

2014 Annual Performance Report

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 U.S. Department of Education
 Title III - Part F - HSI STEM and Articulation Programs

ED 524B Cover Sheet

1. PR/Award #: P031C110097
2. Grantee NCES ID#: 117867
3. Project Title: Improving STEM Success and Access for Hispanic Students at Los Angeles Mission College
4. Grantee Name: Los Angeles Mission College
5. Grantee Address: 13356 Eldridge Avenue Sylmar, CA 91342
6. Project Director Name: Mike Fenton Title: Project Director
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Reporting Period Information

7. Reporting Period: From: 10/01/2013 To: 09/30/2014

Budget Expenditures (To be completed by your Business Office.)

8. Budget Expenditures:

	Federal Grant Funds	Non-Federal Funds (Match/Cost Share)
a. Previous Budget Period	\$754,941.00	\$0.00
b. Current Budget Period	\$848,165.97	\$0.00
c. Entire Budget Period (For Final Performance Reports only)		

Indirect Cost Information (To be completed by your Business Office.)

9. Indirect Costs
 - a. Are you claiming indirect costs under this grant? No
 - b. If yes, do you have an Indirect Cost Rate Agreement approved by the Federal Government?
 - c. If yes, provide the following information:
 Period Covered by the Indirect Cost Rate Agreement: From: To:
 Approving Federal agency: ED Other (Please specify):
 Type of Rate:
 (For Final Performance Reports only)
 - d. For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:
 Is included in your approved Indirect Cost Rate Agreement?
 Complies with 34 CFR 76.564(c)(2)?

Human Subjects (Annual Institutional Review Board (IRB) Certification)

10. Is the annual certification of Institutional Review Board (IRB) approval attached? N/A

Performance Measures Status and Certification

11. Performance Measures Status
 - a. Are complete data on performance measures for the current budget period included in the Project Status Chart? Yes
 - b. If no, when will the data be available and submitted to the Department?
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Executive Summary

The HSI STEM Project at Los Angeles Mission College met several of the objectives for Year 3. The goal of the project is to establish a comprehensive STEM Center that will serve as the hub for STEM faculty and students, and strengthen student and academic services by: 1) expanding science and math tutoring, and other student services for STEM students; 2) supporting curriculum development in Math, Life Science, Physical Science and Computer Science departments/disciplines; 3) upgrading technology, 4) offering STEM Summer Academy to incoming STEM majors including high school and current LAMC students, and 5) expanding and formalizing an undergraduate research program.

The LAMC STEM program accomplished several of the project activities and expectations in year 3. The STEM student services were a focus of year 3 and several important areas were developed to enhance student success. The tutorial services were separated into the Science Success Center (SSC) and the Math Center (MC). We have expanded the science tutoring by integrating introductory courses along with the intermediate courses that make up the SSC. The MC performs all Math and Calculus based Physics tutoring. The type of tutoring was expanded by offering in-class, out-of-class, online, presentations, and workshops. Both centers are collaborating with the UCLA Engineering/Computer Science department to provide tutorial services in the higher level course to LAMC students. Additionally, STEM has created an e-tutoring system, which offers online tutoring for both centers and is currently available for student tutoring in all subjects.

STEM is developing a synergistic student service pathway to create a road map for STEM student success. This involves STEM counseling, STEM mentoring, and STEM advising. In the early stages of the grant we hired a STEM counselor and in year 3 we developed a STEM mentoring program to assist students and their parents to adjust and adapt to academic and non-academic challenges during their LAMC studies. Currently, we are developing a career advising area for students to offer internships, prepare them for transfer, and provide career information. The combination of all three student service along with the SSC/MC services we are strengthening student support and creating a successful environment for our students. All three services have e-student services available, e-counseling, e-mentoring, and e-advising. The STEM team has had discussion about creating a personal development course or boot camp that highlights all of the student service areas and how to use them as a STEM student.

The STEM program's objective of supporting curriculum was productive in year 3 of the grant. The accelerated Calculus based Physics series has reached its objective in student enrollment, success, and student collaboration. We have seen enrollment increase to capacity, and students have formed peer relationships that has enhanced their studies, and the series has created a successful environment. The Organic Chemistry series was developed and is active during year 4. Both series have laboratories that are part of the courses and STEM has provided funds for equipment, materials, and support. The proper laboratory curriculum, equipment, support, facilities, and faculty have provided and will continue to provide the highest quality of learning and the proper preparation of transfer for LAMC STEM students. The completion of the LAMC Computer Science development, including curriculum and articulation, will be a major focus in year 4 and 5 of the grant.

Upgrading technology was successful through our e-student services as previously described. We started in Year 3 and plan to further our development of supplemental instruction in Year 4. This project focuses on faculty creating videos on difficult lecture topics that allow students to watch anywhere/anytime to further topic understanding. LAMC STEM is learning from the UCLA Anderson School of Management about the type of lecture videos to produce and the system used in their creation of supplemental instruction, including lighting, equipment, software, etc...

The LAMC STEM summer academy was slightly altered from year 2. We had remedial Math boot camps and a basic Math course. The change involved a "Math Jam" for College Algebra, Pre-Calculus, and Trigonometry review to improve Math skills in areas that the faculty recognized as problems. The Math Jam was used by students and based on feedback is being modified and tested during the winter 2015 session. Overall, the summer academy participation has stayed about the same each year and we believe this is a result of unstable outreach. The STEM outreach has greatly evolved into focused in class presentations, followed by directed process assistance with LAMC applications and assessment. We are going to create videos to assist with the application process. Additionally, we have expanded our outreach to all high school grades, allowed students to become part of the LAMC STEM program and provide them with our e-student services. Lastly, we started a collaboration with one of our servicing high school to create a four week summer enrichment program. The result of this collaboration will be realized in year 4.

We are constantly evaluating and improving our approach to inreach and retention. Our inreach in-class presentations provided many current LAMC students' knowledge of our program services and increase student participation. Our student services areas of counseling and mentoring contributed to our retention initiative by holding seminars and discussions. The STEM staff contacted all STEM program students with declining GPAs and the student services guided them to overcome their academic difficulties.

We were very successful in our internship program in year 3. We had 16 students perform independent research at CSUN and UCLA. Many of these students have transferred or are in the process of transfer. We had an intern successfully participate in the LAMC STEM and UCLA Engineering department collaboration in developing the Transfer Student Summer Research Program (TSSRP). All of the internship development has been placed under the student service initiative career adviser. This area is developing current and new relations with industry and academia. Additionally, this service will meet with students to discuss career ambitions and pathways towards achieving their academic goals, as well as placing students into internships that best fit their academic goals.

We are excited about the direction of the LAMC STEM program and have had the full support of LAMC administrators, faculty, and staff. The contributions by all of the LAMC family have allowed the STEM program to expand and be continually productive for the STEM educational advancement of our students. We will continue to work hard to improve our services and ultimately our student's success.

Section A: Performance Objectives

Project Objective: 1. By September 2016, the number of Hispanic and other low-income students attaining degrees in STEM fields will increase from a 2009-10 baseline of 21 to 42 (an increase of 100%).

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
By the end of PY3, the number of STEM graduates will increase from a 2009-10 baseline of 21 to 32 (an increase of 100%).	Project	Raw Number	Ratio	%	Raw Number	Ratio	%
		32	/		45	13 / 32	41

Explanation of Progress (Include qualitative data and data collection information)

The project staff worked with the Dean of Institutional Effectiveness, and the database of the STEM program to review the degrees and certificates related to this objective. Previously, the following majors were identified for tracking: Biology, Computer Science, Engineering, Health Sciences, Mathematics, and Physical Science (Astronomy, Chemistry, and Physics). Currently, Los Angeles Mission College (LAMC) does not have degrees in many of these areas, mainly because of the previous limitation of science courses offered. This is shifting with the Computer Science course curriculum changes, Calculus based Physics series functioning, and the initiation of the Organic Chemistry series. Based on the implementation of these STEM classes over the initial three years of the STEM grant our STEM counselor is working with the department chairs in the respective areas to create relevant STEM degrees (e.g. Chemistry AS and Physics AS).

