

What's Shaking with SESMC? An Update on an NSF S-STEM Project

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Abstract

Scholarships in Engineering, Science, Mathematics and Computer Science (SESMC, “Seismic”) is an NSF S-STEM project at Allan Hancock College (AHC), a community college in Santa Maria, California. In 2012, SESMC was funded at \$599,929 for five-years. SESMC’s final year will be 2017–18.

This work will present the current status of the project. As planned, 12 scholars would be in the first cohort, and 24 in each of the following three years, for 84 total annual awards. Awards are based on equal parts academic potential and financial need.

Project activities have been based on four foundational blocks: Financial, Academic Skills, Involvement, and Commitment/Motivation. Each scholar is awarded up to \$6,000 per year. Scholars are required to attend group study sessions, workshops, guest speaker talks, etc., as well as meet twice per semester with a faculty mentor in their (or a related) discipline. Scholars are provided field trip opportunities, are encouraged to apply for internships, and are provided with a membership in a professional organization (e.g., ASME, IEEE).

The primary outcomes and objectives can be summarized as follows:

1. to reduce the need to work in order to focus on academics;
2. to improve academic skills and study habits;
3. to increase interactions among students, peers and faculty; and
4. to improve motivation and commitment to career and academic goals.

Background

In May 2012, Allan Hancock College (AHC), a community college in Santa Maria, California, received a five-year, \$599,929 award to fund a scholarship program for STEM students: *Scholarships in Engineering, Science, Mathematics and Computer Science* (SESMC, “Seismic”). SESMC is a competitive need-based and merit-based scholarship sponsored by the National Science Foundation (NSF), open to continuing AHC students in the following STEM fields: Biology, Chemistry, Geological Sciences, Physics, Computer Science, Engineering, and Mathematics. The intent of the project is to aid academically talented but financially challenged AHC students prepare to successfully transfer to a four-year institution in a STEM discipline.

Allan Hancock College is one of 113 California Community Colleges, and is a federally-designated Hispanic Serving Institution. The college serves a 3,200 square mile area with a total population of over 275,000. AHC is located on the central coast region of California in one of the largest agricultural areas of the state. When the grant was written (2011), approximately 17% of Santa Maria residents lived below the poverty line, compared to 13% for California.¹ In 2010–11, AHC enrolled more than 12,000 credit students, approximately 49% female and approximately 30% first-generation college students. Seventy-two percent of credit students were employed full- or part-time, many of whom must work to pay their own expenses as well as

contribute to the family income. The estimated Cost of Attendance (COA) for 2011–12 at AHC was \$11,250 for a student living at home and \$17,620 for a student living away from home. Approximately 65% of full-time credit students received some form of financial aid in 2009–10. By enrollment, 38% of AHC students were Hispanic and it was expected that these numbers would increase as 66% of 2011 enrollment in the three largest feeder high schools was Hispanic.² In fall 2016, Hispanic enrollment at AHC had grown to 52%.³

Table 1 provides the (circa 2009) educational attainment levels of the primary population centers served by AHC (the cities of Santa Maria and Lompoc), which are well below the education levels of Santa Barbara County, the state of California, and the nation as a whole. Santa Marians are more than twice as likely as all others to have less than a 9th grade education, and less than half as likely to have a bachelor’s degree or higher.

Table 1. Educational Attainment, Population Age 25 and Over, ca. 2009.⁴

Degree	Santa Maria	Lompoc	Santa Barbara County	California	United States
Population, 25 yrs. and older	44,876	23,814	236,483	23.5 M	199.8 M
Less than 9th grade	24.9%	16.2%	11.9%	10.5%	6.3%
2-year college	7.1%	9.8%	8.6%	7.6%	7.6%
4-year (B.A./B.S.)	8.8%	8.5%	18.8%	19.1%	17.6%
Grad./professional degree	4.4%	4.0%	13.2%	10.7%	10.2%
Total Bachelor’s or higher	13.2%	12.5%	32.0%	29.7%	27.8%
Total HS diploma or higher	63.2%	73.3%	80.8%	80.5%	84.9%

