



STEM Center **Report**

Phi Theta Kappa
ALPHA OMEGA ALPHA

Introduction

Phi Theta Kappa is an international honors society for community college students. Every year each chapter participates in a service project on their campus as an opportunity to engage and give back to the student body. We were excited by the opportunity to provide student feedback to the administrators about the planned STEM center on campus. Our officers span a wide variety of majors from computer science to biology to graphic design to engineering, and as such we recognize what an excellent resource this center has the potential to be for future students. In order to be able to give an informed recommendation to administration, we decided to find out how already established STEM centers were run before approaching Mt. SAC's student body. We visited two community college campuses with already established STEM centers and interviewed the staff about their successes and challenges. Next we used that information to create a survey we distributed to students on our campus to discover what they were most interested in having in a STEM center.

STEM Center Survey Results

- **Method**

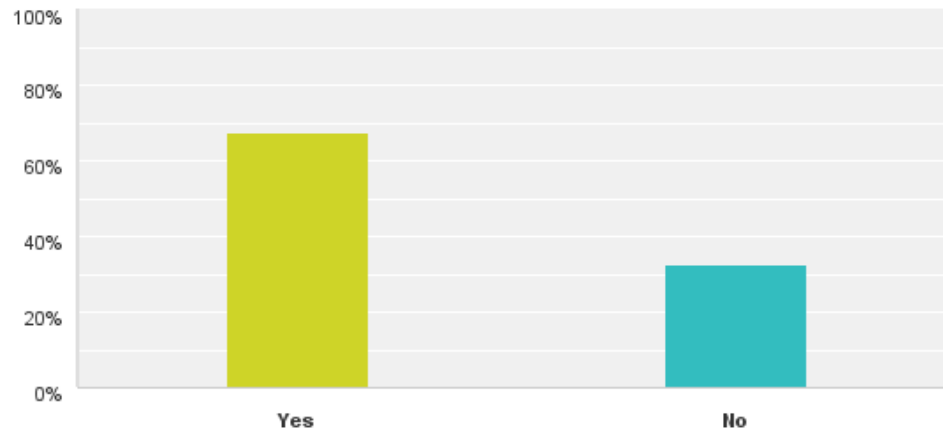
- Used Survey Monkey
- Created 10 focused questions
- Sent out to:
 - Honors Students via email by Sue Ceja
 - Emailed the link to all the clubs on campus (Natural Science department, Caduceus Club, Math and Engineering Club, etc.),
 - Shared on the PTK Facebook page
 - Online school newspaper

- **Results**

- 84 responses

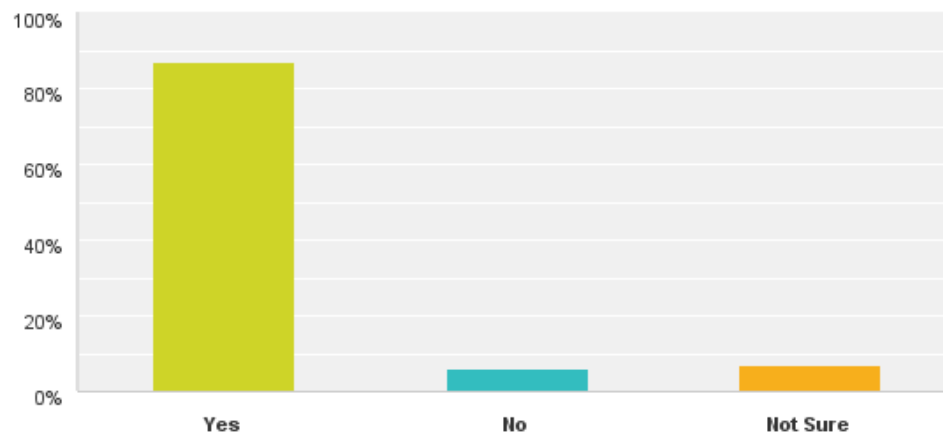
Q1 Are you a STEM (science, technology, engineering, math) major?

