

# OKLAHOMA ALLIANCE FOR MINORITY PARTICIPATION IN SCIENCE, MATHEMATICS, ENGINEERING, TECHNOLOGY AND EDUCATION

## 1997 Report for P.E.R

to  
**National Science Foundation**  
Division of Education and Human Resource Development  
Alliances for Minority Participation

at  
**NATIONAL SCIENCE FOUNDATION**  
ARLINGTON, VIRGINIA

31 October 1997

prepared by  
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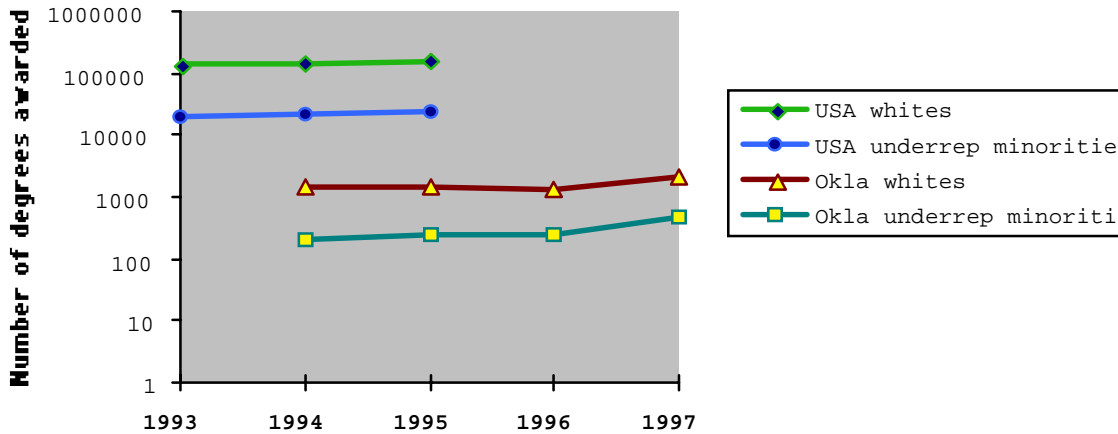
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DATE

"PROGRAM EFFECTIVENESS" REVIEWS  
November 24, 1997, RM 830, 9:15am  
The National Science Foundation  
4201 Wilson Blvd. ROOM 815

**I. PROGRAM PERFORMANCE.** The annual national growth in numbers of SMETE degrees produced by underrepresented minorities \*(Native American, African-American, Hispanic) increased 7.5% from 1993 to 1994 and 8% from 1994 to 1995. Among white SMETE students, only a 2% gain in graduates occurred in 1993 and 1994, while a decrease by 1% was noted for 1995. In comparison, the annual growth trend for targeted minority graduates in the Oklahoma Alliance is beginning to outpace the national trend (Figures 1a., 1b., Appendix Table 1 and 2.)

**Nationwide: SMET Bachelors Degrees Awarded to Whites & Underrepresented Minorities from 1993-97**



(Figure 1a.) Before 1997, the growth pattern for white SMETE graduates in Oklahoma reflected the national trend of slower annual growth in the early nineties. As illustrated in Figure 2., since 1995, the overall growth for the state's underrepresented minority SMETE graduates began a noticeable increase.

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(Figure 1b.)

In Oklahoma, the total Bachelor's Degrees in SMETE fields earned in 1997 by underrepresented minority populations \*(Native American, African-American, Hispanic) at the eight Oklahoma Alliance Partner schools alone increased by 33% (n=384) and by 43.6% (n=458, not including Native Pacific Islanders) at all Oklahoma Alliance institutions (Partners and Affiliates). In either case, these gains exceed the projected 15% annual increase from the baseline of 214 degrees established in 1994 (Figure 3.; Appendix Table .3; Appendix Figure 1.).

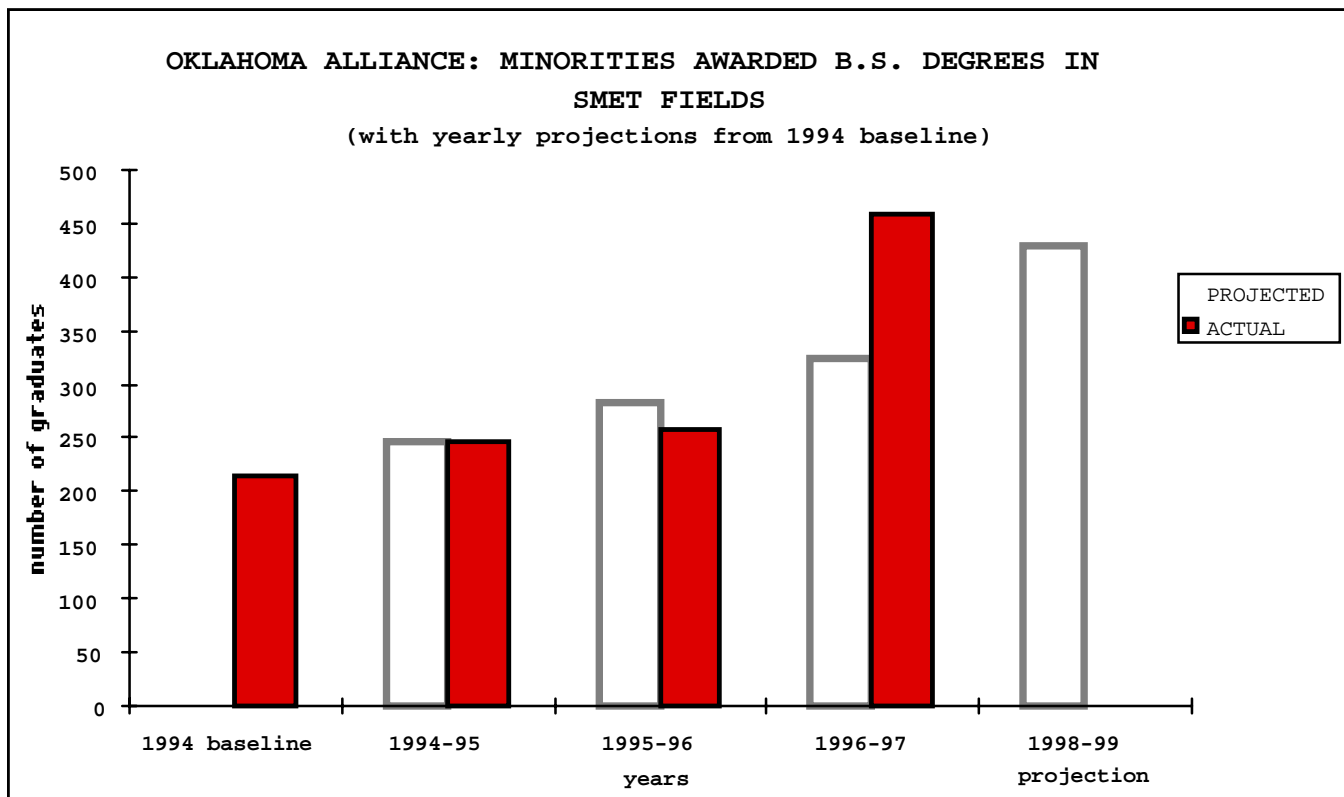


Figure 3.

**II. "VALUE ADDED" for INTER AND INTRA-INSTITUTIONAL PROGRAMMING and COHERENCE.**

**Common Components**

The inter-institutional collaboration among the eight Partner universities and active Affiliate schools comprising OKAMP-SMETE is extraordinary and unprecedented in the state of Oklahoma. The Summer Bridge Programs, Semester Scholars Programs and Research Internship Programs are the essential components through which Oklahoma Alliance objectives are achieved. (Appendix Documents, OKAMP Partners)

**OKAMP-SMETE EDUCATION CONTINUUM**

Common schools-->Undergrad education-->Grad education

- *Bridge Programs*
- *Scholars Programs*
- *Internship Programs*

**Community Building + Educational Development + Teacher Preparation**

**WORK FORCE ENHANCEMENT**

The OKAMP Partners are Southeastern Oklahoma State University (SEOSU), Northeastern State University (NSU), the University of Oklahoma (OU), East Central University (ECU), Langston University (LU), the University of Central Oklahoma (UCO), Northwestern Oklahoma State University (NWOSU) and Oklahoma State University (OSU). Each Partner institution offers at least one student support program for "real time" tracking and scholastic development, most offer a research component as well and two Partners offer Bridge programs. The lead institution, Oklahoma State University(OSU), has developed a Model

Program for each of three student support components. These models are designed to serve larger numbers of students and serves as a mechanism for innovative academic program management. Outcomes are shared between program directors, coordinators and others at regular Alliance and Co-PI meetings.