LAMC STEM Mission met this objective by increasing its degree attainment from 40 to 45 A.A./A.S. STEM degrees and 5 STEM Certificates awarded (total of 50 degrees and certificates) for its Hispanic and low-income student population. This is a 41% increase from the 2013-14 baseline of 32 degrees awarded to our Hispanic and low-income student population. The STEM disciplines identified for this objective will continue to be tracked for the next three years. However is it worth noting that there are other relevant STEM degrees at LAMC. The General Studies and Liberal Arts in Natural Sciences are Biological, Physical, and Mathematics under the State Titles. Several dual Associate degrees in both the STEM tracking areas and the Natural Sciences were awarded to students. In addition, Students that actively participated in the STEM program received degrees in both categories. Thus, it seems appropriate to include that 20 Natural Science AA degrees that were awarded to Hispanic and low-income students. The 20 AA degrees were earned by students that were not recognized in the 45 associate degrees recorded above, thus bringing the adjusted degrees and certificates obtained by Hispanic students to 65 degrees and 70 including certificates.

The LAMC STEM program is providing student services (e.g. counseling, tutoring, mentoring, and career advising) that are supporting student academics and as more students take advantage of LAMC STEM program resources we believe this number will consistently increase. All STEM student services can be used through a newly developed on line system, named e-STEM student services. All of the STEM e-services can be viewed and used online at: <http://www.lamission.edu/estudentservices>. Our program has developed a STEM synergistic pathway that requires all STEM program accepted applicants to visit the STEM counselor, STEM mentor, and STEM advisor at least once to stay active in the program. The STEM mentoring has been fully developed and is focused on academic and non-academic mentoring of students and parents. The LAMC STEM mentoring program launched on July 15th, 2014 (active for student interaction) and has seen 113 different students a total of 166 sessions as well as 20 different parents up to September 30th, 2014. Initial feedback includes seven completed surveys on SurveyMonkey. Out of these surveys, 100% were positive. One student stated "Dr. Escobar was very helpful and always had a positive attitude during each appointment". Another student said "My name is Julio Noyola, I'm a student at Mission college. We had a mentoring meeting not long ago, and I wanted to let you know your guidance was very helpful. I have a better understanding of the differences and similarities regarding my major in Engineering. Thank you for all your help." The development of the STEM advising service that includes internship placement is in progress and will be documented on the fourth year APR.

At the end of year 3 of this grant the LAMC STEM program has a total of 836 participants split between 363 (324 Hispanic) high school students, 228 (187 Hispanic) provisional (GPA under 3.0), and 245 (166 Hispanic) active (GPA is 3.0 or better) students. 14 of the 70 Hispanic and low-income students that received degrees/certificates (all categories) were in the STEM program. The LAMC STEM program is growing in student participation, student services, and types of STEM degrees that will likely result in an increase in future degrees and certificates.

Project activities such as the Outreach/Inreach/Retention, Summer Academy and STEM discipline development increased degree attainment in the 2013-14 year and should continue to increase over the next two years.

Over the course of year three the STEM team has changed its approach to the outreach, summer academy and STEM discipline development and many of these changes have been implemented in the current year and continue to be fluid. An updated detailed account of the current approaches and other data that have been accumulated are provided in relevant objectives of this APR. All documents detailing our new policies can be provided upon request.

Project Objective: 2. By September 2016, Hispanic students transferring with a STEM degree or transfer certificate from Mission to four-year institutions will increase 200% from 2009-2010 academic year baseline of 7.

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
By the end of PY3, the number of STEM transfers to four-year institutions will increase from 7 to 14.	Project	Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
		14	/		52	38 / 14	271

Explanation of Progress (Include qualitative data and data collection information)

This continues to be a challenge to obtain reliable data. As stated last year, there is a lack of consistent data for transfer numbers, the project staff consulted a number of sources to obtain transfer numbers by major and by ethnicity. The most commonly used and trusted source for transfer numbers is the California Postsecondary Education Commission (CPEC) Transfer Pathway information. Most community colleges depend on the CPEC website to obtain transfer data but due to the recent state budget cuts, the website has not been updated since 2010. The project staff examined data from the STEM program, UCLA Transfer Agreement Program (TAP) Report, California State University of Northridge outreach contact, California State University (CSU) Transfer Report, and University of California Transfer Report. The staff also continued the dialogue with the Dean of Institutional Effectiveness and Transfer Office to find solutions for accurate data.

Although the number of "Hispanic STEM transfer students" could not be verified for this year, a study of various reports yielded following results:

- In 2013-2014, 288 Mission students enrolled at CSUN; 55 of the total transfer students transferred into STEM majors; 38 of the 55 STEM transfer students are Hispanic.
- In 2013-2014, 59 Mission students applied to UCLA (one of the major transfer schools for Mission), 16 students were accepted, and 13 students enrolled. Of the 13 students that enrolled 2 are STEM majors and both are Hispanic.
- In 2013-2014, based on the STEM program database and STEM counselor data there were 22 students transferred to STEM majors and 15 are Hispanic. 6 of these students transferred to CSUN and are in the CSUN data and 4 of these students transferred to UCLA and only 2 are included in the UCLA data.
- In 2013-2014, the STEM staff contacted all STEM program degree/certificate earning students (via email and phone) to inquire about their transfer status. STEM staff attempted to contact 33 total students that received STEM degrees or involved in the STEM program in 2012-2013. We were able to reach 27 students and can report that 22 transferred, 3 are expected to transfer next year, 2 transferred prior to APR year three, and 6 we were unable to determine. 5 of the 22 transferred to CSUN, 4 enrolled at UCLA, and 13 (plus 2 UCLA transfers) are attending others schools in STEM majors that are not included in the CSUN and UCLA transfer data. 12 of these additional 15 LAMC STEM program transfers are Hispanic.
- Total known LAMC STEM transfers (without duplication) are 55 CSUN, 2 UCLA, 15 STEM program. Thus, there are 72 known LAMC STEM transfers and 52 are Hispanic. 52 minus the baseline of 14 = 38, then 38/14 = 271.4% increase from the baseline.

The accuracy of the total numbers are unknown, but should be higher. Without the proper accumulation of transfer data including majors we cannot account for all LAMC STEM transfer students to campuses other than CSUN, UCLA, and STEM program contacts. This excludes data from all other campuses (in-state and out-of-state as well as public and private). It is likely that we have captured the majority of our STEM transfers in our data collection because we have access to most STEM majors and we evaluated the institutions that have the most LAMC students transfers. In addition, LAMC traditionally does not receive credit for all of its transfers (STEM and non-STEM) because many students concurrently attend other local community colleges and the last college attended is automatically placed as their home college. However, some of the STEM program students that were not captured in the LAMC transfer data are included in the STEM program transfer numbers.

Several ideas to obtain accurate transfer data for the future were discussed during staff and steering committee meetings. One method that is used in this evaluation is to rely on an internal data base and closely follow current STEM program students who have been identified as transfer-bound. The STEM staff created a database of STEM program students by their major and ethnicity. Currently, a challenge in measuring true transfer is how the four-year institutions identify students' home school. As result of ongoing discussions with the four-year universities, the STEM staff learned that the majority of four-year institutions track where the student completed his/her last 12 units regardless of where he/she took the majority of units. Some schools allow the student to self identify without validation. With the STEM program internal data base, the STEM staff was able to track some students by documenting their information and academic progress. In addition, an exit interview before the students transfer would confirm students' transfer school and major is in progress. The STEM Counselor continues to play a critical role in tracking students in the program and guiding them through the transfer process. This data does not include STEM students that do not participate in the STEM program, but the data does include all students that do participate and therefore utilized the program resources. This is the most accurate data for demonstrating the benefits of the grant toward the progress of increasing Hispanic and low-income STEM transfer students.

