Fall 2023 Science and Mathematics Division Summary Report on PARs Submitted by 11/3/23

9 Responses

Name of Program, Discipline, Area or Service	Name(s) of the person/people who contributed to review:	Which PAR Template (word template) did you fill out?
Astronomy	Shannon Lee and Scott Hildreth	Academic Programs
Chemistry	Wayne Pitcher, Donna Gibson, Harjot Sawhney, Yasmin Trout, Andy Wells, George Arab	Academic Programs
Computer Science	Jonathan Traugott Wanda Wong	Academic Programs
Earth and Environmental Sciences	Jasmeet K. Dhaliwal, Safiyyah Forbes (Dean)	Academic Programs
Engineering	Daniel Quigley Tess Weathers Safiyyah Forbes	Academic Programs
Life Sciences	Jennifer Lange, Megan Jensen, Alexandra Dallara, Robert Cattolica, Jeffrey Tsao, Patricia Wu, Gargi Kulkarni, Harmony Fosse	Academic Programs
Math	Ming Ho, Naj Abrao	Academic Programs
MESA TRIO STEM	Maria Rodriguez-Larrain, Donna Gibson	Student/Admin Services/Office of the President
Physics	Shannon Lee and Scott Hildreth	Academic Programs

Reflections on Annual Priority Progress in Academic Year 2022-23

9 Responses

Name of Program, Discipline, Area or Service	What progress did you see in any of these annual planning priorities?
Astronomy	The student resource center and food pantry have been impactful. Our campus and discipline participation in the Hayward Airport Open House Day increased visibility for our college and our Science and Math division. Planetarium shows available for our campus and the community were well received. Our discipline updated our web page. Online counseling appointments and dedicated STEM counselors have been successful. Our STEM center redesign and staffing have made a significant impact. We are seeing large increases in students using the STEM center and regularly attending workshops and STEM speaker series.
Chemistry	In Chemistry, we have made significant progress in priority #1. A Chemistry Student Success Team was formed, and has started examining the curriculum needed for a non-credit chemistry prep online course (Chem Jam course). This course will provide students with a strong foundation going into Chem 1A.

Computer Science	Workshops for CSCI 14, CSCI 15 and CSCI 20 are now offered in the STEM Center and CSCI faculty have extended their hours at the STEM Center. CSCI participates in the East Bay College Agility Network (EBCAN), including the Intersegmental Faculty Mapping Workshop. (Improve pathways for Chabot CS students transferring or planning to transfer to CSUEB.) More hybrid sections of CSCI 14 and CSCI 15 are offered to accommodate working students. CSCI was represented at Open House for Hayward Airport. CSCI Faculty attended the 2023 CompTIA conference.
Earth and Environmental Sciences	1) The Guided Pathway framework is a valuable resource. As a department, we are currently working with the Geography department to initiate a guided-pathways that would link our programs together, allowing students to choose among different tracks across Geology, Environmental Science, Geography and Environmental Studies, both STEM and non-STEM.

Engineering

Engineering started the ENGR/PHYS Student Success Team. This helped establish networks to link to our Pathway Success Team members and services. Through this we were able to identify bottlenecks, rewrite curriculum/certificates/degrees, determine scheduling norms for students to take recommended courses during year 1, year 2, and year 3, and create a Guided Pathway to earn an AS degree in engineering in 3 years.

Through the ENGR/PHYS team, we were able to set up basic needs support in mathematics, physics, chemistry, and engineering courses through embedded learning assistants in the classroom, tutoring, and supplemental workshops. Utilizing the HSI STEM grant, we were also able to establish WBL workshops, research opportunities, connection to industry through field trips and guest speakers, and open lab hours for students to have access to lab materials outside of class. This also led to working with Work Study and LAEP to have paid research and assistant opportunities as well as internship opportunities. Through this WBL outreach we were able to connect to our surrounding industries such as PCC Structurals, ALOM, Van Mulder, Oro Loma, FBI, Humboldt Instruments, Stanford National Accelerator Lab, BART, UC Berkeley EECS Dept, RSA+, Livermore National Labs, Berkeley National Labs, Sandia National Labs, WJE & Associates, Lam Research, Dome Construction, Siemens, Apple, and NASA. We also incorporated WBL students participating in RC car competition, Video Game design, and SMUD Solar Regatta. This has also led to the creation of a STEM internship course and to update the STEM 1 course which will establish the WBL activities for students, even when the grant funding expires. This creates a pathway for students to explore STEM projects and activities.