**Accounts of program components and resources shared across the collaborative and evidence of the strategic use of NSF resources and are best presented in the context of the three types of support programs [Summer Bridge; Campus Scholars, Jump Start or Traineeship and Research Internship]. The student support programs are the focus of the OKAMP-SMETE initiative and components and resources shared can only be pointed out through detailed descriptions of activities.**

Summer Bridge Programs. To our best knowledge, there is no equivalent state-supported program offering the opportunity for an advance start on higher education to underrepresented minority nor majority citizens who are going to college.

Selected highlights on Bridge Programs:

- ◆ Offered by two OKAMP institutions: Oklahoma State University and Langston University.
- ◆ The Langston Program, initiated in 1996 as an off-campus program, is modeled after the OSU program. Common features:
  - ⇒ Standard application format.
  - ⇒ Freshman "gate-way" courses offered- Freshman Composition and an appropriate College Mathematics.
  - ⇒ Became residential in 1997.
  - ⇒ Programming: Recruitment--information on SMETE fields.  
Retention--survival skills, accessing commonly available university support systems and resources, establishing peer and academic networks.
  - ⇒ Outreach offices at Langston University handle recruitment.
  - ⇒ The Co-PI, Dr. Phillip Schapiro, along with an English faculty member collaborate to teach the "gateway" courses.
  - ⇒ Use of computer lab facilities are provided by the university.
  - ⇒ Enrollment, residential and other vital support services are routinely provided by the university.
  - ⇒ Post-program referrals to LU Scholars Program or at a Partner Institution add value for the participant.
- ◆ Recruitment for the Model Summer Bridge Program offered at the Lead institution for the Alliance.
  - ⇒ All Partners participate in the distribution of Bridge Program applications.
  - ⇒ The Alliance hosted a special meeting at the Oklahoma State Regents for Higher Education Conference room featuring the Bridge Program. Targeted audience: Representatives from high school recruitment offices at Alliance schools.
  - ⇒ To achieve statewide representation, participants are selected, in part, on the basis of their declared college or university. Since 1995, up to 13 Alliance member schools have been identified by these Summer Bridge Program participants. Figure 4. shows the distribution among Alliance institutions for 1997.

**1997 BRIDGE PROGRAM  
PARTICIPATION: DECLARED  
INSTITUTIONS  
n=42 students**

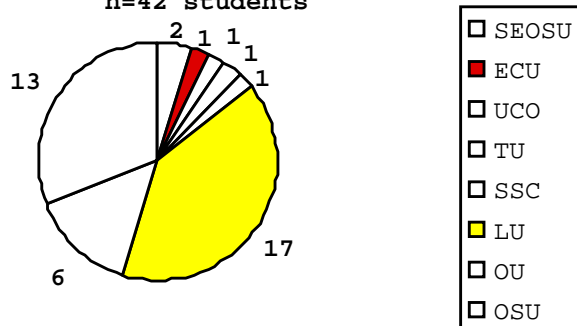


Figure 4.

- ⇒ On request by the participating student, referrals are made to the Partner institution of choice. The strength of the referral depends on the performance of the Bridge Scholar. The receiving OKAMP institution makes decisions on continued participation at the local campus and/or funding for the academic semester. An outstanding Bridge Scholar planning to attend an Affiliate school is often invited to apply for continued support by the lead institution. This option provides another mechanism to broaden the distribution of participating students and the resources awarded by OKAMP.
- ⇒ Co-PI, Dr. Ann Ackerman, Oklahoma City Community College served as Bridge Program selection coordinator for two years and this past year her office remained the official receiving-site for applications.
- ⇒ As in the past, the Summer Bridge Program Selection Committee was multi-institutional and comprised of Co-PI's and Campus Coordinators.
- ⇒ Prior to officially entering the program, Bridge Scholar finalists are given an academic assessment and other intake related services by the university Admissions offices. These offices also assist heavily with planning the annual OKAMP Bridge Program Orientation and Enrollment Workshop where the participants and their families are the guests of OKAMP.
- ⇒ Residential services and on-going support in living units are routinely provided by university personnel. Special accommodations are made for the "visiting" OKAMP Scholar when enrichment activities are scheduled.
- ⇒ Programming for the Summer Bridge Program at OSU involved many different university departments. Mathematics offers a College Algebra course featuring a required cooperative work session. The English department reserves sections for OKAMP students allowing for smaller class size. The OSU OKAMP Campus Coordinator's OKAMP staff of liaisons provide extra cooperative learning, tutoring, network building and academic planning experiences.

The university offices of Career Development, Multicultural Development and Assessment and General Counseling all provide services to OKAMP Scholars. The Colleges of Engineering and Education hosted visits by Bridge groups.

Semester Scholars Programs. Across the Alliance, these programs focus primarily on retention and high scholastic development in SMETE fields. Since the OKAMP Scholar is selected on the basis of proven academic abilities, retention efforts more often address a wider variety of risk factors that relate to satisfaction with the academic experience and choice of major field.

- ◆ All Partners schools offer a Scholars Program. Three standard strategies are used widely to encourage the maintenance of higher coursework performance standards.
  - ⇒ Aggressive management of financial incentives. Semester-by-semester grade reviews and adjustment of stipends based on performance (grades).
  - ⇒ Intense "tracking" practices which actively involve the student and supplemental long-term course portfolio management.
  - ⇒ Tutoring, cooperative work sessions and consultations with course instructors.
- ◆ East Central University offers three levels of participation:
  - ⇒ Jump-Start Program for freshmen
  - ⇒ OKAMP Traineeships and OKAMP Work-study
- ◆ Oklahoma State University. The Model Scholars Program offered at the Lead institution is designed to serve a large and diverse group of Scholars. The challenge is to create conditions for a unique and more intimate undergraduate academic experience not characteristically available to the majority of students, let alone the minority student. In effect, the aim is to reduce the functional size of the institution to a "more manageable" and less intimidating level for the SMETE Scholar.

Acquiring and maintaining excellent grades is addressed by the same strategies utilized across the Alliance. However because of large numbers of students at the lead institution, a special "real time" tracking system is used. Components are monthly status reports from course instructors by all students, the "mentoring component" by upperclassmen and participation in a subunit, the "cadre", by underclassmen .

Other risk factors, related to the Scholar's sense of well-being, connections with the relevant academic community and intellectual satisfaction with the choice of SMETE major are addressed by the following strategies.

- ⇒ Encouraging participation and leadership in a campus organization.
- ⇒ Mentoring by a SMETE faculty or staff member.
- ⇒ Hands-on experiences within a SMETE department.
- ⇒ Participation in scholarly activities (seminars, symposia, etc) and other events in SMETE departments and College.
- ⇒ Mechanisms for peer networking and SMETE community building.
  - \* Program meetings
  - \* Cadre meetings
  - \* Electronic bulletin boards and or/e-mail groups

- \* Programming activities: applying for scholarships and off-site internships, time management, goal-setting and attainment, entrepreneurship, SMETE field exploration, SMETE faculty interviews, research project development and presentation, presentations by scientists and science and mathematics educators.

For upperclassmen who have entered the formal "Mentoring Component", preparation for graduate school is provided through workshops conducted by the Graduate College, OSU. The facilitator, Dr. Molly Tovar is available to make similar presentations at OKAMP Partner institutions.

- ◆ Affiliate Scholars attended eight colleges and universities in 1997. Since 1995, students at up to eleven different Affiliate institutions received OKAMP stipends through the Lead Institution.
  - ⇒ Affiliate Scholars are tracked and mentored by volunteers at the respective institution. These volunteers are usually an academic advisor within the department or a general advisor (a retention specialist at Oklahoma City Community College). At Tulsa University, a private research university, Dr. J.C. Diaz, Computer Science Dept. and Dr. Peggy Hill, Biology Dept. have acted as both liaison and collaborator.
- ◆ To retain students in a SMETE curriculum, depending on the circumstances, OKAMP might encourage a student to make an intra-institutional or inter-institutional transfer. Due to improvements in Articulation agreements and the development of a Website <<http://www.osrhe.edu/>> on inter-institutional course equivalents (Appendix Doc 3.), it is now easier for the OKAMP Scholar and all other students to transfer courses between institutions within the collaborative. Two examples are an OSU students who transferred to the OKAMP program at the University of Central Oklahoma and a Northeastern State University sophomore transferred to OSU-OKAMP program; both were retained in SMETE fields.

