2017

PERFORMANCE EFFECTIVENESS REVIEW

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

Submitted to
The National Science Foundation
4201 Wilson Boulevard
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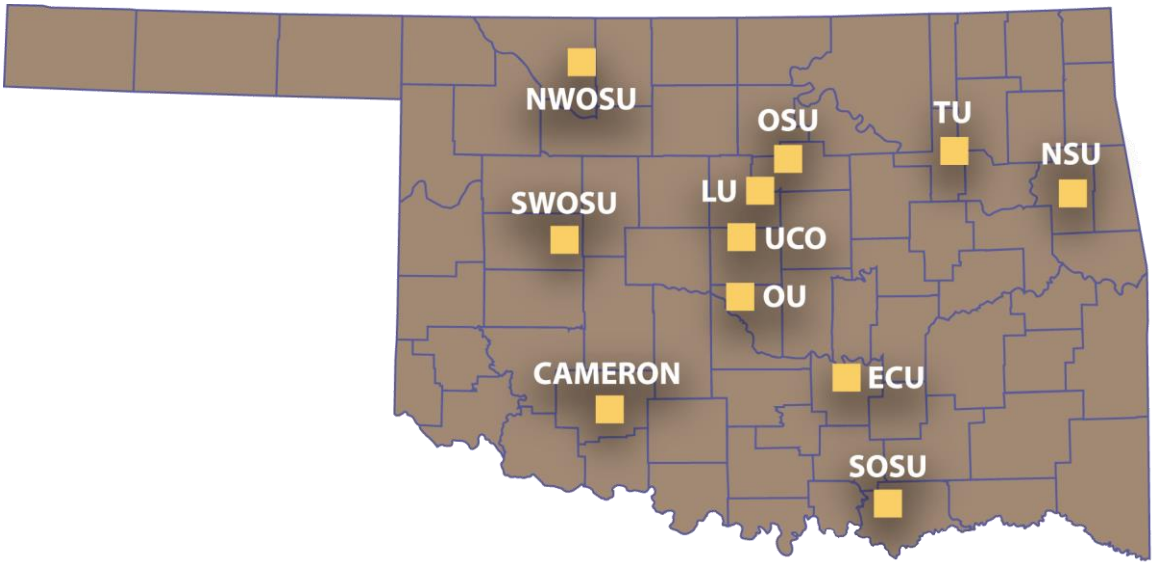
Oklahoma Alliance Institutions



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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

The Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) program successfully concluded *Year Three* of the five-year National Science Foundation (NSF) grant (HRD 1408748 - 2014-2019). Therefore, this completes 23 years of prosperous LSAMP activities in Oklahoma.

As a state, the Oklahoma LSAMP alliance 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.

In 2016-2017, the Oklahoma Alliance had 270 Scholars, a 21% increase from the 2015 - 2016 academic year. Of the 270 scholars, 71 completed Bachelor of Science degrees and 20 of the graduates were admitted to graduate schools for a total of 28% of scholars. During the academic year 36% of the Alliance scholars participated in research activities, and 28% of the scholars, participated in summer research experiences at national and international locations.

Dr. Jason F. Kirksey, Vice President for Institutional Diversity continues as Principal Investigator and through his leadership at Oklahoma State University (OSU), the institution received various awards to recognize the institution's efforts in Diversity and Inclusion (Appendix A). OSU received the Higher Education Excellence in Diversity (HEED) award for the fifth consecutive year. This award honors U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion. The National Association of Diversity Officers in Higher Education (NADOHE) selected Dr. Kirksey to receive the Frank W. Hale Jr. Distinguished Service Award. This award recognizes individuals who distinguish themselves in higher education with a robust record of consistent service for inclusive excellence; exercising innovative and courageous leadership and vision, and exemplifying the philosophy, principles and practices of NADOHE while contributing substantially to diversity and inclusive excellence. Oklahoma State University was also recognized for its diversity and inclusion efforts with the Roosevelt Thomas Champion of Diversity Award. The honor is awarded annually by the American Association for Access, Equity and Diversity (AAAED), a national, nonprofit organization of equal opportunity, diversity and affirmative action professionals.

The University of Oklahoma (OU) received NSF funding for the Bridge to the Doctorate (BD) Cohort IX (HRD - 1702495 - 2017-2019) and enthusiastically began recruiting interested LSAMP scholars. OU continues to recruit and some BD fellows will start Fall 2017. Oklahoma State University continues on its second year of NSF funding for the BD Cohort VIII program (HRD - 1612150 - 2016-2018). Currently with nine fellows, the OSU BD cohort has diverse group of applicants from Mathematics, Veterinary Biomedical Sciences, Integrative Biology, Industrial Engineering, Natural Resource Ecology and Management, Microbiology, Chemistry and Biosystems & Agricultural Engineering. OSU is actively recruiting for the remaining fellows for a full Cohort. 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 OK-LSAMP Scholars, Melissa Chanderban (OU) and Akanimoh Sanmi Adeleye (OU) were awarded the NSF Graduate Research Fellowship Program (GRFP) fellowship in Spring 2017, prior to graduating with their Bachelors of Science degrees.

The 22th Annual Research Symposium welcomed 127 attendees for a day of workshops, poster and oral presentations, ethics training, and guest speakers. Dr. Robin Kimmerer, from Air SUNY College of Environmental Science and Forestry in Syracuse, New York was the keynote speaker. Our scholars presented 39 posters and had 16 oral presentations.

The OK-LSAMP lead institution staff traveled to the various alliance campuses and met with key administrators for the overall promotion and success of OK-LSAMP. Dr. Jason F. Kirksey, Brenda L. Morales, and Darlene Croci, met with key administrators such as Presidents, Vice President for Academic Affairs, Vice Presidents and Directors for Institutional Research, Deans and Department heads of any STEM areas, Diversity Officers and the respective OK-LSAMP Campus Program Managers. These meetings were a successful introduction to the new OK-LSAMP staff as well as a discussion for new opportunities for recruitment of scholars, faculty research mentors and new opportunities offered within the program.

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 graduate programs all around the country such as the Mercer University, University of Tennessee and Towson State University in Maryland. Two OK-LSAMP graduating seniors from the University of Oklahoma were awarded the prestigious Graduate Research Fellowship Program (GRFP) for 2017-2022. An OK-LSAMP alum has been awarded the GRFP and will defer for two years while attending OSU through the Bridge to the Doctorate program. The fellow will then continue their PhD in integrative biology, through the GRFP after the first two years of BD 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 22 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 URMs in STEM fields and increase their matriculation into graduate programs.

Scholar Demographics

The 11 Oklahoma Alliance institutions supported 270 LSAMP scholars in the 2016 - 2017 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 URMs in STEM programs across the Alliance (Table 1).

Table 1. Comparison Numbers to Meet Stated Goal

Institution	No. Scholars	
	2015-2016	2016-2017
Cameron	13	12
East Central University	13	12
Langston University	27	47
Northeastern State University	7	15
Northwestern Oklahoma State University	4	6
Oklahoma State University	85	83
Southeastern Oklahoma State University	12	18
Southwestern State University	7	8
University of Central Oklahoma	11	15
University ok Oklahoma	27	40
University of Tulsa	17	14
Totals	223	270

Year three of Phase Five continued to show more females than males as OK-LSAMP Scholars in the Oklahoma Alliance.

Table 2. Comparison of Scholars by Gender

Category	Year	
	2015-2016	2016-2017
Male	107	124
Female	116	146
	223	270

Table 3. Comparison of Scholars by Ethnicity

Ethnicity	2015-2016	2016-2017
African American	67	93
Native American	74	94
Hispanic	52	59
Pacific Islander	3	2
Asian American	13	8
First Generation / Caucasian	14	14
Total	223	270

Table 4. Scholars by Discipline and Gender

Degree Program	Male	Females	Totals
Agriculture	3	7	10
Biological Sciences			
Biochemistry	5	7	12
Biology	23	53	76
Chemistry	8	12	20
Microbiology	6	13	19
Nutritional Science	2	5	7
Zoology	1	3	4
Computer Science	10	6	16
Engineering			
Architecture	1	1	2
Chemical	7	8	15
Civil	2	1	3
Electrical	10	0	10
Mechanical	8	5	13
Environmental	0	1	1
Engineering	12	6	18
Technology	2	3	5
Geology	0	1	1
Natural Resources and Conservation	4	4	8
Management Information Systems	2	1	3
Mathematics	8	6	14
Physics	10	4	14

On-Site and Community College Recruitment

The 21% growth of OK-LSAMP scholars is evidence of the active recruitment efforts throughout each of the 11 Alliance institution campuses. Campus Program Managers sought top underrepresented students in the STEM fields and used a variety of avenues in the recruitment process. Events such as high school visitation days, freshman orientation events, freshmen

orientation courses and parent-student campus tour days were utilized to identify potential scholars. Additional recruitment was also conducted on-site at university wide 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	

Throughout the Oklahoma, alliance the current OK-LSAMP scholars assisted in the efforts as to relate to potential scholars and give their experiences with the program. Methods used include, but are not limited to: high school visitation days, State wide STEM awareness events, 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. Scholars were invited by their campus peers to present at campus chapters of Society of Hispanic Professional Engineers (SHPE), Society for the Advancement of Chicanos/Hispanics and Native in the Sciences (SACNAS), American Indian Science and Engineering Society (AISES), Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), amongst others.

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:

Activate Conference - is a four-day pre-collegiate leadership conference for incoming Oklahoma State University freshmen aimed at equipping them with the skills and opportunities to be competitive leaders in their residential community at OSU.

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.

National Summer Transportation Institute - Sponsored by the Federal Highway Administration Purpose - The camp was designed to help students learn more about STEM fields while exposing them to opportunities within the transportation industry.

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:

Aviation Summer Academy - is a residential camp for Oklahoma rising 8th graders. The camp uses hands-on activities in aviation to explore astronomy, physic, space, aeronautics and more.

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.

Horizons Unlimited - is a day camp for academically gifted and talented students exploring STEM fields.

Mesonet Weather Camp is a weeklong residential camp designed to expose students to forecasting and career opportunities with tour of NOAA's Storm Prediction Center and more.

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, Lawton (1) Science Detectives Summer Academy: Heredity at the DNA Level, May 22-26 (Grades 8-10); (2) NanoExplorers: A High School Summer Science Academy, June 4-16 (Grades 9-12).

Connors State College, Warner Ecological Investigations and Wilderness Adventure, June 11-15 (Grades 9-12).

East Central University, Ada (1) Explorations in Computer Science and Robotics, June 11-16 (Grades 8-12); (2) You Are What You Eat: Isolation and Analysis of Proteins, Carbohydrates, and Lipids in the Biochemistry Laboratory, June 12-16 (Grades 8-9)

Langston University, Langston Langston University Intensive Academy for Math, Science and Technology for Grades 10-12, June 4-17 (Grades 10-12).

Murray State College, Tishomingo 2017 MSC Summer College STEM Academy, June 5-9 (Grades 8-9).

Northeastern State University, Broken Arrow Get Green for Blue: Outdoor STEM Investigations Connecting Water to You, June 5-9 (Grades 8-10).

Northeastern State University, Tahlequah Summer Robotics Academy, June 5-9 (Grades 8-11).

Oklahoma State University, Stillwater (1) Camp TURF (Tomorrow's Undergraduates Realizing the Future), June 4-16 (Grades 9-10); (2) It's a Polymer Life: Polymers of Everyday Life Summer Academy, June 9-14 (Grades 10-12); (3) Exploring the Benefits of Human-Animal Interaction and Bonding Processes, June 25-July 1 (Grades 9-10).

Oklahoma State University Institute of Technology, Okmulgee Emerging and Converging Technologies Summer Academy, June 4-9 (Grades 8-10).

Oral Roberts University, Tulsa A Hands-On Program in Mathematics and Science, June 5-9 (Grades 8-9).

Seminole State College Peek Into Engineering, July 30-Aug. 4 (Grades 9-12).

Southwestern Oklahoma State University, Weatherford Southwestern Summer Science and Mathematics Academy, June 11-23 (Grades 11-12).

Tulsa Community College (1) MASH (Math and Science Health Careers Camp), Session I: June 12-16; Session II: June 19-23 (Grades 9-11).

University of Central Oklahoma, Edmond (1) CSI Academy, June 1-5 (Grades 9-12); (2) Be an Engineer: Change the World, Session I: June 5-9; Session II: June 12-16 (Grades 8-10).

University of Oklahoma, Norman (1) Collaborate, Create, Construct! Innovation Shaping the Built Environment, June 11-16 (Grades 9-10); (2) Oklahoma Mesonet: Mostly Weather With a Chance of Fun; June 18-23 (Grades 9-10); (3) Starship: Exploration, June 25-30 (Grade 8).

University of Oklahoma Health Sciences Center, Oklahoma City Exploring Math and Science Academy (EMSA) at the University of Oklahoma Health Sciences Center (OUHSC), June 12-23 (Grade 9).

University of Science and Arts of Oklahoma, Chickasha (1) Where Does Our Food Come From and How Did It Get There? Session I: July 19-23; Session II: June 26-30 (Grades 8-9).

The University of Tulsa (1) Summer Engineering Academy at The University of Tulsa, June 26-30 (Grades 8-11); (2) Technology Education and Collaborative (TEC), July 10-15 (Grades 8-9).

Data Collection

Collection of data is a priority for the LSAMP program. The on-line application continues to be updated and revised to insure the most accurate collection of information for each application on each Alliance campus. The process is working well for both students and Campus Program Managers.

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. OK-LSMAP keeps an open line of communication with alumni to seek resources for the scholars as well as to update the "Link" newsletter.

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 throughout the year with updates to the program on an as-needed basis. The information collected includes, but is not limited to: degree program, research presentations, awards, research projects, international experiences, 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, international experiences and conferences. In addition, the OK-LSAMP Facebook Group, Instagram and Snapchat accounts continued to be used for more direct contact with scholars. The Facebook Group page continues 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.

OK-LSAMP scholars are encouraged and empowered through one on one meetings with Campus Program managers and scholar meetings. Resources are provided to motivate scholars personally, academically and professionally. Focal points on graduate school preparation included

participation in the Graduate Preparation component of the program, interaction with matriculated graduate students and current BD fellows, the graduate school application process, and research experiences. Graduate School consideration and preparation conversations are had with scholars early in their LSAMP academic career, as to increase scholar's value of graduate degrees.

- Twenty-one 2016-2017 OK-LSAMP graduates were accepted to graduate schools throughout the nation. Examples include, but are not limited to:

  Mercer University
  Oklahoma State University
  Towson State University
  University of Colorado
  University of Oklahoma
  University of Tennessee
  University of Tulsa

- Graduate school preparation resources 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 provided with information and resources for the GRFP and the LSAMP BD program. This information was provided through informational workshops and panel discussions.

- Scholar meetings, implemented throughout the Alliance, offered a forum for educational speakers and workshops focused on graduate school preparation, career development, networking and professional development.

- Support to state, regional, and national conferences to present research projects.

- During academic year 2016-17, 89 scholars participated in local and national presentations. Examples include, but are not limited to:
  American Chemical Society, TX
  American Chemical Society National Conference, Los Angeles, CA
  Annual Biomedical Research Conference for Minority Students, Tampa, FL
  Great Plains Infectious Disease Conference, Lawrence, KS
  National Association of Engineering Student Councils National Conference, West Lafayette, IN
  National Conference on Undergraduate Research (NCUR), Memphis, TN
  OK-LSAMP Annual Research Symposium, Stillwater, OK

Oklahoma Research Day at the Capitol, Oklahoma City, OK
Oklahoma Research Day, Enid, OK
Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Long Beach, CA
Louis Stokes Midwest Center for Excellence, Lisle, IL
Women of Color in STEM, Detroit, MI.

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. This training was also offered during the 22nd Annual OK-LSAMP symposium, as to have students from all the alliance institutions participate in training.

- 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.

- 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.

- Scholars throughout the Alliance are encouraged to apply to the GRFP during their senior year before graduation as well as graduate schools that offer the BD fellowship.

Annual Research Symposium

The 22nd Annual Research Symposium was held September 24, 2016, on the Oklahoma State University, Stillwater campus (Appendix C). The Symposium welcomed 127 attendees for a full day of workshops, posters, oral presentations, and guest speakers.

The Keynote speaker (Dr. Robin Kimmerer) for the 22nd Annual Research Symposium is a plant ecologist, writer and SUNY Distinguished Teaching Professor at the SUNY College of Environmental Science and Forestry in Syracuse, New York. She serves as the founding

Director of the Center for Native Peoples and the Environment whose mission is to create programs which draw on the wisdom of both indigenous and scientific knowledge for our shared goals of sustainability. Her research interests include the role of traditional ecological knowledge in ecological restoration and the ecology of mosses. In collaboration with tribal partners, she and her students have an active research program in the ecology and restoration of plants of cultural significance to Native people. She is active in efforts to broaden access to environmental science education for Native students, and to create new models for integration of indigenous philosophy and scientific tools on behalf of land and culture. She is engaged in programs which introduce the benefits of traditional ecological knowledge to the scientific community, in a way that respects and protects indigenous knowledge.

In addition to the keynote speaker, the conference hosted other speakers and panelist. Dr. Toni Shaklee, Assistant Vice President for Sponsored Research responsible for policy development and implementation hosted a Responsible conduct of research information session for all in attendance. A panel of LSAMP undergraduate scholars and alumni provided information and their experiences of their international research and international academic experiences.

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

Life Sciences Poster	**Non - Life Sciences Poster**	**Oral Presentations**
1st - Mira Bakine, LU	1st - Mary Ozor, UCO	1st - Maranda Clymer, ECU
2nd - Khianta Moore, LU	2nd - Alicia Aguilar, OSU	2nd - Alicia Aguilar, OSU
3rd - Daniel Hayden, OU	3rd - Jordan Sosa, TU	3rd - Kylee O'Dell, ECU

Table 6. Annual Research Symposium Attendees by Category

	Attendees	
	21st Annual	22nd Annual
Undergraduate Students	109	73
Graduate Students	13	4
Faculty	31	25
Staff	15	6
K-12 Students	0	0
Special Guests	20	19
Total	188	127

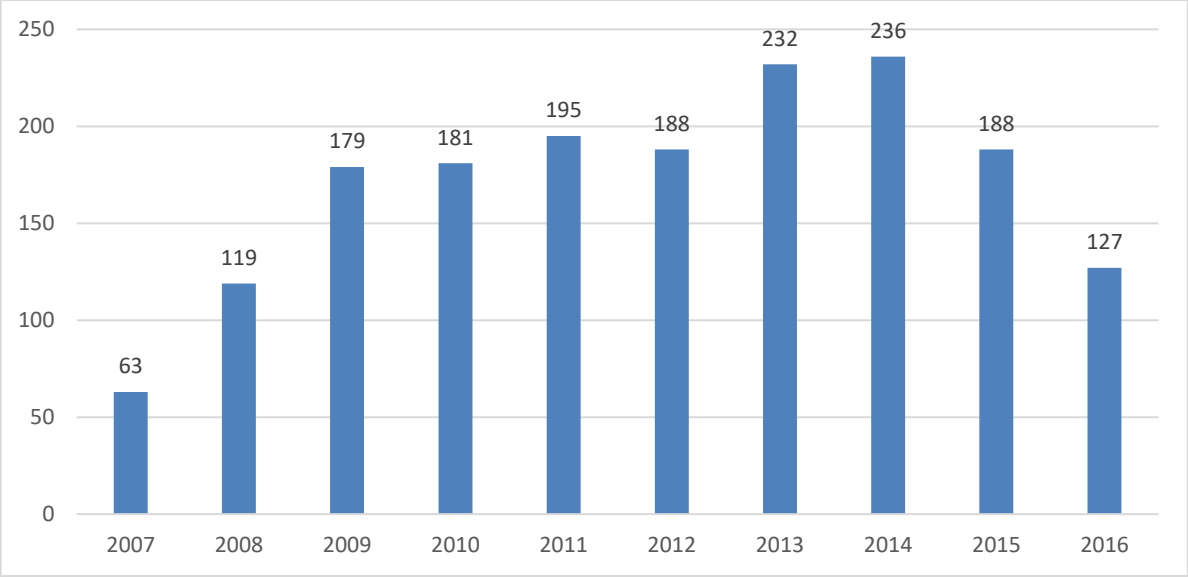

Figure 1. Number of Participants Attending Annual Research Symposium

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. This academic year lab tours were included in an attempt to get students to learn about different areas and potentially collaborate with different research labs.

