



Student Services Program Review

Program: (STEM)²

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Part 1. Program Mission Statement

College Mission Statement

Cypress College transforms lives through lifelong learning with educational opportunities including transfer to four-year institutions, associate degrees, certificates, and a baccalaureate degree. We are dedicated to forging academic and career pathways to support the achievement of our students, enhancing their economic mobility, fostering equity, and enriching society.

Department Mission Statement

The (STEM)² Program at Cypress College is dedicated to increasing the number of STEM students transferring to four-year institutions through targeted interventions, leadership development, and hands-on experiences. Our program aims to inform students about science studies and diverse career options while supporting their success in our science programs and preparing them for university transfer. The mission is to boost community college STEM transfers and increase the attainment of STEM baccalaureate degrees.

A. How does it align with Cypress College's mission?

Aligned with the college's mission, our mission statement is committed to empowering students by providing essential resources to achieve their academic and professional aspirations. The (STEM)² Program serves as a key academic pathway, building a supportive community that guides students along their educational and career trajectories. We are committed to ensuring our students not only meet their educational objectives but also gain competitive, hands-on experience that enriches their time at Cypress College and prepares them for success in the professional world.

Part 2. Program Overview

A. Briefly describe your program, including program components, function, and purpose.

The (STEM)² Program is dedicated to providing support services to students whose goals are to major in a STEM discipline and transfer to a four-year university. The program's components include attending a mandatory orientation each semester, academic counseling, attending workshops, a personal investment event, LinkedIn profile and applying to an undergraduate research, internship or scholarship opportunity. The function of the program components are to assist in increasing persistence, retention and success rates



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for STEM students. With this comprehensive approach, students pursuing a STEM degree, have an opportunity to be part of a community, experience a sense of belonging and be exposed to opportunities outside of the classroom.

The STEM team consists of a director, administrative assistant, special projects coordinator (50%), two adjunct counselors, 3 peer mentors and 7 outreach ambassadors. The director is responsible for overseeing the program and also serves as the principal investigator for three STEM grants (MESA, Project RAISE, NASA and CIC PCUBED). The program coordinator assists with our in reach efforts, coordination of STEM based workshops and key staple events such as our bi-semester orientations, annual Fall Research Symposium and undergraduate research opportunities. Our two adjunct counselors are responsible for meeting with all STEM scholars at least once per semester to create their education plans through tailored guidance on course selection, degree requirements, and academic strategies. Counselors also host Group Counseling which targets students who will be applying for transfer. During 45-minute sessions, STEM counselors also review program requirements and address any questions related to undergraduate research and additional opportunities. The peer mentors serve as a resource, a helping, and as a sounding board for our current and prospective STEM students. They provide additional support, encouragement and provide their expertise as Cypress College STEM majors. A few examples include interacting with STEM scholars during the orientations, workshops and program activities. Other responsibilities include representing the program at events such as Charger Fridays, Connect2Cypress and Kindercaminata.

B. Describe you your program interacts or collaborates with other on and off campus programs.

- We collaborate with SEM faculty for our annual Faculty/Student mixer, STEM orientations, NASA Aerospace Scholars Program and Noche de Ciencias event.
- We collaborate with our Charger Experience program for Charger Fridays and participate in Connect2Cypress.
- Over the years we have worked closely with the Career & Planning Center to orchestrate STEM specific workshops including assisting STEM scholars with creating their LinkedIn accounts. In addition, the Career & Planning Center has been instrumental in preparing our NASA Community College Aerospace Scholars Program participants for the robotics competition we have through the NASA on Campus grant.
- We have collaborated with the Legacy program to conduct in-class presentations to promote STEM amongst our African American/Black students at Cypress College and currently working towards collaborating to provide information sessions to learn about our STEM programs and host a Blacks in STEM event in early spring 2025.
- In fall 2023, we had the pleasure to collaborate with the Asian American Pacific-Islander Desi American (ARC Center) to celebrate AAPI History Month. This provided an opportunity to build connections with our APIDA in STEM community.
- We currently collaborate with the NASA Community College Aerospace Scholar program (NCAS) which is designed to increase diversity and inclusion in science, technology, engineering, and mathematics. This program engages students in NASA missions and research through blended learning experiences of online research and activities with NASA-affiliated research labs, industry partners and NASA internships. Cypress College students who successfully complete the five-week online course are invited to a four-day, on-

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campus engineering design and robotics competition. The competition offers first and second-year students a hands-on, collaborative engineering experience early in their college careers and further connects students with NASA content and experts in the STEM field.

- We collaborate with Cal Poly Pomona to provide undergraduate research opportunities to our scholars. This partnership is designed to foster a supportive environment for emerging scholars, particularly focusing on empowering Latinx, low-income, and minoritized students through early involvement in research. This partnership provides ten research positions in year one and then moving to five summer research positions annually thereafter. These positions come with a stipend of 4,000 per students. This partnership will span five years, from 2024-2029.
- We collaborate with Chapman University for the University for the Summer Undergraduate Research Fellowship in Earth and Environmental Sciences (SURFEES). Through this eight-week research project, two STEM students are provided with the opportunity to engage in faculty-mentored research projects in biology, chemistry, food science, and geoscience and are also able to join active scientific research labs. The project includes on-campus housing, professional development seminars, social bonding activities, and end-of-summer research showcase for SURFEES fellows. Upon completion of the research projects, students receive a stipend in the amount of \$4,800.
- Since 2012, we've had a long-standing partnership with UC Irvine's Undergraduate Student Initiative for Biomedical Research (USIBR). The yearly two-week summer program is focused on imaging systems, hosts students at UCI where they engage in cutting-edge technology, faculty lectures, and hypothesis-driven mini research projects.
- We collaborate with CSU Fullerton for the Project RAISER (Regional Alliance in STEM Education Refined) grant. Project RAISER proposes a variety of services and project components to increase the number of Hispanic and low-income STEM students and increase persistence, retention, and graduation rates among participants. Through this collaboration, we host CSU Fullerton staff members to conduct workshops on topics related to STEM Careers, Undergraduate Research, and STEM transfer student success. In addition, CSU Fullerton selects 4 to 5 STEM students to participate in an eight-week undergraduate research experience and receive a stipend of \$5,000 each.
- We collaborate with CSU Fullerton for the Center for Inclusive Computing Project (CIC PCUBED) to increase the percentage of women enrolling and graduating in Computer Science at CSU Fullerton.
- We collaborate with the Office of Communications to schedule for important program messages to be sent out to prospective STEM students.
- We collaborate with the Office of Institutional Effectiveness to provide program information
- We collaborate with the Human Resources department for hiring procedures.