Answered: 86 Skipped: 0



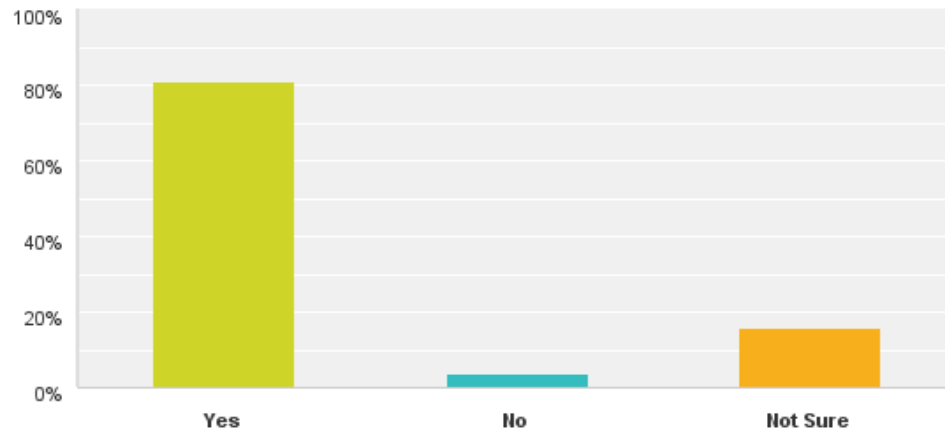
Q2 Do you plan on transferring to a four year university?

Answered: 85 Skipped: 1



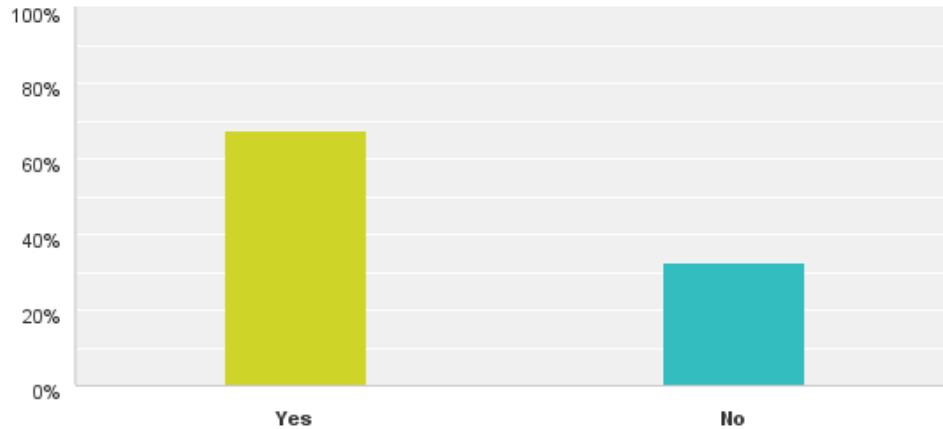
Q3 Do you feel that you would benefit from a STEM help center on campus?

Answered: 83 Skipped: 3



Q4 Have you ever used a tutoring service on campus?

Answered: 83 Skipped: 3

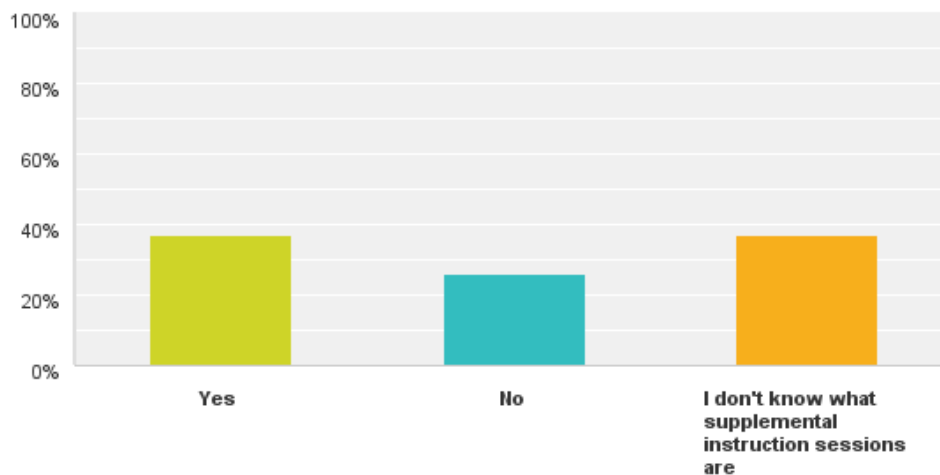


Student individual response examples (asked for at bottom of question, 44 total)