2007-2009 American Community Survey 3-year Estimates. Educational Attainment; ctfinder.census.gov

As a Hispanic Serving Institution (HSI), AHC focuses on increasing the number of Hispanic and other underrepresented students who persist in STEM fields of study. The percent of students pursuing STEM degrees at California State Universities (CSU) dropped from 24% in 2000 to 20% in 2005 according to the Office of the Chancellor. Although 48% of STEM baccalaureates from UC and CSU are transfers from community colleges, few of these are Hispanic (19.8%).⁵ To learn what AHC could do to help meet the challenges of Hispanic students’ educational attainment and their selection of STEM fields of study, AHC organized focus groups in 2009 and 2010 with STEM students in the MESA (Mathematics, Engineering, Science Achievement) and Bridges to the Baccalaureate programs, many of whom were Hispanic students. Besides financial assistance, students reported needing assistance knowing English terms for scientific and mathematical concepts and needing assistance with technical writing (lab reports). The magnitude of academic and financial need is great and AHC is committed to addressing the challenges faced by all students in its semi-rural service area.

Veenstra, Dey and Herrin⁶ surveyed numerous college student retention models. Table 2 identifies three well-developed models cited by the authors (taken from Berger and Milem⁷).

Table 2. Three Models of Student Retention.

Researcher	Model	Key Points
Tinto, Vincent	Interactionist Theory	<ul style="list-style-type: none"> • Importance of integrating academically <i>and</i> socially • Persistence is related to student involvement
Astin, Alexander	Theory of Involvement	<ul style="list-style-type: none"> • Persistence is related to student involvement
Bean, John	Theory of Student Attrition	<ul style="list-style-type: none"> • Importance of interacting with faculty • Working off-campus leads to attrition

Veenstra, et al, developed a model for engineering student retention, focused primarily on a four-year university (University of Michigan). The paper identified nine broad characteristics for student success and retention: high school academic achievement, quantitative skills, study habits, commitment to career and educational goals, confidence in quantitative skills, commitment to enrolled college, financial need, family support, and social engagement (with peers and faculty). Although SESMC concerns a broader range of STEM disciplines at a two-year community college, the success factors identified above are relevant to community college STEM students who are preparing to transfer to a four-year university.

In a similar line of scholarship, Chesler and Chesler⁸ observed that there is a disproportionate absence of women in STEM disciplines. This outcome is partly a result of experiences in schooling when women place a greater priority (than men) on interpersonal satisfaction and integration. Another obstacle women face in completing STEM degrees is the competing requirement of traditional familial and care-taking responsibilities against pursuit of technical education; this is especially relevant in the Hispanic community. SESMC attempts to address these factors in an effort to retain more women in STEM majors.

SESMC developed a multi-pronged approach to address four factors listed by Veenstra, et al., that affect student success and retention: (1) financial need, (2) academic skills and study habits, (3) social involvement with peers and meetings with faculty, and (4) motivation/commitment to career and academic goals. These factors can be directly impacted by scholarships and support programs. The four success factors are represented by the foundation-block model in Figure 1. While a STEM student may succeed in the short run without one of the “foundation blocks,” long-term retention and success requires each block to be of sufficient strength. On this foundation, other factors – quantitative skills, confidence in those skills, family support and commitment to the college – can be strengthened. The solid foundation model and grant acronym SESMC (“seismic”) form the contrasting pair that harkens to California’s infamous quakes.

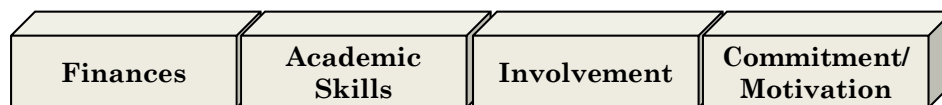


Figure 1. Foundation of Student Success model.