C. How is your program funded? Please include sources of funds such as categorical (e.g., SEA, EOPS, DSS), general, or grant.

(STEM)² is funded through general funds. All student workers are hired through SEA funds. As of July 1, 2024, our Special Projects Coordinator is funded at 50% and our Administrative Assistant is funded at 60% under STEM2's general funds.

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Position	MESA Grant	STEM2	MESA – GF	SEA
Director of Educational Partnerships		100%		
STEM/MESA Coordinator	25%	50%	25%	
STEM/MESA Admin Support	20%	60%	20%	
Two Adjunct STEM Counselors		100%		
Peer Mentors/Outreach Ambassadors				100%

Part 3. Student Satisfaction with Services

- A. Summarize the survey results for the SSPR Survey (Appendix A). Please focus on trends and address student feedback/comments.

The SSPR survey results for the (STEM)² Program at Cypress College, gathered from 50 respondents indicate generally positive feedback. Most students rated the hours of operation, staff courtesy, helpfulness, and knowledge, as well as the overall quality of service, as excellent or good. Individual counseling and undergraduate research were particularly noted as extremely helpful in achieving educational goals, while workshops, personal investment events, scholarships, and internships also received favorable ratings. Student comments highlight the program's well-organized and informative nature, the staff's genuine care, and the numerous opportunities provided. Constructive feedback included suggestions for deeper workshop content, more vegan snack options, and additional personal investment events. Demographically, the respondents were predominantly Asian (35%) and Hispanic or Latinx (31%), with a nearly equal split between male (41%) and female (55%) students. Overall, the survey reflects the (STEM)² Program's significant positive impact on students' academic and career paths, with areas for enhancement in event depth.

The (STEM)² Program received overwhelmingly positive feedback from participants, who praise it for being well-organized, informative, and transformative. Many highlight the program's role in providing opportunities they wouldn't have known about otherwise and commend the staff for their genuine care and support. While the program is lauded for its amazing impact, some suggest that workshops could offer deeper, more practical insights to better prepare students for competitive opportunities. Overall, participants are grateful for the program's guidance, crediting it with helping them stay on track, achieve significant milestones, and make valuable connections in their fields.

When asked what else the (STEM)² program can do better to support them participants generally express positive feedback about the (STEM)² Program, appreciating its supportive environment and the



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opportunities it offers. Many commend the program for doing a great job and feel that active participation yields significant benefits. There are requests for more events to accommodate different class schedules, as some students find it challenging to attend due to conflicts with their classes.

Several suggestions for improvement include offering more snacks, especially vegan options, and organizing workshops related to mechanical engineering and life after transferring. Participants also recommend extending the study center's hours for those with later classes, and increasing the number of Personal Investment events to enhance socialization opportunities. Field trips to companies are also desired to provide more practical insights and experiences. Overall, while participants are satisfied, they seek more varied and accessible opportunities within the program.

- “The (STEM)² program completely changed my life. Before I joined, I had no idea I had no idea about any of the opportunities I could reach while still in community college. I’ve achieved so many things already in just three semesters in the program. It makes me emotional sometimes because I now have made so many connections with people in my field. I’ve gotten to participate in amazing opportunities like NASA NCAS. I also found the opportunity to get into an incredible school with a full ride scholarship once I transfer. I’m just really touched by how well this program has changed me for the better.”

B. Compare these survey results with results from previous program review.

The previous program review was conducted in 2020 and it was housed under instruction. No survey was provided.

Part 4. Program Analysis and Planning

- ### A. Describe the population you serve and analyze the trends in enrollment, success, retention, etc. Consider the following questions. How many students are enrolled in your program? How do your students compare to the overall student population at Cypress College? Include other qualitative or quantitative information about your population. If necessary, contact the Office of Institutional Research and Planning to obtain data.

The STEM2 program was established in 2012 with a beginning cohort of 30 students. Since then, the program has grown immensely and on average it serves 300 students per semester. From fall 2018 to fall 2021 fall-to-spring persistence rates ranged from 85.9% to 94.7%. Spring-to-fall persistence rates were similarly high and varied from 86.2% to 93.7%. There were 617 (STEM)² program degree recipients through 2021-22 that the National Student Clearinghouse was able to track to determine transfer outcomes. The transfer rate for (STEM)² graduates was 86.9%.

Course success rates for SEM majors in the STEM2 program are higher on average than for SEM majors not in the STEM2 program (73.2% vs. 63.2%). Retention rates are also higher (87.3% vs 81.6%).

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Updated (STEM)² & SEM Grant Data Spring 2023

(STEM)² Persistence Rates by Cohort Term

- Over four years, fall-to-spring persistence rates ranged from 85.9% to 94.7%.
- Spring-to-fall persistence rates were similarly high and varied from 86.2% to 93.7%.

