

REPORT 2019 April Cycle

GENERAL INFORMATION			
Organization Information			
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REPORT INFORMATION			
Report Funding Cycle: 2019 April Cycle		Report Date: 09/03/2019 12:00 am	
1: Please include in your report the dollar amount of the funds that were awarded, the date they were funded and what the funds supported.			
Awarded Amount: 20,000		Date: 04/16/2019	
2: Were the objectives cited in your original proposal met? Please address each started objective and how it was met.			
<p>The goal of the GEMS program is to increase the number of women, especially under-served minorities, who enter into STEM fields, particularly Engineering and Computer Science. This goal is accomplished through the design and implementation of a free high-quality and high-impact STEM summer camp where middle and high school girls learn about STEM study and careers through guest lecturers, innovative group activities, and research projects. The stated objectives of this program were the following - Objective 1: A minimum of 104 middle school girls will participate as mimiGEMS over the four camp sessions for a total of 320 instructional hours; Objective 2: A total of 58 high school girls will attend as megaGEMS for a total of 400 instructional hours.</p> <p>During Summer 2019, GEMS camps were held between June 3 to August 2. Five miniGEMS two-week camp sessions and two megaGEMS two-week camp session were held, along with one six-week megaGEMS Summer Research Camp. A total of 150 middle school girls and 60 high school girls attended the camps sessions for a total of 800 instructional hours.</p>			
3: Please explain any changes from the original proposal and the circumstances that lead to the modification of the objective.			

There were no changes to the objectives stated in the original proposal for the period of performance between May 2019 to May 2020. The GEMS program was able to host all planned camps prior to the UIW campus -wide pause due to the pandemic.

4: What needs were addressed?

More than 4 out of 5 engineering majors in US universities are men. Additionally, over the past 30 years, the number of women completing engineering and technology programs has actually declined, the statistics being worse for underrepresented minorities. This trend is reflected at UIW. Even though 60% of UIW students are female, women comprise less than a quarter of engineering students. There have been numerous studies in STEM education that emphasize the importance of teaching and learning science starting in middle school. By having an early exposure to the fundamental aspects of science at the elementary or middle school levels, students and their parents can make an informed decision about the importance of pursuing a university education in STEM, especially engineering. Additionally, Texas House Bill 5 made changes to high school graduation requirements. One aspect of the law now requires an eighth grader to accept one of five categories of career-related courses, one of which is STEM, prior to high school. A consequence is that career conversations that used to occur in high school must now take place in middle school. Middle school teachers are effectively tasked with being knowledgeable advocates about STEM careers and college curriculum requirements. However, middle school teachers often do not understand various STEM disciplines.

5: What method of evaluation did you use to monitor and measure the project's outcome and what are the result?

The evaluation process collected quantitative and qualitative data from June 3 to Aug 2. This process combined quantitative survey data analysis and qualitative interview data analysis and Institutional Review Board approval was required to conduct this assessment. The assessment was ongoing throughout each 10-day camp sessions. Pre- and Post-assessment surveys were performed for the five miniGEMS Camps, two megaGEMS Camps, and the megaGEMS Research Camp. The pre-survey for was completed as part of the application process. All applications were received prior to June 3, 2019. The post-survey was conducted on the last day of each camp. The descriptive statistics of the survey represents the mean for each survey question. A paired t-test was used to exam the statistical differences between pre-survey and post-survey scores. The data for the survey was collected on the first day of each camp (Pre) and the last day of each camp (Post). Comparing the pre- and post-survey results, students' interests increased in the fields of engineering, energy, medical science, computer science, earth science, mathematics, and physics. There was a statistically significant difference in the increased interest in the fields of engineering, computer science, and mathematics based on the post-surveys. Additionally, students showed an increased interest in STEM careers and attending a 4-year University in a STEM major based on the information sessions discussing STEM careers and applying to a university.

6: Do you plan to continue this project, and if so, how do you plan to sustain it?

UIW plans to continue this project. In 2020, the GEMS camps were cancelled due to the spread of the coronavirus globally. However, UIW plans to host the GEMS camps in Summer 2021 and has received a \$100,000 grant from the Texas Workforce Commission to that end. In addition, funds are being sought from H-E-B and other funders are being explored. The final decision to carry out the program will be made by UIW leadership and based on national and local health data regarding the health pandemic. In addition, UIW leadership is currently exploring pursuing a major multi-year gift or endowment funding to support a sufficient fraction of the project budget to ensure that the project director is able to continue this high quality program each summer. Funding consistency will allow the project director to forecast how to implement the program and to maintain program quality along with its commitment to results. Despite these efforts, however, the reality is that external grant funds will likely continue to be required and we will continue to cultivate donors to be able to carryout this important and high-impact project that seeks to expand the number low income and underrepresented women in professional STEM fields in San Antonio.

7: Please provide any other comments ot information relevant to this grant.

GEMS has a goal of engaging more young females in the fields of STEM and during the past three years GEMS has been very successful. GEMS hosted the largest number of camps during Summer 2019 and had the largest summer attendance. Additionally, for Summer 2019, a new high school camp was added. During Fall 2019 and Spring 2020, three new FIRST Lego teams were hosted and supported. Finally, during Spring 2020, GEMS hosted the first miniGEMS Spring Break camp directly on the campus of Barkley-Ruiz Elementary in early March.

In addition, we would like to apologize for not using the totality of the funds that were generously awarded by the Najim Family Foundation. Najim funds were not completely spent due to an unsolicited and significant gift from HEB, which was specified to be used on food costs for the student participants. In addition, transportation costs were lower than what was expected and, thus, most of those costs were able to be covered by another grant. The GEMS program also has a school-based academic year component to continuously engage the girls at their home campus during the school year to maintain their interest in STEM and we thought we would be able to ask the Najim Family Foundation to use the funds on snacks during the GEMS after school program. However, COVID stopped us from being able to finish that work in Spring 2020.

8: Please provide an updated detailed projected budget with expenses for the received grant. Also include the totals for the budgeted and actual amount. Explain any discrepancies between the budgeted and the actual expenses for the project.

Line Item Description	Total Project Funds Allocation	Najim Requested Funds	Project Funds Actual	Najim Funds Allocation
Personnel Salary/Wages	\$135,227	\$0	\$0	\$0
Supplies, T-Shirts, Awards and Certificates	\$11,200	\$6,000	\$0	\$0
Geekbus and Lab Resources	\$9,900	\$0	\$0	\$0
Food Costs	\$18,000	\$14,400	\$4101.17	\$14,000
Shuttle Costs	\$12,000	\$4,000	\$762.33	\$6,000
Laptop Rentals and Printing	\$1,600	\$0	\$0	\$0
Middle School and High School STEM Teachers	\$53,715	\$26,858	\$0	\$0
AV Rental for Banquet	\$800	\$0	\$0	\$0
GEMS End of Summer Banquet	\$7,000	\$0	\$0	\$0
miniGEMS and megaGEMS Clubs Fall 2019	\$6,000	\$6,000	\$0	\$0
Geekbus for megaGEMS	\$6,400	\$0	\$0	\$0
Awards and Certificates for megaGEMS	\$1,000	\$0	\$0	\$0
GEMS Kitchen	\$1,000	\$1,000	\$0	\$0

UIW Indirect	\$13,658	\$0	\$0	\$0
TOTAL:	\$277,500	\$58,258	\$4,864	\$20,000
Signature				
Dr. Michael T. Frye, Professor and Chair of Engineering and GEMS Project Director				