Goals and Objectives

The goals of the SESMC project are to:

Goal #1 Improve recruitment and student support in STEM disciplines;

Goal #2 Increase the likelihood of success in STEM disciplines among talented but financially needy students, especially Hispanic students and women;

Goal #3 Promote student involvement and enhance motivation through support activities;

Goal #4 Strengthen partnerships between AHC and local engineering and technology industry employers and connect them with SESMC scholars;

Goal #5 Increase the retention and success of STEM students to associate and bachelor degrees.

These goals – and the objectives identified below – will result in the following outcomes:

- Reduce students' financial barriers in order to reduce the need to work in lieu of studying;
- Provide a financial incentive to achieve academic progress from year one to year two;
- Improve academic skills and study habits;
- Increase interactions among students, peers, and faculty mentors;
- Improve motivation and commitment to career and academic goals

The measurable objectives were set as follows, with baseline data based on comparable STEM students at AHC (data from AHC's Office of Research and Planning, or from AHC Engineering Program Surveys).

Objective #1 SESMC scholars will reduce their average of 20 hours per week working by at least 50%.

Objective #2 SESMC scholars will persist to completion in one or more major milestones at 75% or above. The baseline completion rate of comparable STEM students is 34.5%, thus establishing a target of 114% over the baseline. Milestones include: (a) completion of at least 30 units within two years, (b) completion of an Associate in Arts (AA) degree, (c) attaining "transfer ready" status, (d) transferring to a four-year university.

Objective #3 The applicant pool of SESMC students who are in an underrepresented ethnic group will be at least 60% and those who are female will be at least 40%. The baseline percentage of underrepresented students in STEM programs was 45%, while the percent female in STEM was 29%; the targets represent 33% increases over the baselines.

Objective #4 Ninety-two percent of graduating SESMC scholars who complete a major milestone (Objective #2) will be employed or enrolled in a four-year program related to their discipline within two years of completion.

Objective #5 Success and retention rates among SESMC scholars in select core courses will be at least 83% and 95% respectively. The success rate ("C" grade or better) among comparable STEM students in core courses is 72%; the target reflects a 15% increase over the baseline. The retention rate (percent completing a course) among comparable STEM students in core courses is 85%; the target reflects a 12% increase.

Scholar Selection Process and Criteria

The application process is open to current STEM students at AHC.

General Eligibility

- Be a United States citizen, permanent resident alien, national, or refugee;
- Demonstrate financial need, as defined by the U.S. Department of Education;
- Be eligible to receive federal financial aid as verified by a completed FAFSA;
- Submit a completed SESMC application by the stated deadline.

Academic Eligibility:

- Plan to enroll (and actually enroll) full-time (12 units per semester) while receiving the scholarship, and possess an overall 2.7 GPA;
- Be a STEM major;
- Be eligible to take a transfer-level Math class consistent with their major;
- Plan to enroll in two or more courses appropriate to earning a STEM degree.

Continued Eligibility (up to 3 semesters after the first)

- Maintain eligibility requirements outlined above with no grade lower than a C in a STEM course.
- Complete at least 20 units in STEM (or 4 STEM courses) during the first year of funding
- Participate in required SESMC activities (e.g., mentor meetings, annual survey).
- Participate in a minimum number of SESMC activities (e.g., professional development, workshops, field trips, outreach, STEM clubs, etc.).
- Students failing to meet the continuing requirements will be put on probation; failure to regain acceptable levels of performance within one semester will terminate the scholarship.

During the application process, applicants submit: (1) an application form, (2) a personal statement, (3) a Student Educational Plan (SEP) for their major, (4) transcripts, (5) a copy of their recent FAFSA Student Aid Report, with Estimated Family Contribution (EFC), and (6) two recommendation forms from AHC STEM Faculty.

Application forms, statements, SEPs, transcripts and recommendations are collated and distributed to a team of STEM faculty (Co-PIs) to score. Fifty percent of an applicant's total score is from this merit-based component. The other 50% of the score is based on their EFC. The two scores are combined, and the applicants ranked by total score. Applicants are awarded up to the target number of awards for the year. Eligible applicants who are not awarded are placed on a waitlist if scholar positions become vacant.

SESMC Program Support and Activities

SESMC Scholars have the following opportunities:

Scholarship Support

SESMC Scholars are awarded scholarships of up to \$6,000 per academic year, half being distributed each semester. Awards are limited based on actual unmet financial need.