Research Internship Programs. It is through Research Internships that OKAMP students are most effectively directed toward a committed career in a SMETE field and encouraged to seek the necessary graduate training. Research activities not only broadens the educational program but in a direct way introduces the intern to the work-style and life-style of practicing scientists etc.

- ◆ Seven of eight OKAMP institutions support summer internships.
- ◆ Interns were exchanged between Alliance schools: the University of Oklahoma, Northeastern State University, Southeastern State University, Oklahoma State University, the University of Central Oklahoma, Langston University and Tulsa University.
  - ⇒ Two interns from the Texas System AMP, UTPA, completed research internships in Biochemistry and Molecular Biology and Physics Departments, OSU.
- ◆ Several OKAMP students did off-campus internships. Reviewed below:
  - ⇒ NSU, Biological Research Unit of the U.S. Grain Marketing Production and Research Center, Manhattan, Ks.
  - ⇒ NSU, National Institute on Drug Abuse, Johns Hopkins Bayview Campus, Baltimore, Md.
  - ⇒ SEOSU, specific site not provided.
  - ⇒ UCO, University of Texas Medical Center, Basic Sciences, Microbiology, Galveston, TX.

- ⇒ OSU, Texaco Research Laboratory, Cushing, OK.
- ⇒ OSU, Argonne National Laboratories, Argonne, Ill
- ⇒ OSU, Natural Resource Conservation Service, Jay, OK
- ◆ OSU hosted the annual statewide OKAMP Research Conference. A keynote presentation by 3rd-yr intern Joseph P. Hall, Geology and thirty-three posters were featured.
- ◆ **A Resource Guide and Mentor Directory** was prepared for use by all Alliance members, including other AMP programs nationwide. Standard Guidelines for internships were established for OKAMP.
  - Topics covered are: Identifying a research mentor through electronic media, interviewing and preparing a joint proposal, poster preparation. Contact information given for state research universities and potential mentors (including e-mail addresses and Websites).

**Coherence Of Program.** The extent to which members of the partner departments in the sciences and education jointly plan, develop and manage the program is reviewed as follows.

- ◆ The Physics Department at the University of Central Oklahoma has a 2+2 exchange agreement with Langston University where faculty members from UCO present seminars and teach courses at Langston and students. Drs. S.N. Rao, Co-PI, University of Central Oklahoma and Dr. John P. King taught courses in Physics at Langston University. Dr. Shapiro of Langston University taught mathematics courses at UCO and the University of Oklahoma.
- ◆ Southeastern Oklahoma State University offers peer-tutoring within Math, Physics, Science and Math Education, Biology and Chemistry Departments.
- ◆ Membership of the OKAMP Advisory Committee at Northeastern State University includes two OKAMP, one faculty, one administrator and five community leaders. The campus coordinator is on the staff of the Center for Tribal Studies. A tutorial center has been established to serve OKAMP and other students. SMETE faculty and staff serve as mentors.
- ◆ The Minority Engineering Program (MEP) at the University of Oklahoma (OU) provides additional support services to OKAMP students and now have adapted these activities to accomodate students in a variety of SMETE fields. The Campus Coordinator serves as a liaison for participant tracking and scholastic development.
- ◆ At East Central University the OKAMP program is coordinated through the Native American Counseling Center. All science and math departments offer summer research mentors.
- ◆ At Langston University, department chairpersons in SMETE areas help administer the program, serve in an advisory capacity to the Co-PI as well as serving as mentors, research directors and academic support session instructors.
- ◆ At the University of Central Oklahoma, the program is administered by an OKAMP Coordinating Committee with representatives from Biology, Chemistry, Mathematics, Physics. The program is presently organized as the OKAMP SOCIETY for students and assisted by Mr. Barry Lofton, Director of Multicultural Student Services. Recruitment is assisted by High School and College Relations and Financial Aid offices.
- ◆ OKAMP at Northwestern Oklahoma State University is housed in the Department of Sciences and Mathematics. Scholars work directly with



mentors regularly and mentors advise the OKAMP director on the academic progress of participants.

- ◆ At Oklahoma State University a Campus coordinator, a multidisciplinary staff of liaisons and a multidepartmental Advisory Committee administrate and manage the campus Scholars Program. Off-campus Scholars are assisted and tracked by a local Alliance member or an appointed surrogate.

◆ Summary, across the collaborative

Departmental and institutional involvement in planning, development and management are assured. Important points are:

- ⇒ 9 of 14 directors or coordinators are an active faculty member in a SMETE Department.
- ⇒ Alliance-wide, CoPI's and Campus Coordinators meetings are held. Programming ideas, management strategies, recruitment and retention strategies are shared.
- ⇒ Memoranda and electronic bulletins with updates are distributed from OKAMP headquarters to a diverse mailing list, including to a consortium of science and mathematics educators and advocates.
- ⇒ Site visits to Partner campuses by the central managers.
- ⇒ Annual newsletter to all members and community.
- ⇒ Bridge Program planning and selections are multi-institutional and are a strong cohesive factor.

ALLIANCE: STUDENT PERFORMANCE BY GPA

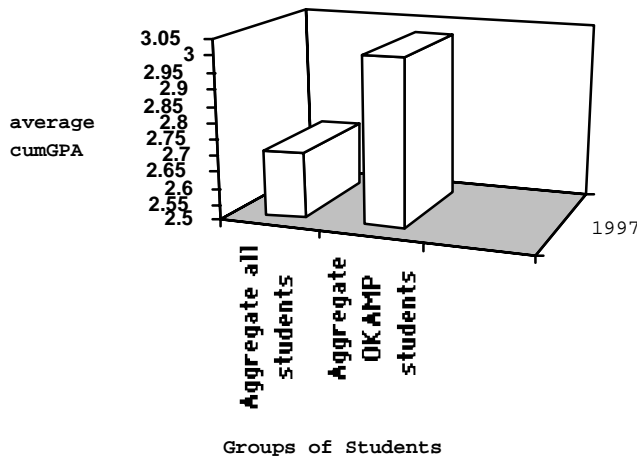


Figure 5.

**III. STUDENT PERFORMANCE.** When considering grade point average as an indicator of student performance in 1997, the grades of OKAMP participants (2.9) are on average slightly higher than those of all undergraduate students (2.7, aggregate sample). The average cumGPA for underrepresented minority students was 2.6 (aggregate sample). [Appendix Table 4.]

The Alliance Summer Bridge Program offers another opportunity to examine the advantages of a successful OKAMP support system. OKAMP Bridge Scholars are selected by multiple criteria and lower overall ACT scores are not used, alone, to eliminate an applicant. OKAMP selection committees value more highly excellent high school grades as

indicated by GPA, math and science ACT subscores and individual commitment to scholastics. Figure 6. shows that even when average ACT scores were lower, Bridge Scholars out performed an average freshman class (1995 ) at the host institution.

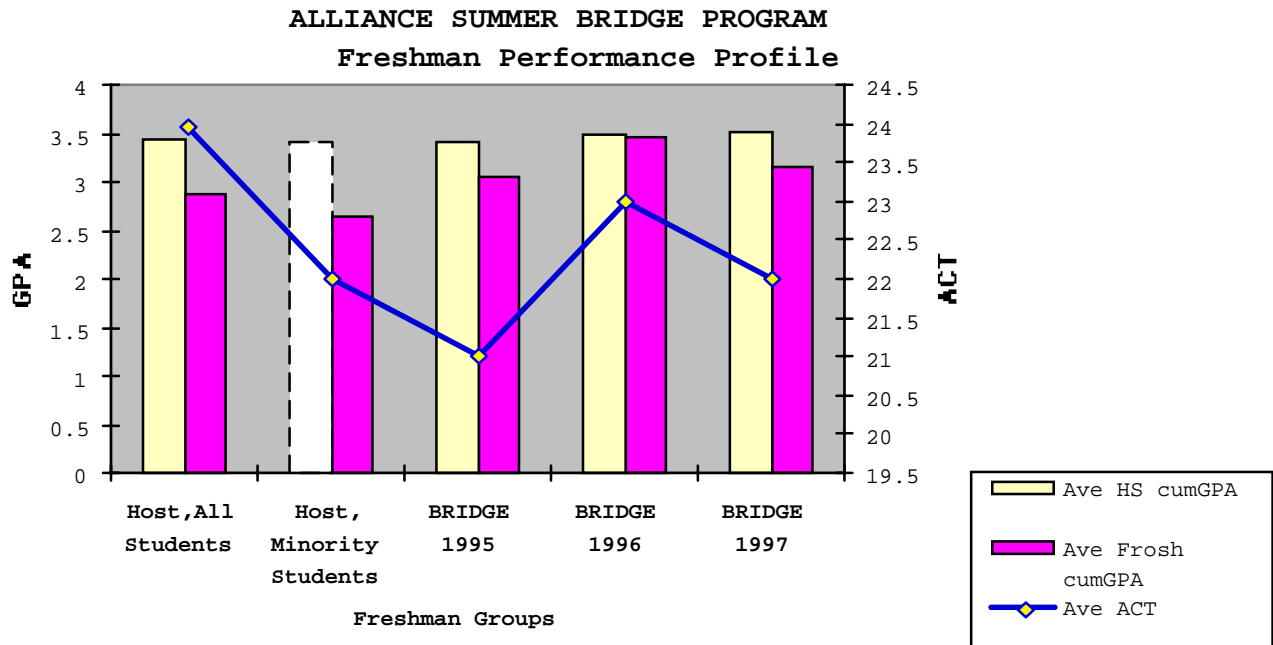


Figure. 6.