We improved student interfaces by updating the STEM website with instructor biographies, Engineering interest video, and maintaining connection to high school partners through Summer Bridge. Engineering flyers, course plans, and brochures were also created and sent throughout campus and made available during orientation, gladiator days, counselor breakfasts, and other events that were held throughout the year. Another marketing strategy was utilizing the Chabot email list to advertise STEM WBL activities throughout the year. This year, we would like to include advertisements on the main banner stream on the homepage of Chabot College.

	The Health & Wellness SST is still just getting started. Since we do not currently have a regular funding source and with the lead only getting 60 hours for the year, we do not expect to make significant progress. We are discussing plans, but, without funding, putting these plans into action will be difficult. Two years ago we requested funding through program review to start this work, as this pathway is highly interdivisional and our programs all have classes outside of the main division. This funding was approved - see PRAC's 2022 Recommendation to the President and the President's approval - but the funding never made it to the division and thus the groundwork was not started.
Life Sciences	Re: Priority 1) Faculty joined an HSI STEM SST working group. They worked to align coursework across majors courses to scaffold skills and knowledge Re: Priority 2) Faculty performed outreach to LPC Biology department to learn more about "biobadges" and development of an industry advisory panel to work on work based learning skills development and work opportunities for Chabot students. Re: Priority 3) Work with MESA as mentors to students to help guide them in their career and educational journeys Re: Priority 3) Update website with our welcome video, door cards, etc to help introduce students to the biology faculty Re: Priority 3) Created a student-facing welcome video with brief introductions of each full-time faculty member.
	For (1), Engineering/Physics and Math Student Success Team (SST) worked on providing service or revising programs, such as developing Chem Jam, MTH 21 semester-long workshops, IAs embedded in MTH 21 classroom. The part of linking students to SST members were lacking, but that could be because we have MESA to provided more direct interaction with students. There were also MESA faculty mentors.
Math	For (3), I guess the new MyPortal is supposed to be part of the effort, but when I log in, I already find it difficult to use. For example, there's a message stating, "Locate the 'Steps to Success' Card in MyPortal," but that card isn't listed on the same page. I would have to go find the card somewhere. The card structure prevented a link to a page of "Steps to Success." Also, the cards are all over the place and are not grouped by audience such as student, employee, and instructor. I can sort the cards myself at least, but why do I have to design my own user interface from scratch?

MESA TRIO STEM	This fall we have launched the MESA/STEM Pathways Canvas shell. We have taken the shell and information that we had been using exclusively for our MESA-TRIO STEM students and have now worked with guided pathways to open that information to all STEM students on campus. There are a few areas that are/will be published only to MESA-TRIO STEM students – but the bulk of the site is now open to all.
Physics	The student resource center and food pantry have been impactful. Our campus and discipline participation in the Hayward Airport Open House Day increased visibility for our college and our Science and Math division. Planetarium shows available for our campus and the community were well received. Our discipline updated our web page. Online counseling appointments and dedicated STEM counselors have been successful. Our STEM center redesign and staffing have made a significant impact. We see large increases in students using the STEM center regularly and attending workshops and STEM speaker series.