Academic Support

- **Required Orientation**: Scholars attend a required orientation at the start of each semester. Fall's meeting is focused on informing scholars of expectations and opportunities; spring's meeting is focused on academic/professional development, and generally features alumni guest-speakers. In spring 2017, scholars discussed the (first-ever) winter break reading assignment: *Mindset: the New Psychology of Success*, by Carol Dweck.
- **Student Education Plans**: Each scholar is required to obtain a Student Education Plan (SEP) from an AHC academic counselor. A SEP lists the courses a student should take to reach their academic goal of transferring to a 4-year university.
- **Faculty Mentoring**: Each scholar has a faculty mentor in his/her discipline (or a related discipline). Mentors meet with scholars at least twice each semester.
- **Student Progress Reports**: Mid-semester progress reports were planned for all scholars, but for the first three years, the cohort was small, and reports were not distributed; the students were well self-regulated. However, the Fall 2016 (Year 4) Cohort has several students currently on SESMC probation (having failed or dropped STEM courses). Progress reports for probationary students were distributed electronically in spring 2017, which were returned to the P.I. for further action.
- **Promote Importance of Study Time**: Scholars are reminded of the importance of quality study time and setting a consistent schedule. The P.I. regularly distributes resources that help focus students on academic success (e.g., papers on studying, links to pertinent YouTube videos).
- **Academic Workshops**: SESMC scholars are encouraged to participate in Organized Study Groups and Review Sessions sponsored by the MESA (Mathematic, Engineering, Science Achievement) and STEM Programs and/or to start their own study groups.
- **Tutoring**: SESMC directs students enrolled in advanced math and science courses to tutorial services provided in the Math, Tutorial, and Writing Centers.

Professional Development

- **Professional Memberships**: Each scholar has the opportunity to enroll as a student member in a professional organization of their choice, funded by SESMC (in addition to the scholarship).
- **Field Trips**: SESMC partners with the MESA and STEM Programs to organize field trips to industries and universities. Scholars receive priority seating on SESMC-sponsored trips.
- **Guest Speakers and Workshops**: SESMC partners with the MESA and STEM Programs to provide guest speakers and panels to promote university transfer and activities focusing on succeeding in STEM fields.

- Internships: SESMC scholars are encouraged to apply for internships. The P.I. forwards all relevant opportunities he receives to the scholars.

Required Activities

Some of the above activities and opportunities are required (mentor meetings), some are required but with choices (which workshop to attend, or which guest speaker to see), and others are optional (applying to internships). At the orientation meeting at the start of each semester, the list of MESA, STEM and Bridges to the Baccalaureate workshops and activities is distributed to help students plan their semester.

Each semester, scholars are required to participate in the following activities:

- Meet with their faculty mentor at least two (2) times.
- Attend at least two (2) personal growth activities (e.g., STEM-related workshops, guest speakers, field trips)
- Attend at least six (6) academic community activities (study groups, whether sponsored by the MESA/STEM Programs or self-initiated). Ideally, the scholar meets with these groups consistently throughout the year (not just the night before exams).

These activities are self-reported on the SESMC Scholar Record of Activities sheet. Optional categories to report are STEM Internships Applied For, and Other Pertinent STEM Activities.

Applicants and Awardees

The original intent was to award 12 annual scholarships in Year 1, and 24 in each of Years 2 through 4, for a total of 84 yearly scholarships of up to \$6000. Scholarships are renewable for a second year, so assuming each new recipient stayed at AHC and received the full \$6,000, there would be at least 48 unique scholars (12 new scholars per year). However, as other S-STEM (and CSEMS) programs have reported, it is sometimes difficult to get students to apply. This challenge will be discussed below. Table 3 summarizes the applicants and number of new awardees.

Table 3. Summary of Applicants and Awardees.