The STEM program has adjusted our outreach by involving students in all grades of high school. We are currently developing a database for our high school STEM program participants. STEM staff is providing in-class presentations to all STEM courses at our 12 local high schools. We are presenting LAMC, STEM, Majors and Careers in STEM areas, and how to properly prepare to enter a university or college with the intention of majoring in a STEM area. We offer all high school students a chance to participate in our Summer Academy, various events hosted by LAMC STEM, scholarships opportunities, and local University summer internships as well as an on-line counseling, mentoring, and tutoring. The participants enter the LAMC STEM high school program and their information is documented. When they are ready for college we will monitor the LAMC STEM role in their progression to LAMC or a four-year university. The number of STEM interested high school students that apply and enroll in four-year campuses, that the STEM program assisted, will be documented.

Project Objective: 3. By September 2016, the progression rate of college-level math enrollment relative to remedial math will increase from 2009-10 baseline of 6% to 15%.

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
By the end of PY3, the progression rate of college-level math enrollment relative to remedial math will increase from 2009-10 baseline of 6% to 10%. Summer Academy 2012 Math 115 data over 2 years:	Project	Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			/			4 / 27	
Summer Academy 2012 Math 125 data over 2 years:	Project	Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			/			16 / 31	52
Summer Academy 2013 Math 115 data over 1 year:	Project	Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			/			1 / 7	14
Summer Academy 2013 Math 125 data over year:	Project	Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			/			11 / 27	41

Explanation of Progress (Include qualitative data and data collection information)

The baseline of 6% progression rate was obtained from a college-wide study starting with students enrolled in Pre-Algebra (Math 112) and comparing them to the number of students who completed some college level courses but not necessarily the same students who initially enrolled in Pre-Algebra. The tracking for each group was over a three-year period. In evaluating the assessment method, the program staff agreed that starting the tracking with the first Summer Academy (summer 2012) cohort would ensure that the progression rate would capture only the true STEM major. The target percent in year 3 of the grant is 10%, however year 1 students have had three years and year 2 student have had two year for this evaluation. There were 58 students enrolled in remedial Math boot camps (Math 115 and Math 125) during the summer 2012 STEM Academy, and 52 of these students joined the STEM program. The progression rate of each class will be used as the new baseline to accurately measure the time it takes to enroll and complete in at least one college level Math course (200 level).

Summer Academy 2012 data:

Math 115 data indicated that 27 students enrolled and 13 tested higher as a result of their boot-camp progression. 25 of the 27 enrolled in a Math or Science course within 2 years of the summer camp. Currently, 7 of the original 27 students have enrolled in a 200 level math class and 4 have passed (with C or better) a college level Math course. This is a 14.8% progression rate in a two year time frame.

Math 125 data indicated that 31 students enrolled and 11 passed the class with a "C" or higher. 24 of the 31 enrolled in a Math or Science course within 2 years of the summer class. Currently, 20 of the original 31 students have enrolled in a 200 level math class and 16 have passed (with a C or better) a college level Math course. This is a 51.6% progression rate in a two year time frame.

The second summer academy (2013) cohort had 17 students enrolled in remedial Math boot camps (Math 112 and 115) as well as 27 students enrolled in a Math 125 course with supplemental instruction. There were 44 students enrolled in remedial Math boot camps (Math 112 and Math 115) and the Math 125 course during the summer 2013 STEM Academy, and 25 of these students joined the STEM program. The progression rate of each class will be used as the new baseline to accurately measure the time it takes to enroll and complete at least one college level course (200 level).

Summer Academy 2013 data:

Math 112 data indicated that 10 students enrolled and 5 tested higher as a result of their boot-camp progression. 9 of the 10 are known to have enrolled in a Math or Science course within 1 year of the summer camp. Currently, 2 of the original 10 students have enrolled in a 200 level math and none have passed.

Math 115 data indicated that 7 students enrolled and 5 tested higher as a result of their boot-camp progression. 6 of the 7 enrolled in a Math or Science course within 1 year of the summer camp. Currently, 3 of the original 7 students have enrolled in a 200 level math class and 1 has passed. This is a 14.3% progression rate in a one year time frame.

Math 125 data indicated that 27 students enrolled and 15 passed the class with a "C" or higher. 24 of the 27 have enrolled in a Math or Science course within 1 year of the summer class. Currently, 18 of the original 27 students have enrolled in a 200 level math class and 11 have passed (with a C or better) a college level Math course. This is 40.7% progression rate in one year.

The third year summer academy (2014) cohort had 26 students enrolled in remedial Math boot camps (Math 112 and 115), 14 students enrolled in a Math 129B course with supplemental instruction, and 22 students enroll in a "Math Jam" that was designed as a review for Trigonometry, College Algebra, and Pre Calculus. There were 40 students enrolled in remedial Math boot camps (Math 112 and Math 115) and the Math 129B course during the summer 2014 STEM Academy, and 18 of these students joined the STEM program. The progression rate of each class will be used as the new baseline to accurately measure the time it takes to enroll and complete at least one college level course (200 level).

Summer Academy 2014 data:

Math 112 data indicated that 13 students enrolled and 10 tested higher as a result of their boot-camp progression. 11 of the 13 are known to have enrolled in a Math or Science course since the summer camp. There has not been enough time for this cohort to enter a 200 level Math course.

Math 115 data indicated that 13 students enrolled and 6 tested higher as a result of their boot-camp progression. 9 of the 13 enrolled in a Math or Science course within since the summer camp. There has not been enough time for this cohort to enter a 200 level Math course.

Math 129B data indicated that 14 students enrolled and 7 passed the class with a "C" or higher. 5 of the 14 have enrolled in a Math or Science course since the summer class. Currently, 4 of the original 14 students have enrolled in a 200 level math class and 1 has passed (with a C or better) a college level Math course. This is 7.1% progression rate in one year.

A new cohort will be identified each summer and compared with the previous cohort(s). The cohort progression rates will be tracked to evaluate program effectiveness. The progression rate of the 2015 cohort will be tracked and reported next year.

The STEM Program emphasized tutoring and supplemental instruction in the college level math courses rather than the developmental/lower level math courses. This is to avoid duplication of efforts; lower level math tutoring is currently provided by Basic Skills funds. The STEM Center provided math supplemental instruction to all students enrolled in the Summer Academy—Math Boot Camp. For the 2013 - 2014 year, math tutoring was provided to all students enrolled in potential STEM courses

(Math 115 and above). Student satisfaction surveys were created to evaluate the effectiveness of the STEM Center math tutoring services. During the 2014 summer academy 42 out of 63 students took a survey, and 100% indicated they were satisfied by agreeing or strongly agreeing on the majority of the questions about the STEM Center tutorial services.

Description of 2014 Summer Academy consisted of two tracks:

Track 1 Math 112 (pre-Algebra) and Math 115 (elementary Algebra) five-week boot camps for remediation along with a personal development course (PD 17).

Track 2 Math 129b course (Pre-College Math II) followed by two 7 week courses in Math 245 and Math 240 during the fall 2014 semester and continue to a Math 260 (Pre-Calculus) course in the spring 2015.

Data acquired for the Math 112 and 115 boot camps:

The Math 112 boot camp had a 76.9% success rate in students placing in Math 115 through recognition by the MDTP Math placement exam and an 84.6% rate of students enrolling in a Math or science course in the fall 2014 semester. The Math 115 boot camp had 46.2% success rate in students placing in Math 125 and 69.2% of these students enrolled in a Math or science course in the fall 2014 semester.