Persistence to next Term	<i>n</i>	%
Fall 2018	158	93.7%
Fall 2019	249	85.9%
Fall 2020	215	89.3%
Fall 2021	94	94.7%

Persistence to next Term	<i>n</i>	%
Spring 2019	167	86.2%
Spring 2020	112	91.1%
Spring 2021	75	86.7%
Spring 2022	79	93.7%

Success Rates by Ethnicity

- All (STEM)² program student groups, disaggregated by ethnicity, displayed higher success rates, when compared to non-(STEM)² program students.

Success Rates by Ethnicity: 4-year Trend	(STEM) ² Students		Non-(STEM) ² Program SEM Majors	
	<i>n</i>	%	<i>n</i>	%
Am. Indian or Alaska Native	8	100.0%	72	72.2%
Asian or PI	2,002	78.2%	6,137	70.8%
Black	162	59.9%	711	52.5%
Latinx/Hispanic	1,660	66.3%	7,576	56.8%
White	586	76.6%	3,055	64.4%
Not Reported	201	80.6%	744	68.4%
Overall	4,619	73.2%	18,295	63.2%



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Cypress College Snapshot 2021-22

Gender	<i>n</i>	%
Female	10,555	56.3%
Male	7,366	39.3%
Other	820	4.4%
Total	18,741	100.0%

Financial Aid Recipients	<i>n</i>	%
Yes	10,591	56.5%
No	8,150	43.5%
Total	18,741	100.0%

First Generation	<i>n</i>	%
Yes	8,402	44.8%
No	10,339	55.2%
Total	18,741	100.0%

Race/Ethnicity	<i>n</i>	%
Asian/Pacific Islander	5,252	28.0%
Black/African-American	836	4.5%
Latinx/Hispanic	9,023	48.1%
White	2,840	15.2%
Other	790	4.2%
Total	18,741	100.0%

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SEM Students and Outcomes

- The SEM division at Cypress College enrolls approximately 1,400 majors each year.
- However, only 59 and 98 SEM associate degrees were earned by students in 2021-22 and 2020-21 respectively.
- The SEM student average completion time for an associate's degree is 4.4 years, somewhat better than the college average of 5.1 years.
- SEM students average completing only 16.9 units in their first year.
- SEM students complete an average of only 41.9 units in their first three years in college.

SEM Students	#
SEM Majors 2021-22	1,434
SEM Degrees Awarded 2021-22	59 in 2021-22, 98 in 2020-21
SEM Time to Completion (Years) for 2021-22 graduates*	4.4 years
SEM Three Year Completion Rate for 2019 cohort**	25.9%
SEM % Completed 30+ units in 3 years for 2019 cohort	60.9%
SEM Average One-Year Unit Completion for 2021 cohort	16.9
SEM Average Three-Year Unit Completion 2019 cohort	41.9

*Note. Compared to college-wide average of 5.1 years

**Note. Compared to college-wide average of 20.2%

SEM Cohort Analyses

Program Field	Fall to Fall Persistence	Fall 2019 Cohorts Within Three Years			
		Degree Earned	Certificate Earned	Transferred to 4-Year	Degree, Certificate, or Transfer
Biology	71.4%	14.3%	20.0%	8.6%	24.8%
Chemistry	66.7%	22.2%	38.9%	5.6%	38.9%
Engineering	83.1%	23.7%	27.1%	10.2%	27.1%
Geology	66.7%	0.0%	0.0%	0.0%	0.0%
Liberal Arts: Math & Science	61.8%	23.5%	20.6%	8.8%	26.5%
Mathematics	68.2%	18.2%	22.7%	9.1%	22.7%
Physics	77.8%	22.2%	11.1%	11.1%	22.2%
Cypress College Average (all majors, including non-STEM)	60.4%	12.9%	16.9%	7.3%	20.2%

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Transfer Rates by Ethnicity of (STEM)² Degree Recipients

- There were 617 (STEM)² program degree recipients through 2021-22 that the National Student Clearinghouse was able to track to determine transfer outcomes.
- The transfer rate for (STEM)² graduates was 86.9%.

Transfer Rates by Ethnicity of STEM Degree Recipients	(STEM) ² Students	
	<i>n</i>	%
Am. Indian or Alaska Native	3	100.0%
Asian or PI	257	89.5%
Black	18	88.9%
Latinx/Hispanic	243	84.0%
White	71	87.3%
Not Reported	25	84.0%
Overall	617	86.9%

Part 5. Program Accomplishments, Improvements, Challenges, and Obstacles

- A. Document accomplishments and/or improvements since your last program review.

Since our last program review:

- The (STEM)² program received a \$62,000 grant from the NASA Community College Aerospace Scholars Program to attract and retain more minority students in STEM careers. NASA on Campus engages students in NASA missions and research through a blend of online research and activities with NASA-affiliated research labs, museums, industry partners, and NASA internships. Cypress College STEM students who successfully complete the five-week online course are invited to participate in a four-day, on-campus engineering design and robotics competition. This competition provides first and second-year students with hands-on, collaborative engineering experience early in their college careers and connects them with NASA content and STEM experts.

Our most recent robotics competition took place from July 29 to August 1, 2024. The four-day event included a field trip to UC Irvine, where our students attended various presentations from faculty and staff within the College of Engineering, and a visit to Google headquarters in Playa Vista. Each competing group was assigned a mentor who were former participants of the NCAS program and excelled in their roles. During the week of the competition, we were also joined by NASA coaches Louis Thompson and Mikel Tinich, who have been working with our team during the planning process.



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At the closing ceremony, Chancellor Dr. Breland, President Dr. Scott Thayer, and V.P. of Instruction Dr. Kathleen Reiland addressed our students. The event concluded with a special guest speaker, Dr. Farisa Morales, an Astrophysicist at JPL and Dean of Science at L.A. Mission College.