- Yes it's helpful to a point, I think some students should be in a close room because like me as example sometime I feel dumb to ask questions around people, but when I'm in a room my mind is not thinking about what people think.
- Yes, there are students that have the same teachers that I do. They help me understand the topics or ideas that the teachers present in class that I don't understand, but they do.
- Not really, because they do not know how the professors want it done. They only know how to teach it their way.
- I usually have tutor on grammar in English class and it helps me a lot. However, one time I have question in physic class, I met two tutor there but they could not help me to solve that problem.
- Didn't know that it was available
- Yes, personally, I need to sit down with a tutor and go over that week's material to truly learn. Class goes too fast for me to process the information.

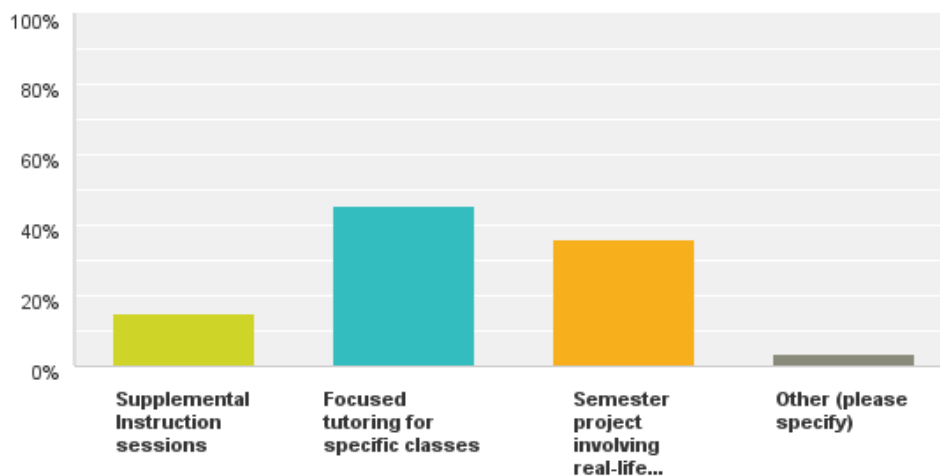
Q5 Have you ever participated in Supplemental Instruction sessions?

Answered: 81 Skipped: 5



Q6 What possible STEM center resources do you feel would benefit you the most?

Answered: 81 Skipped: 5

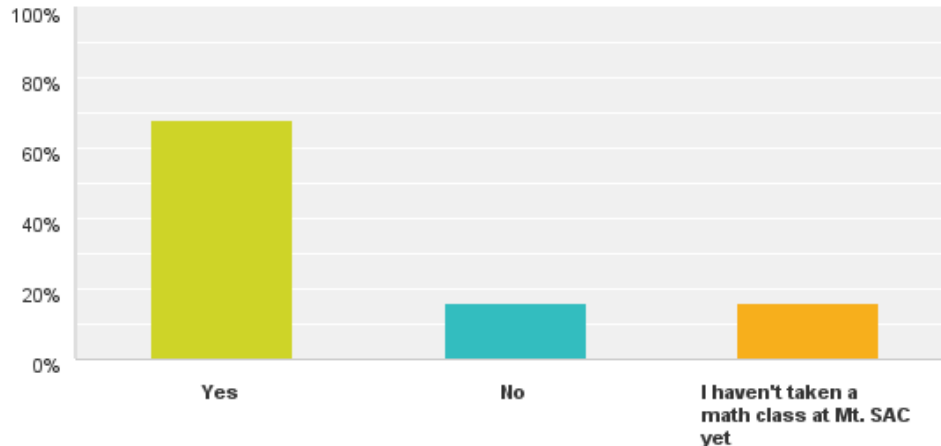


Other Responses:

- all three above
- Hands on experience building robots in a competitive environment
- all of the above

Q7 Do you use the MARC on campus when you are taking a math class?