Data acquired for the Math 129B course:

The success rate of the STEM funded Math 129B class offered this summer is 50.00%, which is close to the 57.14% success rate of the Math 129B class taught in the spring 2014 semester by the same instructor. The low success rate of the summer Math 129B course might be due to the fact that this was the first time a Math 129 class was taught in the summer and also the first time it included high school students as part of the STEM program. The instructor observed that some students did well in class assignments and homework but they did poorly on tests, especially on the final exam, which contributed to a lower overall success rate. We believe additional testing strategies are needed for high school students to better prepare them for college level expectations.

The Math Discipline developed a unique Math pathway for STEM students. In fall 2013, the STEM Program piloted Math 240 and 245 (Trigonometry and College Algebra) as its first accelerated Math series. Math 240 and 245 were designed as follow-up courses to the Math 125 held during the summer. In the spring 2014 this series concludes with the offering of a Math 265 (Calculus) course. The objective of this Math series is to accelerate STEM students in Math and increase the transfer rate of STEM students. We are following some students throughout the process from Math 125, however we are also tracking STEM students that started later in the process (e.g. Math 245). We are attempting this pathway again starting from the summer 2014 Math 129B course. However, we are attempting to provide more supplemental instruction, including online tutoring, to increase student retention and success throughout the pathway. We will report our findings in year 4.

Project Objective: 4. By Fall 2016 100% of revised STEM courses will have with approved articulation agreements between Mission and four-year institutions over a base of zero (0).

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
By the end of PY2, the number of articulated STEM courses between Mission and local four year institutions will increase from over a base of zero (0).	Project		/			/	
Performance measure for both Organic Chemistry courses 211 and 212.	Project		/			2 / 15	13
Performance measures for all CS courses (not accounting for outdated but active agreements).	Project		/			0 / 15	0
Performance measure for all three Physics courses 37, 38, and 39.	Project		/			9 / 15	60

Explanation of Progress (Include qualitative data and data collection information)

The “revised STEM courses” stated in this objective were focused on Calculus based Physics series, Computer Science, and Organic Chemistry series. The three semester Physics sequence is active and institutionalized. STEM has created an accelerated sequence to allow students to finish the three semester series in two semesters (one year) and speed up STEM student’s transfer to four-year institutions. Most of the desired departmental articulation agreements have been achieved. Although many computer science courses are listed as active at Los Angeles Mission College (LAMC), the curriculum was recently modified and revisions are in progress which means articulation cannot be updated or sent out for review when requests are made by and to the four-year institutions. This is being worked on at the LAMC campus level. The Organic Chemistry sequence is one of the most important preparations for science majors that was previously not offered at LAMC. Mission is in progress of establishing departmental articulation agreements for the newly implemented year-long Organic Chemistry sequence.

STEM defined the performance measure of articulation agreements based on the newly developed STEM courses and the number of main universities/colleges that LAMC transfer students attend. We are evaluating only the departmental articulation agreements of 15 campuses. The 15 campuses were chosen based on location, LAMC student applications, and LAMC student enrollment. The campuses include 5 CSU campuses (Bakersfield, Dominguez Hills, Long Beach, Los Angeles, and Northridge), 6 UC campuses (Berkeley, Irvine, Los Angeles, Riverside, San Diego, and Santa Barbara) as well as Azuza Pacific, Cal Lutheran, National, and USC.

Additionally, Cal Tech, Loyola Marymount, and Mt Saint Mary are four-year universities that are in the local area of LAMC. Currently, Cal Tech and LAMC do not have any articulation agreements in place, thus limiting the number of transfer to the prestigious four-year university. In addition, Loyola Marymount and Mt Saint Mary’s do have articulation agreements with LAMC but not all agreements are current. The LAMC STEM program in collaboration with the LAMC articulation counselor and are in the process of making contact with Cal Tech, Loyola Marymount, and Mt Saint Mary’s to establish STEM course articulation agreements.

Calculus based Physics is a three semester course series and is offering Physics 37 in fall and Physics 38 and 39 in spring. These courses were institutionalized and the Physics discipline within the Physical Science department and Academic Affairs support an accelerated Physics series where the first semester Physics 37 is offered in the fall and the next two Physics 38 and 39 in the series are split into two eight week courses during the spring semester. This allows students to finish the series in a year instead of a year and a half. Since most students taking these courses are almost finished with their transfer courses this saves some students a full year in their transfer process. All three courses are CSU and UC transferable. Currently, all three courses have articulation agreements by department with: CSU’s; Channel Islands, East Bay, Long Beach, Los Angeles, Northridge, and San Bernardino. UC’s; Irvine, Los Angeles, San Diego, and Santa Barbara and USC. Physics 37 and 38 are articulated with UC Berkeley with 39 verbally approved, and several others in progress. Articulation performance measure for all three Physics courses 37, 38, and 39 are 9/15 = 60%.

The STEM program funded laboratory equipment for the Physics series, such as a sonometer, Boyle’s Law apparatus, optics ray box, index of refraction water tank, speed of sound resonance tubes, and spectrum tubes. An example of the impact this lab equipment has on course development is illustrated by several experimental improvements. For example, the ray optics lab used to try aiming a laser beam by hand across a white surface while trying to adjust the laser, the surface, and the reflecting optics, to get a visible ray to trace, and the new ray optics apparatus automatically performs these duties with greater precision and accuracy thus allowing the students to focus on data collection and interpretation. Overall, the new equipment creates appropriate current laboratory experiences comparable to university level work. This series started by STEM funding in 2012 and is continuing in the current semester. Since its inception the Physics 37 has averaged around 16 students enrolled, but Physics 38 started with 6 students enrolled and Physics 39 started with 5 students enrolled. The accelerated series in fall 2013 enrolled 21 and 17 passed in Physics 37, enrolled 22 with 20 passing in Physics 38, and enrolled 19 with all 19 passing in Physics 39. Overall, 13 total students completed and passed the full series and 12 of the 13 are Hispanic, 2 passed Physics 37 and 38 and both are Hispanic and 4 passed Physics 38 and 39 and all are Hispanic and 8 other students passed one of the three classes 6 are Hispanic. Thus, the accelerated Calculus based Physics series is having a large impact on LAMC students in a short period of time. The development and implementation of this core science sequence has set the foundation for future LAMC students to successfully transfer in many STEM areas and potentially obtain AS degrees in Physics (see objective 1 notes on developing more AS degrees).

There are no new developments in the Computer Science progress. Curriculum review of Computer Science courses 407, 416, 436, 440, 452, and Math 272/Computer Science 462 were approved. Computer Science courses 401 and 417 are still in the process of ECD development prior to approval. The LAMC articulation counselor is in the process of initiating articulation agreements for the courses with approved curriculums. The Math/CS/Engineering department is in the process of hiring a Computer Science full-time faculty to instruct these courses, presumably the hire will be in place by the spring 2015 semester. Performance measure for all CS courses (not accounting for outdated but active agreements) is 0%.

Organic Chemistry year-long series of 2 classes has completed the curriculum and both courses are CSU and UC transferable. Currently both courses have articulation agreements by department with: CSU Channel Islands, CSU East Bay, CSUN, and UC Irvine. Other departmental agreements with desired four-year institutions are in progress. A new part time technician has been hired to prepare materials and equipment along with assisting faculty during the Organic Chemistry Laboratories.

Materials and equipment was purchased (e.g. Gas Chromatograph, different Refractometers, and a Polarimeter) to provide a relevant university level laboratory experience and proper preparation for students to successfully transfer to four-year institutions. The first LAMC Organic Chemistry course was offered in fall 2014. Articulation performance measure for both Organic Chemistry courses 211 and 212 are $2/15 = 13\%$.