In 1997, 80% of Alliance Bridge Program participants finished the program with a GPA at or above 3.00, while 85% placed in that range in 1996 (Appendix Figure 2).

#### IV. ACADEMIC PERFORMANCE INDICATORS

Table 1. Minority Enrollment in SMETE for Oklahoma

	Alliance	# OKAMP Participants
1994	2096	-
1995	1885	288
1996	2449	381
1997	not available	304

Enrollment within the state of Oklahoma grew by 23% in 1996, recovering from a decline in 1995. (Appendix Table 5.) The overall participation in OKAMP declined from 1996.

**OKAMP participants graduating** since 1995, 7 institutions reporting: OU=6, UCO=9, SEOSU=11, ECU=9, LU=9+, NSU=5+, OSU=17. Long-term tracking efforts are just beginning, but we can confirm at least 11 in graduate school.

#### V. EVIDENCE OF INSTITUTIONALIZATION (Appendix Documents: OKAMP Partners)

- ◆ Matching funds awarded to East Central University from the Oklahoma State Regents for Higher Education.
- ◆ Cost sharing of central OKAMP staff position by Oklahoma State University.
- ◆ Advisory committees which include SMETE and other faculty are established at Alliance Institutions.
- ◆ The Annual Alliance Meetings are held at offices of the Oklahoma State Regents for Higher Education.

- ◆ Involvement of other institutionalized support program personnel in support programming and intervention activities.
- ◆ Visibility of the OKAMP organization and participants via publications, community youth events, campus recruiting events, minority academic science organizations, research organizations, minority and other scholars recognition events, SMETE department events, educational reform initiative.
- ◆ Establishment of SMETE-focused tutoring centers or systems .
- ◆ Involvement of both non-tenured and tenured faculty in significant levels of research leading to publications assures the persistence of OKAMP research activities to some degree--if subsistence funding for the Research Intern were available. Research faculty and mentors are not financially compensated. Their motivation is largely to perform the service of training the next generation of scientists.
- ◆ The Bridge program is an important outreach program to common schools. Proposed state Regents sponsored science and mathematics academies to transition into Bridge-type program.

**VI. COST-SHARING.** (as of 19 Nov 1997)

Table 2.

Amount required	Amount documented
\$467,275.00	\$626,668.35

**VII. STUDENT SUPPORT PROGRAMS.** The following figures summarize and compare current participation in Alliance Programs with the previous participation. Student support programs were also discussed in a previous PER item, II. on page. [Please refer to that section for details.]

**OKAMP-SMETE PROGRAM PARTICIPANT PROFILES.** (Appendix Table 7 and Figures 3-7) As the appended charts illustrate, OKAMP encourages diversity in many ways, including the SMETE field pursued.

- ◆ Summer Bridge Programs- Two residential programs are held, one at Langston University and another at Oklahoma State University. State-wide recruitment campaign. Selection criteria and initial selections were made by a multi-institutional committee. Academic assessments were performed by the admissions office of the host institutions and any further screening by OKAMP management and administration.

- ◆ Scholars Programs- Student support systems at all Partner institutions. Utilize peer and traditional mentors, emphasize research and/or service in SMETE fields.

Recruitment, screening (including interviews) and selections at each Partner institution were made by the resident OKAMP staff with consultations by OKAMP central management and administration as needed.

Intense tracking and intervention strategies are employed in both Bridge and Scholars programs.

- ⇒ Cadres (support units)- weekly and/or monthly progress reports to Campus Coordinators.

- ⇒ Tutoring(Tutoring center, cooperative sessions, individual), staff consultations, pre-existing institutional resources, advisory groups.

- ⇒ Mentoring Component- used in some form by most institutions to encourage interest in a SMETE field and a higher level of scholastic performance. Directly prepares the participant for transition to a graduate program
- ⇒ SMETE topic presentation skills
- ⇒ SMETE career choice development

- ◆ Internship Programs- An OKAMP Internship Program applicant is required to develop and submit for approval, a research proposal with a mentor, carryout an investigative project, prepare a formal poster or paper for presentation and/or publication.
  - ⇒ A Resource Guide and Mentor Directory: List of Mentors, faculty and researchers from three research-level universities, two public, one private. Poster preparation guide.
  - ⇒ OKAMP Summer Research Conference. Posters and oral presentation.
  - ⇒ Opportunities for off-site and private sector internships.
  - ⇒ Journal publications
  - ⇒ Professional Society meetings
  - ⇒ Research competitions
  - ⇒ Programming: Research-based career preparation, peer-mentoring SMETE underclassmen, laboratory notebook preparation and research record-keeping.
  - ⇒ Outside internships

**VIII. High school and community college articulation agreements: admissions, course requirements, transfer credits.**

- ◆ The Oklahoma State Regents for Higher Education policy "guarantees transferring students successfully completing associate in science or associate in arts degrees that their lower division general education course requirements are satisfied". Other items are:
  - ⇒ Basic general education core curriculum
  - ⇒ Course Transfer Problem Hotline
  - ⇒ System-wide electronic transfer guide at <http://www.osrhe.edu/> on inter-institutional course equivalents (Appendix Document 2)
  - ⇒ Continue to increase the number of equivalent courses
    - ◇ OSU/A&M system resolution; equivalency matrix
    - ◇ 2+2 agreements with 2-year institutions
  - ⇒ OPBS - a Howard Hughes program targeting life sciences transfer students; collaborative between OSU and 2-yr.institutions
  - ⇒ Agreement between OCCC and the Oklahoma Vo-Tech system.

**◆ Community college (2-yr.) enrollment in SMETE in Oklahoma Table 3.**

	Total	Minority
1994-95	7695	1107
1995-96	5890	1116

In 1995, the total enrollment at 9 OKAMP Affiliates was 14% minority students. The following year when the enrollment dropped, minority enrollment continued to increase.

♦ **Characteristics of Transfer population**

Table 4.

	AA	NA	H	Total underrepresented minorities
1994-95	616	872	150	1638
1995-96	575	912	169	1656

At Alliance institutions the annual increase for targeted minorities in the transfer population from the 1994 baseline was only 1%. These data reported on Table 4. represent all transfers, regardless of full or part-time status. Data that are specific for full-time enrollment in 1996-97 indicate 485 underrepresented minority students enrolled full-time.

**IX. TEACHER PREPARATION.** The primary goal and objective of the Teacher Preparation supplement to OKAMP-SMETE Programs is to enhance the number of underrepresented minority teachers of science and mathematics through retention of existing students, recruitment of new individuals into the B.S. degree programs or through promoting the certification of individuals who have worked in SMETE fields and are interested in a new career in teaching. We have sought the participation of continuing upper division undergraduate students, new students and those individuals who are in need of certification as science and mathematics teachers for a career change. Among Oklahoma Alliance institutions in 1996-97, the number of science and math education degrees granted **increased six-fold from the 1995-96 baseline (from 13 to 78)**. We have provided financial support and creative project experiences to these students to assist them in their matriculation through the Bachelor's degree program. Not many science and mathematics education students have access to specific financial support as do the students in disciplines such as engineering. Even the conventional AMP programs have few science and math education students.

**SUMMARY OF PROGRESS AND PARTICIPATION FOR 1996-1997**

The number of science and math education degrees granted in the state of Oklahoma for the funding year increased by 600% (Table .). Among OKAMP-TP participants, the average GPA was 3.23. These participants "Trainees" were recruited from 7 Alliance Partner Institutions and 2 Affiliates.

Table 5. **Degrees in Teacher Preparation Fields**

	<b>Expected</b>	<b>Actual</b>
1995-1996	Baseline	13
<b>1996-1997</b>	26	<b>78</b>

**Average GPA: 3.23**

Participation was well distributed to Partner and Affiliate Institutions (Appendix Table 6.)