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 and Internship Experiences

Institution	Summer Internship 2016	Fall Semester 2016	Spring Semester 2017	Summer Internship 2017
Cameron University	1	9	7	3
East Central University	1	5	5	2
Langston University	18	13	13	11
Northeastern State Univ.	1	10	11	3
Northwestern OSU	1	2	2	1
Oklahoma State Univ.	25	16	22	20
Southeastern OSU	6	9	8	6
Southwestern OSU	4	5	7	7
Univ. of Central OK	4	8	14	3
University of OK	9	10	12	11
University of Tulsa	11	7	8	11
TOTALS	81	94	109	78

Internship Partnerships

Scholars are encouraged to apply for both national and international 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:

Auburn University REU, Auburn, AL -- The Research Experience for Undergraduates on Smart Unmanned Aerial Vehicles (UAVs) is a NSF and Department of Defense (DoD) funded research program at Auburn University. The undergraduate research assistants are initiated to research under the guidance of faculty from Computer Science. The research assistants collaborate with their advisers and are expected to contribute to unmanned flying. Major objectives are to promote interests in UAVs and develop the research skills of the students.

Notre Dame Physics REU, Notre Dame, IN -- The program provides opportunities for undergraduate physics majors to experience hands-on participation in research in many areas of physics. Students help their professor with his or her work, or work on an experiment of your own. The REU program gives scholars valuable research experience.

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 though 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, Los Angeles, CA -- the program seeks to train a diverse generation of undergraduates within an integrated and collaborative multidisciplinary community. Their mission is to explore life beneath the seafloor and make transformative discoveries that advance science, benefit society, and inspire people of all ages and origins. They are committed to improving access and support for members of underrepresented and marginalized groups to be able to succeed in STEM fields.

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/).

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. Colorado -- 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.

Oklahoma IDeA Network of Biomedical Research Excellence, Oklahoma City, OK -- The program hosts a cadre of summer programs aimed at encouraging undergraduate students to pursue careers in science, technology, engineering and math. Four programs are currently housed on the OUHSC campus, which are designed to offer outstanding undergraduate students intensive, hands-on research opportunities in the laboratories of a select group of faculty mentors.

INBREPhillips 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.

Williams – The summer internship with Williams offers opportunities in engineering and information technology. Program offers opportunity to experience different locations and offices, field experience, opportunity to work on meaningful projects, technical mentoring by subject matter experts, real-time feedback, networking, and mentoring. OK-LSAMP scholars have participated in various Williams' internship locations these include, but are not limited to: Tulsa, OK; Green, WY; North Canton, OH.

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 2016-2017, the amount of scholars that participated in international experiences quadrupled, thirty scholars vs seven scholars last academic year. To date, Oklahoma scholars have participated in international research experiences in over 40 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 – June 2016 - May 2017

Student	Location
Blonshia Cha	Italy
Morgan James	Barbados
Myshal Moore	Barbados
Beautiful Fields	Wales
Willow Gahr	Costa Rica
Clay Patterson	China & Vietnam
Casey Love	China
Alfa Abame	Ethiopia

The Oklahoma LSAMP program has strongly encouraged alliance faculty to submit supplemental awards for international research opportunities for our scholars. The alliance has had five International research sites and sponsored eight LSAMP Scholars for an iREU. The 2016 - 2017 iREU Sites were for Chemistry (Hull, England), Bioengineering and Structural Biology (Exter, England), Plant Biology (Cambridge, England) and Biological Sciences (Beijing, China).

Michael Joseph Gorbet, SWOSU Chemistry, began a research project in May 2016 at the University of Hull in Hull, England. Michael Joseph worked with Dr. Steve Archibald researching the development of side and cross-bridged azamacrocyles. He returned to SWOSU and completed his undergraduate degree. He has been admitted into the OSU graduate program as a BD fellow.

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.

Within the 2016 *Diverse Issues in Higher Education* rankings, Oklahoma universities consistently rank in the top for awarding degrees to Native Americans. Six Oklahoma universities in the OK-LSAMP Alliance rank in the top 13 institutions for Native Americans completing degree requirements.

Forty-seven Scholars completed Bachelor of Science degrees in the 2016-2017 academic year. Seventy-one (30%) 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

	2015-2016 Graduates		2015-2016 To Grad School		2016-2017 Graduates		2016-2017 To Grad School	
Alliance Institutions	Male	Female	Male	Female	Male	Female	Male	Female
Cameron University	0	3	0	0	2	1	0	0
East Central University	0	0	0	0	2	2	0	2
Langston University	1	3	0	0	5	13	1	2
Northeastern State University	1	1	0	0	1	1	0	1
Northwestern OSU	0	0	0	0	0	0	0	0
Oklahoma State University	15	7	2	4	10	10	2	4
Southeastern OSU	0	2	0	1	3	3	1	2
Southwestern	1	2	1	2	1	1	0	0
University of Central OK	0	0	0	0	1	1	0	1
University of Oklahoma	3	3	0	0	6	4	1	1
University of Tulsa	2	3	2	3	2	2	1	2
TOTALS	23	24	5	12	33	38	6	15
	47		17		71		21	

- 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.

- Ten scholars were accepted to present at 2017 National Conference on Undergraduate Research (NCUR). Due to inclement weather only eight scholars traveled to Memphis, Tennessee, for the 2017 NCUR.

- 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.

- Graduate school preparation modules and helpful handouts are located on the OK-LSAMP website for use by all Alliance Institutions.

- Alliance campus meetings were held with the lead institution administrators and the respective University administrators and Campus Program Managers. The meetings were to introduce the new OK-LSAMP staff as well as to serve as a forum for ongoing communication on overall program operation and specific program implementations on each campus. The meetings also allowed for the exchange of ideas for new strategies of recruitment for the program as well as future scholar international experiences.

- A web page continued to be maintained by OSU as the lead institution. The application and main site have been modified to be easily recognizable to potential and current scholars as a main alliance website. 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 fourth annual conference in Lisle, IL. One of our OSU scholars (William C. Starr) was selected to do poster presentations and three alumni were selected to be panelist in various sessions. Brenda L. Morales was a moderator for a workshop on Undergraduate Research Programs in a 4-year Institution Setting (Appendix D).

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 2017, ten scholars were accepted to present at the NCUR conference, only eight were able to attend. One Scholar from the University of Tulsa, two 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 E). 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 Charles Bales from University of Tulsa and Erin Gallaway, William Colby Starr, Rendi Rogers, Jenna Harbert, Asaph Matheus Barbosa, Alicia Aguilar and Daniel Henthorn from Oklahoma State University. In addition to scholars attending the 2017 conference, Darlene Croci, grant data coordinator and Brenda L. Morales, Program Director 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 18th 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 Oklahoma Research Day event normally has over 1,000 registered students, faculty, and guests and featured over 700 unique poster presentations (oklahomaresearchday.com) (Appendix F).

Northwestern Oklahoma State University in Alva, OK hosted the 2017 Oklahoma Research Day event in Enid, OK for the first of their two-year session. 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 19 Scholars participate in the event.

Table 10. Scholars Participating in Oklahoma Research Day by Institution

School	Scholar	Scholar
East Central University	Kristian Castellanos	
Langston University	Mira Bakine	Nicholas Simon
	Halina Garraway	Lensy Hardy
	TaJaé Lloyd	LaQuan Johnson
	Kianta Moore	Gabrielle Williams
	Danielle Wright	
Oklahoma State University	William C. Starr	Tabitha Gunners
Northwestern State University	Willow Gahr	Dalton Pannel
Southeastern Oklahoma State University	Peyton Joines	
University of Central Oklahoma	Joana Pantoja	Jailene Canales
	Darlinda Cassel	Nikolas Wagner

Reaching for the Stars

Former Astronaut Jose Hernandez was invited to give a lecture on his story, a migrant farmworker turned astronaut. Scholars who attended were motivated by his speech on science, technology, resilience and preparedness for a career in STEM. (APPENDIX G)

Research Day at the Capitol

Oklahoma's top undergraduate researchers participated in the 2017 *22nd Annual Research Day at the Capitol* event held in Oklahoma City, OK at the State Capitol. Twenty-six undergraduate students from 20 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. OK-LSAMP scholar **Casey Cai** from the University of Oklahoma was invited to present their research (Appendix H).

Seventh Annual Promoting Undergraduate Research Conference

Jordan (Jay) Moore (OSU) served as a panelist for the Promoting Undergraduate Research Conference in Oklahoma City on September 30, 2016 in a panel discussion for student research involvement for undergraduate students. Brenda L. Morales (Program Director) served as a panelist for the Budget Neutral Research session. (APPENDIX I)

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

The annual SACNAS conference was held in Long Beach, CA, October 13-15, 2016 at the Long Beach Convention Center. For the fifth year most of our 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. Eleven OK-LSAMP scholars were in attendance at the conference. The scholars attending the conference wore their institutional shirts to for the group picture, the tee-shirts provided by the Division of Institutional Diversity have become a tradition and help to recognize the students from Oklahoma (Appendix J).

Women in Science STEM Conference

Scholars from across the Alliance assisted with the Women in Science conference. The 2016 Conference was held in Tulsa, Oklahoma, at the Mabee Center for the third 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 over 700 K-12 female students and over 100 teachers. Additionally, there were over 250 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 K).

Women and Minorities in STEM panel discussion and Hidden Figures Movie Screening

Oklahoma State University hosted a movie screening of the award winning film "Hidden Figures" in with a panel of women afterwards to discuss adversities that women and people of color face within STEM education and careers. Brenda L. Morales served as a panelist for the event (Appendix L).

Wentz Scholar Research Presentations

The Wentz Scholar Research Symposium was held April 21, 2017. Jordan Fleming, Susan Pham and Rendi Rogers, scholars from Oklahoma State University presented at the 2017 Wentz Scholar Research Symposium. (Appendix M).

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 N). 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.

Campus Program Managers and Mentors

Susan Walden -- OU

Awards: Dr. Walden was elected fellow the American Society for Engineering Education. https://www.eurekalert.org/pub_releases/2017-06/uoo-wef062217.php

Charles Abramson -- OSU

Awards:

2016 Selected Faculty Teaching Fellow, Oklahoma State University Institute for Teaching and Learning Excellence

2016 Elected to the Colombian Academy of Exact, Physical and Natural Sciences (Friends on the Academy Section)

2017 PLOS One Collection (Abramson et al. 2016 selected as one of the top articles on bee research appearing in PLoS-One for 2016.Richardson LA (2017) A Swarm of Bee Research. PLoS Biol 15(1): e2001736. doi:10.1371/journal.pbio.2001736

2017 Awarded the Lawrence L. Boger Endowed Professorship in the School of International Studies at Oklahoma State University (2017 -2020)

2017 Award: Outstanding contributions to international relations Federal Institute of Paribia, Joao Pessoa, Brazil

Publications:

Abramson, C. I., & Chicas-Mosier** A. M (2016). Learning in plants: Lessons from *Mimosa pudica*. *Frontier in Psychology*, 7, 417.
doi: http://dx.doi.org/10.3389/fpsyg.2016.00417.

Abramson, C. I. & Kieson**, E. (2016). Conditioning methods for animals in agriculture: A mini-review. *Ciência Animal Brasileira*, **17**, 359-375. doi: 10.1590/1089-6891v17i341981.

Abramson, C. I., Dinges**, C. W., & Wells, H. (2016). Operant conditioning in honey bees (*Apis mellifera* L.): The cap pushing response. *PLoS-ONE 11(9)*: e0162347. doi:10.1371/journal.pone.0162347.

Duer, C., Abramson, C. I., & Tomasi, T. (2016). Reproductive endocrinology and musth indicators in a captive Asian elephant (*Elephas maximus*). *Psychological Reports*, **119**(3), 1-22. doi:10.1177/0033294116667092.

Avalos, A., Pérez*, E., Vallejo*, L., Pérez*, M. E., Abramson, C. I., Giray, T. (2016). Social signals and aversive learning in honey bee drones and workers. *Biology Open*, 0, 1-9 doi:10.1242/bio.021543.

Maske**, H., Kieson**, E., Chowdhary, G., & Abramson, C. I. (2016). Can co-robots learn to teach? International Conference on Robotics and Automation. (e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics). arXiv:1611.07490v1.

Kieson**, E. & Abramson, C. I. (2017). Equines as tools vs partners: A critical look at the uses and beliefs surrounding horses in equine therapies and argument for mechanical horses. *Journal of Veterinary Science and Animal Husbandry*, **5**(1):105.

Abramson, C. I. (2017). Remembering Charles Henry Turner. *Nature*, **542**, 31.

Dinges**, C. W., Varnon**, C. A., Cota**, L. D., Slykerman*, S., & Abramson, C. I. (2017). Studies of learned helplessness in honey bees (*Apis mellifera ligustica*) *Journal of Experimental Psychology: Animal Learning and Cognition*, **43**,147-158. http://dx.doi.org/10.1037/xan0000133

Chicas-Mosier**, A. M., Cooper*, B. A., Martinez*, A. M., Pérez*, M., Oskay, D., & Abramson, C. I. (2017). The effects of ingested aqueous aluminum on floral fidelity and foraging strategy in honey bees (*Apis mellifera*). Ecotoxicology and Environmental Safety, **143**, 80-86. mehttp://dx.doi.org/10.1016/j.ecoenv.2017.05.008

Crick, C., Roy, S., Kieson**, E., & Abramson, C. I. (*in press*). Sematic structure for robotic teaching and learning. IEEE: Robot and Human Interactive Communication.

*Undergraduate student co-author
** Graduate student co-author

Mario Borunda -- OSU

Awards:

Emerging Leader under 40, Stillwater Chamber of Commerce

Community Engagement Award from College Arts & Sciences

Richard Bunce -- OSU

Publications:

Rao, C. B.; Vinay Bharadwaj, T. V.; Babu, D. C.; Srikanth, D; Raju, T. V.; Vardhan, K. S.; Sridhar, B.; Nett, M.; Bunce R. A.; Venkateswarlu, Y. Pambanolides A-C from the South Indian soft coral *Sinularia inelegans*, *Tetrahedron* **2016**, *72*, 1933-1940.

Gnanasekaran, K. K.; Hiett, J. T.; Bunce, R. A. 6-Nitro-4*H*-benzo[1,3]thiazin-2-amine, *Molbank*, **2016**, M899/1-M899/4; doi: 10.3390/M899.

Gnanasekaran, K. K.; Yoon, J.; Bunce, R. A. Nucleophilic additions to polarized vinylarenes, *Tetrahedron Lett*. **2016**, *48*, 3190-3193.

Meraz, K.; Gnanasekaran, K. K.; Thing, R.; Bunce, R. A. Bismuth(III) triflate catalyzed esterification–Fries rearrangement–oxa-Michael addition route to 4-chromanones, *Tetrahedron Lett.*, **2016**, *48*, 5057-5061.

Chris Burba -- NWOSU

Publications:

Kimble, C., Burba, C. (2017). Liquid Structure of Bis(trifluoromethylsulfonyl)imide-based Ionic Liquids Assessed by FT-IR Spectroscopy. *Journal of Physical Chemistry B, 121*(14), 3099-3110.

Chang, H.-C., Wang, T.-H., Burba, C. Probing Structures of Interfacial 1-Butyl-3-Methylimidazolium Trifluoromethanesulfonate Ionic Liquid on Nano-Aluminum Oxide Surfaces Using High Pressure Infrared Spectroscopy. *Applied Sciences*.

Burba, C., Chang, H.-C. Temperature- and Pressure-Dependent Infrared Spectroscopy of 1-Butyl-3-methylimidazolium Trifluoromethanesulfonate: A Dipolar Coupling Theory Analysis. *Spectrochimica Acta A*.

Brian Elbing -- OSU

Publications:

BR Elbing, L Daniel, Y Farsiani & CE Petrin (in review) "Design and validation of a recirculating, high-Reynolds number water tunnel," submitted to *ASME Journal of Fluids Engineering* on July 2, 2017.

BR Elbing, AL Still & AJ Ghajar (2016) "Review of bubble column reactors with vibration," *Industrial & Engineering Chemistry Research*, 55(2), 385-406 (doi:10.1021/acs.iecr.5b02535).

Scott Harvey -- OU

Awards:

Registered Professional Engineering (PE) in the State of Oklahoma

Selected as one of twelve U.S. researchers to attend the NSF PREEMPTIVE SAVI Workshop, an international research workshop in New Zealand to visit universities/research institutions to establish research collaborations (August 2016).

Selected as one of eighteen U.S. researchers to attend the NSF PREEMPTIVE SAVI Workshop in Chile (January 2017).

Invited keynote speaker at the ASCE Architectural Engineering Institute (AEI) conference (April 12, 2017).

Publications:

P S Harvey Jr, "Behavior of a rocking block resting on a rolling isolation system," ASCE Journal of Engineering Mechanics, 143(8): 04017045.

P S Harvey Jr & K C Kelly (2016), "A review of rolling-type seismic isolation: Historical development and future directions," Engineering Structures, 125: 521–531.

Jingtong Hu -- OSU

Publications:

CP-FPGA:Energy Efficient Nonvolatile FPGA with Offline/Online Checkpointing Optimization Zhe Yuan, Yongpan Liu, Jinyang Li, Jingtong Hu, Chun Jason Xue, Huazhong Yang *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, March 2017

Exploiting Multiple Write Modes of Non-volatile Main Memory in Embedded Systems

Chen Pan, Mimi Xie, Chengmo Yang, Yiran Chen, Jingtong Hu *ACM Transactions on Embedded Computing Systems (TECS)*, Feb. 2017

Stack-size Sensitive On-chip Memory Backup for Self-powered Non-volatile Processors Mengying Zhao, Chenchen Fu, Zewei Li, Qingan Li, Yongpan Liu, Jingtong Hu, Zhiping Jia, Chun Jason Xue *IEEE Transactions on COMPUTER-AIDED DESIGN of Integrated Circuits and Systems (TCAD)*, Jan. 2017.

A Lightweight Progress Maximization Scheduler for Non-Volatile Processor Under Unstable Energy Harvesting Chen Pan, Mimi Xie, Yongpan Liu, Yanzhi Wang, Jason Xue, Yiran Chen, Jingtong Hu *Proc. The 18th ACM SIGPLAN/SIGBED Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES 2017)* , Barcelona, Spain, June 2017.

Age-aware Logic and Memory Co-Placement for RRAM-FPGAs (Best Paper Award Nomination) Yuan Xue, Chengmo Yang, Jingtong Hu *Proc. The 54rd IEEE/ACM Design Automation Conference (DAC 2017)* , Austin, Texas, USA, June 2017.

Estelle Levetin -- TU

Publications:

Levetin E. Aerobiology of Agricultural Pathogens, p 3.2.8-1-3.2.8-20. In Yates M, Nakatsu C, Miller R, Pillai S (ed), Manual of Environmental Microbiology, 4th Edition. ASM Press, Washington, DC. 2016. doi: 10.1128/9781555818821.ch3.2.8.

Mohanty R, MA Buchheim, R Portman, E Levetin. Molecular and ultrastructural detection of plastids in *Juniperus* (Cupressaceae) pollen. Phytologia 2016. 98.4: 298–310.

Levetin E, EW Horner, J Scott. Taxonomy of allergenic fungi. JACI: In Practice 2016. 4: 375–385.

Mohanty RP, MA Buchheim, E Levetin. Molecular approaches for the analysis of airborne pollen: A case study of *Juniperus* pollen. Annals of Allergy, Asthma & Immunology 2017. 118 (2): 204-211.

Mohanty RP, MA Buchheim, J Anderson, E Levetin. Molecular analysis confirms the long-distance transport of *Juniperus ashei* pollen. *PloS one* 2017. *12*(3), p.e0173465.

Syed Hussaini -- TU

Awards:

Japanese Society for the Promotion of Science Fellow, 2016.