In fall 2023, we proudly celebrated the 11th anniversary of the STEM program. Since its inception, the program has achieved the following milestones:

- 1,984 students participated in STEM2 over the past 10 years
- 885 certificates awarded
- 1,015 associate degrees awarded
- 715 bachelor's degrees awarded
- 53 master's degrees awarded
- 12 doctoral degrees awarded
- 4 MD degrees awarded
- 482 participants engaged in undergraduate research and special programs
- 34 internships completed
- From spring 21 to fall 22, on average, 87% of students attended their counseling appointment.
- The recent MESA grant to support our underrepresented students going into calculus-based majors.
- Our long-standing partnerships with CSU Fullerton, Cal Poly Pomona, and most recently, Chapman University.
- STEM Scholar, Amanda Macias earned graduate admissions to Cornell University. She is now a third-year Ph.D. student.
- For the first time one of our STEM Scholars, Daanish Noor, earned admissions to Stanford University.
- STEM Scholar Alumna, Jessica Grifaldo earned admissions to University of Las Vegas Nevada in Biochemistry.
- In May 2024, our team was selected to present at the Strengthening Student Success Conference, scheduled for fall 2024. This conference, hosted by the RP Group—a nonprofit, nonpartisan organization dedicated to enhancing the success of California community colleges and beyond—focuses on fostering brighter futures for students through collaboration in key areas such as equity, success, completion, and employment. At the conference, we will share insights about our student leadership program and discuss the importance of integrating student staff as partners in managing special programs to create a dynamic learning environment that promotes student engagement and involvement.

B. Document program challenges and/or obstacles since your last program review.

- Some of the challenges we experienced is that over the last four years we have experienced high turnover employment rates due to not having permanent positions. For example, since 2012 we have been operating with adjunct counselors which has not been conducive to our program needs.



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To provide consistency with our counselors getting familiar with our students, it is highly encouraged that we keep the same counselor over time.

- In October of 2023, we were approved to have an Administrative Assistant II and were provided with an Administrative Assistant III. This position is now being split at 20% MESA, 60% STEM2 and 20% MESA general funds. The STEM2/MESA Coordinator is split at 25% MESA, 50% STEM2 and 20% MESA general fund.
- Another challenge we faced was the unprecedented pandemic, which partially affected the program's growth and the increase in degrees awarded. Despite this, the number of students in the program has remained consistent, with an 86.9% transfer rate for (STEM)² graduates. Additionally, since the pandemic, our team has worked diligently and creatively to re-engage students in the STEM community.

Part 6. Ensuring Equity in Student Services

- A. Describe how your program addresses the needs of underrepresented student populations and delivers equitable student services.

The (STEM)² Program addresses the needs of underrepresented student populations by utilizing a multi-pronged approach. Each semester, our resources and activities are carefully coordinated by a full assessment of the previous semester, student review and suggestions, and needs assessment based on program staff student interactions. All student services provided by the (STEM)² program are made available and equitably accessible to all participating students.

The COVID 19 closures and pandemic required additional changes and adjustments that were implemented swiftly and consistently reviewed for improvements. All resources were transitioned to online and remote modalities. In efforts to provide students with an equitable and seamless transition during the campus closures, a Canvas shell was created to serve as an online platform. In efforts to ensure students had the ability to access online resources the program in conjunction with campus resources began informing students of their ability to acquire laptops, Wi-Fi connections, and web camera. Also, counselors transitioned all appointments to the online format to ensure students' educational planning needs were met.

We also connect our students to opportunities outside of our program such as scholarships, internships and undergraduate research. Weekly emails are sent out with flyers and application links.

Office of STEM Programs: (STEM)² provided students with a place to study in relative proximity to their classes. We provide students with desks, computers, and all other necessary materials needed for study. During exams, the STEM Center remains open to provide students with the ability to connect with peers one hour later than most other campus locations.

Outreach Ambassadors and Peer Mentors: At the start of each semester, our staff members along with our student workers conduct between 60 to 80 in-class presentations to inform all students registered in STEM gateway courses about the (STEM)² program. Our STEM peer mentors, and outreach ambassadors share about their personal experiences being part of the program and how it has helped them in their academics and gaining new experiences.



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Flexible times and mode of delivery:

(STEM)² addresses the needs of underrepresented student populations through a multi-pronged approach. The program offers students resources related to student's academic, professional, and personal areas. To ensure student access to events is equitable we provide both in-person and online services. We collaborate in hosting events aimed to support and guide students in affinity groups. Each semester students are given an opportunity to provide feedback and share what they believe will aid them in their academic journey.

Additional Services Provided:

- Outreach Ambassadors and Peer Mentors bridge to students
- Option to be placed on leave due to personal challenges
- Provide late afternoon times for workshops
- Provide counseling and workshops remote and in-person
- Counseling substitution forms and offer later counseling appointments.
- Provide scantrons and blue books
- Provide book loans
- Provide opportunities for students to attend conferences and campus tours

Collaborations

Health Center: Collaborated with the Health Center to host an hour and a half workshop titled, "Your Mental Health Matters." The workshop focused on improving mental health by recognizing negative self-talk, and how to practice self-compassion and mindfulness to manage stress.

APIDA in STEM: In efforts to provide equitable representation among ethnic groups, we hosted a workshop aimed at celebrating and building connection within our Asian Pacific Islander Desi American (APIDA) in STEM community. Students had the opportunity to connect with APIDA faculty and staff, as well as learn from the experiences of STEM alumni.

CSU Long Beach Women in Engineering Conference: We collaborated with the Dean of College of Engineering at CSU Long Beach to bring STEM Scholars from Cypress College to attend the Women in Engineering Conference. The event featured professional panels, coaching sessions and networking opportunities for all students. The Dean was able to provide complimentary tickets for our students.