Cohort	1	2	3	4	Total
Award Year	2013-14	2014-15	2015-16	2016-17	
New Applicants	21	14	19	41	95
Female	8 (38%)	4 (29%)	8 (42%)	19 (46%)	39 (41%)
Underrepresented Minority	11 (52%)	2 (14%)	9 (47%)	25 (61%)	47 (49%)
GPA < 2.7	1	2	0	1	4
EFC ¹ > \$15,000	0	1	2	4	7
Incomplete application	3	0	0	0	3
Did not enroll at AHC, changed major before award	1	0	4	0	5
Ineligible major	0	0	2	2	4
New Awardees	16	11	11	22	60
Average GPA	3.58	3.53	3.28	3.47	3.48
Female	6 (38%)	4 (36%)	4 (36%)	8 (36%)	22 (37%)
Hispanic	10 (63%)	0 (0%)	5 (45%)	16 (73%)	31 (52%)
Female and Hispanic	3 (19%)	0 (0%)	2 (18%)	4 (18%)	9 (15%)
First-Generation Student ²	11 (69%)	3 (27%)	8 (73%)	18 (82%)	40 (67%)
Average EFC	\$ 971	\$ 3,272	\$ 2,684	\$ 723	\$1,620
EFC < \$1000	11 (69%)	5 (45%)	5 (45%)	17 (77%)	38 (63%)
EFC < \$6000	16 (100%)	7 (64%)	9 (82%)	22 (100%)	54 (90%)
Female, Hispanic, First- Generation, <u>OR</u> EFC<1000	16 (100%)	8 (73%)	10 (91%)	22 (100%)	56 (93%)
New Awardees	16	11	11	22	60
Continuing Awardees	n/a	5	4	6	15
Repeat Awardee	n/a	n/a	0	1³	1
Total Fall Awards	16	16	15	29	76

¹ EFC: Estimated Family Contribution, Free Application for Federal Student Aid (FAFSA).

² Parents did not attend a 4-year university.

³ Scholar previously awarded in Year 1 and 2.

Challenges and Progress

A general overview of student status during the first four years of the project is shown in Table 4. Sixty (60) individuals have been awarded SESMC scholarships. Of the 38 awardees in the first three cohorts, 28 (74%) have transferred; 3 (8%) ended their 2-year award in good standing, and continued at AHC, 4 (11%) are currently receiving a second year of funding. Or, 35 of 38 students have progressed in general (92%). On the other hand, one student withdrew from the program to return to work full-time (for the U.S. Geological Survey), one withdrew from school for family reasons, and one scholar failed to meet requirements of the program and was removed from the program.

Table 4. Awardees, Transfers, Continuing, Withdrawals and Probations, as of March, 2017.

Cohort	1	2	3	4
Award Year	2013-14	2014-15	2015-16	2016-17
Continuing Awardees	n/a	5	4	7 ¹
New Awardees	16	11	11	22
Total Awardees	16	16	15	29
Withdrew from AHC	0	0	2 (in Fall)	0
Returned to AHC	0	0	1 (Spring)	0
On SESMC Probation				
During Fall	0	0	0	1
During Spring	0	0	0	5
End of Academic Year Status				
Transferred to 4-year	10	11	7	TBD
Continued, good standing	5	4	5	TBD
Continued, probation	0	0	1	TBD
Ended 2-year award in good standing, continued at AHC	n/a	1	1	1 (end Fall) + TBD
Voluntarily withdrew from Program	1	0	1	TBD
Lost Eligibility and Removed from Program ⁴	0	0	0	1 (end Fall) + TBD
Success (Transfer, Continued, Ended in good standing)	15/16 (94%)	16/16 (100%)	14/15 (93%)	TBD

¹ Including one awardee previously awarded in Cohort 1 and 2.

Challenges

The primary challenge for the SESMC program has been in recruitment. The original goal was to have a pool each year to be able to fund 84 total annual awards in each of four years (12, 24, 24 and 24). Year 1 had 21 applicants, netting 16 awards (due to close scoring). The diversity of the group was reasonable compared to the objectives, and the group's average FAFSA EFC was \$971.