Publication:

"Copper-catalyzed chemoselective cross-coupling reaction of thioamide and a-diazocarbonyl compounds: Synthesis of enaminones", A. Pal, N. D. Koduri, Z. Wang, E. L. Quiroz, A. Chong, M. Vuong, N. Rajagopal, M. Nguyen, K. P. Roberts, S. R. Hussaini, Tetrahedron Letters, **2017**, 58, (6), 586–589 (http://dx.doi.org/10.1016/j.tetlet.2017.01.004).

Alisha Howard -- ECU

Publications:

X. Chen, S.J. Firdaus, **A.D. Howard**, J.L. Soulages, E.L. Arrese, Clues on the function of Manduca sexta perilipin 2 inferred from developmental and nutrition-dependent changes in its expression, Insect Biochem Mol Biol, 81 (2017) 19-31.

K. Dalmont, C.L. Biles, H. Konsure, S. Dahal, T. Rowsey, M. Broge, S. Poudyal, T. Gurung, S. Shrestha, C.L. Biles, T. Cluck, **A.D. Howard**. Nonsteroidal Anti-Inflammatory Drugs (NSAIDS) inhibit the growth and reproduction of Chaetomium globosum and other fungi associated with water damaged buildings. Mycopathologia (2017) In press.

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 O).

Scholar Highlights

Alicia Aguilar – OSU – (1) Sherman Smith Scholarship recipient; (2) 2016 Women of Color Academic Award recipient; (3) Oral presentation at 2017 NCUR; (4) international shadowing experience in Madrid, Spain; (5) presented research at the 22nd Annual Research Symposium, Stillwater, OK., and was awarded 2nd place for Life Sciences Poster presentation and

2nd place for Oral presentation. (6) Represented students from the state of Oklahoma to advocate for STEM education at the State Capitol; (7) Goldwater Honorable Mention 2017.

Caleb Alexander -- OSU – (1) Arts & Science student council; (2) Honors College; (3) presented research at the 21st Annual Research Symposium, Stillwater, OK.

Jessica Ames -- OU -- (1) REU in Structural Biology; (2) West Coast Biological Sciences Undergrad Research Symposium.

Charles Bales – TU – (1) presented research at the National Conference on Undergraduate Research, Memphis, TN; (2) presented research at the 22nd Annual Research Symposium, Stillwater, OK. (3) Member of Society of Hispanic Professional Engineers (SHPE).

Mira Bakine -- LU -- (1) won 1st place for Life Scines poster at the 22nd Annual Research Symposium, Stillwater, OK. (2) attended the IDEA workshop; (3) is member of the Biology Club; (4) member of the Student Government Association; (5) member of the HBCU-All.

Matheus Barbosa – OSU (1) presented research at the 2016 National Conference on Undergraduate Research; (2) Internship at Tinker Air Force Base; (3) presented research at the 22nd Annual Research Symposium, Stillwater, OK.

Suzi Barboza-Pacheco -- OSU -- (1) Internship at Boyce Thompson Institute at Cornell; (2) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (3) presented at Annual Maize Genetics Conference.

Bradley Burke -- SWOSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK. (2) Presented at SWOSU's 24th Annual Research and Scholarly Activity Fair; (3) Member of Tri-Beta National Biological Honor Society; (4) conducted research in Hull England as a part of an international supplemental grant.

Mary Catlett -- OSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) attended the International Mentoring Symposium; (3) attended the 2016 Conference for Undergraduate Women in Physics (CUWiP); (4) member of the OSU Math Club; (5) member of the OSU Physics Club.

Jessica Catlin -- OSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) attended the Society of Women Engineers Conference; (3) President of Society of Women; (4) traveled with the College of Engineering Architecture and Technology (CEAT) to Spain.

Tatiana Chatman -- OSU -- (1) attended National Society for Black Engineers (NSBE) national conference; (2) officer of NAACP; (3) member of CEAT Diversity.

Maranda Clymer -- ECU -- (1) first place in Non -Biological Sciences poster presentation at the 22nd Annual Research Symposium, Stillwater, OK.; (2) presented research at the 105th Technical Meeting OK; (3) McNair Scholar; (4) member of the Society of Physics Students; (5) member of Sigma Pi.

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) Native Outreach Chair for AISES.

Dustin Davilla -- SWOSU -- (1) presented research at the National American Chemical Society Spring Meeting, San Diego CA; (2) presented at SWOSU's 24th Annual Research meeting; (3) Duel CXCR4/CCR5 Antagonist presentation; (4) IREU at University of Hull, England.

Covenant Elenwo -- OU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) presented research at McNair Annual conference in Denton, TX; (3) member of MAPS OU chapter.

Ryan Farney -- NSU -- (1) presented research at the NSU Undergraduate Research Day; (2) presented research at Midwest Fish and Wildlife Conference at Lincoln, NE.

Beautiful Fields -- LU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) Studied abroad in Wales Fall 2016; (3) International experience to West Africa; (4) Interned with United Airlines.

Marly Fixico-Hardison -- OSU -- (1) presented research at OSU Soil Biology Symposium; (2) Alpha Pi Omega Chapter President; (3) AISES Diversity Officer; (4) Recognized as OSU CEAT Diversity Program Student of the Year; (4) OSU Native American Faculty & Staff transfer scholarship recipient; (5) Native Explorers Program participant.

Jordan Fleming – OSU – (1) presented research at the National SACNAS Conference, Washington, D.C.; (2) presented research at ASM Missouri Balley Branch; (3) Presented research at OSU Microbiology Research Symposium; (4) treasurer, OSU SACNAS chapter; (5) presented research at the 2016 WENTZ Research Symposium; (6) presented research at Oklahoma Research Day, Enid, OK: (7) secretary, OSU Pre-Optometry Student Association.

Michaela Flonard -- TU -- (1) participated in REU internship at the Jackson Laboratory; (2) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (3) presented research at Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa, FL; (4) presented research at American Academy for Allergy, Asthma and Immunology (AAAAI) conference, Atlanta, GA.

Willow Gahr -- NWOSU -- (1) attended Women in Physics, Boulder, CO; (2) presented research at the NWOSU Ranger Research Day; (3) conducted research internationally, Costa Rica.

Erin Gallaway -- OSU -- (1) presented research at Great Planes Infectious Diseases meeting (GPID), Kansas; (2) presented research at Ok Center for Respiratory & Infections Diseases (OCRID); presented research at NCUR, Memphis, TN; (3) Participant in OSU NSF I-Corps program.

Halina Garraway -- LU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) Received the President's Cup during Graduation Ceremony; (3) Interned at Boeing.

Jana Green -- NSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) presented research at NSU Undergraduate Research Day; (3) presented research at Midwest Fish and Wildlife Conference, Lincoln, NE.

Tabitha Gunnars -- OSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) presented research at Oklahoma Research Day, Enid, OK; (3) Bryan Glass Award winner; (4) Southwestern Association of Naturalist (SWAN) Lawton, OK.

Daniel Hayden -- OU-- (1) Awarded 3rd Place for Life Sciences Poster presentation at the 22nd Annual Research Symposium, Stillwater, OK; (2) REU Intern at University of Arizona.

Daniel Henthorn – OSU – (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) presented research at NCUR, Memphis, TN; (3) served as the OSU SACNAS chapter president; (4) HHMI Intern at Colorado University Boulder, CO.

Victoria Hodge -- UCO -- (1) Participant in UCO Summer Bridge Program; (2) member of the President's Leadership Council.

Morgan James -- LU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK.; (2) Recipient of Leadership Award at Women of Color Conference; (3) presented research at Maize Conference; (4) Summer International Experience in Barbados.

Donnie Joines -- SWOSU -- (1) Presented at National American Chemical Society Spring Meeting, San Diego, CA.; (2). Presented research at SWOSU's 24th annual Research and Scholarly Activity Fair; (3) Summer International Experience to United Kingdom.

Lizzie Lightning -- NSU -- (1) Presented research at Society for Freshwater Science Annual Conference, Raleigh, NC; (2) American Indian Science and Engineering Society (AISES) NSU President; (3) Intern at North Carolina State, Dept of Forestry & Enviornmental Resources.

Casey Love -- SEOSU -- (1) Research presentation accepted at NCUR, Memphis, TN; (2) IREU Internship in Beijing China.

Matthew Maxwell -- SEOSU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) Presented research at the National SACNAS conference, Long Beach, CA. (3) Research presentation accepted at the National Conference on Undergraduate Research, Memphis, TN; (5) participated in a 2016 summer REU at Baylor University.

Jordan (Jay) Moore -- OSU -- (1) Presented research at the National SACNAS conference, Long Beach, CA.; (2) OSU SACNAS Chapter member; (3) Point Foundation Scholar (4) Panelist for Oklahoma Annual Promoting Undergraduate Research Conference; (5) Intern at Center for AIDS research, San Diego, CA.

Khianta Moore -- LU -- (1) Awarded 2nd place In Life Sciences Poster at the 22nd Annual Research Symposium, Stillwater, OK; (2) Participant in the Stanford Summer Research Program.

Autumn Only A Chief -- OSU -- (1) Recognized as Senior of Significance, OSU; (2) undergraduate research assistant, Eagle Adventure Program; (3) Top 10 Senior in College of Human Sciences; (4) Attended the National SACNAS Conference, Long Beach, CA; (5) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (6) Presented at First Annual Conference on Native American Nutrition by Seeds of Native Health campaign Shakopee Mdewakanton Sioux Community (SMSC) Prior Lake, MN; (7) Accepted into Masters/PhD program of public health at University of Southern California.

Kylee O'Dell -- ECU -- (1) Awarded 3rd place for Oral presentation at the 22nd Annual Research Symposium, Stillwater, OK; (2) NSF REU Integrated Nanomanufacturing, Boston University; (3) Member of Society of Physics Students; (4) McNair Scholar.

Mary Ozor -- UCO -- (1) Awarded 1st place for Non-Life Science poster presentation at the 22nd Annual Research Symposium, Stillwater, OK; (2) Summer Research Internship at University of Central Oklahoma.

Leland Palmer -- OSU -- (1) Attended International Mentoring Symposium; (2) Dept of Physics Daniel Stevens Scholarship 2017; (3) ATLAS research collaboration with Dr. Joe Haley.

Joana Pantoja -- UCO -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) UCO CURE STEM Scholar; (3) Presented research at UCO RCSA grant program; (4) Presented research at Wound Healing Society Annual Meeting, San Diego, CA (oral presentation).

Cameron Patterson -- OSU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) represented OSU at the AIA Central States Region Student Design Charrette; (3) Represented OSU at ASC TEXO Student Design/Build Charrette.

Clay Patterson -- OSU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) Represented OSU at National Association of Engineering Student Councils (NAESC) National Conference;(3) Member of Eta Kappa Nu (Electrical Engineering Honor Society); (4) Member of CEAT Student Council; (5) OSU Representative for National Association of Engineering Student Councils; (6) CEAT Student Services Career Coach.

Susan Pham -- OSU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) Attended the National SACNAS conference, Long Beach, CA; (3) WENTZ Research Fellowship for 2016-2017; (6) Presented research at WENTZ Research Symposium.

Nate Richbourg -- OU -- received the CIS Philip Farish Study Abroad Scholarship; (2) Research Abroad in South Korea.

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.

Rendi Rogers -- OSU -- (1) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) presented research at NCUR, Memphis, TN; (3) Presented research at Wentz Research Symposium; (4) Presented research at Oklahoma Center for Respiratory & Infectious Diseases; (5) OSU SACNAS chapter Secretary; (6) Awarded Niblack Scholarship.

Juan Ruiz -- CU -- (1) Presented research at American Chemical Society; (2) presented research at 62nd Annual Oklahoma Pentasectional meeting of the American Chemical Society; (3) member of the Blue Thumb Program of the Oklahoma Conservation Commission; (4) Member of the American Chemical Society.

Natalie Santa-Pinter -- TU -- (1) presented research at SACNAS in Long Beach, CA; (2) Summer intern with the OU-TU School of Community Medicine, Tulsa, OK; (3) Presented research at University of Tulsa Research Colloquium, Tulsa, OK; (4) member of TU SHPE chapter.

Nicholas Simon, Jr -- LU -- (1) presented research at Oklahoma Research Day, Tahlequah, OK; (2) Presented Research at K-INBRE;(3) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (4) Interned at NASA Ames Research Center; (5) Accepted BD fellowship at Oklahoma State University.

Sydni Smith – OSU – (1) HHMI 2016 EXROP Summer program participant; (2) Awarded Undergraduate Researcher for the Department of Microbiology & Molecular Genetics; (3) Presented research at the 22nd Annual Research Symposium, Stillwater, OK; (4) Presented Research at American Society of Rickettsiology Conference; (5) Presented Research at Great Plains Infectious Disease Conference; (6) Intern at UC San Diego STARS program; (7) Published article Mahapatra Saugata, Gallaher Brandi, Smith Sydni Caet, Graham Joseph G., Voth Daniel E., Shaw Edward I. (2016) Coxiella burnetii Employs the Dot/Icm Type IV Secretion System to Modulate Host NF-κB/RelA Activation. *Frontiers in Cellular and Infection Microbiology.* Vol 6, 2016. Pg. 188, http://journal.frontiersin.org/article/10.3389/fcimb.2016.00188

Jordan Sosa -- TU -- (1) Awarded 3rd place at the 22nd Annual Research Symposium, for Non-Life Sciences Poster, Stillwater, OK; (2) Participated in REU internship at West Virginia University.

Colby Starr – OSU – (1) conducted research with Dr. Erica Lutter on the OSU campus during the summer 2016; (2) Rooted Conferences Logistics Director; (3) Secretary to the OSU Pre-Health Professionals Organization; (4) presented research at the 22nd Annual Research Symposium, Stillwater, OK; (5) undergraduate teaching assistant in the microbiology department; (6) Presented Research at Oklahoma Center for Respiratory & Infectious Diseases (OCRID); (7) One of only 3 undergraduate in OSU to be selected to presented research at OSU Research Week 2017; (8) Goldwater Honorable mention 2017.

Jesse Velasco -- SWOSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) presented research at SACNAS, Long Beach, CA; (3) Presented

Research at Annual Biomedical Research Conference for Minority Students; (4) Participated in Oklahoma IDeA Network of Biomedical Research Excellence (OK-INBRE), University of Oklahoma Health; (5) Awarded the Association for Research in Vision and Ophthalmology 2017 ARVO/SACNAS Eye and Vision Research Award.

Alfredo Velasco II -- OSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) Plenary Talk at EVA in London; (3) TURC/STEM-UP at University of Tulsa.

Nikolas Wagner -- UCO -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) UCO CURE STEM Scholar; (2) Awarded Research Assistantship Faculty Grant at UCO; (3) Summer Research Intern at UCO.

Amber Ward -- CU -- (1) Summer 2016 internship with Notre Dame Biophysical Society Summer Program; (2) Presented research at Texas/Oklahoma Regional Undergraduate Symposium in Lawton OK; (3) Presented research at the Women in Physics Conference in San Antonio, TX; (4) secretary to the Cameron University Physics Club; (5) public affairs representative to the Chemistry Club; (6) Inducted into Sigma Phi Sigma (Physics Honor Society).

Catherine White -- OSU -- (1) OSU Presidents' Leadership Council; (2) Accepted to NSF LSAMP REU for U.S. Underrepresented Minority Students Summer Program in Costa Rica, Organization for Tropical Studies.

Payton Whitehead -- SEOSU -- (1) Attended AISES National conference; (2) Presented research at American Chemical Society.

Johnny Williams -- OSU -- (1) Summer intern with the Future Public Health Leader Program, Ann Arbor, MI; (2) president of Phi Beta Sigma chapter; (3) Will be attending Colorado School of Public Health for Masters in Public Health.

CheyAnne Youngblood -- NSU -- (1) presented research at the 22nd Annual Research Symposium, Stillwater, OK; (2) Presented Research at Oklahoma Research Day; (3) Article Publication: Ahlander, J. (Author Only), Vang, S. (Presenter & Author), Weaver, M. (Presenter & Author), Youngblood, C.

BD Fellow Highlights

The Oklahoma Bridge to the Doctorate program has received funding for nine 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 VIII was awarded August 2016 and began funding participants in spring 2017. Cohort IX was awarded June 2017 and will begin funding Fall 2017.

Cohort I and II.

Cohorts I and II Bridge to the Doctorate Fellows at both OSU and OU have been successful in completing a total of 15 Master of Science degrees and 8 Doctor of Philosophy degrees. Additionally, two fellows expect to complete Doctor of Philosophy degrees in the near future. Four fellows either transferred to another institution or left the program.

Cohort III. Fellows remaining in the program include:

Tomica Blocker – completed Ph.D. requirements, May, 2016. Completed Medical School requirements Spring 2017.

Scott Fine – (1) continued to meet Ph.D. degree requirements, with anticipated completion of December 2017.

Jonathan Gonzales – (1) continued to meet Ph.D. degree requirements, with anticipated completion of December 2017.

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 McLoud) 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.

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 Ntreh – (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.

Cohort VIII. Cohort VIII was awarded through the National Science Foundation as grant number HRD-1408748 for a two year period. Two Fellows were selected to begin graduate studies Spring 2017, seven began Fall 2017, and three more are being recruited with the intention of beginning in the Spring 2018 semester. One fellow was awarded the GRFP and will use that to continue her education after her two years of BD fellowship.

Fellows in the program include:

Justin Bowen	Microbiology
Ana Chicas-Mosier	Integrative Biology
James N. Craun	Natural Resource Ecology and Management
Michael Gorbet	Veterinary Biomedical Sciences
Kichelle Henderson	Applied Mathematics
Adrian A. Saenz	Biosystems and Agricultural Engineering
Nicholas Simon	Microbiology
Bailey Whitman	Industrial Engineering
Danielle Wright	Chemistry

Cohort IX. Cohort IX was awarded through the National Science Foundation as grant number HRD - 1702495 for a two year period.

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:

Darlene Croci, Grant Coordinator: (1) attended the OSU Wentz Research Symposium (2) served as judge for the FCCLA State Competitive Events (3) presented at the Will Rogers Elementary STEM Fair (4) attended OSU Research Week Research Symposium (5) attended OSU Staff Development Day seminar (6) attended 5th Annual Oklahoma Mentor Day, UCO (7) CEAT Summer Bridge co-presenter (8) attended the Espcor Women of Science (9) attended the Oklahoma Center for Respiratory and Infectious Diseases (OCRID).

Brenda L. Morales, State Program Director: (1) Panelist for Oklahoma 6th Annual Promoting Undergraduate Research Conference; (2) attended National Science Foundation Grants Conference, Louisville, KY; (3) Webmaster, Oklahoma State University Hispanic/Latino Faculty and Staff Association; (4) attended and moderated a session a the 2016 NSF Louis Stokes Midwest Center for Excellence (LSMCE) conference, Lisle, IL; (5) completed Supervisory Academy Training; (6) attended National SACNAS conference in Long Beach, CA; (7) attended Oklahoma Research Day, Enid, Oklahoma; (8) attended the National Conference on Undergraduate Research, Memphis, TN; (9) attended OSU Research Week Research Symposium (10) attended OSU Staff Development Day seminar (11) attended 5th Annual Oklahoma Mentor Day, UCO (12) CEAT Summer Bridge co-presenter (13) attended the Espcor Women of Science (14) attended the Oklahoma Center for Respiratory and Infectious Diseases (OCRID).

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, NADOHE ARTICLE, AAAED AWARD

Fifth 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.

Oklahoma State University – 2012-2016 HEED Award recipient

OSU students participate in the Office of Institutional Diversity's Student Success Center Kickoff event.

Oklahoma State University's (OSU) commitment to increasing diversity is decades old; since 1994, the university has served as the lead institution for the Louis Stokes Alliance for Minority Participation (LSAMP), a program funded by NSF that works to increase the number of minority students at every level pursuing studies in STEM. Jason Kirksey, PhD, vice president for institutional diversity and chief diversity officer at OSU, serves as the principal investigator on the project.

Kirksey is also president of the Big 12 Chief Diversity Officers Consortium. He says the group meets regularly to discuss ideas and share strategies and best practices around diversity and inclusion.

OSU is a designated Minority-Serving Institution, and Kirksey says that is in large part due to its high enrollment of Native American students. He says OSU ranks first in the U.S. for the

number of minority students who earn associate, bachelor's, and graduate degrees.