Noche De Ciencias: For the first time in the history of the program we hosted Noche de Ciencias (A Night of the Sciences) – an event tailored specifically for STEM students and their family members to provide insights into the STEM journey, including perspectives from a panel of students and parents of alumni from the STEM program. We had sessions in English and Spanish. The purpose of this event is for family members to gain a broader understanding of what it means to be in a STEM major. Those in attendance were provided with practical tips on how they can best support students throughout their academic journey. For this event we collaborated with SEM faculty member, Francisco Perez who facilitated tours of his biology lab and provided demonstrations in Spanish.

Resources

It is understood that student connection to campus and community plays a role in the student's persistence. With this in mind we utilize multiple student activities.

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- COVID Response
 - Emails to students for laptops and Wi-Fi connections
 - Web cams purchased
 - Safe pick up and drop off for book loans
- Workshops
 - Special Speaker | Dr. Gabriel Reyes, MD, Ph.D.
 - Dr. Danny Howard, Boeing | Hosted by South Bay SHPE Chapter
 - Special Speaker, Carlos Garcia, Biochemist
 - Secure your STEM Internship
- Online Tools
- Basic Needs Summit: Fostering Resiliency During a Pandemic
- Sent students to SACNAS Conference (Society of Chicanos and Native Americans in Science) and MEDPEP (Médicos, Enfermeros, y Dentistas Para El Pueblo)
 - The UCLA medical preparation and education pipeline program Médicos, Enfermeros, y Dentistas Para El Pueblo (MEDPEP) was founded to address California's Latino physician shortage by supporting low-income Latino and other underrepresented minority (URM) students wishing to have a career in health care. Administered by the UCLA Center for the Study of Latino Health and Culture (CESLAC), the leading research institution providing reliable data on Latino health, ***MEDPEP has introduced over 3,500 underrepresented minority students to a variety of health care career options since its founding*** in 2002.
- MEDPEP provides students with mentors, training opportunities, workshops, test preparation, and more, so that they will have the skills and confidence to pursue successful careers in health care, all at no cost to them.





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- "MEDPEP has contributed to my pathway as a future health professional by building a community of resources, mentors, and academic support. The need for this program is crucial, especially for minorities. MEDPEP allows us to meet others of the same socio-economic and cultural backgrounds whom we can relate to. Here, we find a support system that encourages and empowers us to do better. Without MEDPEP and its understanding and support, this journey as a pre-health major would be very difficult. The funds will continue to strengthen this pipeline of minorities who desire to become future health professionals and will help students like myself throughout our pre-health journeys."- Omar Mercado (*Former STEM Scholar at Cypress College*)
- B. How do you serve students regardless of service location or delivery method? (i.e. distance education, after hours)

Our (STEM)² program ensures effective communication and engagement with students through a robust online presence and in-person support. Here's how we keep our students informed and involved:

Weekly Email Updates: We provide weekly emails that highlight research, internship, and scholarship opportunities. Additionally, we share information about STEM-related workshops and Personal Investment (PI) events designed to foster community within the (STEM)² Program. Students are encouraged to reach out to us at stem2@cypresscollege.edu for any questions or assistance.

Responsive Support: Our dedicated (STEM)² staff is committed to responding to student inquiries within 1-3 business days, ensuring timely and effective engagement. We also offer in-person support through our Outreach Ambassadors, who are current (STEM)² students. These ambassadors serve as mentors and community builders within the STEM Center, ensuring our programming remains relevant and up-to-date.

Social Media and Online Platforms: We disseminate information via Instagram, Discord, Remind, and the (STEM)² Canvas Shell. The Canvas Shell is particularly popular amongst the STEM scholars. It features video tutorials on contacting (STEM)² Counselors, creating LinkedIn and National Science Foundation ETAP accounts, and accessing past workshop resources. Students frequently use the Canvas Inbox and grading system to communicate with our staff and counselors.

Comprehensive Calendar: Our (STEM)² Calendar is an essential resource, displaying a full semester of approved events with detailed descriptions. This helps students plan and participate in activities that enhance their academic and professional growth.

Personalized Counseling: Students are assigned counselors based on their last names, allowing them to build a strong academic relationship over time with our (STEM)² counselors. Counseling appointments are available both in-person and online, with afternoon hours to accommodate students' diverse schedules. Counselors are also available for additional academic support, such as writing recommendation letters, advising on course selections, and assisting with university application processes.

Group Counseling and Transfer Support: Counselors host Group Counseling sessions to promote the use of the Transfer Center and support students in their final year at Cypress College. These sessions cover essential topics such as UC and CSU application timelines, FAFSA, graduation steps, and the importance of regular counselor check-ins. Offered online on Fridays, these sessions are mandatory for students applying to transfer.

Our goal is to provide comprehensive support and resources to ensure the success and engagement of all our (STEM)² students.

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- C. Do you receive funding from Student Equity and Achievement (SEA)? If so, explain its usage and effects on your program/department. (SEA funding allocation should also be included in Part 2C)

We receive Student Equity and Achievement (SEA) funds to hire our (STEM)² peer mentor and outreach ambassadors. The peer mentors serve as a resource, a helping, and as a sounding board for our current and prospective STEM students. They provide additional support, encouragement and provide their expertise as Cypress College STEM majors. A few examples include meeting with new, current, and prospective STEM students to assist them in the interview process for upcoming summer research and internship opportunities: interacting with them during our mandatory program orientations, workshops and Personal Investment events and leading them to a time of "reflection" at the end of each workshop or activity. In addition, our Peer Mentors conduct follow-up calls to ensure that our students are on board with the STEM Program's minimum requirements and encourage them to attend our STEM events. Other responsibilities include representing our STEM Program at events such as our mandatory STEM Orientation, Charger Fridays, Connect2Cypress and Fall Research Symposium. The STEM Program staff along with the peer mentors together strive to improve persistence among science majors by developing initiatives that strengthen the social and cultural bonds among STEM students.