Answered: 81 Skipped: 5

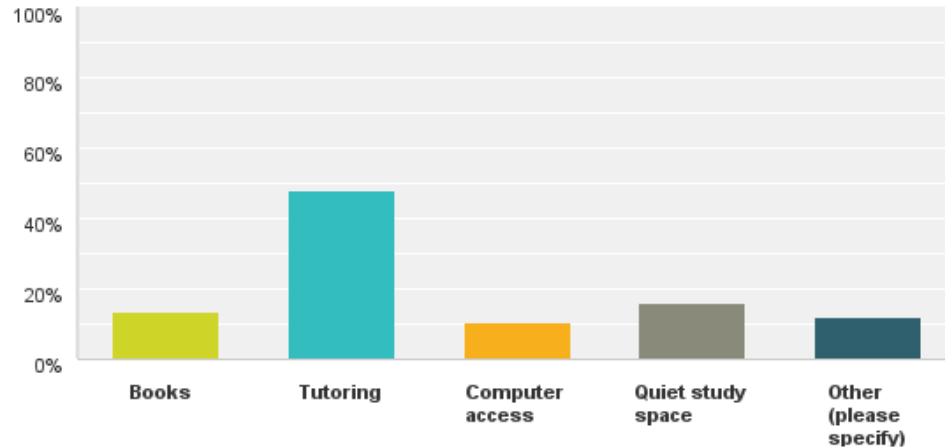


Student Individual Response Examples (17 total):

- When I took calculus class, I came there to get help in maple project, they are really good to explain problem and helped me a lot
- didn't know they were available.
- It's a great place to get help whenever we're stuck in a math problem. All the tutors are really good in explaining the concepts.
- Mainly because I can use the books there without having to buy my own. Also, it makes a good environment for studying, and the tutors are very helpful
- Yes, I use it mainly because they have the most math tutors to assist me. Also I must do my required hours for my math class.
- It's wonderful are you kidding me? You can use the textbooks and do your homework and all the tutors are right there and people are there to shut up and do math i love it
- For lab projects
- Too shy

Q8 What do you feel is the most helpful resource offered at the MARC?

Answered: 75 Skipped: 11

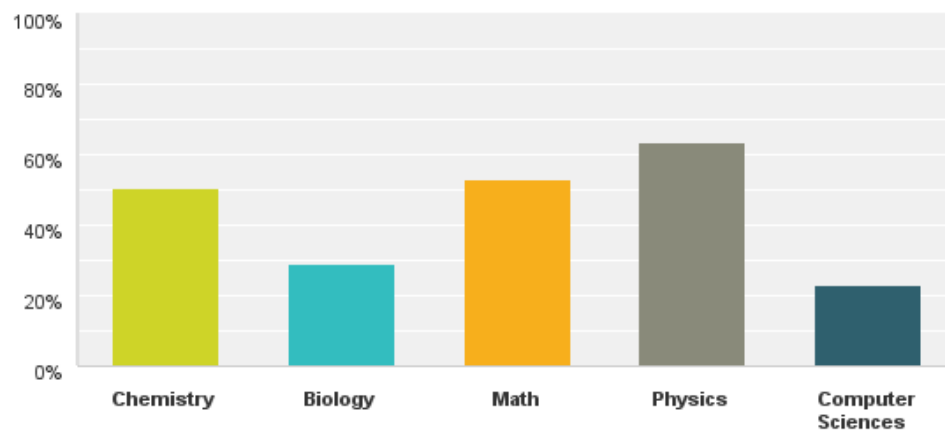


Other Responses:

- never used
- All of the options above are the most helpful resources in the MARC and TMARC
- Calculator

Q9 What subjects are most challenging for you? (Choose all that apply)

Answered: 79 Skipped: 7



Answers to Question “Have you ever taken a class that made you rethink your major? What was it and why?” (19 total, 8 examples shown)

- My Math 160 class has made me rethink my major of going into BioChemistry because of all the intense math and science classes I have to take. I don't think that I'm smart or willing enough to get through the classes with a B or better.
- Yes, General Chemistry class there was a lot of unnecessary work and professor was so strict and take off a lot of points and no tutors to help improve in the subject. Professor asked to purchase mastering chemistry and made it mandatory which was very expensive and a waste of time with little benefit.
- Bio 2- plant and animal bio! I thought, 'maybe i'm not cut out to be a scientific person
- No
- I used to love chemistry, until I took Chem 51. That class is really hard. I struggled throughout the semester because the concepts were very hard to understand. I tried to go get some tutoring at the tutorial services center, but there was a lot of students there that needed help and there was only one tutor for Chem 51 and the other chemistry classes, so he didn't have much time to patiently explain the material until I understood it. I really wish we had an SI for that class.
- Math 181 and Physics 4A. Those classes require a great amount of comprehension, time and even then the results can be discouraging. These classes made me second guess my engineering major, making me feel incompetent. I especially wished there was a physics tutoring center similar to the Tmark so I would be able to ask questions on homework problems.
- I considered changing my major to philosophy or literature when I took critical writing philosophy. I have also taken two literature courses over the span of two semesters. I enjoyed taking classes pertaining to the humanities.
- yes, it was math that made me switch from medicine to nursing. I was not doing well at first so I thought that would not make me a good doctor.