Project Objective: 5. By Fall 2016, 25% of the Hispanic students taking part in Summer Bridge, Math Prep or Summer Academy will register for a minimum of one STEM course within two Semesters of their participation.

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
By the end of PY3, the number of Hispanic students taking part in Summer Bridge, Math Prep or Summer Academy and registering for a minimum of one STEM course within two Semesters of their participation will increase to 16%.	Project		/			19 / 30	63
All students participating in the year 3 Summer Bridge program and enrolling in a minimum of one STEM course within two semesters of their participation.	Project		/			25 / 40	63

Explanation of Progress (Include qualitative data and data collection information)

At least 30 of the total 40 student enrolled in the 2014 Summer Academy are Hispanic and 17 of the 22 enrolled in the Math Jam are Hispanic. Of the 40 students, 24 of them successfully tested or placed into a higher level Math, and 18 students are currently active in the STEM Program. Of the 40 starting students, 25 students enrolled in at least one STEM course (Math or Science) within a year. Of the 25 students taking at least one STEM course, 19 are Hispanic students. Thus, 19 of the 30 Hispanic students enrolled in at least one STEM course within a year of participating in the summer academy, this is 63.3%. Overall, 25 of the 40 students enrolled in the 2014 summer academy took at least on STEM course within a year of the academy, which is 62.5%. This is significantly greater than the year 3 target of 16%.

Similar to last year, the main reasons for student success are the counseling, mentoring, STEM staff, and tutorial services associated with STEM classes and boot-camps. The tutorial advantages are highlighted in the project objective 3. Other important student service areas include counseling and mentoring. Students that entered the LAMC STEM program are required to visit both areas of student services at least once. Initially, students arrange an appointment with the STEM counselor for STEM specific advisement and information on course selection, transfer planning, and time-management planning. After this appointment then students are referred to the STEM mentor where they obtain academic and non-academic advice specific to their needs. Additionally, some parents are mentored on their student needs to encourage a nurturing home environment and to assist student academic success. Here are some of the responses we got back from students that were mentored.

1. "Hi Professor Mario A. Escobar. My name is Julio Noyola, I'm a student at Mission college. We had a mentoring meeting not long ago, and I wanted to let you know your guidance was very helpful. I have a better understanding of the differences and similarities regarding my major in Engineering. Thank you for all your help."
2. "Hello professor, The resources you provided me with have helped immensely. The El Nido program you referred me to was able to buy me some groceries and some other items I was in desperate need of. They also provided a place where I can store food and have use of their kitchen. They are helping me to find housing and are looking for a possible way to fill my gas tank. I want you to know Mr. Escobar that I am truly grateful for your guidance, your assistance and your mentorship and that I mean what I say with truest sincerity. Thank you for all that you've done for me and continue to do for me. This is a time in my life that will shape my future and your wisdom and insight I will carry with me for the rest of my days.
Sincerely, Joseph Benjamin Borrayo"
3. "Hi Mario, In the short amount of time I've been in the mentoring program I've been helped so much. I had no idea that I could qualify to have my classes payed off, and the mentor I was paired up with has helped me so much as well. It's good to know there is a program that can help me reach my goals and stay on track, especially since I'm the first person in my family to attend college."

During the summer academy, students enrolled in a personal development course that detailed the importance of choosing the right courses to complete graduation and transfer requirements. The course also provided study skills, stress management, and highlighted career options for students pursuing a STEM degree. Throughout the year, the STEM Office records indicate that 625 student in-person and on-line communications were completed with reasons varying from individual counseling appointments to general questions.

Ten-minute in-reach presentations were conducted in all STEM and many non-STEM classes on LAMC's campus and numerous in-class presentations were done at the twelve local feeder high schools. Outreach and in-reach efforts were conducted on a daily basis. STEM Outreach team visited local high schools—Arleta, Cesar Chavez ASE, Kennedy, Monroe, San Fernando, Sun Valley, Sylmar, and other High Schools. We have identified all of the high schools that have split into groups such as academies, charters, learning communities, and magnets. Some of the high schools have general grades in addition to some groups. We identified the groups at each school and have focused our in-class presentations for the STEM groups (e.g. Engineering Academy, Math Science Magnet, etc...). The STEM outreach gave general in-class presentations to general grades, and more STEM subject focused in-class presentations to each specific group. During the 2013 – 2014 school year we had 555 students interested in the LAMC STEM program and summer academies. This includes freshmen, sophomores, juniors, and mostly seniors. The high school counselors and faculty agreed that the STEM outreach representative facilitated excellent presentations.

Our inreach gave in-class presentations to 25 different LAMC courses that produced 75 new STEM program students. In addition we have increased our efforts to retain current STEM program students that are struggling in their STEM studies. Thus, gave several motivational seminars on different topics and allowed successful STEM students discuss strategies for success. All of these seminars involved STEM office staff and STEM student service areas. For example, the STEM mentor Mario Escobar gave presentations on "study tips", "exam anxiety", and "how to be successful in college", where 13, 26, and 28 students attended. Additionally, the STEM staff evaluated all of the current STEM students and observed that some provisional (students with a 3.25 GPA or lower in at least 2 STEM classes) students became active (students with a 3.25 GPA or higher in at least 2 STEM classes) and inversely 39 active became provisional. The STEM staff attempted to contact all 39 students that had a reduction in GPA and set up counseling and mentoring appointments to understand and help these students get back on a productive academic track. STEM staff reached 11 students and out of these 4 made appointments and discussed their progress. Currently we are tracking these 4 students and will report on their progress in year 4.

Project Objective: 6. By September 2016, students taking part in math tutoring and SI at the STEM Center will succeed in college level math in rates 15% higher than those who do not use the tutoring/SI services.

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
Year 3 total Math tutoring hours.	Project	Raw Number	Ratio	%	Raw Number	Ratio	%
		29095	/			/	
Year 3 success rate of remedial level Math courses of students that used the STEM center.	Project	Raw Number	Ratio	%	Raw Number	Ratio	%
			/			114 / 156	73
Year 3 success rate of college level Math courses of students that used the STEM center.	Project	Raw Number	Ratio	%	Raw Number	Ratio	%
			/			166 / 243	68
2014 summer academy tutoring hours including workshops, in-class and out-of-class tutoring and regular summer tutoring hours combined.	Project	Raw Number	Ratio	%	Raw Number	Ratio	%
		4039	/			/	

Explanation of Progress (Include qualitative data and data collection information)

The STEM Math Center tutoring lab has been a key component to student success. In the 2013–2014 academic year the STEM Math center provided 9,315.60 hours of tutoring to 805 students in the fall 2013 (Sept. 30th – Dec. 15th), 690.07 hours of tutoring to 65 students in the Winter 2014 session, 14,672.83 hours of tutoring to 943 students in the spring 2014, 1,984.88 hours of tutoring to 161 students in the summer 2014, and 2,431.37 hours of tutoring to 356 students in the fall 2014 between 9/02/14 and 9/30/2014.

The total amount of tutoring at the STEM Math Center for year 3 of the grant equals 29,094.75 hours of tutoring for 2,330 students. These numbers include all students coming to the STEM Math Center such as the lower level Math 105 and Math 112, non-credit, students from other colleges in the area (some of whom are part of the STEM program), and LAMC students not enrolled in math but allowed in the lab since no other academic support services or computer labs are available in the East campus.

In the 2013–2014 academic year (Fall 2013, Winter 2014, Spring 2014, and summer 2014), the overall success rate of students who spent at least 20 hours at the Center was 69.82% compared to 46.13% of those who did not come to the lab at all.