Year 2's pool (recruited in spring 2015) was only 14, netting 11 new scholars. The new set of scholars was not very diverse (3 females and only 1 Latino/Hispanic), nor as much in need (average EFC \$3,272). With five continuing scholars, Year 2's group of 16 was also far short of the 24. Although announcements were made in various STEM classes by academic counselors, 8.5x11 flyers and 11x17 posters were posted about campus and in STEM classrooms, and STEM faculty asked to announce the program in their classes, these measures were not sufficient to get enough students to apply.

For Year 3's pool, outreach was increased, but still only 19 applications were submitted, again netting 11. Four scholars continued from the previous year, so there were 15 scholars in Year 3's group. These low numbers indicated a no-cost extension would need to be filed.

It was posed that students – especially those in underrepresented groups – were not applying due to a belief that they may be not “competitive” for a SESMC Scholarship. Perhaps the relative large award (up to \$6000), made many students think it will only go to the top students, in spite of the low GPA (2.7) requirement (lower than AHC Foundation's scholarship eligibility requirements), as well as emphasizing that competitive EFCs were \$6,000 or less.

AHC STEM faculty were emailed when applications were made available, informing them of the scholarship program, and that they likely would be receiving recommendation requests. They received copies of the flyer and of the (one page) form they were to fill out. Although these measures were taken, (anecdotally) there seemed to be a lack of knowledge about the program among STEM faculty. In fact, when overhearing a student asking one faculty for a recommendation, the faculty's response seemed to imply that the scholarship was very competitive, i.e., there were only a few scholarships, as opposed to nearly two dozen.

In Year 4, SESMC recruiting efforts were more extensive. A total of 1500 8.5x11 flyers were printed and given to faculty to distribute in pertinent STEM courses. The intent was for each student in the major-related STEM courses (Biology, Chemistry, Physics, Pre-Calculus Math and above, and Engineering, and Computer Science) to have a flyer. Posters were posted in or near most STEM classrooms and in areas of the college that STEM students frequented. Additional emails to faculty were also sent. The SESMC program was advertised on the video monitor in AHC's student center. These measures, and increased word of mouth, gained a pool of 41 applicants, with 23 being awarded (22 new scholars, and one repeat scholar who had received a SESMC award in Years 1 and 2). Of the 22 new awardees, 36% were female, 73% were Latino/Hispanic and the average awardee EFC was brought down to \$723. A total of 29 scholars started in Year 4's group.

The current (Year 5, 2017-18, a no-cost extension year) recruitment cycle is following a similar strategy.

An increased group size in Year 4 meant an increase in mentoring needs. Mentor training has been minimal in SESMC. To help mitigate this, SESMC provided each mentor with *On Being a Mentor: A Guide for Higher Education Faculty*, by W. Brad Johnson (2016). An end-of-year survey will be given in spring 2017 to determine how faculty mentors used this book, and how helpful it was to them.

The increased group size for Year 4 also came with more challenges for the scholars themselves. Nine withdrew or received sub-par grades (D, F) from key STEM courses during fall 2016. Of the nine, five are on SESMC probation in spring 2017, while one scholar's award was terminated due to failing to meet both academic and activity requirements for a second semester.

In anticipation of student set-backs, a new activity was introduced. SESMC purchased the book *Mindset: the New Psychology of Success*, by Carol S. Dweck (2006). This book was assigned as

reading over the winter break and was the primary topic of discussion at the spring 2017 orientation meeting. Some key takeaways that students received from reading *Mindset* and the subsequent group discussions:

- “Failing is not a reflection of my self-worth, it is merely an opportunity for improvement.”
- “After reading this book I spent some time reviewing my algebra. After having to drop calculus last semester, I doubted my math abilities. But this book helped me really find what I was doing wrong instead of why I am not capable.”
- “You are here to learn, you aren’t here just to get high marks.”

Another challenge for the program is the development of more group activities during the semester to create a better sense of group. This has been difficult due to the diverse nature of scholarship recipient majors, their conflicting schedules (three spring 2017 orientation sessions had to be scheduled), and that at least 90% of SESMC funds must go to scholarships (and thus no more than 10% to staff and support activities).