Jason Kirksey

To further partnerships with Oklahoma's 39 federally recognized Native American tribal nations, in 2015, OSU launched its Center for Sovereign Nations. The center seeks to promote understanding of tribal nations' sovereignty, serve as an advocate for Native American students on campus, and increase partnerships between OSU and Native American communities in the state.

Another signature OSU initiative is its Retention Initiative for Student Excellence (RISE). The program, which is 10 years old, assists first-year students in the transition from high school to college. OSU also boasts robust participation in its TRiO programs: Upward Bound, Student Support Services, and Educational Talent Search.

Oklahoma State's Kirksey to be honored by national organization

Fri, March 10, 2017

A leader for diversity and inclusiveness at Oklahoma State University, Dr. Jason F. Kirksey, has been selected to receive a top honor from the National Association of Diversity Officers in Higher Education (NADOHE).

Kirksey, who serves as vice president and chief diversity officer for the Division of Institutional Diversity at OSU, will receive the Frank W. Hale Jr. Distinguished Service Award at NADOHE's annual conference set for March 13-15 in Washington, D.C. The award recognizes individuals who distinguish themselves in higher education with a robust record of consistent service for inclusive excellence; exercising innovative and courageous leadership and vision, and exemplifying the philosophy, principles and practices of NADOHE while contributing substantially to diversity and inclusive excellence.

"Dr. Kirksey has done an excellent job advancing Oklahoma State's diversity and inclusion goals," said OSU President Burns Hargis. "We are fortunate to have an individual with his personal dedication and professional expertise—qualities which continue to distinguish him as an inspiration to his peers as well as his university family."

"While I am honored and humbled by my selection as the recipient of this very prestigious national award, it is really the result of my good fortune in being surrounded by an exceptional team within the Division of Institutional Diversity and across the university, as well as the supportive leadership of President Hargis," said Kirksey. "For nearly 25 years, OSU has offered me the opportunity to engage in significant and sustained diversity, equity, and inclusion-focused teaching, research, and administrative efforts in a supportive and encouraging environment, which has allowed me to contribute and partner with others toward real progress throughout the institution."

Last year, NADOHE honored OSU as a model for diversity and inclusion leadership and accomplishments in higher education as the 2016 Institutional Excellence Award recipient. The organization's president referred to OSU as one of higher education's "exemplary" models for diversity and inclusion.

OSU is also one of eighteen institutions across the country that has been recognized nationally as a five-year recipient of the Higher Education Excellence in Diversity award from INSIGHT Into Diversity magazine. The university was also nationally recognized in 2016 by Minority Access, Inc. with its Institution Committed to Diversity Award. Since 2014, OSU has been designated as a Minority Serving Institution by the U.S. Department of Education.

Kirksey started his career as an assistant professor in the OSU Department of Political Science in 1995, becoming the first African American tenure-track faculty at OSU to hold an endowed chair. He served as the Hannah D. Atkins Endowed Chair for Political Science and Government Information for 14 years, prior to being promoted to his current senior administrative position. He also served a four-year appointment as director of the OSU Center for Africana Studies. Kirksey currently holds the rank of associate professor of political science, and serves as the principal investigator for the $3.4 million Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) Program grant, funded by the National Science Foundation, and the $1.1 million OK-LSAMP Bridge to the Doctorate Program grant. Since 2014, Kirksey has served as the president of the Big 12 Chief Diversity Officers Consortium.

Kirksey holds bachelor's degrees from OSU in political science and economics, a master's degree in political science from OSU, and a doctorate from the University of New Orleans. He periodically teaches courses, and frequently guest lectures on his areas of specialization, which include minority politics with an emphasis on women, African Americans, Native Americans, and minority voting rights.

AMERICAN ASSOCIATION FOR ACCESS, EQUITY AND DIVERSITY

April 17, 2017

Mr. Jason Kirksey
Vice President and Chief Diversity Office
408 Whitehurst
Stillwater, OK 74078

Dear Mr. Kirksey:

On behalf of the American Association for Access, Equity and Diversity (AAAED) and its Board of Directors, I am honored to inform you that the association has decided to award Oklahoma State University (OSU) its Champion of Diversity Award. This Award is a special acknowledgement of OSU's outstanding achievements in promoting diversity in the workforce. You are indeed a role model for all of us as we seek to promote access, equity and diversity in the equal opportunity and diversity professions and in civil rights in general.

Previous award recipients include Northrup Grumman (2016); Cox Communications, Southeast (2015); Texas Tech University (2014); Rockwell Collins (2013); Pepco Holdings, Inc. (2012); Inclusion & Diversity Council, City of Virginia Beach, VA (2012); Luke Visconti, DiversityInc (2011); RiseSmart, San Jose, CA (2010); and IBM (2009).

The Champion of Diversity Award and other awards will be given during the AAAED's 43rd National Conference and Annual Meeting. The conference will take place on June 7 – 9, 2017 at the Omni Scottsdale Resort & Spa at Montelucia, 4949 East Lincoln Drive, Scottsdale, Arizona 85253. The Awards Luncheon Ceremony will occur on Thursday, June 8th.

Founded in 1974 as the American Association for Affirmative Action, AAAED is a national nonprofit association of professionals working in the areas of affirmative action, equal opportunity and diversity. AAAED includes individuals and organizations from the public and private sectors, business, social services, law, government and academic institutions. Nearly one-half of our members work for institutions of higher education.

Once again, it is a high honor to acknowledge your extraordinary contributions to civil rights and to the principles of access, equity and diversity.

Sincerely,

Myron R. Anderson, Ph.D.
President

1701 Pennsylvania Avenue, NW • Suite 300 • Washington, DC 20006 • Phone: 800-252-8952
202-349-9855 • Fax: 202-355-1399 • aaaaexecdir@gmail.com • www.aaaed.org

APPENDIX B

OSRHE SUMMER ACADEMIES

science • technology • engineering • math

SUMMER ACADEMIES

FREE!
for students in
8th-12th grade

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APPENDIX C

22nd ANNUAL OK-LSAMP RESEARCH SYMPOSIUM

Stillwater, OK

Keynote Speaker
Dr. Robin W. Kimmerer

Prize Winners
Posters

Life Sciences Poster:
1st Place - Mira Bakine, LU
2nd Place - Khianta Moore, LU
3rd Place - Daniel Hayden, OU

Oral Presentations

1st Place - Maranda Clymer, ECU
2nd Place - Alicia Aguilar, OSU
3rd Place - Kylee O'Dell, ECU

Prize Winners
Posters

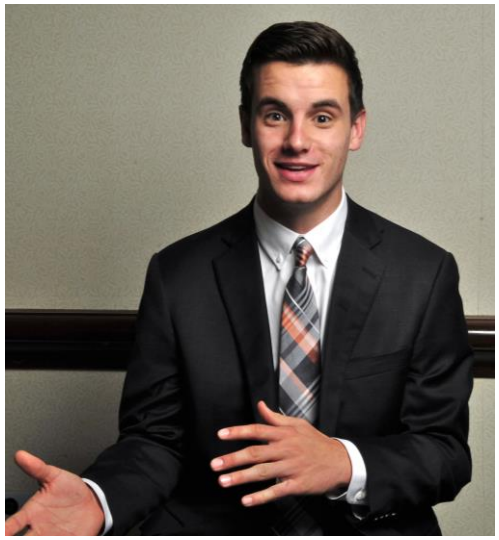
Non-Life Sciences Poster:
1st Place - Mary Ozor, UCO
2nd Place - Alicia Aguilar, OSU
3rd Place - Jordan Sosa, TU

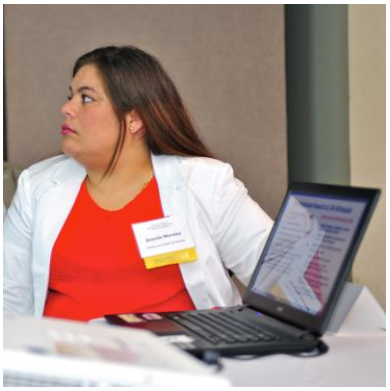
APPENDIX D

LOUIS STOKES MIDWEST CENTER OF EXCELLENCE

Lisle, IL


4TH ANNUAL
2016 LSMCE
CONFERENCE
Prism of Possibilities: Focus on the Future
October 28-29, 2016
Hyatt Regency Lisle
Lisle, Illinois
lsmceconference.org
LSMCE
Louis Stokes Midwest
CENTER OF EXCELLENCE
NSF
Sponsored by the National Science
Foundation Award #1202563



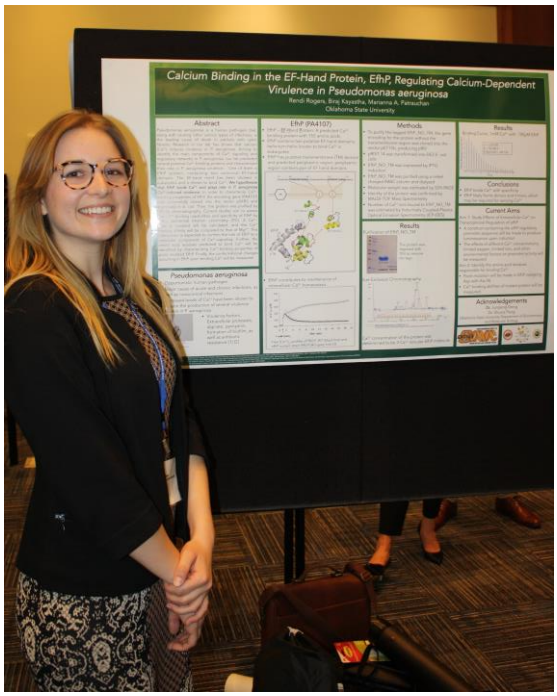


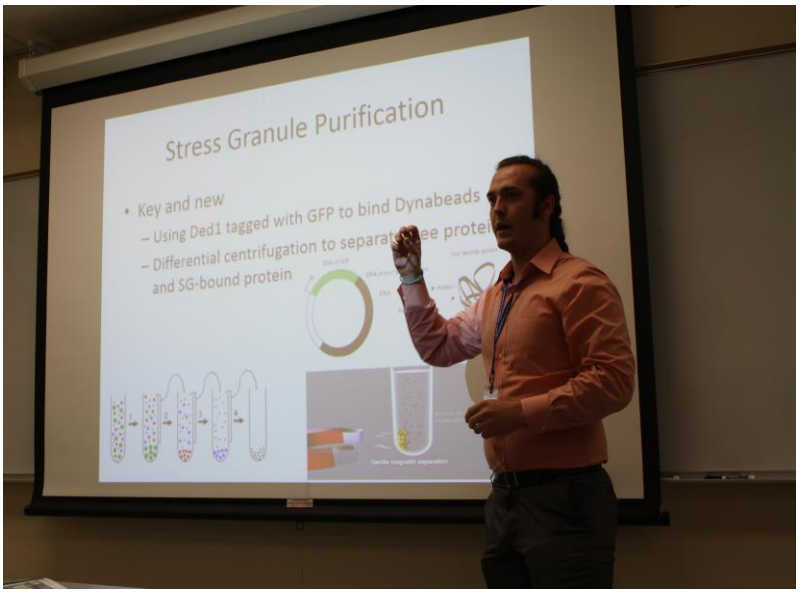
APPENDIX E

NATIONAL CONFERENCE ON UNDERGRADUATE RESEARCH (NCUR)

University of Memphis
Memphis, TN

OSU and TU students at NCUR





OSU Scholars Daniel Henthorn (top) Colby Starr (bottom) at their oral presentations at NCUR

OK-LSAMP Scholars presenting their research through poster presentations at NCUR. Rendi Rogers (top left), Matheus Barbosa (bottom right), Erin Gallaway (bottom left).

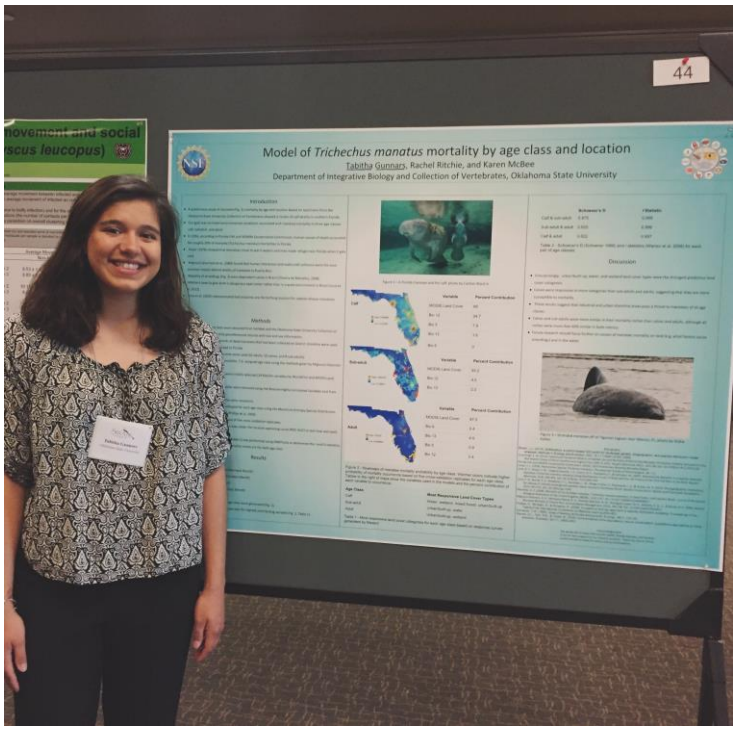
APPENDIX F

OKLAHOMA RESEARCH DAY

Northwestern Oklahoma State University
Enid, OK

Oklahoma Research Day

2017 Guide Book



Hosted by Northwestern Oklahoma State University
Enid's Central National Bank Center
March 3, 2017

APPENDIX G

JOSÉ HERNÁNDEZ
REACHING FOR THE STARS:
THE INSPIRING STORY OF A MIGRANT FARMWORKER TURNED ASTRONAUT


UPAEP
JOSÉ HERNÁNDEZ
Former NASA Astronaut
Reaching for the Stars: The Inspiring Story of a Migrant Farmworker Turned Astronaut
Monday, October 24, 2016 - 4:00 p.m.
Wes Watkins Center Auditorium
Refreshments following
Sponsored by:
Division of International Studies & Outreach
MAE
OUTREACH PROGRAMS
CAGLE
CENTER for ADVANCED GLOBAL LEADERSHIP and ENGAGEMENT
AT SPEARS BUSINESS

APPENDIX H

RESEARCH DAY AT THE CAPITOL

Oklahoma City, OK

OKLAHOMA EPSCoR Presents:

22ND ANNUAL Research DAY AT THE CAPITOL

MARCH 28, 2017

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

OKLAHOMA STATE REGENTS FOR HIGHER EDUCATION
Improving our future by degrees

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

22nd ANNUAL Research DAY AT THE CAPITOL
TUESDAY, MARCH 28, 2017

PRESENTED BY: OKLAHOMA EPSCoR

Student Participant List & Poster Guide

	Student Researcher	University Represented	Scientific Research Topic	Hometown
1	Mohamed Abdelmonem	Northeastern State University	Cancer Research	Tulsa
2	Benjamin Anderson	Oklahoma City Community College	Cancer Research	Moore
3	Jacob O'Bryan Beckham	Tulsa Community College	Rhizobacterial Identification	Broken Arrow
4	Connor Cheek	University of Science & Arts of Oklahoma	Groundwater Contamination	Chickasha
5	Sharice Davis	Langston University	Water Pharmaceuticals	Midwest City
6	Austin Doughty	University of Central Oklahoma	Laser Immunotherapy	Oklahoma City
7	Madison Duckwall	Southwestern Oklahoma State University	Synthetic Biology	Newcastle
8	Micah Godfrey	East Central University	Linear Transformation of a Sequence	Pauls Valley
9	Parker LaMascus	Oklahoma Christian University	Wind Turbine Design	Edmond
10	Timothy Legg	Northwestern Oklahoma State University	Antibiotics	Mutual
11	Stacie McDaniel	College of the Muscogee Nation	Water Quality	Beggs
12	Lucille Redmond	Rogers State University	Obesity	Jenks
13	Rup Thing	Southeastern Oklahoma State University	Synthetic Chemistry	Durant
14	Edward Villicana	Comanche Nation College	Climate Variability	Lawton
15	Colton Want	Oklahoma Baptist University	Photovoltaic Cells	Amber
16	Jeein Yoon	Cameron University	Infectious Diseases	Lawton
17	Kristina Baker	Oklahoma State University	Cell Proliferation	Sapulpa
18	Casey Cai	University of Oklahoma	Cancer Metabolism	Bixby
19	Taner Davis	University of Oklahoma	Weather Interactions	Oklahoma City
20	Charith DeSilva	Oklahoma State University	Organic Thermoelectric Molecules	Stillwater
21	Alexis Gullic	Oklahoma State University	Opioids and Estradiol	Tulsa
22	Ryan Jones	OU Health Sciences Center	Cancer Research	Edmond
23	Wesley Liao	The University of Tulsa	Bone Marrow Biopsy	Oklahoma City
24	Nicholas H. Nelsen	Oklahoma State University	Heart Blood Flow	Stillwater
25	Camden Schinnerer	The University of Tulsa	Parkinsonism Diseases	Sand Springs
26	Ashley Watson	OU Health Sciences Center	Color Blindness	Loco

NSF Grant No. OIA-1301789


Oklahoma State Capitol Building * 1917

OKLAHOMA STATE REGENTS FOR HIGHER EDUCATION
Improving our future by degrees

APPENDIX I

SEVENTH ANNUAL PROMOTING UNDERGADUATE RESEARCH CONFERENCE

The 7th Annual Promoting Undergraduate Research Conference

Thinking Outside the Lab: Empowering Students at all Tiers to Engage in Budget Neutral Research in the Social Sciences, Humanities, Arts, and Sciences

September 30, 2016
Held At Presbyterian Health Foundation Conference Center
655 Research Parkway, Oklahoma City

8:30-8:45:	**Welcome**
8:45-9:00:	Statewide Updates
9:00-9:45:	**Sessions 1** Research Credit Articulation Agreements for Undergraduate Research Between 2+4 Year Schools
9:45-10:30	**Session 2** Embedding Research in the Curriculum
10:30-11:15	**Keynote** - Social Sciences – Christine Johnson
11:15-noon:	**Concurrent Sessions 3 & 4** Budget Neutral Research with OCAST, EPSCoR, LSAMP, OMRF, and NIH Research Resources
12:00-12:45:	**Keynote** – Humanities – Tim Wrobel Undergraduate Research in the Humanities –Overview, Scope, and Collaboration
1:00-2:00:	**Student Panel**
2:00-2:45:	**Keynote** – STEM – Tim Hubin
3:00-3:15:	**Award**

Concurrent Session Speakers

Session 1: 9:00-9:45 am – Research Credit Articulation Agreements - Debbie Blanke, OSRHE, dblanke@osrhe.edu; Kyle Foster, OSRHE, kfoster@osrhe.edu

Session 2: 9:45-10:30 am – Embedding Research – Diana Spencer, Tulsa Community College, Assistant Professor/Coordinator of Biotechnology, diana.spencer@tulsacc.edu

Session 3: 11:15-noon – Budget Neutral Research

1. **OCAST**- Michael Carolina, Executive Director, michael.carolina@ocast.ok.gov
2. **OKINBRE** - Darrin Akins at Darrin, akins@ouhsc.edu
   Dawn Hammond, dhammon@osrhe.edu
3. **OK LSAMP** – Brenda Morales, Brenda.morales@okstate.edu
4. **OMRF**– Carla Guthridge, Carla-Guthridge@omrf.org
5. **OK EPSCoR** - Raymond Huhnke, Director, Raymond.huhnke@okstate.edu
   - Jerry Malayer, Director, jmalayer@osrhe.edu
   - Gina Miller, Outreach Coordinator, gmiller@okstate.edu

Session 4: 11:15-noon – Research Resources

- Matt Upson, Director of Undergraduate Instruction and Outreach Services
  matthew.upson@okstate.edu
  – Courtney Hamar, OneNet Public Relations, chamar@osrhe.edu

Student Panel: 1:00-2:00 pm - Devon Isaacs, NSU; Brienna Milleson, OSU; Amber Morgan, OU; Dylan Mulligan, NOC; Owen Simpson, NOC; Jay Moore, OSU