Question 10, Additional Comments:

- We need better math tutors.
- Science subjects are very interesting, but the work required is way more than the credit units of the class, with little help offered by professors and tutors if any. Need supplemental materials and books available at STEM centers.
- I think SI section is really helpful that help me understand more lessons in class and prepare better for exams.
- more info needs to be made public about this program
- I think that there should be more tutors as well as SIs for every science course, since they tend to be very challenging for most students. Tutors and SIs really make a difference in the grades of those students who attend the sessions.
- I only ask that this center provided more resources for these fields of study, but also more study areas for students. Depending on the location it would be greatly appreciated if this center had many more study rooms or areas for us students. We mainly need more study rooms, tables, and plug outlets for our educational needs. If you can provide these basic resources, you would be greatly assisting all Mt. SAC students. Also depending on the location, it would also be appreciated if there was another food place (NOT like the W.O.W. Cafe) or coffee shop (specifically like Prime Stop). You can never have enough food places on campus.
- This center should be big enough to offer students not just tutoring for specific courses but also mentoring specific to the field they are interested in.
- I highly recommend SI sessions for STEM students. I used to be an SI instructor for organic chemistry and cell biology and found the students significantly benefited from it when compared to students who did not attend SI sessions. Most students who participated in SI sessions credit their SI sessions and instructors for passing their courses successfully.
- It would just be amazing to have a place with textbooks and quietness to get work done.
- I would definitely like to see projects being done for STEM majors
- I think the STEM center's computers could use software needed for students to complete their courses. For example, certain engineering software programs for students who cannot afford the software to complete their homework.
- I think the STEM Center is an awesome concept!

Conclusion

Students who utilize the MARC and TMARC are generally happy with the resources available to them, and many students would like to see similar resources available in a STEM center. Many responders listed tutors or SI sessions as a desired resource, so we would recommend expanding these programs in the new STEM center.

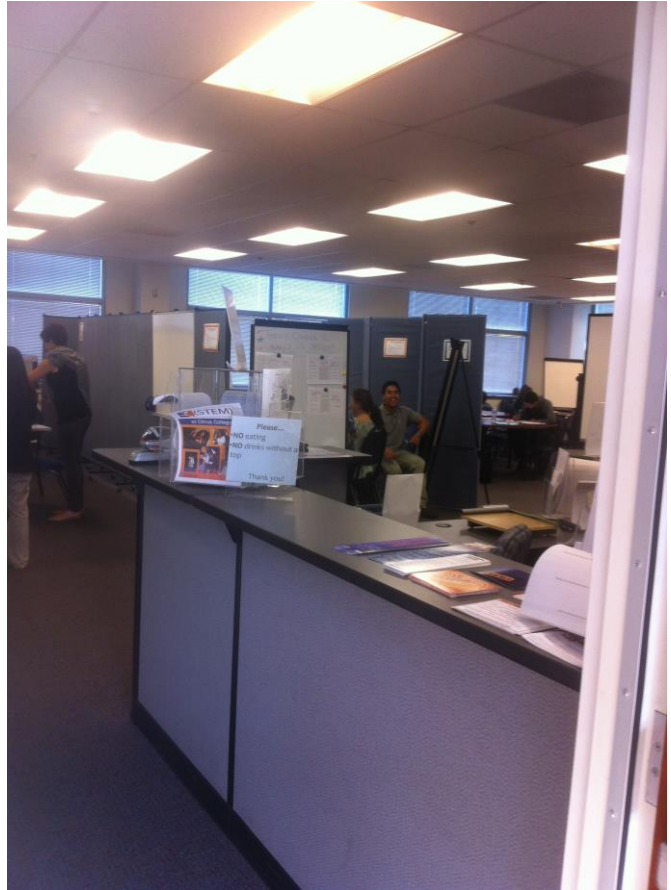
Campus Visits

The following table is a comparison between Citrus College and El Camino College's established STEM centers. We placed them side by side to compare because while the centers themselves are both very successful in their own right, they are both completely different in operation and allocation of resources.