Having a peer mentor and outreach ambassador presence in the (STEM)² program has had a positive outcome in that incorporating student staff into program management is essential for fostering a dynamic learning environment and promoting student engagement. Their unique perspectives offer valuable insights into student needs, preferences, and challenges, ensuring programs are tailored to enhance the student experience effectively. Moreover, involving students in decision-making cultivates a sense of ownership and responsibility, empowering them to actively contribute to their educational community. This collaborative approach not only enriches program development but also cultivates leadership skills, professional development, and a deeper connection between students and their institution, ultimately enhancing overall academic and personal growth.

Examples:

- Current student employees have the skills to engage the student population so the program creates relevant programming
- Current student employees create a professional relationship with the student population compared to other staff that run the program
- Current student employees from the program are not only being helped financially but receive mentorship through the process.

Students often have key insights into finer details about student needs, likes, and barriers to their engagement with programs that institutional staff can miss. Their voices on program evaluation can help ensure that program development is more student-centered and maximizes opportunities for them to gain from the experience. In addition, their participation in decision-making builds a sense of ownership and responsibility over their program development and fosters a culturally inclusive approach to student programming. When integrated in this way, program development also becomes a way for students to develop as leaders, acquire professional skills, and develop a greater sense of belonging to their institution.

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Part 7. Student Services Learning Outcomes (SSSLOs) and Assessment

- A. Programs must assess SSSLOs annually. Provide your SSSLOs, assessment methods, results, and changes you will make based on your assessment results. (At least four SSSLOs should be listed.)

	SSSLO	Assessment Method	Assessment Result	Change
1	Fall 20 – Spring 2021 1. STEM Program students who complete the mandatory orientation will receive information about the STEM program requirements, regulations and services offered. At the end of the STEM program orientation, the students will be asked to review the STEM Mutual Responsibility Contract which requires the signatures of both the student and assigned STEM counselor. 2. Students will evaluate the Family Group Meeting requirement of the STEM Program.	1. At the end of orientation, we ask for student participants to sign the STEM Program contract. In signing the contract, we confirm that they understand the program requirements. At least 80% of students who attend the mandatory orientation and sign the mutual contract will successfully complete the program requirements. 2. A survey will be completed at the end of the spring 2021 semester on a scale from 1 – 5 with 1 being extremely helpful to and 5 not helpful at all. The following questions will be asked on the survey: 1. Please rate the effectiveness of the topics discussed during the family group meetings. 2. Were the Family Group Meetings helpful in understanding the STEM Program expectations and requirements? 3. Did your Family Group Leaders seem prepared and organized for the meetings? If not, please explain. 4. Overall how would you rate your Family Group Leader's level of engagement? 5. Did your participation in your family group this past summer inspire you to become a family group leader in the future If so, please explain.	1. Out of the 441 students who attended the fall 2020 orientation, 389 (88.21%) completed all of the STEM Programs' requirements. During the spring 2021 semester, out of 376 students 343 (91.22%) completed the programs requirements which include a mandatory STEM Program orientation, meeting with an assigned STEM counselor and attending at least two STEM based workshops. If students complete the program's requirements which are listed on the contract, we can confirm that the students were successful in understanding the program's expectations in order for them to continue their participation in the program. 2. 73.2% (n= 112) of the students rated a 5 (Excellent) for their Family Group Leaders' level of engagement. 5.9% (n=9) rated a 4 (Good) 58.2% of the students who responded to the survey felt it was extremely helpful. 17.6% felt it was helpful. 68% (n=104) of the students felt the Family Group Meetings were 5(Extremely) helpful in understanding the STEM Program expectations/ requirements. 11.8% (n=18) felt it was helpful.	1. Although we experienced over 80% of students participating in the mandatory STEM program orientation and summer research/Internship applications, there was a significant drop in number of students who did not attend the mandatory orientation and/or apply for a summer research project, internship or scholarship opportunity. We can speculate that the overall stress brought on by the pandemic was a contributing factor. This caused for our STEM team to gather and brainstorm on strategies on how to better engage our students and increase program participation. Based on the students' responses from a survey sent regarding the spring 2021 orientation specifically, the feedback was favorable as students shared what they enjoyed about the orientation the most. We learned that it was all of the engaging activities conducted throughout the event. Moving forward, we plan to integrate more of these activities in our upcoming orientations. 2. The last question in the survey asked students if their participation in the Family Group inspired them to become a Family Group Leader in the