**X. SUMMARY IMPACT of the AMP PROJECT.**

The Oklahoma Alliance for Minority Participation in Science, Mathematics, Engineering, Technology and Education (OKAMP-SMETE), comprising twenty seven universities and colleges within the state of

Oklahoma, has been established to address the critical undersupply of minority students pursuing degrees in SMETE fields. The participating institutions include three research universities, Oklahoma State University, the University of Oklahoma and the University of Tulsa; Langston University, Oklahoma's historically African-American university; one large metropolitan and urban university, the University of Central Oklahoma; nine regional universities of the state system; eleven two-year colleges including Bacone College, a private American Indian College and three other private colleges and universities. The 1994 projected U.S. Census shows Oklahoma to have the second highest American Indian population in the United States (8% American Indian, 7.7% African American, 2.6% Hispanic and 1.3% Asian/Pacific Islanders). The Alliance institutions together enroll over 2000 minority students with undergraduate majors in SMETE.

Through the three undergraduate support programs the Oklahoma Alliance is accomplishing the primary goal and objective of this program to have a 15% increase annually of the number of underrepresented minorities enrolled and graduating in SMETE fields of study thus facilitating an increase in the number of graduate students in these same fields. For SMETE undergraduate degrees earned, from the baseline in 1994, the increase in year one, 1995, was 14.9 % . In 1996, year two of the program, the increase was only 4.8% over the previous year. This number seemed low; however, the graduation for non minorities declined by 6.6%. The third year, 1997, showed an increase of 43.6% (n=458) from 1996. This recent outcome results from generating well over the number of degrees expected as a projection from the 1994 baseline of 214 degrees earned by underrepresented minority students in Oklahoma. In addition to generating an increase in degrees earned, OKAMP-SMETE programs are influencing the overall academic culture by encouraging more high quality undergraduate research experiences for a broader pool of students. These activities, along with essential mentoring can only strengthen the quality of education programs at all levels.

#### Appendix A. TABLES

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**Appendix Table 1.** 1994-95 Number of earned bachelor's degrees, by field and by race/ethnicity.(see insert next page)

**Appendix Table 2.** 1996-97 Bachelors Degree conferred by gender, race and field of study. (see insert next page)

**Appendix Table 3.** Production of Minority BS SMETE Graduates in Okla Alliance

	EXPECTED	ACTUAL
1993-1994	BASELINE	214
1994-1995	246	246
1995-1996	283	258
1996-1997	325	458
1997-1998	374	-
1998-1999	430	FINAL

**Appendix Table 4.**

Average Cumulative GPA in Oklahoma

	1995	1996	1997
Aggregate all students	2.70	2.69	2.70
Aggregate underrepresented minority students	n/a	n/a	2.60
Aggregate OKAMP students	3.04	3.06	2.95

**Appendix Table 5.** SMETE Enrollment for the state.(see insert pages)

**Appendix Table 6.**

Teacher Preparation Program Grand Total Participants = 35

Oklahoma State University (OSU)	11
Northwestern Oklahoma State Univ (NWOSU)	1
Panhandle State University (PSU)	2
University of Oklahoma (OU)	1
Northeastern State University (NSU)	4
Southeastern Oklahoma State Univ (OSU)	10
Langston University (LU)	2
East Central University (ECU)	1
University of Tulsa (TU)	3

**Appendix Table 7.**

**OKAMP: ALLIANCE PARTICIPANT DATA**

TOTAL NUMBER OF PARTICIPANTS	304
AVERAGE CUM	2.95

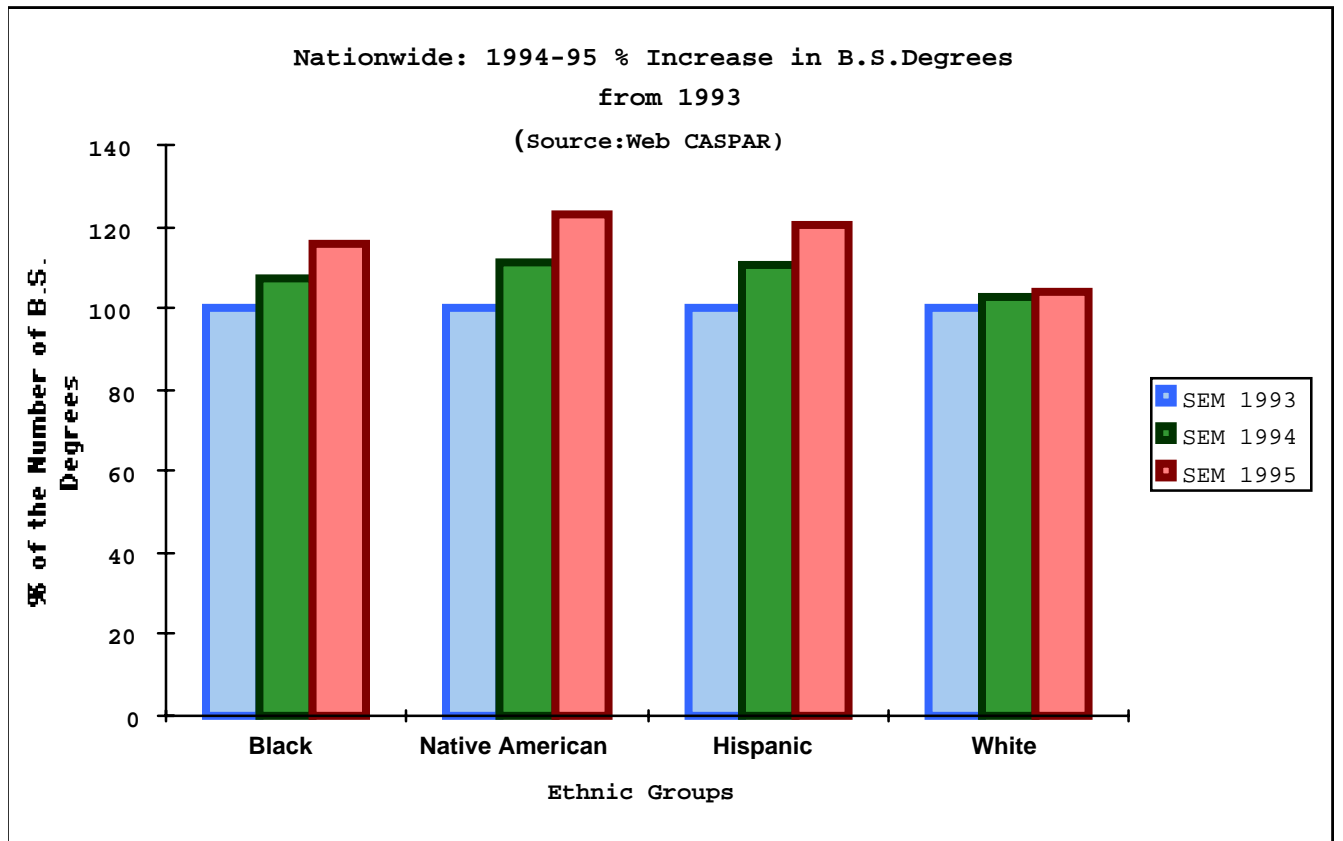
GPA			
GENDER	F=	M=	
ETHNICITY	AFRICAN AMERICAN=144	69	75
	NATIVE AMERICAN=123	54	69
	HISPANIC=31	13	18
	PACIFIC ISLANDER=6	2	4
MAJORS	0-UNKNOWN=0		
	1-CHEMISTRY=23		
	2-PHYSICS=18		
	3-MATHEMATICS=30		
	4-COMPUTER SCI=34		
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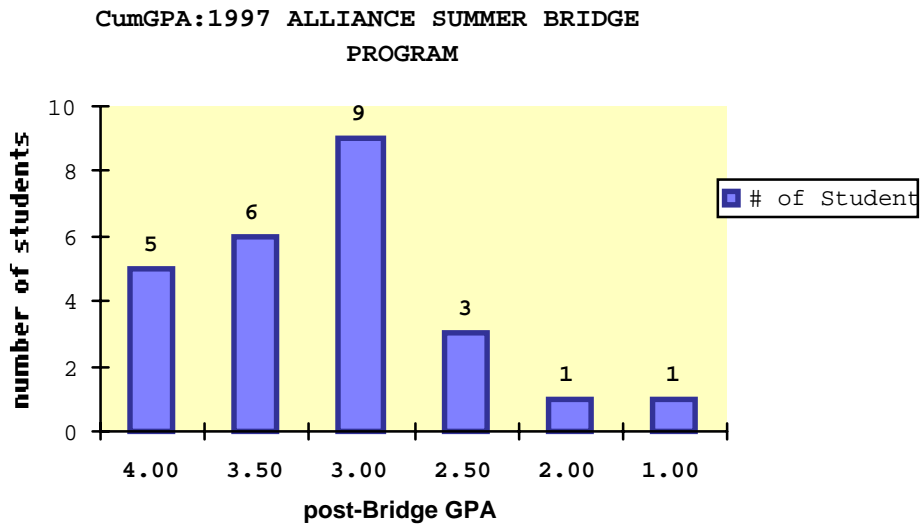
**Appendix B. FIGURES**