	Citrus	El Camino
Accessibility	<ul style="list-style-type: none">• Open to everyone• Computer science not supported	<ul style="list-style-type: none">• Restricted to STEM majors• Requires membership<ul style="list-style-type: none">○ Can more effectively serve students○ Provides sense of community○ Students feel more responsible to care for the resources available
Interior	<ul style="list-style-type: none">• Smaller space/more crowded• Similar square footage to Mt. SAC'S proposed center• Divided with partitions• No food or drinks	<ul style="list-style-type: none">• Very large, well laid out space• 4 small closed study rooms• 1 large multipurpose hall that could be divided into multiple rooms• 21 state of the art computers• Patio where students can eat or drink• Aesthetically pleasing• Space not optimized
Staff	<ul style="list-style-type: none">• Normally has 5 part time STEM specific counselors, down to three currently• Usually by appointment• Math center collaborates with STEM center for tutoring and resources	<ul style="list-style-type: none">• 2 STEM advisors• 2 STEM counselors• 15 paid tutors

Primary Resources	<ul style="list-style-type: none"> • SI sessions <ul style="list-style-type: none"> ○ For basic science classes ○ Has a lot of publicity on campus ○ SI leaders are paid ○ Use UKMC's SI model • Facilitated Study Groups <ul style="list-style-type: none"> ○ A group of students reserve time with a group leader to study together-more informal than SI 	<ul style="list-style-type: none"> • Tutoring <ul style="list-style-type: none"> ○ For a variety of subjects including computer science • Sense of community and camaraderie • Close-knit support system
How They Allocate Resources	<ul style="list-style-type: none"> • Use average grade data from previous classes to determine what classes to offer SI sessions in 	<ul style="list-style-type: none"> • Program director (also founder of center) maintains ongoing relationship with each student who uses center and determines needs of students from his conversations with them
Center Hours	<ul style="list-style-type: none"> • Mon-Thurs 8am-8pm 	<ul style="list-style-type: none"> • Mon-Thurs 8am-6:15 pm • Fri 8am-4:45pm • Sun 11 am-6:30pm

Citrus College STEM center



Pros

- SI sessions clearly well utilized, making an impact for grades in classes they are offered for
- Available for everyone, inclusive

Cons

- Small, cramped space can get chaotic with all the sessions going on at once
- Space not well planned out

El Camino STEM Center



Pros

- Beautiful interior
- Sense of community with other students; like a club

Cons

- Not as many people can use the center; no non-STEM major support
- Space could be used more efficiently; serves the same number of people daily as Citrus with four times the space as Citrus

Conclusion

Based on our student survey, there is strong interest in building a STEM center on campus, with 80% of students stating that they would benefit if one were built. From our own observations in other STEM centers, and the results from our survey, we believe the campus will be best served with an all-inclusive STEM center that offers help and resources to both STEM major and non-STEM major students. 45% of students felt they would benefit most from focused tutoring for specific subjects, and 49% of students felt that tutoring was the most beneficial resource currently offered at the MARC. A full 36% of students surveyed did not know what SI sessions were, leading us to believe they are not well advertised or utilized on campus. Due to this feedback, we feel the student body is most interested in seeing a STEM center that offers an expansion of tutoring programs for STEM classes, and that an expansion of SI sessions would greatly benefit all students on campus as well.

We think it would be best to create a STEM center more closely based on Citrus's STEM center. One reason is that the space at Mt. SAC that is being considered (on the 3rd floor of the Math building) is roughly the same size. Citrus's STEM center is also all-inclusive and serves about the same number of students as El Camino's much larger, but restricted access, facility. We also believe the student body would be best served by investing in more people such as tutors, counselors, and SI session leaders, as opposed to state-of-the-art technology. In general, while high-tech equipment looks nice, it won't provide as much help to students as knowledgeable staff will.