9 Responses

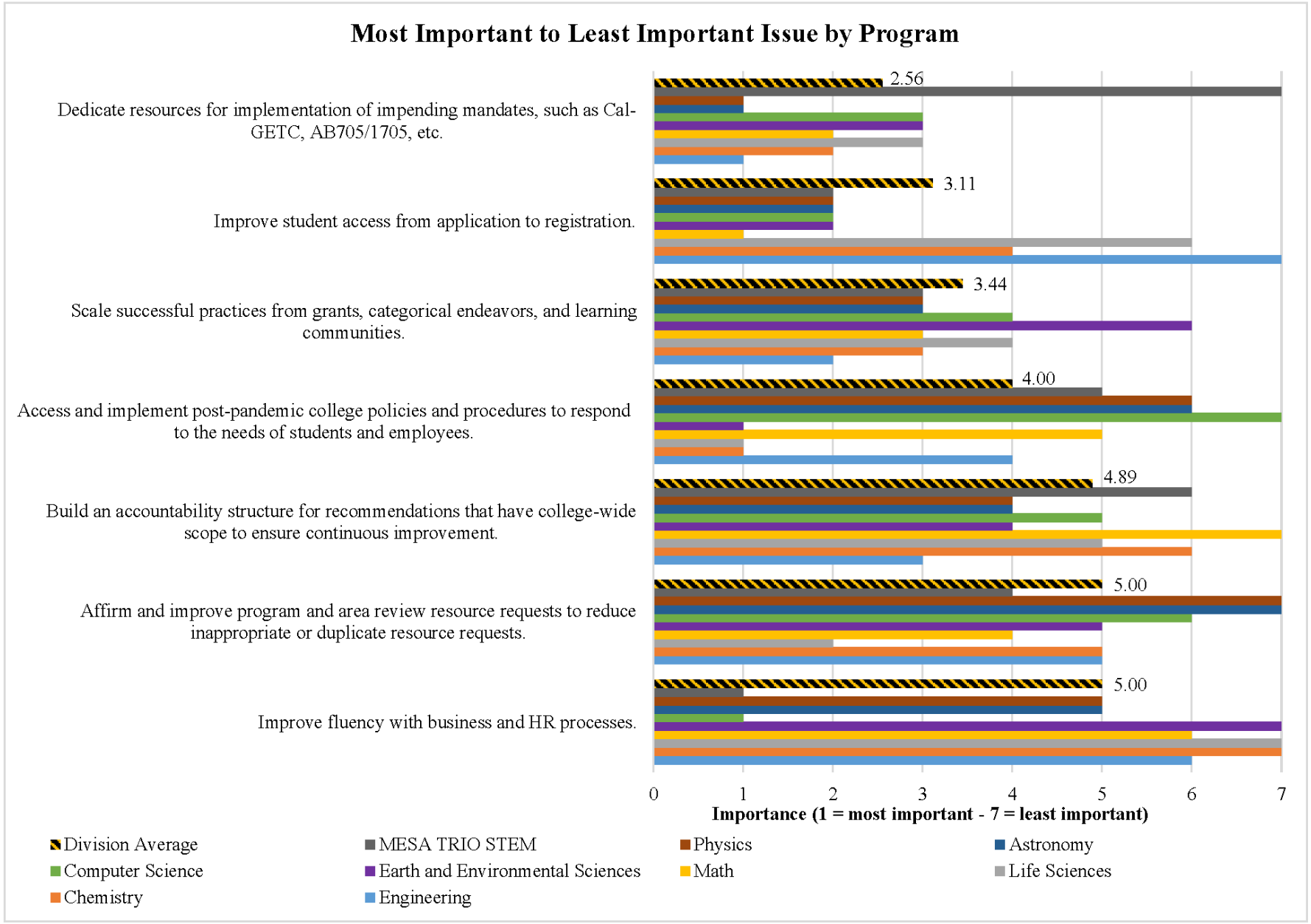
Name of Program, Discipline, Area or Service	Question: If you could advise college decision makers how to make better or more efficient progress on any of these annual planning priorities, what would you say?
Astronomy	We need better support from our webmaster and functionality from our campus website. We need folks (especially students) to access our web content without needing a Onedrive account. We need to deal with the significant impact that AB1705 will have on our students and the programs that rely on the fundamental skills that those students will be missing. Students will be registering for Math and English courses that may be well beyond their current ability. They likely will not succeed in these courses and cannot matriculate through our programs, which means our higher-level courses will be severely under-enrolled. We need to create, fund, staff, and advertise ways for these students to fill the learning gaps they may have to prepare them for transfer-level courses. We are a community college, and we need to serve all students, not just those who are ready to take transfer-level courses. I think our current response to AB1705 has put far too much onus on faculty to cobble together our own solutions for classes of students who lack the foundational knowledge to progress on SLOs. If we continue to offer a large selection of online courses, we should have a testing center on campus so that students can take proctored in-person exams to maintain academic integrity. We should give students better access to food and supplies. With the cafeteria's limited hours and the bookstore's closure, our students find sustenance and materials difficult to obtain on campus. Barnes and Noble has caused significant delays and price increases. Please keep flex day on voting day in fall…as agreed.
Chemistry	N/A
Computer Science	Perhaps speakers could be available to visit classrooms to provide students information on various support networks.

