

NSF Aspire to Succeed STEM Scholars Program – 2016-17 Report to the University of Saint Mary

In July 2014, the University of Saint Mary was awarded a \$616, 402 NSF grant designed to mentor US students through their STEM (Science, Technology, Engineering, Mathematics) undergraduate program and go onto enter into a STEM graduate program or a STEM career.

With that goal of mentoring the students through their undergraduate program and preparing them for a STEM graduate program or STEM career, the following programming features are mandatory for the students receiving scholarships.

- Meeting with the PI every two weeks
- Meeting with the PI and Co-PIs, collectively, every two weeks
- Being housed together in one FYE section
- Having a STEM service learning site assigned to them in their FYE
- A monthly STEM focused Lunchtime Lecture
- A field trip every semester
- Two conferences during their undergraduate studies (sophomore and senior years)
- An annual Science and Mathematics Undergraduate Research Forum held at USM

Additionally, the following programming features are available but not mandatory:

- Peer led review sessions before exams in science and mathematics classes
- Science night / Mathematics lounge / tutoring via the ARC
- GRE preparation course if graduate school is desired
- Faculty supervised research opportunities
- Internships

We recruited our first cohort of 7 students who began taking classes with us in Fall 2015. They were Terron Briggs, Don Berger, Melody Klein, Mary Perez, Layne Powell, Juan Tirado-Garcia and Eric Santa-Cruz. Terron Briggs left USM in Dec 2015 and was replaced in the program by Abby Logan.

We recruited our second cohort of 6 students who began taking classes with us in Fall 2016. They were Andrew Francis, Noah Gamboa, Shannon Greene, Bradyn Kemper, Rachel Porter and Phillip Woolsey. Shannon Greene left USM in Dec 2016. Additionally, Eric Santa Cruz changed his major to theatre in Dec 2016. Thereafter, three more STEM Scholars were recruited to the program in January 2017 – Lydia Paterson, Rachel Tindell and Brittany White-Dold.

During Fall 2016, we held a kick off social event, a field trip to Science City, Union Station, three Lunchtime Lectures and an end of semester wrap up lunch.

During Spring 2017, we held a kick off social event, two Lunchtime Lectures and an end of semester wrap up lunch / watching of *Hidden Figures*. Four students also attended a conference, the Kansas Academy of Science Annual Meeting, in the Spring 2017 semester. Finally, the Science and Mathematics Undergraduate Research Forum was held in April 2017.

Students are asked to evaluate every programming feature of the STEM program on a 1-4 scale with 1 being very dissatisfied and 4 being very satisfied. Table 1 shows the mean satisfaction scores from the second year of the Aspire to Succeed program.

Table 1: Mean STEM Scholar satisfaction scores for programming features

Programming feature	Satisfaction score (1-4; 4 being very satisfied)
Cohort component	3.60
Service learning in FYE (3 sites)	4.00; 2.00; 2.00
Peer led review sessions, Fall 2016	3.63
Peer led review sessions, Spring 2017	3.89
5 Lunchtime Lectures	3.64; 3.73; 3.27; 3.64; 3.45
Science City, Union Station field trip	3.50
<i>Watching Hidden Figures</i>	3.67
Science and Mathematics Undergraduate Research Forum	3.47
STEM conference	3.75
Advising / Mentoring from PI	3.83

Moving forward, from those results, the following are short term improvement goals of the STEM Management Team:

- To be even more proactive in checking in with the STEM Scholars and their instructors every two weeks
- To hold STEM Advisory Board meetings

In order to continue their scholarship,

- Scholars must maintain a cumulative and major GPA of 3.00.
- Scholars must remain on track to graduate in four years, as outlined in their degree-specific Four-Year Plan.
- Scholars must demonstrate continued interest in pursuing STEM careers and/or graduate programs, as determined by participation in STEM-related activities and discussions with the PI or Co PIs during mentoring and advising sessions.

Therefore, the PI is working closely with STEM Scholars in order to have them stay on track and maintain their scholarship.

The STEM Management Team consists of the following personnel:

- Caroline Mackintosh, PI
- Dan Williams, Co-PI

- Rick Silvey, Co-PI
- Masa Watanabe, Co-PI
- Todd Moore, Steve Herndon, Joseph Shih, Kathleen DeKrey, Hannah Colmer
- Kelly Stark, Kay Kolb
- John Shultz et al
- Veronica Donovan

Please contact Caroline Mackintosh, mackintoshc@stmary.edu with any questions about our STEM Scholars program.