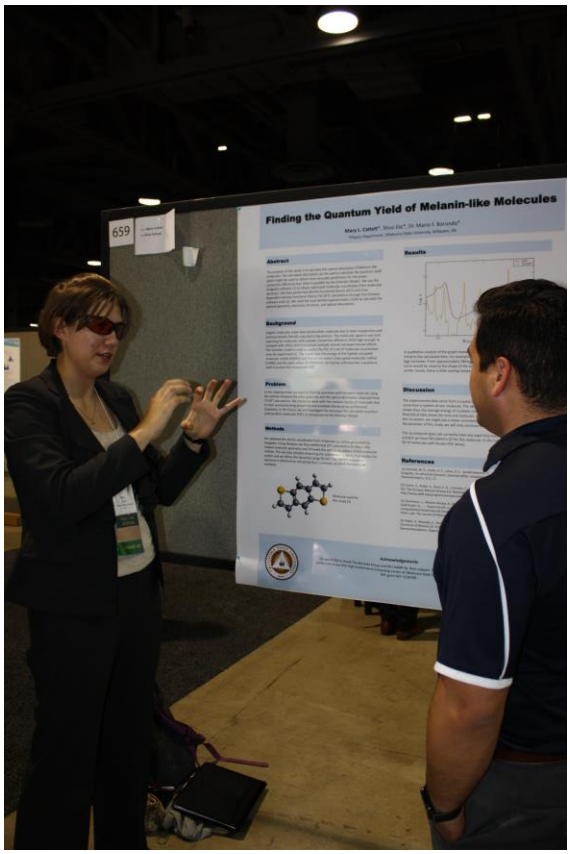
Spotlight Award: 3:00-3:15 pm – Presenter: Chancellor Glen D. Johnson, OSRHE
Recipient: Diana Spencer, TCC

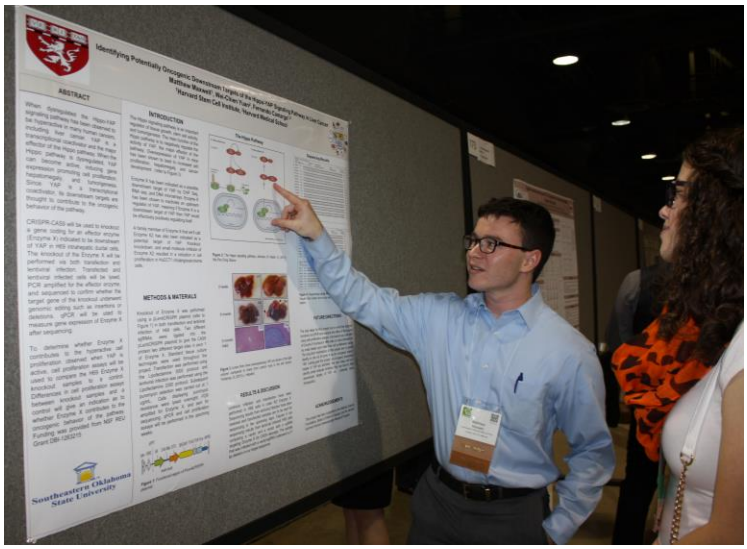
Evaluation: 3:15-3:30 – Linda Mason

APPENDIX J

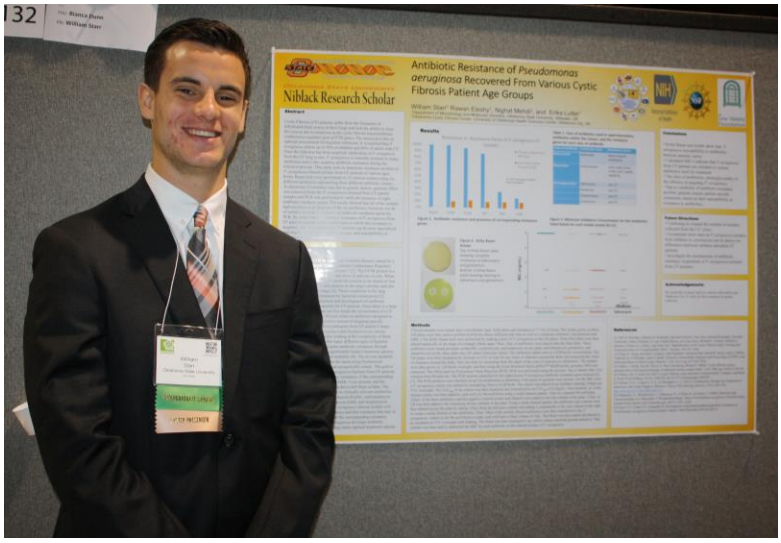
NATIONAL CONFERENCE:
SOCIETY FOR THE ADVANCEMENT OF CHICANOS AND NATIVES IN THE SCIENCES (SACNAS)

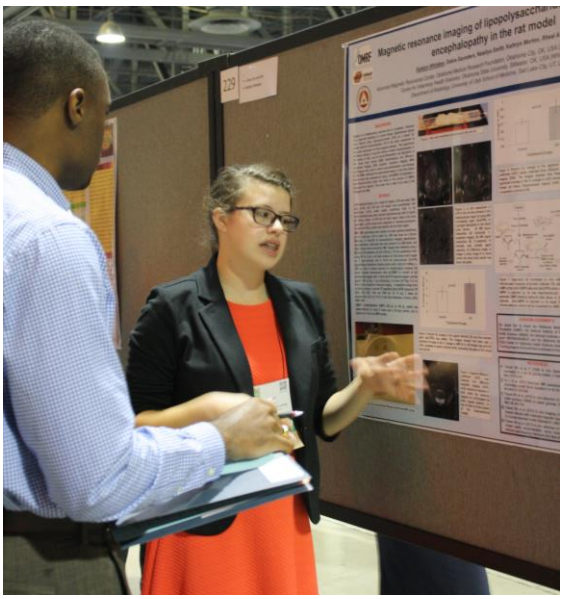
Long Beach, CA





OK-LSAMP Scholars presenting their research through poster presentations at SACNAS national conference. Mary Cattlet (top left), Matt Maxwell (top right), Amber Morgan (right center), William Colby Starr (bottom left), Katelyn Whitaker (bottom right)





OK-LSAMP Scholars at SACNAS national conference.

APPENDIX K

WOMEN IN SCIENCE CONFERENCE

Tulsa, OK


OKLAHOMA NSF EPSCOR
WOMEN IN
SCIENCE CONFERENCE
TUESDAY, OCTOBER 11, 2016 * MABEE CENTER * TULSA, OK
What is STEM
Science
Technology
Engineering
Mathematics
18
This is not just a recycling bin. It's a dream machine.


tulsaok
1898
46
66

APPENDIX L

WOMEN AND MINORITIES IN STEM PANEL DISCUSSION & HIDDEN FIGURES MOVIE SCREENING


SPONSORED BY:
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DEPARTMENT OF Mathematics
College of Engineering, Architecture and Technology Diversity Programs
NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE
NAACP
FOUNDED 1909
BASED ON THE UNTOLD TRUE STORY
MEET THE WOMEN YOU DON'T KNOW. BEHIND THE MISSION YOU DO.
HIDDEN FIGURES
1.13.17
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PG PARENTAL GUIDANCE SUGGESTED
SOME MATERIAL MAY NOT BE SUITABLE FOR CHILDREN
SUAB.OKSTATE.EDU
STUDENT UNION ACTIVITIES BOARD
suabokstate
"HIDDEN FIGURES"
Monday, April 24 at 7 p.m.
Student Union Theater
FREE ADMISSION • $1 Concessions Available

APPENDIX M

WENTZ SCHOLAR RESEARCH PRESENTATIONS

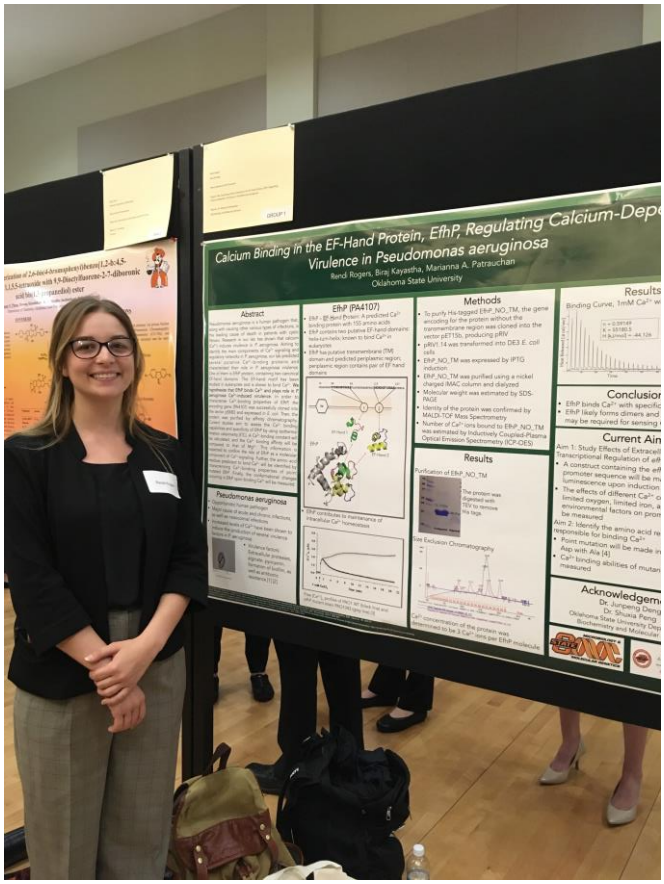
Stillwater, OK

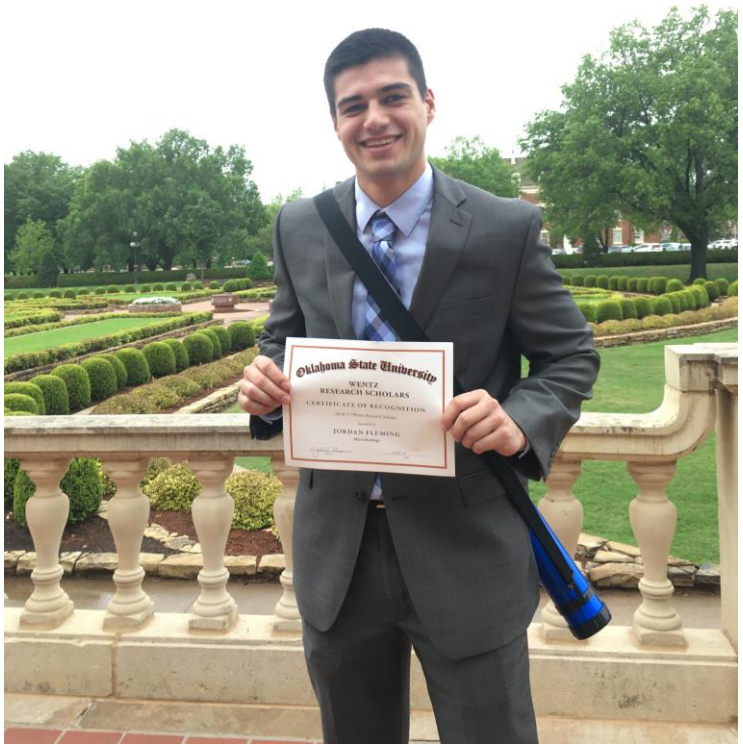
the

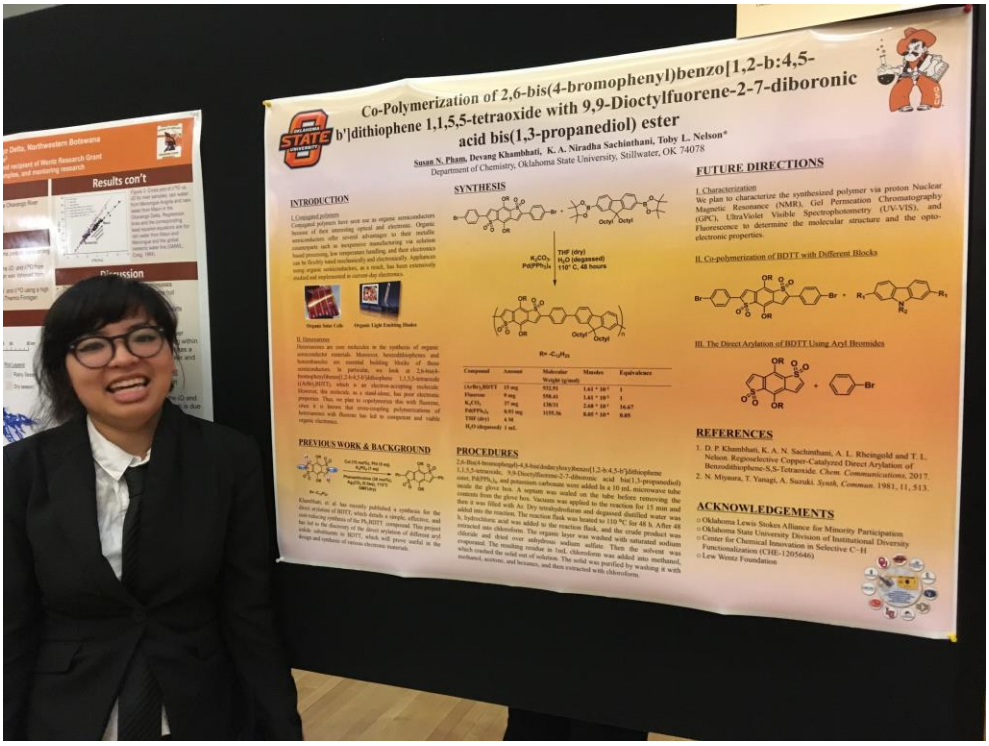
Lew Wentz Foundation

at

Oklahoma State University







Rendi Rogers (top left), Jordan Fleming (top right), Susan Pham (Bottom left)

APPENDIX N

FACULTY HIGHLIGHTS

OK-LSAMP mentor Dr. Erika Lutter being recognized as an exemplary Oklahoma Mentor 2017

Ok-LSAMP mentor Dr. Mario Borunda recognized as an Emerging Leader under 40

APPENDIX O

SCHOLAR AND BD FELLOW HIGHLIGHTS

Alicia Aguilar (left) advocating for STEM research in the Oklahoma Capitol.

William Colby Starr and Alicia Aguilar (bottom) receiving Goldwater honorable mention.

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 2016 through Spring 2017

Contents

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 third year of the five-year phase (summer 2016 through spring 2017).

This phase of funding represents Oklahoma's 23nd 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 serve as the framework for their activities and efforts 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 to be improved.

Evaluation Process

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

- Section 1: Data on the activities and accomplishments of students participating in the program were provided by OK-LSAMP Director, 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 a Qualtrics survey that was 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: National STEM data were provided by the Center for Institutional Data Exchange and Analysis
- Section 4: 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 refers 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 experienced success in previous years in obtaining its goals of graduating URM STEM students who are prepared to enter graduate studies or industry. This current five-year phase is dedicated to continuing 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 was met, we used the total number of OK-LSAMP graduates during the previous five-year funding period (2009-2013) as our baseline. During that time, 197 OK-LSAMP scholars completed their bachelor's degrees.

In order to meet the 50 percent goal over the five-year period, the program must graduate a total of 296 students. To help meet this goal, the Alliance institutions should strive to graduate at least 10 percent of the total needed each year during the five-year period. If approximately 60 students graduate per year—with a total of 296 or more graduating by the final year of the five-year period—the Alliance will have met its goal.

Since this is the third year of the five-year project, the Alliance should have graduated 60 students during this evaluation period, and a total of 180 students over the past three years.

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 summer 2016 through spring 2017. 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 2016 through Spring 2017*

Standing	URM	Other	Total
Freshman	10	0	10
Sophomore	30	0	30
Junior	62	0	62
Senior	144	23	167
TOTAL	**246**	**23**	**269**

In the program year under review, the Alliance supported 269 students: 167 seniors, 62 juniors, 30 sophomores, and 10 freshmen. Of these participants, 91% (246 of 269) were underrepresented minority students. Participation of students by class standing and institution is displayed in Table 2.

Table 2: *Participants by Partner Institution – Summer 2016 through Spring 2017*

Institution	Freshman	Sophomore	Junior	Senior		Total URM	Total Non-URM	% Non-URM		Total Scholars
CU	0	0	3	9		12	0	0%		12
ECU	0	2	1	9		10	2	17%		12
LU	0	8	8	31		45	2	4%		47
NEOSU	0	1	3	11		15	0	0%		15
NWOSU	0	1	2	3		4	2	33%		6
OSU	7	6	22	47		78	4	5%		82
OU	2	4	10	24		30	10	25%		40
SEOSU	0	3	3	12		18	0	0%		18
SWOSU	0	2	2	4		6	2	25%		8
TU	0	1	3	10		14	0	0%		14
UCO	1	2	5	7		14	1	7%		15
TOTAL	**10**	**30**	**62**	**167**		**246**	**23**			**269**
Percentage of Total Scholars	**4%**	**11%**	**23%**	**62%**		**91%**	**9%**			**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. Unless otherwise noted, the data in this 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 exceeded its goal of having 60 students during this evaluation period achieve a bachelor's degree in a STEM field. From summer 2016 through spring 2017, a total of 70 OK-LSAMP scholars graduated with STEM degrees. Figure 1 shows the cumulative results of the past three years of graduates compared to the goal of 60 graduates per year. The Alliance is currently on target to meet and slightly exceed its goal.

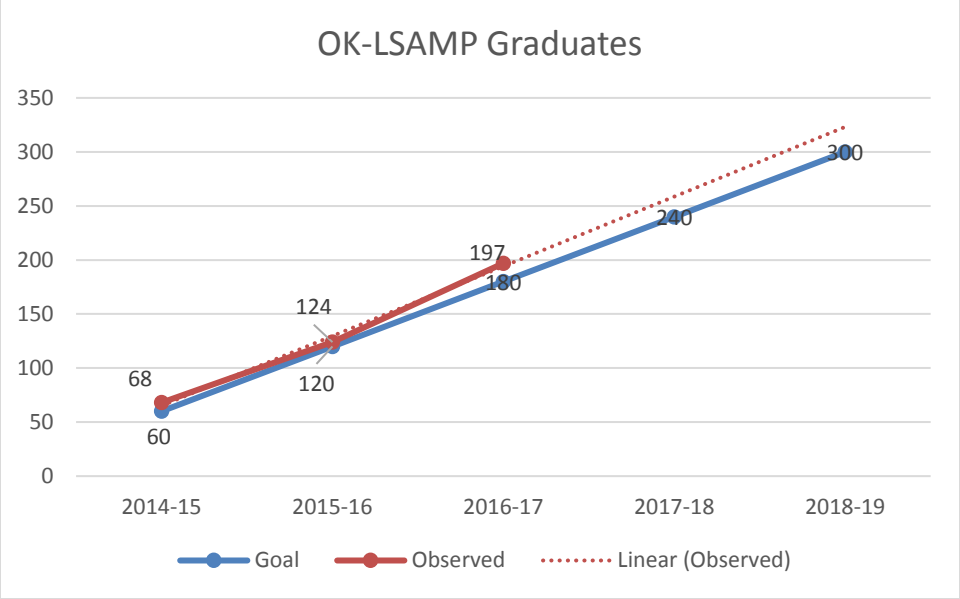


Figure 1: Graduation Counts – Goal vs Observed

The OK-LSAMP graduates accomplished the following during the 2016-2017 review period:

- 42% of the OK-LSAMP seniors (70 of 167) graduated during this period with the majority of the remaining seniors continuing in the program
- 90% of the graduates (63 of 70) were URM students
- 39% of the graduates (27 of 70) took the GRE
- 23% of the graduates (16 of 70) were accepted into graduate school
- 94% of the graduates (15 of 16) who were accepted into graduate school were URM scholars
- 86% of all graduates (60 of 70) had a GPA of 3.0 or higher
- 51% of all graduates (36 of 70) had at least one summer internship while participating in the program
- 26% of all graduates (18 of 70) had at least two summer internships while participating in the program

Of the 18 students who had at least two summer internships while in the program, 14 scholars had two, and four students had three internships.