**Appendix Figure 1.**



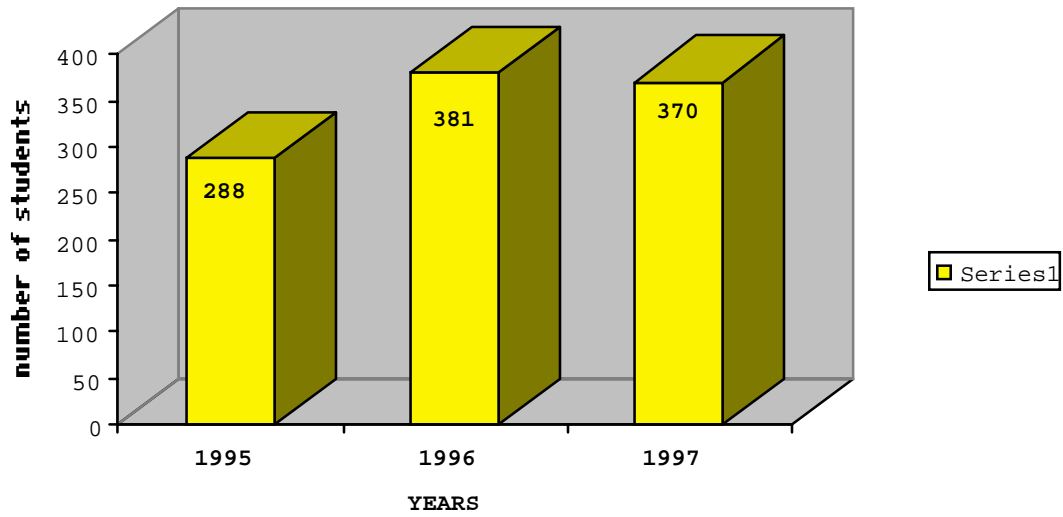


Appendix Figure 2.

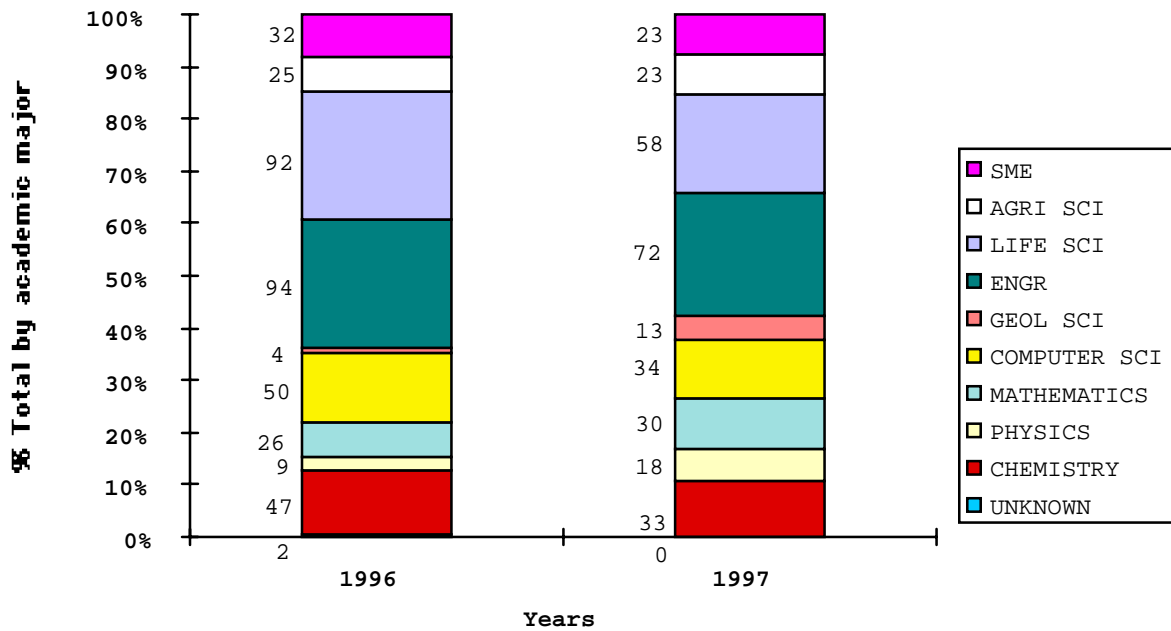


Appendix Figure 3

**OKAMP: 1995-97 NUMBER OF PARTICIPANTS**



**OKAMP:1996-97 Distribution by Major Field**

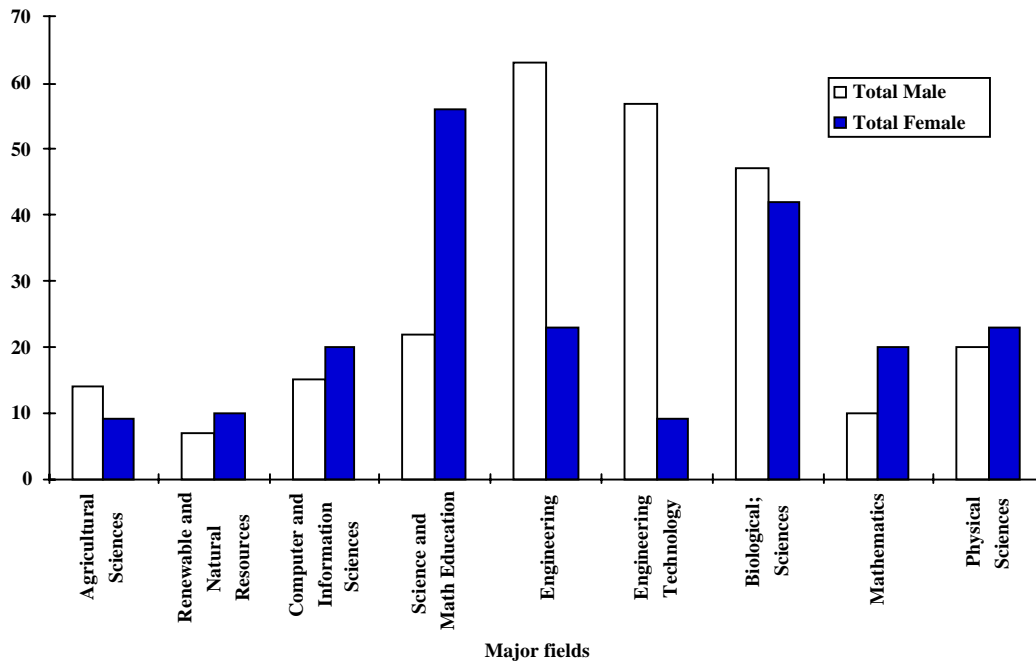
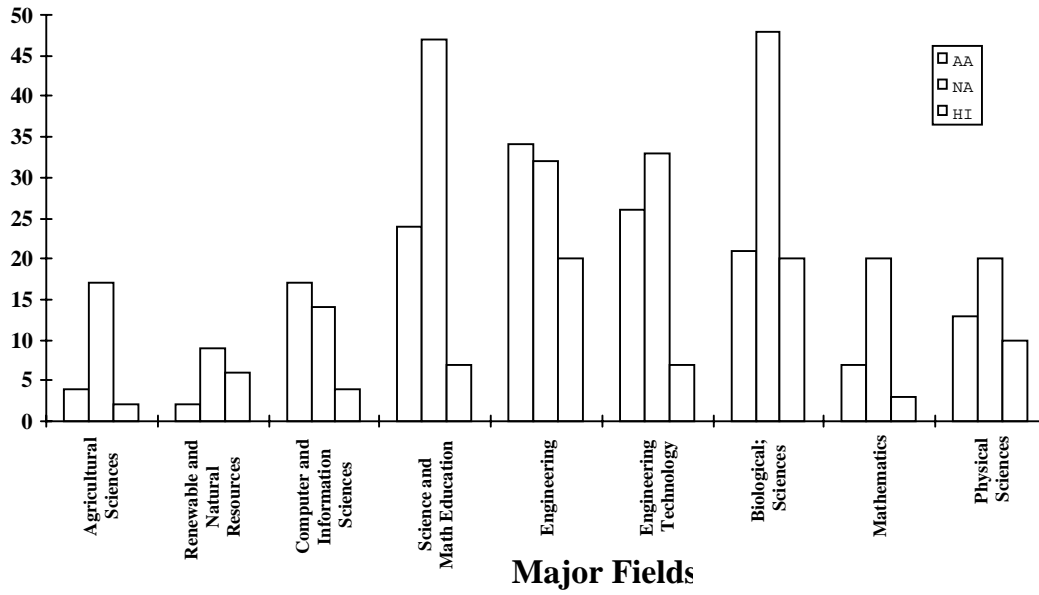