For remedial Math level courses (100 level courses that include Math 115, 121, 123 A/B/C, 125, 129 A/B, and 137) the total number of students tutored at least 20 hours were 156 at the STEM Math center compared to the number of 3160 students that did not receive tutoring, and the success rate of the tutored students at this level is 73.08% compared to the 44.97% for students that were not tutored.

In the college level Math courses (200 level courses that include Math 227, 238, 240, 245, 260, 265, 266, 267, 270, and 275) the total number of students tutored at least 20 hours were 243 at the STEM center compared to 1121 students that did not receive tutoring, and the success rate of the tutored students at this level is 68.31% compared to the 47.99% for students that were not tutored. The college level Math courses show that tutored students had a 20.32% higher success rate.

The percent of students tutored overall (at least one visit to the lab) was 33.48%, and split into remedial Math course was 16.21% and college Math courses were 16.56%. The percentage of enrolled students utilizing the service shows a steady increase from 2012- 2013 data (5.06%). This is approaching our limit of assistance that we can offer students because of space and equipment limitations. However, we believe that the newly integrated e-tutoring will allow us to expand our breadth of student assistance beyond on these limitations. In addition, the STEM Math center is now implementing in-class student evaluations of Math Center services to increase student awareness of the program and to better plan academic support strategies.

The LAMC STEM program has integrated the Science Success Center (SSC) with the Math Center to provide science and math tutorial services to LAMC students. The initial data (spring 2014, summer 2014, fall 2014 up to September 30th) for the SSC component of the LAMC tutorial services includes 3,783 total hours for 540 students. This data is separated into spring 2014 where 1,522 hours of SSC tutoring were provided to 122 students in six intermediate science courses (Bio. 6, Bio. 7, Microbio, Physio. Chem. 101, and Chem. 102). This is 38% of the total students enrolled in these six course and they had a passing rate of 85.5% (104/122). In summer 2014 the SSC provided 133 students with 777 hours of tutoring in five science courses (Anatomy, Astronomy, Bio. 3, Chem. 51, and Chem 65). This is 73% (133/183) of the total students enrolled in these five courses and they had a passing rate of 88.4% (119/133). In fall 2014 (up to September 30th) the SSC provided 1,483 hours of tutoring to 285 students in fourteen courses (all of the courses mentioned above including Physics 6 and 7 as well as the STEM funded course Chem. 211).

Summer Academy:

The STEM Math center offered three types of tutorial services (in-class, out-of-class, and workshops) for the 2014 Summer Academy. The STEM Math center provided 4,038.88 hours of tutorial services to 161 students over the summer of 2014 (this includes in-class services provided by instructors and tutors for Summer Academy sections). In addition, the STEM Math center held workshops for the Pre Algebra and Elementary Algebra boot camps and in-class as well as workshops for the Math 129B course. Pre Algebra held 624 hours of workshops for 13 students, Elementary Algebra held 624 hours for 13 students. Also, Math 129B held in-class tutoring and after class workshops that totaled to 630 hours for 15 students bringing the total STEM Math Center hours dedicated to the summer academy tutoring to 2,054 along with the 1,985 regular tutoring hours for the summer to total 4,039 tutoring hours.

Additionally, the STEM summer academy included a "Math Jam" that was a review for all Trigonometry, College Algebra, and Pre Calculus students. The objective was to prepare students for more challenging courses and to close the time gap of Math involvement between the spring and fall semesters. There were 22 students enrolled and nine meetings for 218 hours were offered with a 55% attendance record. Overall, this is an interesting idea that will have to be adjusted by increasing attendance, more focused individual subjects, and assessments. The 2014 – 2015 winter session is offering a "Math Jam" that includes some of these adjustments and will be reported in the year 4 APR. Below are some student comments.

Student Evaluations:

A class evaluation was conducted at the end of the summer session for the Math 129B course with the following results:

- 100% of participating students said that the instructor explained the class material in an easy to follow format.
- 100% of participating students said that the tutoring sessions/workshops after class helped them understand the math concepts better.
- Additional student comments include:

"I had a lot of fun in this class which is weird but the professor made the work comforting and fun to do."

"I really enjoyed this experienced and I hope for my next class I have the same instructor."

"it was very helpful and prepared me for my algebra 2 class i am taking my 10th grade year"

Student Evaluations for the Math Jam show the following results:

When asked if the summer Math Jam met their expectations...

41.7% of participating students strongly agree.

58.3% of participating students agree.

When asked if the skills emphasized in the Math Jam will help them in their class(es) next semester...

66.7% of participating students strongly agree.

33.3% of participating students agree.

Additional student comments about the Math Jam include:

"I feel like the professor engaged the class well while maintaining a relaxed but focused environment. I really enjoyed the environment and the topics that we went over in class."

"I thoroughly enjoyed the workshop despite my shortcomings in the curriculum. Considering I had almost no prior knowledge of some concepts in algebra and trigonometry, I was surprised to find that I was able to keep up with the content somewhat. This is due to the professor's superb ability to simplify concepts for those unfamiliar with them."

The success rate of the STEM funded Math 129B class offered this summer is 50.00%, which is close to the 57.14% success rate of the Math 129B class taught in the spring 2014 semester by the same instructor. The success rate of the summer Math 129B course might be due to the fact that this was the first time a Math 129 class was taught in the summer and also the first time it included high school students as part of the STEM program. The instructor observed that students did well in class assignments and homework however they did poorly on exams, especially on the final exam, lowering the overall success rate for the course. Additional testing strategies are needed for high school students to bring them up to part with college level expectations.

Project Objective: 7. By September 2016, students taking part in research internships will persist to graduation with a degree in a STEM field or Transfer Certificate at a rate 20 times greater than those not participating in research internships.

Check if this is a status update for the previous budget period.

Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
By 2016, students taking part in research internships will persist to graduation with a degree in a STEM field or Transfer Certificate at a rate 20 times greater than those not participating in research internships.	Project		/			/	
The percent of 2013 summer internship participants that have transferred to four-year institutions.	Project		/			8 / 10	80
The percent of STEM program students that did not participate in summer 2013 internship that have transferred to four-year institutions	Project		/			9 / 11	82
The percent of 2014 summer internship participants that have transferred to four-year institutions.	Project		/			7 / 16	44

Explanation of Progress (Include qualitative data and data collection information)

2013 and 2014 LAMC STEM undergraduate research focused on two main areas: Biomedical Sciences and Engineering/Computer Science.

There were 10 total interns during the 2013 summer. Currently, 8 of the interns have transferred to four year universities or have been accepted for transfer and 2 have applied for transfer. Currently all of the interns remain in STEM areas of study. There were 7 Biomed interns in total and 6 were placed in research laboratories at CSUN and 1 was placed in a research laboratory at UCLA. These internships were conducted during the summer 2013. Every other week the interns would meet with a LAMC Life Science faculty to discuss their research and learn to translate their research into a research style publication. There were 3 Engineering/Computer Science in total and the three conducted their internships at CSUN. After completion of the internships all of ten interns submitted reports documenting their research and their experiences. During the summer the Biomed interns developed their research papers and are published in the Mission Undergraduate Research Journal (MURJ). The 2013 MURJ can be viewed at: http://www.lamission.edu/stem/?page_id=2817
This is the collection of documented work that each student performed during their summer internship experience. The goal of MURJ is to "encourage, recognize, and reward students' academic activity outside the classroom, while providing an opportunity for sharing of research and ideas."