Although there were more scholars who graduated this year as compared to last year (70 vs 56), fewer students were accepted into graduate school (16 vs 18). Based on the GPAs and number of scholars who participated in research and internships, there were many graduates who had the potential to move on to graduate work, but either elected not to do so or were not accepted into graduate programs. Of the 54 students who were not accepted into graduate school—or did not apply—all had a GPA of 3.0 or greater, 32 (59%) had participated in research opportunities, and 26

(48%) participated in at least one summer internship while in the OK-LSAMP program. Twelve of these 54 scholars (22%) took advantage of both research and internships while they were OK-LSAMP scholars. Of these 12 students, half of them applied to graduate school but, based on the data received from the Alliance institutions that were used for this evaluation, they were not accepted.

We know that several graduates chose to enter the workforce or military 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 positive work of the Alliance.

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 program 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.

There were 269 scholars in the program from summer 2016 through spring 2017. 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 senior scholars (37 of 229) took the GRE or other graduate school entrance exam
- 39% of all of the fall 2016 students (75 of 190) participated in research that semester
- 35% of all of the spring 2017 students (83 of 238) participated in research that semester
- 48% of students (71 of 149) who were in the program prior to fall 2016 participated in a summer 2016 internship
- 39% of the students (67 of 173) who participated in spring 2017 and had not left the program as of the summer 2017 semester, were scheduled for summer 2017 internships
- 39% of students (75 of 190) who were in the program in fall 2016 attended the OK-LSAMP Research Symposium

In addition to the above data, we looked at how the program is meeting OK-LSAMP objective 3, which focuses on expanding opportunities for international research so that 25% of the scholars will gain international experience. Based on the data received by the program office, 12% (33 of 269) of the scholars who participated during this evaluation period 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 who were not included in the data received by the Alliance institutions. Although the program did not attain the 25% goal, the number of students with international experience increased significantly as compared to last year, when only 8 scholars had this experience.

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 created an online survey using Qualtrics and an invitation was sent to two different groups of OK-LSAMP scholars with a link to the same survey. We obtained the email addresses from Darlene Croci in the OK-LSAMP program office. The addresses contained the names from their list serve, which included scholars currently in the program, and some former students who expressed a desire to remain on the list serve. The list included 206 email addresses. Because the survey was targeted to students currently participating in the OK-LSAMP program, the first question on the survey asked if the respondent was a participant in the program during summer 2016 through spring 2017. If the answer was no, their survey ended and they were unable to participate. Two respondents fell into this category.

Each student received the invitation a few days after the last day of spring final exams on their campus. Students at eight of the 11 alliance institutions received the email on May 7, 2017 and scholars from three institutions received their invitation to participate on May 14, 2017. Response was initially low, so we kept the survey open through May 31. A total of three emails were sent to each list of students.

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 survey was 27% (56 of 206). Several more did not complete the survey, so their responses are not included. At least one student from each alliance institution responded. The largest response to the survey (41%) came from Oklahoma State University, which has the largest representation of OK-LSAMP scholars in the program. Table 3 provides the number of students who responded from each institution. It also includes data showing the percentage representation of each institution within the program, as well as the survey participation percentage.

Table 3: *Institutional Affiliation of Survey Respondents*

Institution	Total OK-LSAMP Scholars	% of Total OK-LSAMP Scholars	# of Survey Respondents	% of Scholars who Responded to Survey	% of Total Scholars who Responded to Survey
CU	12	4.4%	4	33.3%	7.1%
ECU	12	4.4%	3	25.0%	5.3%
LU	47	17.5%	4	8.5%	7.1%
NEOSU	15	5.6%	2	13.3%	3.6%
NWOSU	6	2.2%	1	16.7%	1.8%
OSU	82	30.5%	23	28.0%	41.1%
OU	40	14.9%	7	17.5%	12.5%
SEOSU	18	6.7%	5	27.8%	9.0%
SWOSU	8	3.0%	2	25.0%	3.6%
TU	14	5.2%	2	14.3%	3.6%
UCO	15	5.6%	3	20.0%	5.3%
Grand Total	**269**	**100%**	**56**		**100%**

About half of the respondents—43% (24 of 56)—began in the OK-LSAMP program before summer 2016, and 82% (46 of 56) were attending their original institution of entry. Ten students reported transferring from the following institutions: Cameron University, Colorado School of Mines, Harding University, Oklahoma Wesleyan University, Rose-Hulman Institute of Technology, Seminole State College, Southwestern Oklahoma State University, Tecnologico de Monterrey Campus Aguascalientes, Tulsa Community College, and the University of Oklahoma.

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 STEM Summer Bridge 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 2016 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 Campus Program Manager. 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 55 students who answered the question on the survey related to attendance at Fall 2016 meetings, 56% (31 students) attended at least two meetings and 35% (19 students) attended five or more. In the spring semester, 55% (30 of the 55 students who responded to this question) attended two or more group meetings and 29% (16 of 55 students) attended five meetings or more. For students who did not attend meetings, the main reasons given were that there were schedule conflicts, there were no meetings, and 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 4.2, indicating that the majority of students thought these meetings were beneficial. Figure 2 shows the scholars' responses to how helpful they felt the meetings were for them.

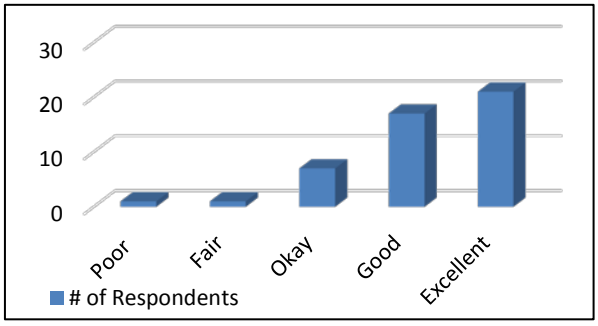


Figure 2: Helpfulness of the Meetings

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 56 students who responded to the question pertaining to mentors, 75% of the respondents (42 students) indicated that they had a mentor. In fall 2016, 79% (33 out of 42) students met with their mentors one-on-one at least once, and 48% (20) of these students met with the mentors more than five times during the fall semester. In spring 2017, the results were very similar: 98% (41 out of 42) of the students met with their mentor at least once, and 67% (28 out of 42) 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 41 students who responded to this question, 95% (39 out of 41) rated the mentors an A or B, while 5% (2 of 41) gave their mentor a C. The results of this question on the survey are provided in Table 4.

Table 4: *Helpfulness of the Mentors*

Score	#of Respondents
A	36
B	3
C	2
D	0
E	0

We combined the results from the online survey with the data we received from the OK-LSAMP program office to see if we could determine how students with a mentor compared to those without one. The data show that significantly more students have a GPA of 3.0 or greater, apply to graduate school, and conduct research if they have a mentor. Ninety percent of students with a GPA of 3.0 or greater had a mentor; 92% of students who applied to graduate school had a mentor; and 81% of students who participated in research worked with a mentor. Tables 5-7 show the results.

Table 5: *More students have GPA ≥ 3.0 with mentor support*

			GPA ≥ 3.0		
			N	Y	Total
Mentor	N	Count	4	4	8
		% within GPA	28.6%	9.8%	14.5%
	Y	Count	10	37	47
		% within GPA	71.4%	90.2%	85.5%
Total		Count	14	41	55
		% within GPA	100.0%	100.0%	100.0%

Table 6: *Students apply to graduate school more with mentor support*

			GradApply		
			N	Y	Total
Mentor	No	Count	13	1	14
		% within GradApply	30.2%	8.3%	25.5%
	Yes	Count	30	11	41
		% within GradApply	69.8%	91.7%	74.5%
Total		Count	43	12	55
		% within GradApply	100.0%	100.0%	100.0%

Table 7: *Students do research more with mentor support*

			Research		
			No	Yes	Total
Mentor	No	Count	7	7	14
		% within Research	36.8%	19.4%	25.5%
	Yes	Count	12	29	41
		% within Research	63.2%	80.6%	74.5%
Total		Count	19	36	55
		% within Research	100.0%	100.0%	100.0%

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 their OK-LSAMP mentors at each Affiliate campus each semester that they participate in the program. For fall 2016, 21 of the 42 students who had mentors (50%) reported they were required to submit a progress report, while in spring 2017, this percentage increased to 64% (27 of 42 students).

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 2016, 38% (20 of 52) of the students who responded to the question attended, and 65% (13 of 20) of these students presented. The reasons the 32 students gave for not attending included: schedule conflict (12), not in the program at the time (12), didn't know about it (5), doing international research at the time (1), research wasn't ready to present (1), and not interested (1).

Of the 52 students who responded concerning participation in other professional meetings, 44% (23) reported that they attended other meetings during fall 2016 or spring 2017. Of those 23 students, 43% (10) attended three or more professional meetings, 57% (13) reported that they received financial assistance from OK-LSAMP to attend the meetings, and 70% (16) presented at the meetings. The 16 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, 86% of the respondents reported they were encouraged to participate in summer internships. They learned about these opportunities from a number of sources, but the majority of scholars stated that mentors/campus program managers and OK-LSAMP program office emails were their sources of information. Other sources included personal research, friend or family, OK-LSAMP website, and another student.

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

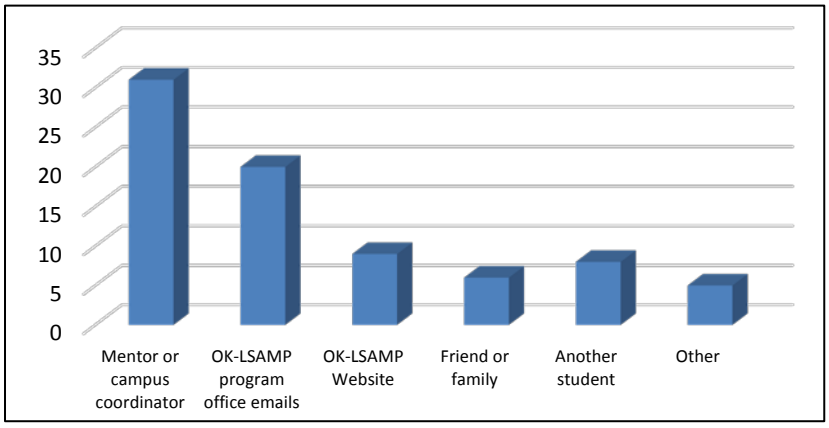


Figure 3: Sources for Learning About Internship Opportunities

Sixty-seven percent (34 of 51) of the respondents indicated that they either participated in an internship in summer 2016, or were planning to do an internship in summer 2017.

Of those students who were juniors or seniors, 67% (26 of 38) participated in a summer internship during summer 2016 or were planning to do so in 2017, as indicated in Table 8.

Table 8: *Junior/Senior Summer Internship Crosstabulation*

	Summer Internship	
Junior/Senior	YES	NO
YES	26	12
NO	8	5

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, 77% (29 of 38) reported that they were encouraged to take the GRE; 42% (16 of 38) received help from the OK-LSAMP program in preparing for the GRE; and 21% (8 of 38) 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 include funding, test prep, and study materials. Appendix 4 provides a full account of student responses to the survey question.

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-six percent of the scholars were interested in participating in a Ph.D. Camp and 76% of the respondents were interested in attending the workshop. Student responses are seen in Tables 9 and 10.

Table 9: *Interest in Participating in a Two-day Ph.D. Camp*

YES	29
NO	7
Maybe	15

Table 10: *Interest in Participating in an International Travel Workshop*

YES	28
NO	12
Maybe	11

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). All six areas had a mean ranking of over 3.8, with "Staff availability" being the strongest area (4.4) and "Opportunity to work with other students in the program" being the weakest. (3.9).

Figure 4 provides 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 this figure.

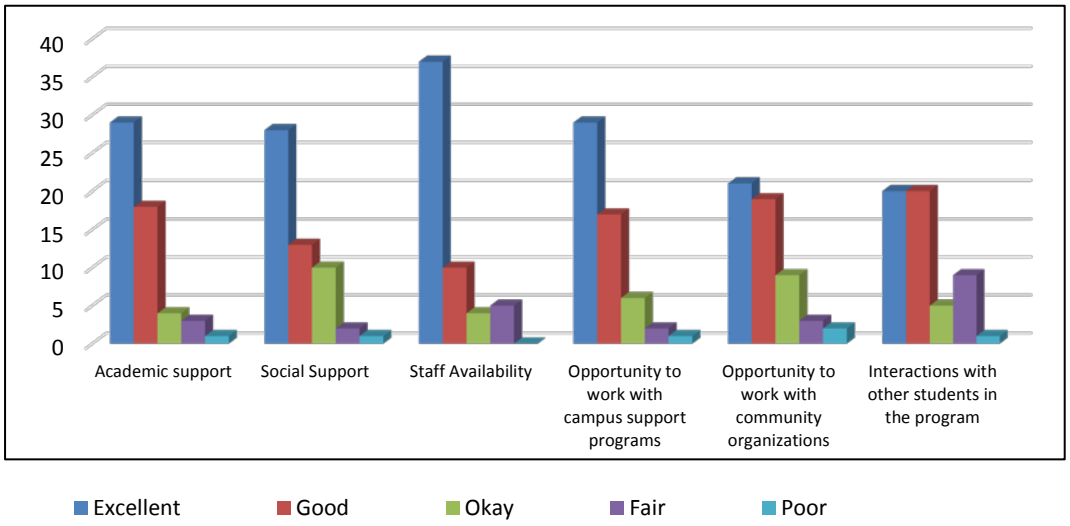


Figure 4: Number of Student Responses for OK-LSAMP Experiences (Spring 2017)

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 was 4.5, and 61% (31 of 51) of the scholars gave a score of 5. When asked how helpful the OK-LSAMP program was to their academic career, 48% (24 of 51) of the scholars gave a score of 5, with the mean score of 4.1.

See Tables 11 and 12 for the responses. Appendix 6 offers student responses to strengths and weaknesses of the program, and overall satisfaction.

Table 11: *Overall Satisfaction with the OK-LSAMP Program*

Scores	Count
1	1
2	1
3	3
4	15
5	31

Score: 1= Not Satisfied; 5=Very Satisfied

Table 12: *Helpfulness of OK-LSAMP Program on Academic Career*

Scores	Count
1	3
2	2
3	7
4	15
5	24

Score: 1= Not Helpful; 5=Very Helpful

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

Fifty-six percent of the survey respondents indicated they participated in at least two meetings during the fall 2016 semester, with 55% reporting at least two meetings for the spring 2017 semester. Based on the scholars' responses, 35% of the students attended at least five meetings during 2016 fall semester and the participation decreased to 29% for the 2017 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 opportunities to talk with other students about their research, hearing the diverse speakers and topics, and receiving guidance about graduate school processes and applications. There were several responses indicating the students had no meetings on their campus or that students were unaware of any meetings. Since this is a required component of the OK-LSAMP program and scholars who attend find them very helpful, the evaluator recommends that each of the Alliance institutions hold regular meetings for their students and communicate regularly about them.

Mentor Support

Three quarters of the students stated they had a mentor. Seventy-nine percent of the students indicated that they met with their mentor at least once during fall 2016, and 98% did so in spring 2017. Of these, 48% (fall 2016) and 67% (spring 2017) 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 research guidance, finding and applying for internships, graduate school preparation and applications, providing accountability, and more. When asked how their mentors could improve, most scholars indicated they were great and no changes were needed; a few students mentioned the desire for their mentor to be more available. Based on the positive results seen by scholars with mentors, as discussed earlier in this section, the evaluator recommends that Campus Program Managers work to provide even more students with mentors. Appendix 3 provides students' comments pertaining to experiences with their mentors.

Progress Reports

Although scholars were required to submit progress reports, 50% were not asked for a report in fall 2016, and 36% were not asked in spring 2017. 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

Forty-four students reported participating in professional meetings other than the OK-LSAMP Research Symposium, and 75% of these participants indicated that they presented an average of two times. 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. Thirty-eight percent who responded to the question about the Research Symposium attended the fall OK-LSAMP Research Symposium. This response is similar to the data we received from the program office, which indicated that 39% of students who were in the program during fall 2016 attended the Symposium. This is a requirement of all OK-LSAMP scholars, not just those presenting research. We understand that there will always be schedule conflicts; however, several of the scholars who participated in the survey were not aware of the Symposium or were simply not interested in attending. We suggest that Affiliate institutions continue to encourage their scholars to attend and present, not only at the OK-LSAMP Symposium, but also other conferences.

Internship Participation

The students overwhelmingly indicated that they were encouraged to participate in summer internships (87%). Well over half (67%) of the juniors and seniors who participated in the survey reported doing internships in either summer 2016 or were scheduled to do it during summer 2017. 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 76% indicated that they are interested in attending a workshop assisting them with passport, travel, insurance, and other topics related to international internships, the evaluator again 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; however, 77% of juniors and seniors reported that they were encouraged to take the GRE and 42% of them received help in the process, but only 21% of them had taken the GRE at the time of the survey (May 2017). 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.

Eighty-six percent of the survey respondents were interested in participating in a Ph.D. camp related to graduate school assistance, so the evaluator recommends again this year 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.

Limitations of Online Student Survey

Based on the low response rates during last year's evaluation process for our fall 2015 survey (12%) and the spring 2016 survey (17%), we decided to conduct only one survey again this year. The response rate was 27%. Although more participation is always preferable, we were pleased with the response. The students who participated in the survey were representative of the OK-LSAMP population this year from each Alliance institution.

There are several drawbacks to conducting only one survey in the spring semester. First, students who left the program after the fall semester—whether they graduated, transferred, or were no longer eligible—may have been removed from the list serve by the time we sent the survey in May 2017 and, therefore, would not have received our email with an opportunity to participate.

Secondly, the survey asked the scholars to respond to their experiences in both the fall 2016 and spring 2017 semesters in the program. Students who responded concerning their participation during the fall 2016 semester may not have remembered the details accurately.

Finally, all of the scholar applications were not submitted using the OK-LSAMP application site; therefore, a number of students were not included in the list serve addresses we received from the program office. Consequently, those students were not given the opportunity to complete the survey. To help remedy this situation in the future, we recommend that all Campus Program Managers require their students to use the system to apply to the program. It will not only help us in the evaluation process, but will allow the program office to include them on the list serve. This is an important tool for corresponding with scholars about program opportunities, including internships and research prospects.

Section 3: The National STEM Retention and Graduation Data

In August 2017, the Consortium for Student Retention Data Exchange published the annual national STEM retention study, *2016-17 CSRDE STEM Retention Report*. This report is based on survey data collected from 189 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 and The University of 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 2006 through 2015 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 189 institutions observed in the 2016-17 CSRDE retention reports, regardless of major. It includes the data from Oklahoma State University and The University of 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 13, the six-year graduation rates are provided for the 2010 cohorts of all students in the national study, as well as OU and OSU. The data for underrepresented minority students are shown as well.

Table 13: *Six-year Graduation Rates – 2010 Total and URM Cohorts*

Category	Total	URM
All Majors		
National	**62.9%**	**51.2%**
OU	67.5%	58.1%
OSU	62.8%	49.0%
Any Major		
National	**66.1%**	**52.6%**
OU	66.0%	56.7%
OSU	66.5%	48.3%
STEM Major		
National	**49.0%**	**33.8%**
OU	42.0%	29.7%
OSU	39.4%	25.4%

To better understand how the two Oklahoma institutions are doing compared to similar institutions nationally, Table 14 provides data based on institutional selectivity. The table shows the six-year graduation rates for the following 2010 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.

- *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 14: *Six-year Graduation Rates by Selectivity – 2010 URM Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	All URM
All Majors					
National	**65.7%**	**47.3%**	**41.0%**	**39.8%**	**51.2%**
OU	58.1%				
OSU	49.0%				
Any Major					
National	**64.5%**	**49.2%**	**39.2%**	**35.8%**	**52.6%**
OU	56.7%				
OSU	48.3%				
STEM Major					
National	**42.7%**	**32.7%**	**20.9%**	**21.7%**	**33.8%**
OU	29.7%				
OSU	25.4%				

Table 14 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 one of the three categories. We also see that more than half (52.6%) of URM students who began as a STEM major graduated within any major in their institutions, STEM or non-STEM.

The University of Oklahoma's six-year graduation rates are above the average for all URM students in two of the categories; 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'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 and those in highly selective institutions.

Table 15 provides the six-year graduation rates for all majors, within any major and within STEM majors for the Total 2010 cohort by selectivity.