Appendix Figure 4 1997 Distribution by Major Field

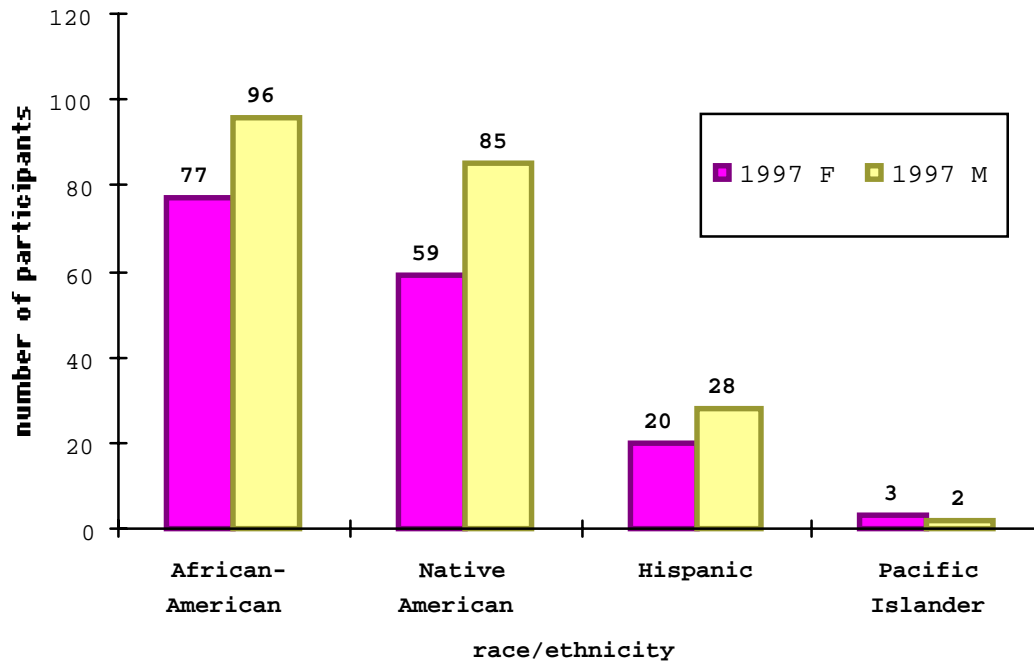
**Appendix Figures 5 and 6**

# DISTRIBUTION BY MAJOR FIELD, GENDER AND ETHNICITY FOR SMETE DEGREES IN THE STATE OF OKLAHOMA

Minority B.S. Degrees 1996-97



OKAMP:1996-97 Distribution by Gender and Race/Ethnicity



Appendix Figure 7. 1997 Distribution by Race/Ethnicity

**Appendix Document 1. OKAMP Partners.** [see following inserts]

**Appendix Document 2. COURSE EQUIVALENCY PROJECT -- CEP  
OKLAHOMA SYSTEM OF HIGHER EDUCATION  
1997-1998 Academic Year**

**WHAT IS THE CEP?**

The Course Equivalency Project (CEP) is a postsecondary education resource service that provides course equivalency information to facilitate student transfer within the Oklahoma System of Higher Education. Its data base contains faculty-generated course equivalency information for hundreds of courses offered at public institutions in Oklahoma. The courses are organized by discipline: biology, history, etc. Within each discipline, several equivalency groups appear, each containing a collection of courses from sponsoring institutions. A generic course title and State Regents' equivalency number (a two-letter prefix and three-digit number) located at the top of columns identify each equivalency group. Credit for a course within a group can be transferred to any system institution which sponsors a course in that group.

**WHAT IS THE DEFINITION OF EQUIVALENCY?**

Course equivalency is defined as follows: Course "A" is equivalent to course "B" if and only if "A" satisfies all program requirements that course "B" satisfies--serving exactly the same purpose with respect to content delivery, general education, or program degree requirements. Lower-division course work cannot substitute for upper-division credit-hour requirements. However, the content is transferable. For example, if a student completes Smart Course 2000 at two-year college A, it will transfer in content to four-year college B for its Smart Course 3000. The student will not need to repeat the content or learning competencies acquired in Smart Course 2000. But, the student must still complete the full amount of 3000- and 4000-level semester hours that college B requires for a baccalaureate degree.

**HOW DOES THE CEP BENEFIT STUDENTS?**

Students who anticipate transferring to other institutions can access the CEP to learn which institutions will automatically credit their course work as being equivalent. From the CEP, students can also reach available home pages of system institutions to find more detailed information about course descriptions, prerequisites, or degree requirements.

**HOW DOES THE CEP BENEFIT FACULTY?**

When designing new curriculum, faculty can use the CEP as a course equivalency reference and obtain course content descriptions. Faculty Curriculum Transfer Committees representing all system institutions establish the common course content descriptions for their disciplines.

## HOW DOES THE CEP BENEFIT ACADEMIC ADVISORS?

With the CEP, academic advisors can quickly access accurate, up-to-date course equivalency information, helping students make better informed decisions about their education planning. Advisors can also impact the development of the CEP. Oklahoma Academic Advisors Association (OACADA) representatives attend annual system-wide faculty transfer meetings, and advisors can use the evaluation component of the CEP to provide important feedback information for improving its service.

## WHY SHOULD STUDENTS SEEK ACADEMIC ADVISING?

Incomplete educational planning can lengthen the time it takes students to complete a degree and adds unnecessary costs. Visit with your academic advisor to develop a comprehensive and accurate educational plan. Advisors can identify those courses listed in the CEP that require prerequisites and can help outline institutions' program degree requirements. Advisors can also inform students about those courses that individual institutions consider equivalent in separate articulation agreements but are not included in the CEP. Finally, academic advisors inform students of support services and other valuable campus information that can give students a competitive edge.

## DISCLAIMERS.

1. Any individual may download and/or print the information contained herein for purposes of course planning, advisement or other educational use. Because it is not possible to ensure the accuracy of any such copy, the State Regents are not responsible for the contents of downloaded information or any information derived therefrom.
2. This information does not constitute a contractual agreement that institutions will offer all the courses described.
3. CEP information is valid only for the academic year listed in the heading.

## HOW TO USE THE CEP.

This simple menu-oriented system will be familiar to users of Internet home pages. Move the indicator arrow to the desired menu item and click on it. Move up and down the information by clicking on the scrolling arrows at the screen's right edge. To view multiple pages of equivalency information, click on "next page" to move forward and click the Web browser's "back" button to reverse direction. When using an Internet browser other than Netscape Navigator version 3.0 or Microsoft Internet Explorer version 3.0, some formatting distortions may be seen in the CEP. Best viewing is possible with a small to medium font size.

When you select an academic discipline, i.e., mathematics, all established

course equivalencies for that discipline will appear along with a list of system institutions that offer equivalent courses in that discipline. The equivalency information is in a matrix format with institutions listed vertically to the left and equivalency group headings and numbers listed horizontally along the top. All courses appearing in a column are considered equivalent at "only" the course-offering institutions.

To learn the course content descriptions for equivalency groups in computer science, music, or theatre, move the indicator arrow to the cell holding the generic course name and State Regents' number and click with the mouse. In upcoming years, faculty will expand this feature to other disciplines.

For more detailed information about a particular course (course content, credit hours awarded, relationship to degree requirements, and specified prerequisites) select an institution's home page by selecting Colleges and Universities from the menu. If available, search the institution's home page for its course catalog or course offerings.

#### HOW TO ACCESS THE CEP EQUIVALENCY INFORMATION FOR PRIOR YEARS.

Every year, faculty representing all system institutions meet to update and add courses to the course equivalency matrices. There is a different CEP version for each academic year beginning with 1996-1997. Institutions keep a record of previous CEPs so that students can transfer to other system institutions without losing the established equivalencies for completed course work. Please refer to the menu for access to equivalency information for prior years.