There were 16 total interns during the 2014 summer. Currently, 7 of the interns have transferred to four year universities or have been accepted for transfer, 7 have applied to transfer for the fall 2015, and 2 plan to apply to transfer for the fall 2016. Currently all of the interns remain in STEM areas of study. There were 11 Biomed interns in total, 8 were placed in research laboratories at CSUN and 3 were placed in research laboratories at UCLA. These internships were conducted during the 2014 summer, with one student at CSUN continuing her research in the fall 2014 and spring 2015 semesters. Every other week the interns would meet with a LAMC Life Science faculty to discuss their research and learn to translate their research into a research style publication. There were 5 Engineering/Computer Science in total and the 4 conducted their internships at CSUN, and 1 student did his research at UCLA in a pilot study named the Transfer Student Summer Research Program (TSSRP). After completion of the internships all of the sixteen interns submitted reports documenting their research and their experiences. All 16 students will have their research recognized in the 2014 MURJ. The students were given various stipends (depending on the internship) through the grant or campus of study. The various stipend amounts awarded can be viewed in the budget part of the report. These amounts were based on potential costs incurred during the internships and the program each student was placed into. We have found that student focus on the internship is greatly enhanced when being compensated (reduces time spent at another place of employment) and the overall experience for the students and the laboratories is enriched. This is recognized in the amount of progress students achieve that is realized in their MURJ articles.

We had one other type of internship that involved a STEM staff member. This project focused on the creation of a STEM grantee portal and we funded a staff member that led a student team under Dr. Gloria Melara at CSUN in the Engineering/Computer Science department. The summer project was to design and implement a required website to serve as a centralized repository of HSI STEM grants where PIs share documents and best practices. The initiation of the site was accomplished and continuing efforts to produce a functionally active site are ongoing and close to implementation.

The performance measure for this objective is being defined as intern students in each area of study will be judged relative to STEM program students in the same area without research experience. For example, the academic progress of biomedical interns will be followed and compared to Biology and Biology related STEM students at similar educational levels. We will follow both sets of students and compare their transfer rate (starting from the time they experienced their internships), and their graduation degrees.

Summer 2013 data:

Out of the 7 biomedical interns, 6 have transferred and 1 has applied to transfer for the fall 2015. Compared to 8 LAMC STEM program Biology or Chemistry students that had completed similar level science courses but did not participate in the internship program, 7 have transferred and 1 has not started the transfer process.

Out of the 3 engineering interns, 2 have transferred and 1 has applied to transfer for the fall 2015. Compared to 3 LAMC STEM program engineering students that had completed similar level Math courses but did not participate in the internship program, 2 have transferred, and 1 has applied to transfer for fall 2015.

Currently, the percent of internship participants that have transferred to four-year institutions 8/10 = 80%. The percent of LAMC STEM students transfers, that were at similar Math and Science levels relative to the interns, is 9/11 = 82%. The students that did not participate in the internship program but are being used in the comparison were chosen based on similar Math and Science course completion and all were offered the internship opportunities. To our knowledge none of these students has graduated, however we will continue to monitor the past interns' academic progress through graduation of a bachelor's degree as well as potential graduate degrees.

Summer 2014 data:

Out of the 11 biomedical interns, 2 have transferred, 5 have applied to transfer for the fall 2015, and 4 plan to apply to transfer for the fall 2016. We do not have a comparable group that did not perform internships this year because most students with similar Math levels that were eligible (appropriate science preparation) for these internships were selected, accepted, and completed the internships. We can compare the CSUN to UCLA internships, because typically the research environment between the two schools is significantly different. Based on this evaluation then 0 of the 8 CSUN interns have transferred and 2 of the 3 UCLA interns have transferred, but it is still too early to over analyze this difference. Year 4 will be a better representation of the transfer progress of the interns.

Out of the 5 engineering and Computer Science interns, all 5 have transferred. Mainly, this is a result of student selection for the interns opportunities need to have completed significant major preparation to be eligible for the internships. This means that it is likely they are prepared to transfer at the time of their internships and these serve as a bridge to entering a four-year institution.

Currently, the percent of internship participants that have transferred to four-year institutions $7/16 = 44\%$. It is too early to assess if any of these students have graduated, however we will continue to monitor these interns' academic progress through graduation of a bachelor's degree as well as potential graduate degrees.

We are continuing to collaborate with UCLA's Engineering summer research programs and connect their programs with our 12 outreach high schools. Additionally, UCLA's Engineering department has now committed to providing online tutoring for our Calculus series, Calculus based Physics series, and Organic Chemistry series. LAMC STEM program and UCLA Engineering continue to enrich both campuses through the development of mutually beneficial programs.

Section B: Budget Information

All the expenditures up to September 30, 2014 have been drawn down from the ED's G5 System.

EXPLANATION OF EXPENDITURES

CATEGORY.....	EXPENDITURES.....	EXPENDITURES.....	TOTAL.....
.....	WITH YEAR 2.....	WITH YEAR 3.....
.....	CARRYOVER FUNDS.....	FUNDS.....	EXPENDITURES.....
1-Personnel.....	110,866.01.....	463,182.04.....	574,048.05
2-Fringe Benefits.....	16,176.72.....	100,345.83.....	116,522.55
3-Travel.....	3,861.06.....	3,029.15.....	6,890.21
4-Equipment.....	0.00.....	24,602.56.....	24,602.56
5-Supplies.....	49,718.52.....	6,941.40.....	56,659.92
6-Contractual.....	11,200.00.....	0.00.....	11,200.00
8-Other.....	4,697.08.....	53,545.60.....	58,242.68
TOTAL.....	\$196,519.39.....	\$651,646.58.....	\$848,165.97

PERSONNEL AND FRINGE BENEFITS

A total of \$690,570.60 was spent on salaries and fringe benefits which include \$208,454.55 for program director and program specialist, \$58,060.01 for summer academy tutors, instructor, and coordination, \$161,463.67 for STEM Math Center and Science Center, \$7,367.64 for undergraduate research coordinator, \$110,745.72 for STEM outreach, \$108,236.93 for transfer/articulation specialist(counselor), and \$36,242.07 learning communities which include the accelerated math sequence instructor, organic chemistry instructor, and calculus-based physics instructor.

TRAVEL

A total of \$6,890.21 was spent on travel of which \$5,393.17 was spent on attendance to the Alliance of HSI Educators conference in La Verne, CA, and the AMATYC Conference in Anaheim, CA. \$1,497 was spent on mileage for outreach and meetings.

EQUIPMENT AND SUPPLIES

A total of \$69,149.45 was spent on equipment and supplies. For the new organic chemistry series \$24,602.56 was spent on lab equipment and \$24,408.50 was spent on lab supplies and reagents. For the calculus-based physics lab \$20,138.39 was spent on lab supplies.

CONTRACTUAL

A total of \$11,200 was spent on service contracts of which \$10,000 was paid to the external consultant and \$1,200 was for the last payment to the organic chemistry curriculum consultant.

OTHER

A total of \$58,242.68 was spent on other expenses of which \$33,564 was spent on internship stipends; \$4,250 on the TSSRP internship costs; \$838.77 was spent on summer internship journal (MURJ); \$12,190.94 on the Mathematica software; \$1,895.53 in facilities use costs; \$3,516.55 in software rental; and \$1,292.46 in general printing.

EXPLANATION OF CARRYOVER AND PLAN

Due to LACCD accounting procedures, we are not allowed to reflect encumbrances along with the expenditure reports. Per the District regulation, we are authorized to report on expenditure paid/posted in our accounting system with a date of September 30th or earlier. After deducting the encumbered costs, the true carryover balance is \$301,531.83.

CATEGORY.....	CARRYOVER.....	CARRYOVER.....	TOTAL.....
.....	FUNDS YEAR 2.....	FUNDS YEAR 3.....	CARRYOVER.....
1-Personnel.....	46,922.87.....	112,800.29.....	159,723.16
2-Fringe Benefits.....	22,087.83.....	21,446.41.....	43,534.24
3-Travel.....	0.00.....	15,377.06.....	15,377.06
4-Equipment.....	0.00.....	1.00.....	1.00
5-Supplies.....	25,995.87.....	7,760.00.....	33,755.87
6-Contractual.....	0.00.....	47,425.00.....	47,425.00
8-Other.....	0.00.....	4,613.59.....	4,613.59
Total.....	\$95,006.57.....	\$209,423.35.....	\$304,429.92

YEAR 2 CARRYOVER

PERSONNEL AND FRINGE BENEFITS

The program had \$46,922.87 carryover in personnel and \$22,087.83 in fringe benefits from Year 2.