Table 15: *Six-year Graduation Rates by Selectivity – 2010 Total Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	Total
All Majors					
National	**73.3%**	**56.3%**	**49.5%**	**46.4%**	**62.9%**
OU	67.5%				
OSU	62.8%				
Any Major					
National	**74.0%**	**58.3%**	**49.4%**	**43.3%**	**66.1%**
OU	66.0%				
OSU	66.5%				
STEM Major					
National	**56.5%**	**42.2%**	**32.3%**	**27.3%**	**49.0%**
OU	42.0%				
OSU	39.4%				

In both Table 14 and Table 15, 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 2010 URM cohort and the Total cohort are provided for comparison, based on the percentages listed in Tables 14 and 15. 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.

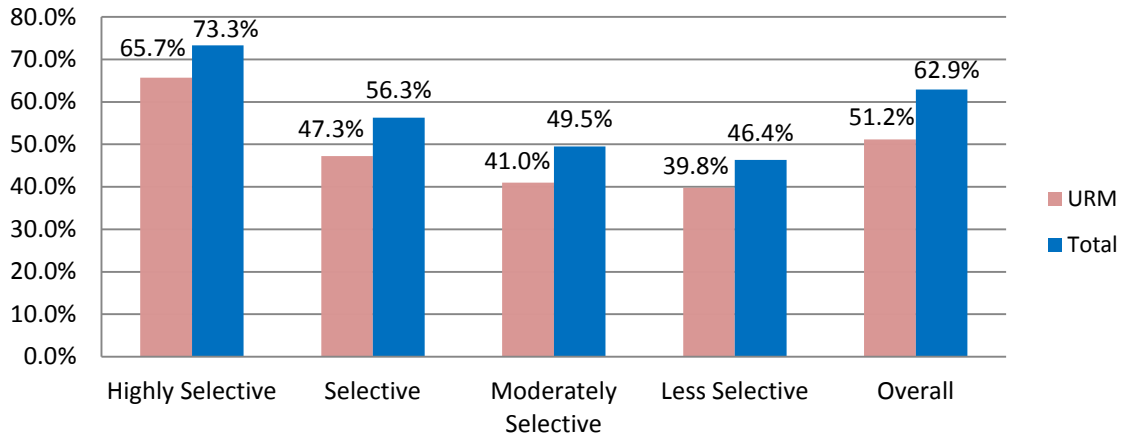


Figure 5: Six-year Graduation Rates by Selectivity – All Majors
2010 Total and URM Cohorts

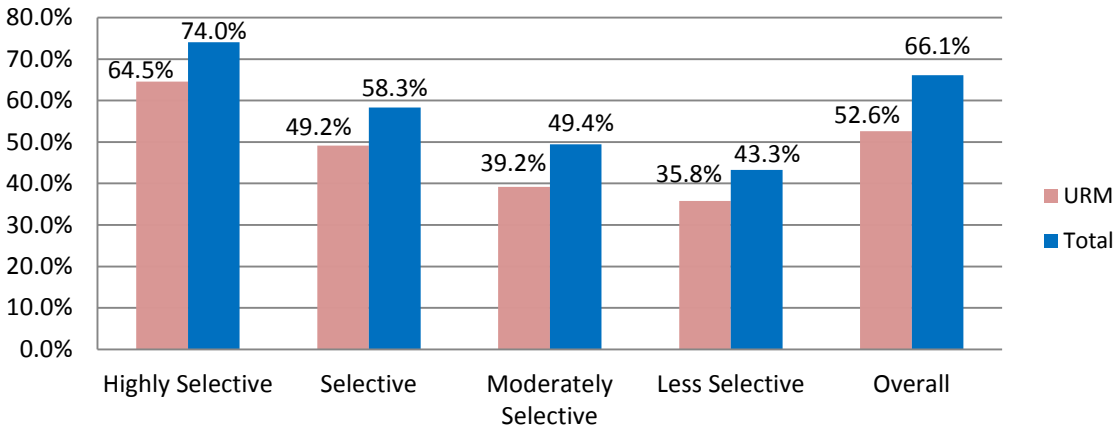


Figure 6: Six-year Graduation Rates by Selectivity – Any Majors
2010 Total and URM Cohorts

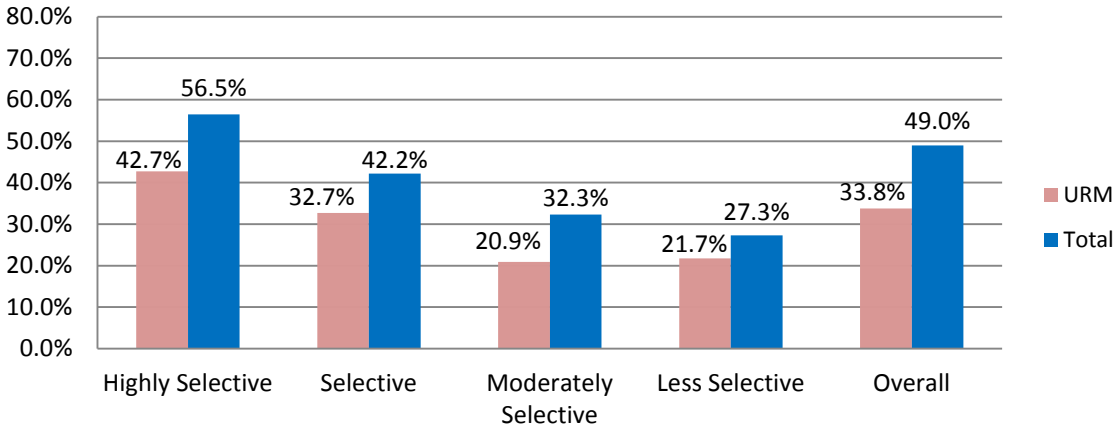


Figure 7: Six-year Graduation Rates by Selectivity – STEM Majors
2010 Total and URM Cohorts

As seen in Tables 14 and 15 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 16, the first-year retention rates are provided for the 2015 cohorts of all students in the national study as well as for OU and OSU. The data for underrepresented minority students is shown as well.

As with the graduation rates, in order to gain a better understanding of how the two Oklahoma institutions are doing compared to similar institutions nationally, Table 17 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 2015 URM cohorts by selectivity.

Table 16: *First-year Retention Rates – 2015 Total and URM Cohorts*

Category	Total	URM
All Majors		
National	**83.7%**	**79.4%**
OU	90.4%	90.4%
OSU	80.8%	72.5%
Any Major		
National	**86.3%**	**81.6%**
OU	90.7%	91.6%
OSU	82.8%	75.9%
STEM Major		
National	**74.1%**	**68.0%**
OU	69.5%	70.0%
OSU	72.9%	68.7%

Table 17: *First-year Retention Rates by Selectivity – 2015 URM Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	All URM
All Majors					
National	**86.6%**	**77.2%**	**72.9%**	**74.8%**	**79.4%**
OU	90.4%				
OSU	72.5%				
Any Major					
National	**87.1%**	**79.3%**	**74.7%**	**74.7%**	**81.6%**
OU	91.6%				
OSU	75.9%				
STEM Major					
National	**73.9%**	**64.1%**	**59.2%**	**62.7%**	**68.0%**
OU	70.0%				
OSU	68.7%				

Table 17 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 institutions have higher retention rates. However, the URM students at Less Selective institutions are retained at a higher or equal rate in all categories compared to those at Moderately Selective institutions.

The University of Oklahoma's first-year retention rates are above the average for URM students within the highly selective group, except for those students who began as a STEM major and remained in a STEM discipline, and above the national average for all URM students in all categories. Oklahoma State University's first-year retention rates are below the average for URM students in two of the three groups, and slightly above average for students who began and continued in a STEM discipline.

Table 18 provides the first-year retention rates of the Total 2015 cohort by selectivity for the national data as well as the two Oklahoma institutions that participated in the study.

Table 18: *First-year Retention Rates by Selectivity – 2015 Total Cohort*

Category	Highly Selective	Selective	Moderately Selective	Less Selective	Total
All Majors					
National	**88.9%**	**80.0%**	**75.6%**	**75.8%**	**83.7%**
OU	90.4%				
OSU	80.8%				
Any Major					
National	**90.1%**	**82.3%**	**77.3%**	**76.4%**	**86.3%**
OU	90.7%				
OSU	82.8%				
STEM Major					
National	**78.4%**	**68.5%**	**64.1%**	**64.4%**	**74.1%**
OU	69.5%				
OSU	72.9%				

Tables 17 and 18 show that, overall, 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 2015 URM cohort and the Total cohort are provided for comparison, based on the percentages listed in Tables 17 and 18 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.

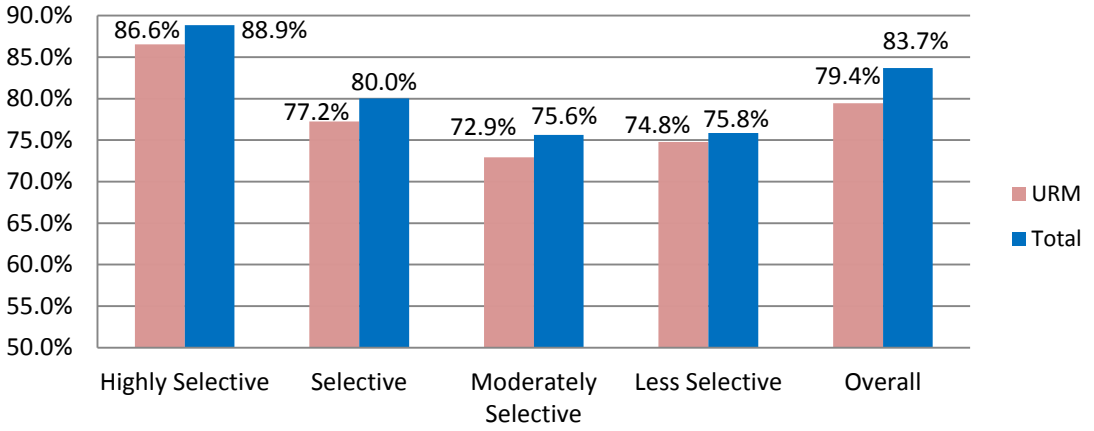


Figure 8: First-year Retention Rates by Selectivity – All Majors
2015 Total and URM Cohorts

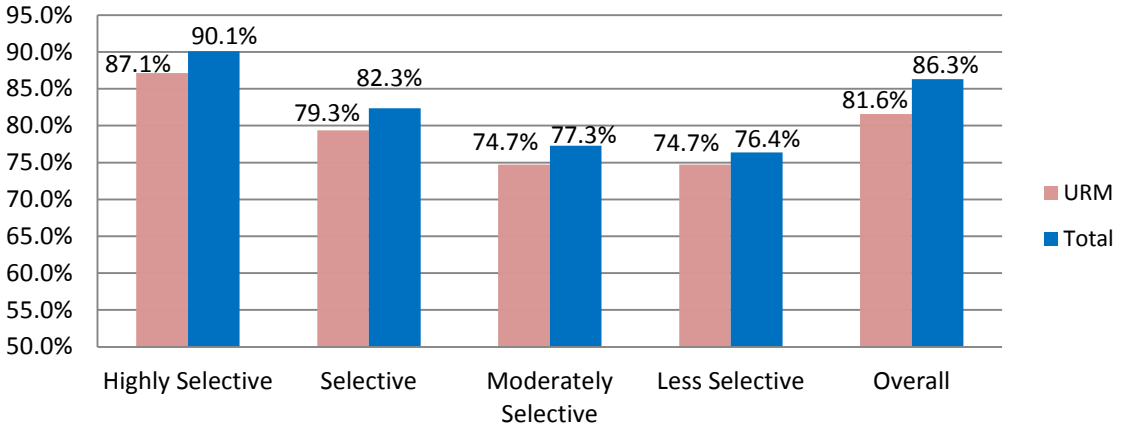


Figure 9: First-year Retention Rates by Selectivity – Any Major
2015 Total and URM Cohorts

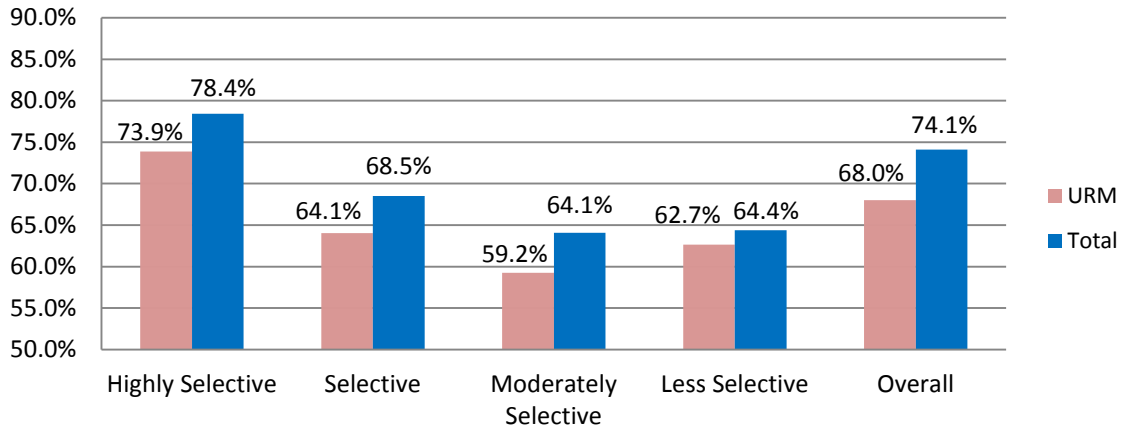


Figure 10: First-year Retention Rates by Selectivity – STEM Majors
2015 Total and URM Cohorts

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 194 students who participated in fall 2016, ten students graduated and 94% (165 of the remaining 175 students) continued to spring 2017.

A total of 238 students participated in spring 2016, which includes the new students who started the program that semester. Of those 238 scholars, 59 graduated, one was scheduled to graduate in August 2017, and only two left the program, resulting in the spring 2017 to fall 2017 expected retention rate of 99% 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 continue and 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 42% of the seniors (70 of 167) graduated during the evaluation period, and 63 of these graduates were URM students (90%). The Alliance exceeded its goal to graduate at least 60 OK-LSAMP scholars during this evaluation period.

The seniors who did not graduate during the 2016-2017 project year appear to be on track for graduation and graduate-school readiness as well. Of the 85 seniors who participated in the program in spring 2017 but did not graduate, 71% (60 of 85) had a GPA of 3.0 or greater, and 36 (42%) had participated in at least one summer internship. Only four were known to have left the program as of the time of this evaluation, while 81 scholars (95%) were scheduled to continue in the program and pursue their STEM degree; 69 of these scholars are underrepresented minority students. Given these numbers and the potential addition of new seniors joining the program during the summer 2017 through spring 2018 period, the OK-LSAMP alliance is on target to continue increasing its graduates in STEM majors.

Based on the results of our online student survey conducted in May 2017, 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. Host a half- or full-day workshop for increasing international experience

One of the objectives of the OK-LSAMP program is to expand opportunities for scholars so at least 25% gain international experience. During the first two years of the funding period, only 4% of scholars each year had international experience. This year, based on the data the evaluator received from the OK-LSAMP program office, 12% of the current scholars (33 of 269) have had international experience. This is an excellent improvement; however, in order to meet this objective, many more scholars will need to take advantage of international opportunities.

The majority of students who responded to our online surveys for the past three years have expressed an interest in an international workshop, so we recommend again this year that the program office consider hosting a workshop to help scholars learn more about these opportunities and potentially participate. A day set side to focus solely on this topic should help increase the number of scholars participating in international internships.

2. Reduce support for non-URM students

During the 2016-2017 evaluation period, 269 students participated in the OK-LSAMP program. Of these, 91% (246 scholars) were underrepresented minority students. The other 9% (23 students) were not included in the results of the URM students' success since they were not identified as

underrepresented minority students. In addition, 18 of the 23 non-URM students received some type of funding from the program, which represents 7% 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 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 our online surveys for the past three years indicated an interest in this opportunity (86% of this year's respondents expressed interest). Based on their comments about topics that are helpful in group meetings at their institutions (see Appendix 2), a camp—or retreat—focused on graduate school preparation should be well-received. This gathering would also fulfil the desire of the students to get to know scholars from other Alliance institutions.

4. Increase research opportunities for scholars

Data from the OK-LSAMP program office indicate that 50% of the seniors (84 of 167) identified during this evaluation period participated in research during at least one semester, and 65% of these (55 of 84) 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: 48% (30 of 62) participated in research at some point during this evaluation period.

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.

5. Provide more opportunities for students to interact

For the past three years that we have conducted the online student survey, scholars have commented that they would like more opportunities to get together with other OK-LSAMP scholars, both on their campus and across the Alliance. They have expressed the desire to build a support group among their peers in the program. A number of them have suggested that students get involved in organizing meetings and social gatherings to help build this community of scholars. Their concern has been that scholars currently only meet other scholars at the Research Symposium and possibly at another conference, and that more interaction would be very beneficial.

We suggest that the Alliance institutions continue to hold meetings on their campuses. Although one-on-one meetings may be preferred for receiving updates from students on their research, gathering as a group several times each semester has overwhelmingly been a positive experience for the students.

In addition to meetings and other gatherings on each campus, we suggest that the Alliance schedule at least one event each semester for all OK-LSAMP scholars. The Research Symposium is one opportunity for scholars to gather during the fall; adding a spring opportunity would help fulfil the students' needs to engage with other scholars. As noted in recommendations 1 and 3 above, this could

be combined with a workshop on international research and/or a PhD camp.

6. Require students to apply using the online application process

While preparing to send our online survey to scholars, we discovered that the list serve from the OK-LSAMP program office contained only 206 names, whereas the total number of scholars participating in the program during this period was 269. We know that some of the students graduated in the fall semester and may have removed their names from the list before we sent the survey in early May. However, a number of students were not on the list because they had not registered using the online system. As a result, the OK-LSAMP office did not know these students were in the program until the Campus Program Managers submitted the data to them by June 1.

Requiring the students to apply online will help ensure that the OK-LSAMP office has their information early in the process so they can include them in correspondence throughout the year. Some scholars commented about the lack of communication about upcoming events, etc. By using the online application process, students will be added to the list serve to receive these emails, which could increase the number of scholars who apply for and participate in internships and other opportunities. It will also allow those students to participate in our online survey, which could provide us with a larger number of respondents in which to evaluate the program.

Appendix 1: Institution-Specific Details

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

- 12 students were included in this evaluation
- 3 students were juniors and 9 were seniors
- 12 of 12 scholars (100%) were URM students

Support

- 2 of the 8 students (25%) who were in the program through summer 2016 participated in an internship that summer
- 1 of 3 graduates (33%) participated in at least one summer internship while in the program. None of the graduates participated in two or more while in the program.

Graduate School Preparation

- 9 of 12 students (75%) who participated in fall 2016 conducted research
- 6 of 10 students (60%) who participated in spring 2017 conducted research
- 2 of 3 graduates (67%) had a minimum GPA of 3.0

Results

- 3 of 9 seniors (33%) graduated, two in December 2016 and one in May 2017
- 3 of 3 graduates (100%) were URM students
- 0 of 3 graduates (0%) were accepted to graduate school

East Central University

Participants

- 12 students were included in this evaluation
- 2 students were sophomores, 1 was a junior, and 9 were seniors
- 10 of 12 scholars (83%) were URM students

Support

- 1 of the 10 students (10%) who were in the program through summer 2016 participated in an internship that summer
- 2 of 4 graduates (50%) 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

- 5 of 12 students (42%) who participated in fall 2016 conducted research
- 5 of 11 students (45%) who participated in spring 2017 conducted research
- 3 of 4 graduates (75%) had a minimum GPA of 3.0

Results

- 4 of 9 seniors (44%) graduated, in May 2017
- 4 of 4 graduates (100%) were URM students
- 2 of 4 graduates (50%) were accepted to graduate school

Langston University

Participants

- 47 students were included in this evaluation
- 8 students were sophomores, 8 were juniors and 31 were seniors
- 45 of 47 scholars (96%) were URM students

Support

- 13 of the 23 students (57%) who were in the program through summer 2016 participated in an internship that summer
- 8 of 18 graduates (44%) participated in at least one summer internship while in the program. Seven of the graduates participated in two or more while in the program.