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				future and a good majority of them said “yes”. A change that took place from the year before is that this year the FGL meetings were less structured which gave students more opportunity to talk with one another via Zoom.
2	Fall 21 – Spring 2022 At the fall 2021 STEM Program Orientation, students will learn about undergraduate research opportunities more specifically Project RAISE and about the BASE 11 internship program and will get to learn about STEM Scholar Alumna, Selina Jaimes Davila’s academic journey at Cypress College and her experiences conducting research at CSU Fullerton. Students will learn what the application process entails and be provided with the application links.	As a result of students learning about the undergraduate research at CSU Fullerton, the BASE 11 internship opportunity and the personal testimony of STEM Scholar alumna, Selina Jaimes Davila, students will be better informed and build the confidence to apply for a variety of opportunities for the 21-22 academic year. A survey will be completed at the end of the fall 2021 orientation and will rate on a scale from 1 – 5 with 1 being extremely helpful to and 5 not helpful at all. On the three segments. In addition, we will also provide the number of students who applied for a research opportunity.	A total of 175 STEM Scholars responded to the survey. 71.43% (n=125) of the students found the undergraduate research an BASE 11 speaker to be extremely helpful (5). 21.4% (n=37) / 19.43% (n=34) of students felt the speakers were good (4). 7.43% (n=13) and /8.57% (n=15) felt the speakers were average. 81.14% (n=142) of the students felt the STEM Scholar Alumna, Selina Jaimes Davila’s speech was (5) Extremely Helpful. 15.43% (n=27) rated (4) to be helpful. For this academic year a total of 393 submissions for undergraduate research, internships or scholarships were made on behalf of our STEM students (154 in Fall 2021 and 239 in Spring 2022). Furthermore, a total of 67 students were admitted into a summer research program or special program at institutions such as NASA Aerospace Scholars Program, UC Irvine, CSU Fullerton, Cal Poly Pomona, Boston University, UC Merced and University of Minnesota Duluth). Our STEM program Coordinator was the responsible person for collecting the data and completing it.	The recent 28.85% increase in STEM Scholars being admitted into special programs and/or undergraduate research opportunities is a significant indicator of our STEM program’s success and alignment with its mission. This rise in admissions demonstrates that more students are accessing critical experiences that enhance their academic and professional growth, developing essential skills in problem-solving, critical thinking, and teamwork. Moreover, this success aligns with our mission to prepare students for industry by providing practical experiences that improve their prospects for securing internships and jobs. Overall, this progress underscores our dedication to increasing the number of STEM students transferring to four-year institutions and contributing to a diverse and skilled STEM workforce.

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3	Fall 2022 – Spring 2023 At the Fall Research Symposium students will learn about their peers' experiences in conducting research, listen to their poster demonstrations, and become familiar with the research process. This event is designed to showcase the undergraduate research projects that STEM scholars participated in over the summer. It features a student panel, poster demonstrations, and university representatives to promote research opportunities for the following year.	A survey will be completed by the students that rates the event on the student panel, poster demonstration, and ask for them to provide overall feedback. The survey measures will be featured on a scale from 1 – 5 with 1 being lowest and 5 being highest.	A total of 66 students answered the survey. 87.88% (n=58) found the student panel to be extremely insightful. 77.27% (n=51) found the poster demonstrations to be helpful and 77.27% of student enjoyed the Fall Research Symposium.	The common themes in the statements indicate a highly positive reception of the event. Participants expressed that the event was awesome, very useful, and informative. They appreciated the opportunity to learn new strategies and gain insights into various research programs. Many attendees felt the symposium was worth their time, providing them with valuable information and a sense of possibility regarding research. There was a particular appreciation for the inclusion of university and research representatives, which helped attendees understand research programs better. Some feedback suggested that the Q&A portion could have been longer to allow for more interaction. Overall, attendees left feeling satisfied, inspired, and grateful for the opportunity to attend the event.
4	Fall 2022 – Spring 2023 At the UC Davis fieldtrip, students interested the different fields of Biology will learn about a variety of opportunities within the fields of pre-med, dentistry, veterinary science, and pharmacy. Students will engage with deans and admissions representatives from in-state and out of state institutions and learn about the programs offered, financial assistance, and application requirements. This experience will help students to start planning their future goals, exploring their options, and creating a comprehensive plan.	Both a survey and questionnaire will be provided to the students to ask questions about their experience and their understanding of the opportunities available within their field of study and the career paths they can choose from.	Out of the 42 students that attended the conference 15 students completed the survey and 41 students completed the questionnaire. For the survey, 100% of the students enjoyed the conference. Using a Likert scale, 1-5 being the most enjoyable and 1 being the least enjoyable, three students scored a 4 and twelve scored a 5. In addition, 100% felt that after attending the conference they have a greater/good understanding of the various opportunities that are available within their field of study. Based on the questionnaire students completed here are some common themes:	Here are the common themes from the responses regarding suggestions for improving the next conference experience: Group Size: The current group size was considered ideal by several respondents, who appreciated that it wasn't too large to become hectic. Bonding Activities: Suggestions included having a day dedicated to group bonding and organizing a group dinner to foster a more inclusive atmosphere, as some felt the buddy system was too cliquy. Preparation and Planning:

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			-Awareness and Expectations: Students had varying levels of prior knowledge about medical career pathways and the competitive nature of medical school. There was an expectation to learn more about admissions, the importance of the MCAT, and how to stand out in applications. -Knowledge Gaps: Many students had limited, or vague understanding of specific requirements and processes related to medical school admissions. Some students were unaware of what scores were considered high for the MCAT or the steps required after obtaining a bachelor's degree. - Motivation and Preparation: Students were motivated to attend to gain a clearer understanding of the medical school application process and to prepare better for their future careers. The workshop was seen as a valuable opportunity to gather information directly from admissions representatives and to learn about extracurricular involvement and personal characteristics that can enhance an application.	There were recommendations for providing an updated list of what to bring, as the experience from the previous trip could inform better preparation. Room Assignments: Opinions on room arrangements varied, with some expressing satisfaction with the current setup of four people per room, while others preferred having the option to choose their roommates. Trip Logistics: Comments on the trip logistics included a desire for shorter breaks during bus rides and the possibility of adding more stops to make the journey more comfortable. Positive Feedback: Many respondents expressed overall satisfaction with the trip planning and execution, thanking the organizers and expressing a desire to participate again.
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Part 8. Evaluation of Previous Goals

- A. List your goals and objectives from your last program review. Did you meet your goals? If not, please explain.

