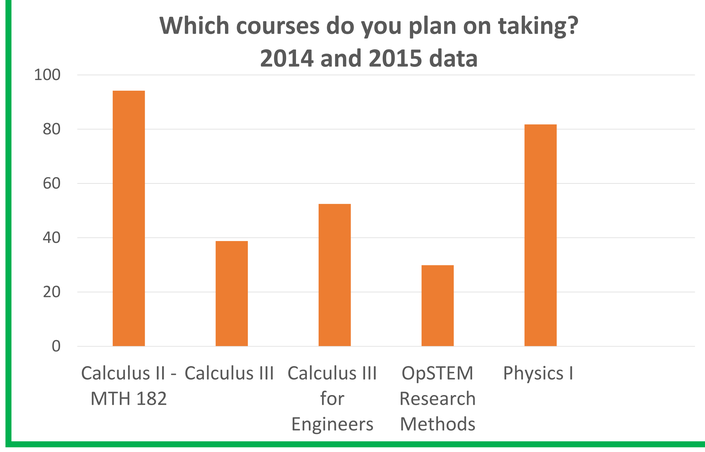
OpSTEM in the Classroom

Dr. Susan Carver, Madison Spahlinger, and Marcus Lard

Introduction:

Calculus can be a difficult course for students. Operation STEM aims to provide support for students from pre-Calculus I through Calculus II. This support includes STEM Peer Teachers (SPT's) who lead engaged, required supplemental learning sessions that are built into students'' schedules. The purpose of this study was to see the effect Operation STEM has on the students learning process and success. Our primary goal is to increase the pass rate for Calculus courses and provide support for STEM students throughout their college career.

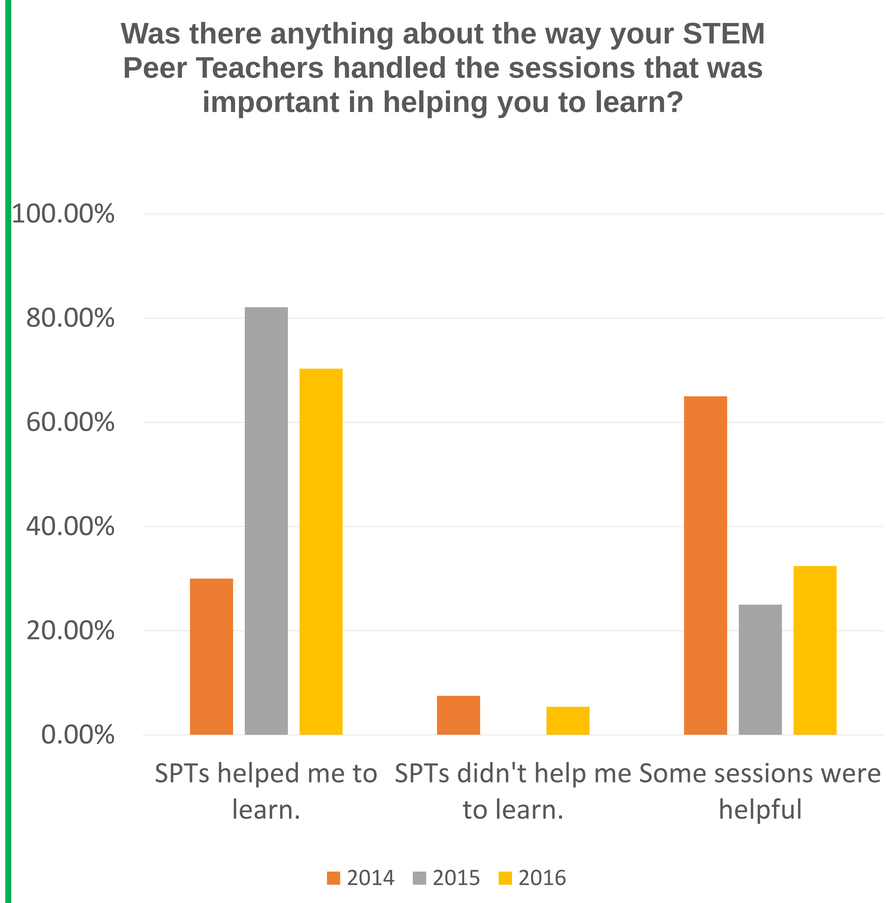


Methods:

Students taking the Calculus I course complete surveys. The information provided by the students in the summers of 2014, 2015, 2016 and their grade in the course allowed us to analyze the effect Operation STEM was having on the students success rate.

We must keep in mind that there could be other factors contributing to the success of the students between semesters. To control for this, we focused on the intense, 6-8 week summer course.

Results



	2014	2015	2016
Number of Students	44	30	38
Withdrawals	0	2	0
Students that passed	37	25	34
Pass Rate for the class	60%	83%	89%

*Note students had to achieve a score of 70% or greater to pass the course in both semesters

Discussion:

The student response and pass rate in 2014 allowed for Operation STEM to reflect and adjust. The survey showed that many students felt the sessions were disorganized. To combat that, a new system was put in place to hold STEM Peer Teachers more accountable that continued through 2016.

The student response increased dramatically from 2014 to 2015. The success of the SPT sessions led helped to increase the pass rate for the 2015 semester. The more students are engaged in their learning and utilize the SPT's to the best of their abilities, the better they will understand the material.

STEM Peer Teachers provide students with alternative methods, additional practice, practical applications. Through group work, students are able to explore the content in more detail. This method works to increase student understanding, and their grade in the course.

Future Direction:

In the future, Operation STEM will continue to improve its tactics and provide support to STEM students at Cleveland State University. We would like to see the program expand its resources to other courses that have shown to be challenging as well.

Having the tutoring sessions built into the students' schedules allows for optimal attendance. We would like to see this option available for other difficult courses such as biology and chemistry as well and compare it to the current tutoring programs.