GPA, application to summer REUs, and other professional development activities.

Students who were qualified to participate in the program were allocated funds.

In past years, RCR training was available to students at the Fall Research Symposium. Please comment on whether or not you would like to have the training offered again at future Symposiums.

If {Alliance Institution} would count that training as applying on our campus then yes. However, in the past they said it didn't and that our students would be required to take training here. Yet they have only offered the training one time here; and it was two years ago.

It would be great if it would fulfill the RCR requirements we must meet. Apparently the state wants students to spend more time on it than would be available at a Symposium.

{Alliance Institution} offers RCR training as well. I think it may better serve LSAMP students to participate in the {Alliance Institution} RCR for relationship building here on campus than at the Symposium. That said, it may help build the LSAMP community to have it at the Symposium as well.

We are also providing RCR training on campus.

In our spring 2015 student survey, several respondents noted they were interested in having more connections with scholars from other OK-LSAMP campuses. Do you have comments about pursuing this option?

Definitely! There are so few scholars here that most of the time they don't realize all of the opportunities that could be available to them as an OKLSAMP scholar. I am always looking for ways to make my scholars travel and experience more.

It depends on the time commitment. I took the {Name of club} to OUHSC. After returning the students to {Alliance Institution} campus and returning the van to the motor pool, I did not get back to my home in {hometown} until 8:30pm.

This would be good if we could find a way to do it well. The symposium and other meetings such as Research Day and the OAS are good ways students can make connections if they participate in them.

The more connections, the better.

Do you have suggestions for ways to help promote more interactions among all OK-LSAMP scholars?

The first requirement is for each campus coordinator to get a time commitment from the students. The students are so busy. They think I am crazy when I make them attend activities on Saturdays. They think

{another Alliance city} is very far. The students fit me into a time slot. They send me a recommendation request and seem annoyed when I don't have it ready for them when they arrive in my office and make them wait for it. For me to be involved in this activity, I need a commitment from students.

Might it be possible to provide an opportunity for students to interact at events like Oklahoma Research Day? There could be a room or meeting location announced during the event. These meetings could occur once or twice during the event and last 30 minutes, or so. Maybe share a list of poster numbers of OK-LSAMP scholars with all other scholars before the event and encourage them to visit and support the poster presentations.

There are occasions where scholars from more than one OK-LSAMP campus attend the same conference, but they do not know each other. Do you have comments about helping connect these students?

That would be wonderful. A small social or meet and greet would be appropriate.

The only issue would be identification (knowing the names) of the scholars.

Do you have suggestions for how to make these pre-conference connections?

On-line conference calendar where students and/or campus coordinators can log what conferences they will be attending

Set up Skype meetings between the campuses, so that each of the students can introduce themselves and give a brief introduction of their project.

Campus Coordinators need to find centralized pizzeria days before the conference.

Invitations to LSAMP students to have a pre-conference social, or a social the first night at the conference. Alternatively, coordinated travel may help build a camaraderie (everyone flies on the same plane)... this would require all travel be coordinated out of one office.

It would seem that a crucial component would be someone taking the lead and identifying individual scholars and then developing a venue for the scholars to meet during the conference.

What can the lead institution staff at OSU do to help you throughout the year?

Kay Porter does everything I need.

They already do a wonderful job of keeping coordinators and scholars informed, so I do not have any current suggestions.

You are doing great as far as I am concerned. Keep up the good work!

Suggestions of meeting content would help me plan meetings.

I cannot think of anything more than they are already doing.

Do you have any overall comments/suggestions concerning the OK-LSAMP program?

I believe this program is of vital importance to the State of Oklahoma and the Native nations who now call Oklahoma home.

No.

The application system causes some students to be dropped out of the system and creates a sense of frustration in some students.

I think that the infrastructure for program administration at each individual campus needs to be directly connected to the departments and colleges of the students. In addition, inclusion of all students who are eligible (majors/disciplines) need to be provided the opportunity to participate.