Progress Towards Objectives

The project’s measurable objectives are repeated here, in abbreviated form, along with relevant results:

Objective #1 Reduce average of 20 hours/week working by at least 50% (i.e., by 10 hr/week).

The 20 hours/week was based on surveys of AHC engineering students during the eight years preceding the grant. Table 5 shows the average reduction in work hours reported in 40 end-of year SESMC Surveys (May 2014, 2015 and 2016).

Table 5. Reduction in Weekly Work Hours.

Average hours/week <u>would have</u> worked <u>without</u> SESMC	20.1
Average hours/week worked <u>with</u> SESMC	7.9
Average reduction in weekly hours	12.2 (64%)

Objective #2 Persist to a completion of one or more major milestones at 75%.

There have been 38 unique scholars in the first three cohorts. As of spring 2017, **92%** (35 of 38) have reached the major milestone of transferring, or being “transfer-ready” (have fulfilled requirements that make them eligible to transfer). Of the 38, **74%** (28) have already transferred, and **16%** (6) are transfer-ready.

Objective #3 Applicant pool of at least 60% underrepresented and at least 40% female.

Table 6 gives a summary of the applicants and awardees who were in an underrepresented minority groups (URM: Latino or Hispanic; Black or African American; American Indian or Alaska Native), and who were female. The spring 2016 recruitment (for 2016–17 awards), was the most successful; of 41 applicants, 61% (25) were from a URM group, while 46% (19) were female.

Table 6. Applicant Pool and Awardees.

Applicants	Number	URM	Female
2016 Applications	41	25 (61%)	19 (46%)
All Applications (4 years)	95	47 (49%)	39 (41%)
Awardees	Number	URM	Female
2016–17 Cohort	22	16 (73%)	8 (36%)
All Awardees (4 years)	60	31 (52%)	22 (37%)

Objective #4. Of those who meet a major milestone, 92% will be employed or enrolled in a 4-year program two years after completion of SESMC.

There were 22 scholars from the first two cohorts (2013–14, 2014–15) who completed their SESMC award by spring 2015 (two years ago). Of the 22, **95%** (21) have transferred to a university, and one remains at AHC (the one who remained has been awarded a repeat SESMC scholarship in 2016–17). Of the 21 who transferred, 20 are either still enrolled or have graduated. The one who withdrew from university, returned to AHC and will be transferring in fall 2017 in a different STEM major.

Objective #5 Retention and Success Rates in select STEM core courses will be at least 83% and 95%.

Objective #5 has yet to be analyzed.

Student Feedback

At the three spring 2017 orientation meetings, students were asked in survey: “What has the SESMC Scholarship allowed you to do (or not do) during fall 2016?” A few representative answers follow.

- “It has allowed me to focus on my classes by allowing me to work less hours per week.”
- “The SESMC scholarship has allowed me to have more time to study for my classes and think less about work. Basically, it helped me with time management in my stud[ies] and with work.”
- “SESMC has allowed me not to work, and dedicate more time for school and develop myself in other aspects of my life...”
- “What SESMC did for me is boost my self-esteem, continue to thrive throughout my education experiences and better myself as an individual.”
- “Be more proactive with study groups and reaching out to peers to work together academically.”
- “The SESMC scholarship pushed me to talk to my instructors, make study groups, take more advantage of the opportunity in scholarships, workshops, internships and field trips in the engineering field.”
- “I am not as stressed and worried if I’ll be able to afford my bills.”

The primary outcomes and objectives objective can be summarized as follows:

1. to reduce the need to work in order to focus on academics;

2. to improve academic skills and study habits;
3. to increase interactions among students, peers and faculty; and
4. to improve motivation and commitment to career and academic goals.

The student feedback tends to support that they believe that these outcomes and objectives are being met.

Future Work

Academic year 2017–18 is Year 5 of the project. Activities that the grant will focus on are: increased emphasis on progress reports to ensure individual student success during the semester; more group activities to increase a sense of community; and more field trips to further strengthen student motivation and commitment; and a winter reading assignment to encourage personal growth.

Acknowledgements

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