Graduate School Preparation

- 13 of 47 students (28%) who participated in fall 2016 conducted research
- 13 of 46 students (28%) who participated in spring 2017 conducted research
- 15 of 18 graduates (83%) had a minimum GPA of 3.0

Results

- 18 of 31 seniors (58%) graduated, in May 2017
- 17 of 18 graduates (94%) were URM students
- 1 of 18 graduates (6%) were accepted to graduate school

Northeastern State University

Participants

- 15 students were included in this evaluation
- 1 student was a sophomore, 3 were juniors and 11 were seniors
- 15 of 15 scholars (100%) were URM students

Support

- 3 of the 5 students (60%) who were in the program through summer 2016 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

- 10 of 15 students (67%) who participated in fall 2016 conducted research
- 8 of 9 students (89%) who participated in spring 2017 conducted research
- 2 of 2 graduates (100%) had a minimum GPA of 3.0

Results

- 2 of 11 seniors (18%) graduated, one in December 2016 and one in August 2017
- 2 of 2 graduates (100%) were URM students
- 1 of 2 graduates (50%) were accepted to graduate school

Northwestern Oklahoma State University

Participants

- 6 students were included in this evaluation
- 1 student was a sophomore, 2 were juniors and 3 were seniors
- 4 of 6 scholars (67%) were URM students

Support

- 1 of the 2 students (50%) who were in the program through summer 2016 participated in an internship that summer

Graduate School Preparation

- 2 of 6 students (33%) who participated in fall 2016 conducted research
- 2 of 6 students (33%) who participated in spring 2017 conducted research

Results

- 0 of 3 seniors (0%) graduated

Oklahoma State University

Participants

- 82 students were included in this evaluation
- 7 students were freshmen, 6 were sophomores, 22 were juniors and 47 were seniors
- 78 of 82 scholars (95%) were URM students

Support

- 23 of the 52 students (44%) who were in the program through summer 2016 participated in an internship that summer
- 10 of 19 graduates (53%) participated in at least one summer internship while in the program. Five of the graduates participated in two or more while in the program.

Graduate School Preparation

- 16 of 82 students (20%) who participated in fall 2016 conducted research
- 23 of 72 students (32%) who participated in spring 2017 conducted research
- 15 of 19 graduates (79%) had a minimum GPA of 3.0

Results

- 19 of 47 seniors (40%) graduated, five in December 2016 and 14 in May 2017
- 17 of 19 graduates (89%) were URM students
- 5 of 19 graduates (26%) were accepted to graduate school

Southeastern Oklahoma State University

Participants

- 18 students were included in this evaluation
- 3 students were sophomores, 3 were juniors and 12 were seniors
- 18 of 18 scholars (100%) were URM students

Support

- 4 of the 8 students (50%) who were in the program through summer 2016 participated in an internship that summer
- 4 of 6 graduates (67%) participated in at least one summer internship while in the program. Three graduates participated in two or more while in the program.

Graduate School Preparation

- 9 of 18 students (50%) who participated in fall 2016 conducted research
- 8 of 16 students (50%) who participated in spring 2017 conducted research
- 6 of 6 graduates (100%) had a minimum GPA of 3.0

Results

- 6 of 12 seniors (50%) graduated, one in December 2016 and five in May 2017
- 6 of 6 graduates (100%) were URM students
- 3 of 6 graduates (50%) were accepted to graduate school

Southwestern Oklahoma State University

Participants

- 8 students were included in this evaluation
- 2 students were sophomores, 2 were juniors and 4 were seniors
- 6 of 8 scholars (75%) were URM students

Support

- 4 of the 5 students (80%) who were in the program through summer 2016 participated in an internship that summer
- 2 of 2 graduates (100%) participated at least one summer internship while in the program. None of the graduates participated in two or more while in the program.

Graduate School Preparation

- 5 of 8 students (63%) who participated in fall 2016 conducted research
- 7 of 8 students (88%) who participated in spring 2017 conducted research
- 2 of 2 graduates (100%) had a minimum GPA of 3.0

Results

- 2 of 4 seniors (50%) graduated, both in May 2017
- 1 of 2 graduates (50%) were URM students
- 2 of 2 graduates (100%) were accepted to graduate school

University of Central Oklahoma

Participants

- 15 students were included in this evaluation
- 1 student was a freshman, 2 were sophomores, 5 were juniors and 7 were seniors
- 14 of 15 scholars (13%) were URM students

Support

- 4 of the 6 students (67%) who were in the program through summer 2016 participated in an internship that summer
- 1 of 2 graduates (50%) participated in at least one summer internship while in the program. None of the graduates participated in two or more while in the program.

Graduate School Preparation

- 8 of 15 students (55%) who participated in fall 2016 conducted research
- 12 of 12 students (100%) who participated in spring 2017 conducted research
- 2 of 2 graduates (100%) had a minimum GPA of 3.0

Results

- 2 of 7 seniors (29%) graduated, in May 2017
- 1 of 2 graduates (50%) were URM students
- 1 of 2 graduates (50%) were accepted to graduate school

University of Oklahoma

Participants

- 40 students were included in this evaluation
- 2 students were freshmen, 4 were sophomores, 10 were juniors and 24 were seniors
- 30 of 40 scholars (75%) were URM students

Support

- 7 of the 20 students (35%) who were in the program through summer 2016 participated in an internship that summer
- 4 of 10 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

- 10 of 40 students (25%) who participated in fall 2016 conducted research
- 12 of 35 students (34%) who participated in spring 2017 conducted research
- 9 of 10 graduates (90%) had a minimum GPA of 3.0

Results

- 10 of 24 seniors (42%) graduated, one in summer 2016 and nine in May 2017
- 8 of 10 graduates (80%) were URM students
- 1 of 10 graduates (10%) were accepted to graduate school

University of Tulsa

Participants

- 14 students were included in this evaluation
- 1 students was a sophomore, 3 were juniors and 10 were seniors
- 14 of the 14 scholars (100%) were URM students

Support

- 9 of the 10 students (90%) who were in the program through summer 2016 participated in an internship that summer
- 4 of the 4 graduates (100%) 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

- 7 of 14 students (50%) who participated in fall 2016 conducted research
- 8 of 13 students (62%) who participated in spring 2017 conducted research
- 4 of 4 graduates (100%) had a minimum GPA of 3.0

Results

- 4 of 10 seniors (40%) graduated, one in December 2016 and three in May 2017
- 4 of 4 graduates (100%) were URM students
- 2 of 4 graduates (50%) were accepted to graduate school

Appendix 2: Scholar Responses about Group Meetings

How were the meetings helpful?

Advice from grad students.

All the information shared was helpful.

As a new transfer student, the general overview of the resources offered by LSAMP was most helpful.

Could only attend one that was about the correlation of earth quakes and fracking. It was interesting.

Future plan talks

Hearing about the other students' experience and progress.

I only entered the program at the end of the spring semester. Most of the meetings were over when I was accepted

Information on conferences.

Learning about the speaker's experiences and listening to their advice

Networking

Poster advice session

Receiving the information that I needed to be successful both at my institution and in this program.

Seeing other students in the program and receiving information of their research they are conducting or plan to conduct.

Speakers about graduate and career advice.

Talking about deadlines and what is expected.

Talking about graduate school.

The different speakers that came.

The grad school prep meeting

The GRFP

The librarian researcher meeting.

The meetings about post undergrad life, conference etiquette, putting together a presentation, career fair etiquette, and the conversation about pros v cons of graduate school vs industry.

The mentor and snacks!

The useful information about graduate schools.

They informed us about upcoming opportunities

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

Continue as they are because they are extremely helpful.

Food

I see it as being difficult given the overall demeanor of most meetings (especially on the students' behalf), but perhaps more provocative, discussion-based meetings could be introduced. Certain speakers went in this direction, like the Director of the Oklahoma Geological Association presenting on science and politics. After awhile, sitting through lectures on conference attire or how to use career services can seem a bit patronizing, given that we are tasked with being high-achieving research scholars. Might be harsh, but just my opinion.

I would like to see them be a bit more organized, as well as advertised better. Emails for the meetings were often not sent out until the week of, making it difficult to rearrange schedules.

Maybe a better time for more people to show up.

More about what OKLSAMP offers students.

More of them.

More resources

More student panels.

N/A

Nothing. Everything was great.

REU preparation like information about taking more classes in the semester to free up your schedule. I would stress the importance of experience and how a REU would change their academic trajectory. Scholarship information! NSF GRFP, Hertz Fellowship, Goldwater, Fulbright, Rhodes. Presentations on brief overviews of each major scholarship and information on who might be interested

Speakers.

Appendix 3: Mentor Support

How did your mentor help you?

Advice on everything, school work, and applying to graduate schools and scholarships

Advice on submission, abstracts, letters, etc.

Being a listening support, graduate school advice, research programs, and internship opportunities.

Everything from advisor, to help choosing grad schools, to motivating. Everything

General instruction, idea collaboration, research supplement material, etc.

Guided me to think about my project and what I needed to do to complete my current projects.

Guiding research interest.

He answered any and all questions that I had.

He encouraged me the whole time I was at school and held me accountable

He gave me some Doctorate candidate papers to review and provide feedback on them.

He helped me during the application process.

He was understanding and help outline my project

Help me understand the stuff I was doing research on

Helped guide me through my research and discuss my future career plans

Helped me with any question I had about applying for internships, and helped check over my internship items.

I suppose I did not have a mentor Fall 2016. My mentor [Mentor's Name] had moved to a different school and I did not get another mentor due to it being my last semester and the difficulty of being placed in a different research lab for a short amount of time. I graduated in Fall 2016 so I did not have a mentor for Spring 2017

Making sure I was able to get help with my research, conferences, and other academic needs

My mentor [Mentor's Name] helped me learn about and apply to many REU's around the state that worked on projects in my field of interest.

My mentor helped me apply for graduate school, prepare for the GRE, and find internship opportunities.

My mentor helped me by ensuring that I received information about internships, and also assisted me with graduate school opportunities.

My mentor helped me tremendously by being accommodating during the transfer process, recognizing my strengths, and helping me to identify and improve my weaknesses. We outlined a clear plan of short- and long-term research and professional goals, and she helped every step of the way-launching me further than I could have imagined.

My mentor is also my advisor and has done nothing but help me in my educational quest.

My mentor, [Mentor's Name], helped me prepare for graduate research and the transition to graduate school.

Networking and setting up research.

Provided professional and personal mentorship beyond what I expected or could have even hoped for.

Very receptive to criticism and ideas for our research endeavors together. All in all was very helpful and crucially impacted my years working with them.

Replied promply (sic) *to emails, provide resources*

Taught me how to work in the lab, work with others, techniques for our research, and so much more.

When explaining techniques, experiments, theory, anything in the lab he was extremely helpful, and would not hesitate to repeat or go over something if a student was having issue.

With academic, research, and administrative issues.

With making sure I sent in necessary information with related programs and making sure I go to conferences and get involved, as well as sending in my information.

How could your mentor improve?

A little more availability would help but not bothered too much by the amount I received

Being more involved with all of the OK-LSAMP participants on campus.

Did everything correctly.

Getting the LSAMP community at my school together more often and making an effort to build a community among the students.

Give me more substantial information that will help me to better understand what the OK-LSAMP program is all about and how I can be a more productive member of this organization.

He was great nothing needs to be improved

I honestly am not sure how my mentor could improve. She is nearly always available and willing to help with whatever I need. I could not ask for more from her.

I think he could be more available.

I would like if we would dive into the software behind the tests we run.

Im (sic) *not sure*

My mentor is amazing.

My mentor is amazing. I see no improvement necessary.

N/A

None.

Not much. Does pretty well already.

NOTHING

She is perfect

She was amazing. Always there to answer and (sic) *questions I had*

We both had the bad habit of overcommitting to many projects and endeavors, and often found ourselves having to sacrifice time spent on one thing or another. Certain phases of our project often went months without his direct observation of progress, just our meetings and my updates. Probably was good for my development as it pushed me to be thorough and responsible, but could possibly have been more constructive.

We could keep in contact more

Appendix 4: Graduate School Preparation

How did the program help with GRE preparation?

Books and websites were accessible

Books/ test taking strategies

[Campus Program Manager name] helped to sign me up for an online class provided for by OK-LSAMP resources that was greatly beneficial.

Financial

Financial support

Finding practice resources

GRE prep

GRE prep course

I received study materials.

Links for practice tests

Prep course and test when I take it

Prep courses

Some insight about the test

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?

A groupme for the scholars so we can stay in touch

Academic support

Encourage students to take leadership positions in OK-LSAMP to participate in the process to schedule meetings efficiently and frequently. These students would help new students get acclimated to the program.

Every time I have worked with LSAMP for funding for conferences, REU, etc. they have been completely helpful. I cannot think of anything that should be improved upon. The staff have been doing such a great job of providing wonderful opportunities for students on campus that is unmatched in other programs and clubs I've participated in on campus.

Everything is great!

I think it would be neat if all the LSAMP scholars would be placed in a Facebook group or other kind of social media platform so they could interact and create a network.

I think that the program should be introduced to high school students.

I was looking forward to summer research however there was not enough funding. I know you cannot control this but I just wish I would have known sooner so I could have taken advantage of other opportunities. Thanks for all you do!

I wish I would have received more opportunities to participate in OK-LSAMP activities with other students because I still feel like I don't really understand all that the OK-LSAMP program hs (sic) *to offer me as a member of it.*

I would like if my campus director would j (sic) *I me more involved with upcoming meetings and opportunities!*

Interaction with other OKLSAMP members

More funding!!!

More meetings and make them required to ensure more people show up.

NA

Nothing

Nothing the program is great

One improvement would be to make this program more known to all STEM majors.

Perhaps group students by experience with the program/years in the university. Juniors and Seniors have very different concerns than Freshman and Sophomores. This could also be set up to allow Juniors and Seniors, and Graduate Students, to be put in accessible mentorship positions to students just starting out. Similarly, students just entering in to the program who must begin the initial steps of finding a research mentor in addition to getting their feet under them in their university work on the whole, can support each other in these new efforts.
The NCUR conference we go to in the spring is kind of a drag and just doesn't feel beneficial. Would be better for students to go to conferences of their choosing where they will have an opportunity to make contacts in their field of interest.

THEY ARE PERFECT

When talking about improvements, organization is the big area that comes to mind. It seems like communication was often lacking between directors, assistant graduate students, and current LSAMP participants. Events were not well advertised or organized. It seems like the program has a decent start, but could really be better by increasing advertising and strengthening communication.

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

What are the strengths of the OK-LSAMP program?

All of the overwhelming support from staff.

Allowing much needed support to put projects and ideas to action.

Amount help and opportunities available

Constant help with conferences and summer programs.

E-mails about internship opportunities

Encourage you to do research and apply for graduate school.

Funding and some meetings provide useful information.

Great mentors

Guidance, support, and encouragement

I am a single mom so having the opportunity to conduct research while getting paid was huge for me. It allowed me to focus on school and research instead of going out and getting a regular job that would have hindered me from this focus.

I really like the emails and the fellowship and networking that come with being an OKLSAMP scholar. Information on Graduate school

It's staff.

MENTOR – [Mentor's Name]

More possibilities, help with other opportunities

OK-LSAMP provides financial support and a chance to present research.

Our campus advisor worked very closely with each of the OK-LSAMP scholars and made sure that we were/are on track

Plenty of opportunities and resources made clear to everyone. Overwhelmingly helpful and devoted program leaders.

Relationships/networking
Research research research

Strong community and strong support.

The biggest strength of the OK-LSAMP program is the commitment the staff has to its students and

participants. Even on busy days, I can recall myself going from an OK-LSAMP meeting to an AISES club meeting and seeing the staff there telling people about OK-LSAMP. That stuck in my head about the commitment the staff has, after a busy day, a scholar meeting, they still went to other meetings during the evening to recruit more members. They also helped a TON coordinate a last minute conference travel for me and I am extremely grateful for them.

The different internship and graduate school opportunities they provided.

The financial support that it offers.

The great opportunity it provides to minority students! I also love being able to look on the Facebook page for other opportunities!

The opportunities available and how they can help in your academic career.

The resources and opportunities provided by the OK-LSAMP program are unbelievable (I'm typing this from the UK on an OK-LSAMP supplemental grant. I never dreamed that could happen)

The resources it has

The stipend checks are very helpful while attending college.

They encourage minorities in stem fields, provide support for the students, and teach each other like a family.

They offer great opportunities to students that need help.

This program gives us a great insight on research and it's an awesome opportunity to see if that's what you really want to do in life

Very good with funding undergraduate studies and research. Very appreciated! Really like getting to work with other minority students in research field.

What are the weaknesses of the OK-LSAMP program?

Engagement and unity

Hard to get ahold of people sometimes. Meetings are inconsistent, which provides problems when relaying information about application deadlines for funding and grad school.

I can not (sic) *pin point any weaknesses.*

I don't get emailed about conferences, internship opportunities, ect.(sic)...

I was proud to be affiliated with the organization based on the reputation once I was accepted into it, but I became considerably disappointed once I was in and discovered that I wasn't learning anything more about the program either through scheduled meetings or from my mentor as a member of it.

I wish there was more information.

I wish there was more interactions with the main campus

It's (sic) ability to get timely information for the next steps in the process for graduate school.

Lack of members.

Many of my peers hadn't known about the OK-LSAMP program until I told them about it, meaning that it's not widely known on campus.

minimal group activities

N/A

Needs a bit more structure and between lines of communication.

NONE

Not enough time

not student led in any structured way

Sometimes it interfered with me studying for my classes

Student interaction does not seem to carry throughout the group.

Support

The meeting times are awkward sometimes, but it's manageable.

These resources and opportunities seem to be a bit untapped for a couple of different reasons. There seems to be a lack of organization. It is not clear what exactly is offered by OK-LSAMP, and it is very difficult to find the right people to contact for information.

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

Add more research symposiums.

Add student leaders to help influence students to participate in taking the GRE and applying to graduate school.

Allow for more student leadership

As mentioned before, groupings of experience, primarily drawing lines between those just entering school and the program, those in the meat of it, and those on the way out looking at graduation, graduate school, and so on. Those groups have very different priorities and interests and the individuals could benefit each other by mingling amongst themselves. Maybe. Or it could get really complicated.

Do more campus-wide recruitment for this program.

I don't have any changes, I think you all are going great. I am so grateful to be an OK-LSAMP scholar.

I don't see anything that needs to be changed.

I would ensure that the candidates were very clear on what the program expected them to do. I would encourage them to review the website to learn more about the program and I would make sure the meetings were held regularly to keep students abreast of what's happening to help them remain aware of ongoing and upcoming events.

I would make sure all program officers are on the same page about what resources are offered and who to contact for different opportunities (i.e. travel awards, finding a mentor, GRE prep, etc.). I would make sure these resources are clearly communicated. Go into a gen chem course. Emails get lost and automatically deleted. It is such a waste to have these amazing opportunities and not have students using them.

I would make their program more visible across campus. I did not know about LSAMP until late in my college career and I was a member of AISES, NASA, and SACNAS.

I would market the program better to younger students. So many HS students do not have any idea about the program or how they can pursue STEM degrees.

More funding to help with summer internship housing/travel.

More help in assisting students to find mentors or begin projects.

More meetings.

More opportunities for introductory information about graduate school, GRE, graduate student fellowships, undergraduate scholarships. Students don't have to attend these, but it would be useful. Also LSAMP could help connect students to other support opportunities on campus, like the Broader impacts in research team at [Name of campus]

More regularly scheduled meetings. Give lots of notice to application deadlines for funding, REUs, and grad schools.

More socials and emails about various opportunities

More student interaction.

N/A

None

Any other final comments?

Improve the active participation of the members and it will become more interesting to the students at our school. Not many students knew about it when I shared with them that I had been accepted into it. I'm still proud to be in the organization I only wish I could have been more active in it. :(

It's a fantastic program that I am thankful to be a part of. Thank you.

Miss everyone at OK-LSAMP! Go pokes

N/A

None

OK-LSAMP helped me to conduct research for 2+ years with my current research professor. Without the program, I would not have known that undergraduate research was the possibility for a person like myself. I am headed to graduate school with research experience because of OK-LSAMP.

OK-LSAMP is a wonderful program that has well prepared me to excel in my graduate studies.

So glad to have had the privilege of being an OK-LSAMP scholar :)

THANK YOU