	Goals	Objectives	Accomplish Goals? (Y/N)	If goal was not met, please explain
1	Increase the number of students in the STEM Program by 8% per year. Timeframe: Fall 2020 – Fall 2023	Increase support services for declared STEM students.	N	The goals for this program were planned in February of 2020 one month before the pandemic broke out. Although there was not an increase of 8%, The program has stayed at an average of 300 students per semester.
2	Increase degrees awarded by 5%. Timeframe: Spring 2021 – Fall 2023	For students to attain completion of their academic goals at Cypress College.	N	All of the degree types earned by the (STEM) ² students decreased from 2020-21 through 2022-23. The number of degrees awarded to (STEM) ² students has remained fairly stable. since 2021-22 after seeing that very large increase in 2020-21. As with the prior goal we assume that the pandemic did not help in meeting this goal.
3	Increase the number of internship opportunities by 10% Timeframe: Summer 2022	To provide hands-on experiences for STEM students which will aid in success, persistence and retention rates.	N	Through this process, we learned that building internship partnerships takes time. That summer, we focused our efforts on establishing a collaboration with Pacmin Studios, an aviation and aerospace product marketing business in the city of Fullerton. We met with their leadership team, who gave us a tour of their facilities. They agreed to interview our most qualified STEM Scholars, and together we developed an application form. As a



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				result, one of our scholars, Julian Romero, was hired and successfully completed the internship. Additionally, Pacmin Studios donated a commercial-grade 3D printer to Cypress College that summer.
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Degrees Earned by (STEM)² Students	2020-21	2021-22	2022-23	2023-24*
AA	80	64	37	28
AA-T	26	20	18	11
AS	6	6	7	7
AS-T	96	52	78	85
Total Degrees Awarded	208	142	140	131

*Note. Awards for 2023-24 have not yet been finalized as of July 2024

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Part 9. New Program Goals

	Goals	Objectives	Timeline	Campus Plans and Initiatives Highlight plan/initiative to which your goal relates.
1	Secure permanent funding for project coordinator in the STEM Center.	Submit budget request to secure a line item budget.	Spring 2025	Educational Master Plan SEA Plan Strategic Plan Distance Education Plan Technology Plan Guided Pathways Promise/NOCCCD Pledge Strong Workforce/Perkins Other – Categorical Funding
2	Create internship opportunities.	Collaborate with Career Planning & Workforce Development Center to establish an action plan.	Ongoing	Educational Master Plan SEA Plan Strategic Plan Distance Education Plan Technology Plan Guided Pathways Promise/NOCCCD Pledge Strong Workforce/Perkins Other
3	Provide more academic support to STEM students.	Collaborate with the Learning Resource Center to establish a plan that will accommodate our students.	Ongoing	Educational Master Plan SEA Plan Strategic Plan Distance Education Plan Technology Plan Guided Pathways Promise/NOCCCD Pledge Strong Workforce/Perkins Other

Part 10. Resources/Needs Assessment

- A. Please link all requests to the goals above. Include the goal reference number in the “Justification” section below. Prioritize your requested resources. (Example: If you have three resources listed, then you will prioritize #1, #2, and #3, with #1 being the most important.)

Personnel			
Position	Justification and Impact on Goals	Cost	Priority #
(STEM) ² Counselor	Since 2012, the program has been operating with part-time employees and two part-time counselors. For consistency purposes and building rapport with the STEM students, it is recommended that a full-time counselor be hired permanently.	\$92,627 - \$110,551	1

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Coordinator	The coordinator is allocated to a special project line item. For lasting results and consistency, the coordinator's role should be established as a permanent position.	\$70,908 - \$85,560	2
Professional Development			
Activity	Justification and Impact on Goals	Cost	Priority #
Facilities			
Repair or Modification	Justification and Impact on Goals	Cost	Priority #
Technology/Equipment/Supplies			
Item	Justification and Impact on Goals	Cost	Priority #

Part 11. Program Review Involvement

- A. List the names of faculty and staff who participated in the program review process.

Yanet Garcia Padilla – Director of Educational Partnerships
 Jessica Ochoa – Special Projects Coordinator (STEM)²/MESA
 Patsy Morales Gonzalez – (STEM)² adjunct counselor
 Mareena Perez – (STEM)² adjunct counselor

- B. Describe the involvement of faculty and staff in the program review process.

The Director gathered worked closely with the Office of Institutional Research to gather data pertaining to the different areas of program review and provided information on Student Learning Outcomes. (STEM)² Program Coordinator, Jessica Ochoa reviewed and collected information on the assessment of the UC Davis fieldtrip. STEM Counselors, Mareena Perez and Patsy Morales Gonzalez gathered information and reflected on how the (STEM)² Program addresses the needs of underrepresented student populations and how the program serves students regardless of service location or delivery method.



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Part 12. Publication Review

As part of the program review process, please conduct a review of your department webpage and other publications to ensure all information is accurate. Please note any inaccuracies identified as a result of the review, and provide an action plan for implementing the corrections. To request changes to your webpage, contact the Office of Campus Communications, Cari Jorgensen, Web Content Specialist.

- The (STEM)² Program website is up to date.

Part 13. Evaluation and Approval from Division Dean

Comments

The program has done an excellent job of establishing a strong STEM culture on campus. I would encourage the team to begin to compare existing data to STEM students outside of the program as well as to all students on campus. I would like to see the team transition to using and collecting data that allows for informed decision making and continued expansion and improvement of services. While services provided are excellent at building community and engagement there is a need to begin to shift some aspects of the program to academic support that increases success in the classroom. Streamlining processes and program tracking will also be an important component of the team's work in order to serve more students.

I would recommend that the team begin to expand partnerships to include articulation/transfer agreements for Cypress students. Since the MESA program has been part of SEM STEM programs for a year the same data and processes should be established and included in the program review document.

Division Dean Signature: ~~Debbie~~ _____ Date Approved: Sep 16, 2024

STEM_SP24_ProgramReview

Final Audit Report

2024-09-16

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