Planned carryover

The organic chemistry series was delayed until fall 2014. With the approval of program officer Sarah Beaton, the series will be paid with Year 2 carryover funds. By the end of this reporting period the first class had just started and few costs had been incurred. The total personnel and benefits cost of the series will be incurred at the end of the spring 2015 semester with an estimated cost of \$42,819.

The half-time lab tech was hired as planned and the remainder of her assignment is estimated at \$23,800.

PLAN

Personnel and fringe benefits carryover is expected to be used by the end of the 2015 spring semester.

SUPPLIES

The program had \$25,995.87 carryover in supplies from Year 2.

Planned carryover

Although a great majority of the equipment and supplies was purchased for the new Organic Chemistry series and the Calculus-based Physics series, the purchase of the materials and reagents for the second part of the class needed to be postponed until right before the spring 2015 semester. Reagents are perishable items and cannot be store too long.

PLAN

Supplies carryover will be spent before and during the spring semester as needed. It is estimated that all supplies funds will be spent by the end of the spring 2015 semester.

YEAR 3 CARRYOVER

PERSONNEL AND FRINGE BENEFITS

The program had \$112,800.29 carryover in personnel and \$21,446.41 in fringe benefits from Year 3.

Planned carryover

The second accelerated pilot math sequence which was approved by program officer Sarah Beaton started in fall 2014. At the closing of this reporting period the sequence had just begun and few costs had been incurred. The total personnel and benefits cost of the sequence will be incurred at the end of the spring 2015 semester with an estimated cost of \$23,847.32.

The half-time outreach coordinator who was scheduled to begin work in January 2014 and end in December 2014 actually started in July 2014 and will work until the end of the spring semester. Therefore only 3 months of her salary are included in this reporting period and the remainder of her assignment will run until June 2015 estimated at \$21,556.

Unplanned carryover

The full expansion of the STEM Science Center was schedule to begin in the spring 2014 semester but the process did not start until the summer which reflected as a carryover of approximately \$48,762 in tutoring salary costs.

The STEM Math had lower tutoring costs than anticipated which resulted in a \$22,248 carryover. Overall the program had fewer faculty developed projects (faculty release) this year which also resulted in \$17,943 carryover.

PLAN

The planned personnel and fringe carryover will be spent by June 2015 as anticipated. The unplanned personnel and benefit carryover will be spent as follows: program director \$2,409.60, career advising \$10,550.00, mentoring coordinator \$9,452.10, STEM outreach staff \$27,843.00, articulation specialist \$1,009.32, internship coordinator \$1,800.00, remainder of summer academy \$975.82. This carryover will cover the \$42,005 budget reduction of Year 4.

TRAVEL

The program had \$15,431 carryover in travel. Even though conference attendance was higher this year, costs were lower because conferences locations were near our college.

PLAN

The travel carryover will be spent as follows: \$1,578 will pay for the attendance of a faculty and the science tutoring center coordinator to the STEM Reading Apprenticeship conference in February 2015 and \$98.80 for STEM outreach mileage. The remainder balance \$13,754.20 will be transferred to salaries.

SUPPLIES

The program had \$7,760 in supplies carryover caused by purchases encumbered and not delivered before the end of the reporting period.

Planned carryover

The purchase of two computers and printer in the amount of \$2,552.89 were encumbered before the end of this reporting period but were not delivered until October 2014. Another purchase of office supplies was also encumbered and not delivered in the amount of \$885.15.

Unplanned carryover

The remaining \$4,749.91 will be spent on supplies for the science tutoring center in two main purchases during the winter break: office supplies \$1,119.84 and approximately \$3,590 for anatomy manipulative model.

CONTRACTUAL

The program had \$47,425 carryover in contractual services. The funds are from unused curriculum experts.

PLAN

As approved by the program officer the funds will be transfer to personnel and benefits to cover salaries for mentoring and career guidance.

OTHER

The program had \$4,613.59 carryover in the other category which was due to facilities use cost not posted by 9/30, and a delay in the printing of the undergraduate research journal due to articles submitted late.

PLAN

The other carryover will be stent as follows: Noche de Ciencias event and general program printing \$1,301.43, Mission undergraduate Research Journal \$1,771, Noche de Ciencias facilities use related cost \$1,252. The remaining \$290 will be transferred to supplies.

BUDGET MODIFICATIONS AND EFFECTS OF BUDGET CHANGES

We moved \$33,564 to pay stipends for undergraduate research internships, which was approved by Peter Fusscas. The addition of student stipends allowed our students to participate in research internships in UCLA and Cal State, Northridge during the summer. This opened the opportunity for greater collaboration with university labs and we expect to have even more students participating in internships during Year 4.

The estimated salary for the half-time Organic Chemistry lab technician is lower than anticipated and \$5,585 will be moved from Personnel to Supplies to purchase Organic Chemistry lab supplies and mechanical pipets.

YEAR 4 CHANGES BUDGET CHANGES THAT REQUIRE APPROVAL FROM CONTRACTUAL to PERSONNEL.

We would like to move \$30,000 from Contractual to Personnel to fund the mentoring and career advisement program.

FROM PERSONNEL AND OTHER TO EQUIPMENT AND SUPPLIES

The original proposal only included equipment for the Computer Science Remodel. As we implement the new courses, we realized that we'll need additional lab equipment.

We would like to move \$20,000 for EQUIPMENT AND SUPPLIES from PERSONNEL \$10,000 (faculty release) and OTHER \$10,000 (printing). The funds will be used to purchase additional mechanical pipets, and an on-demand hydrogen generating device that will eliminate the need of storing hydrogen tanks.

Section C: Additional Information

The STEM program has developed an intricate outreach/inreach/retention service that continuously changes to increase STEM awareness, participation, and success. The newest initiative we have started involves the outreach component and focusses on high school students parents. We are testing our ability to reach potential STEM students' parents and guide them through the current and potential complications and rewards that students can achieve through a STEM academic path. Ideally, this will create a supportive home environment and allow more first generation and low income students to pursue STEM careers.

The STEM program is furthering the STEM student service synergistic pathway (counseling, mentoring, and career advising) and we expect to complete the initial phase of the pathway in year 4 of the grant. When the pathway is complete then all incoming STEM program applicants will see the counselor who then will decide the order (based on academic progress) to visit the mentor and career advisor. We are discussing designing a student service awareness boot camp that would be required by all incoming STEM program students to attend.

The STEM program is continuing to promote the use of technology throughout the STEM curriculum and student services. The STEM program in collaboration with Math and Science faculty have decided to discontinue some program licenses such as Mathematica and Eureka because of a lack of use. The STEM program did implement an extensive easy to use online tutoring, counseling, mentoring, and career advising system. Additionally, we are developing a video producing lab that would allow for STEM faculty and staff to make supplemental videos for lectures, laboratories, and student service needs.

Lastly, we are in the process of finding a new external evaluator. We believe at this point in our program a more extensive external evaluation would be very productive and we are in the process of identifying an evaluator that will proactively give advice about our personal, services, projects and the overall program. We are looking for an evaluator that will come to the LAMC campus to evaluate facilities and gather information about our efforts with outside entities such as our outreach high schools, along with SHPE and YPI who we collaborate with for our Noches de Ciencias event among other events. We are excited to discuss our success with this project in the APR of year 4.