#### HOW TO INTERPRET COURSE NUMBERS.

Course numbers of individual institutions show considerable variation. Generally though, all 1000-numbered courses are freshman level, 2000-numbered courses are sophomore level, 3000-numbered courses are junior level, and 4000-numbered courses are senior level. Upper-division course work is numbered 3000 or above, and lower-division work is numbered 2000 or below.

#### CAMPUS ABBREVIATIONS.

CASC	Carl Albert State College
CSC	Connors State College
CU	Cameron University
ECU	East Central University
EOSC	Eastern Oklahoma State College

LU	Langston University
MSC	Murray State College
NEOAMC	Northeastern Oklahoma A&M College
NOC	Northern Oklahoma College
NSU	Northeastern State University
NWOSU	Northwestern Oklahoma State University
OCCC	Oklahoma City Community College
OPSU	Oklahoma Panhandle State University
OSU	Oklahoma State University
OSUTB-OKC	Oklahoma State University Technical Branch-Oklahoma City
OSUTB-OKM	Oklahoma State University Technical Branch-Okmulgee
OU	University of Oklahoma
RCC	Redlands Community College
Rogers	Rogers University
Rose	Rose State College
SEOSU	Southeastern Oklahoma State University
SSC	Seminole State College
SWOSU	Southwestern Oklahoma State University
TCC	Tulsa Community College
UCO	University of Central Oklahoma
USAO	University of Science and Arts of Oklahoma
WOSC	Western Oklahoma State College

#### EVALUATION COMPONENT.

For purposes of improving the CEP, please address your suggestions or comments on the project to [crussell@osrhe.edu].





The Oklahoma State Regents for Higher Education offer numerous education and career information and preparation programs for eighth through 12th grade students. Many of the programs and materials are listed below, and all printed materials are free. For more information or to obtain copies of the materials, call the Student Information Hotline at 1-800-858-1840 or e-mail the appropriate contact person below.

**Advanced Placement Courses** - Allow students to take college-level course work in high school and receive credit at Oklahoma colleges and universities. For more information, e-mail [kbender@osrhe.edu](mailto:kbender@osrhe.edu).

**Concurrent Enrollment** - Allows outstanding junior and senior high school students to take credit-earning college courses. For more information, e-mail [kbender@osrhe.edu](mailto:kbender@osrhe.edu).

**OK-EPAS** - Tests students in eighth grade and 10th grade to assess students' progress in core academic courses and provides feedback to schools, students and parents. Participation in OK-EPAS is voluntary, and school districts must contact the State Regents' office to participate in the program. OK-EPAS is provided free to students. For more information, see EPAS.

**Oklahoma FOCUS** - Helps families with children in grades seven and nine determine how much to save for their children's college education. Also provides career planning information as well as college preparation information, such as admission requirements and core course requirements. Participation in FOCUS is limited to school districts that participate in the OK-EPAS (Oklahoma Educational Planning and Assessment System) program. For more information, e-mail [apena@osrhe.edu](mailto:apena@osrhe.edu).

**Oklahoma Higher Learning Access Program (OHLAP)** - Awards scholarships to students with financial need who have demonstrated a commitment to academic success in high school. Students who plan to participate in this scholarship program must enroll in the program in the ninth or 10th grade. For more information, e-mail [calexander@osrhe.edu](mailto:calexander@osrhe.edu).

**Teacher Cadet High School Program** - Stimulates high school students' interest in the teaching profession by enabling them to participate in hands-on teaching activities through a yearlong course conducted at their school sites. The program targets high school students and is taught by a master teacher selected by the local school district. It is offered by the Oklahoma Minority Teacher Recruitment Center (OMTRC), a program of the Oklahoma State Regents for Higher Education. For more information, e-mail [apena@osrhe.edu](mailto:apena@osrhe.edu).

Pro Team Middle School Program - Focuses on middle school and junior high school students and encourages them to set goals, such as going to college and pursuing teaching careers. It is offered by the Oklahoma Minority Teacher Recruitment Center (OMTRC), a program of the Oklahoma State Regents for Higher Education. For more information, e-mail [apena@osrhe.edu](mailto:apena@osrhe.edu).

Teacher Job Connection - Operates a data network which matches school district job vacancies with qualified teacher applicants. It is offered by the Oklahoma Minority Teacher Recruitment Center (OMTRC), a program of the Oklahoma State Regents for Higher Education. For more information, e-mail [apena@osrhe.edu](mailto:apena@osrhe.edu).

OneNet - Is Oklahoma's telecommunications and information network for Oklahoma education and government. For more information, e-mail [bshafer@onenet.net](mailto:bshafer@onenet.net).

Student Information Services Hotline (1-800-858-1840) - Provides information on financial aid, admission requirements, placement scores and more.

Summer Academies - Provides eighth through 12th graders with approximately 32 math and science summer academies at Oklahoma colleges and universities. Students spend from one to six weeks at the academies. Provided free to students, academies do not duplicate instruction offered in students' regular course work. For more information, e-mail [sholmes@osrhe.edu](mailto:sholmes@osrhe.edu).

## Materials

Grant and Scholarship Programs Booklet - Lists grant and scholarship programs administered by the State Regents. For more information, e-mail [sholmes@osrhe.edu](mailto:sholmes@osrhe.edu).

A Guide to Oklahoma Colleges and Universities - Provides a short profile on each college and university in Oklahoma and includes information on preparing for college, college costs and financial aid. For more information, see your counselor.

Oklahoma Higher Learning Access Program (OHLAP) Brochure - Explains in an attractive, easy-to-understand format the requirements and benefits of OHLAP, which awards scholarships to students with financial need who have demonstrated a commitment to academic success in high school. Contains two sections, one for students and one for parents. Posters, counselor handbooks and agreement/application packets are also available. Materials are provided to counselors each fall for distribution to ninth and 10th grade students. For more information, e-mail [calexander@osrhe.edu](mailto:calexander@osrhe.edu).

Oklahoma Minority Teacher Recruitment Center (OMTRC) Brochure - Provides an overview of OMTRC programs and services. Fact sheets that explain the Pro Team Middle School Program, Teacher Cadet High School Program, College Partnership Program and the Teacher Job Connection are also available. For more information, e-mail [apena@osrhe.edu](mailto:apena@osrhe.edu).

Preparing for College Brochure - Outlines the required courses students must take in high school to be admitted to an Oklahoma state college or university, admission standards, placement score information and financial aid information. Brochures are provided to counselors each fall for distribution to eighth through 12th grade students. For more

information, e-mail [bmartin@osrhe.edu](mailto:bmartin@osrhe.edu).

Student Competencies for College Success - Lists course-by-course, the basic skills and knowledge high school students should acquire to be prepared for college-level coursework. For more information, e-mail [kbender@osrhe.edu](mailto:kbender@osrhe.edu).

Summer Academies Brochure - Describes State Regents' Summer Academies Programs and includes contact information for each academy. Posters that promote Summer Academies and provide contact information are also available. Materials are provided to math and science teachers in late winter for distribution to eighth through 12th grade students. For more information, e-mail [sholmes@osrhe.edu](mailto:sholmes@osrhe.edu).

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## **The Courses to Take in High School**

### Public Colleges and Universities

Below are the courses you must take if you want to go to an Oklahoma state college or university. If you enter the job market after high school, these courses will also help you prepare for on-the-job success.

#### English

4 units

(grammar, composition and literature)

#### Math

3 units

(Algebra I, Algebra II, geometry, trigonometry, math analysis and calculus)<sup>1</sup>

#### Laboratory

2 units

(biology, chemistry, physics or any lab science certified by Science school district; general science

	courses don't qualify) <sup>1</sup>
History	2 units (including 1 unit of American History)
Citizenship	1 unit (economics, geography, government and non-Western Skills culture) <sup>2</sup>
Other	3 units (from any of the 11 units listed above, citizenship skills units, computer science units or foreign language units)
Total	15 units

1 Some applied math and applied science classes may count.

2 World history will count toward non-Western culture

Note: You can enter some two-year degree/certificate programs without taking these courses. Requirements may change, and they may be different for private colleges and universities, so check with your counselor for details.

Suggestions for Success: Colleges and universities also recommend, but do not require, that you take courses in speech and the fine arts, such as music, art and drama.

### Private Colleges and Universities

Requirements for private institutions may be different, so check with the institution you want to attend for specific information.

For more information on Oklahoma public college and university admission standards, e-mail [kbender@osrhe.edu](mailto:kbender@osrhe.edu), call the Student Information Hotline at 1.800.858.1840 or call 405.524.9170.

### Appendix Document 3. Teacher Preparation Program Report

#### OKAMP-SMETE KEY PERSONNEL AND PARTNERS

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