Earth and Environmental Sciences	2) Chabot's link to the external community could be greatly strengthened through formal outreach programs, perhaps even an office of outreach. Such an approach would not only provide our students with work-based learning opportunities, but help them become leaders and teachers, which will benefit them in their careers. To support student involvement, it would be beneficial to formalize a student stipend or hourly compensation for outreach work. 3) As a department, we have not been approached by web services to expand our programs. We have limited support from the STEM center as well as our classes are being relaunched and we have a limited pool of potential tutors. A check-in with marketing and web services for each department every semester would be valuable for helping departments improve their student interfaces.

	Pathway Success Team Support Networks *Embed support into courses that have lower success rates than the college average. Don’t wait for faculty to ask, as many choose not to due to the difficult and unclear process of filling out forms and requests. **Create similar schedules across sections to make it easier for STEM Center and Learning connections to support courses, this will allow reviews, check ins, and workshops more impactful. For instance, MTH 21 could have the same content each week. **Create learning cohorts for students with similar starting points, majors, and transfer universities to take the same courses each semester. This will create learning communities and will make it easier for targeted support, scheduling of classes, and more predictable enrollments each semester
Engineering	Basic needs and Work Based Learning *Expand Career Center to incorporate additional resources, activities, internships, and collaboration with industry partners **Expand MESA to a more college wide experience ***Create a free shuttle to and from BART Stations ****Free food and other resources available daily
	Student Interfaces *Reach out to disciplines to help them market their programs. **Create photo shoots for classes to use in marketing materials ***Advertise programs equitably on the Chabot Website ****Update website regularly with up to date information *****Clearly show job prospects for each major ******Show transfer requirements for each major *******Expand dual and concurrent enrollment with high schools ********Award certificates and degrees automatically to students

Life Sciences	Provide ongoing, stable funding for SST release time and F-hours is needed as well as funds for hosting activities/events, school visits, etc. Develop a streamlined / clearly scaffolded process for how faculty can apply for funding via committees and how to follow that through the other committees (such as PRAC).
Math	N/A
MESA TRIO STEM	Allow people (faculty and staff) enough time to dedicate toward a project that is not overload or just added to their existing workload for no pay would help expedite completing projects.
Physics	We need better support from our webmaster and functionality from our campus website. We need folks (especially students) to access our web content without needing a Onedrive account. We need to deal with the significant impact that AB1705 will have on our students and the programs that rely on the fundamental skills that those students will be missing. Students will be registering for Math and English courses that may be well beyond their current ability. They likely will not succeed in these courses and cannot matriculate through our programs, which means our higher-level courses will be severely under-enrolled. We need to create, fund, staff, and advertise ways for these students to fill the learning gaps they may have to prepare them for transfer-level courses. We are a community college, and we need to serve all students, not just those who are ready to take transfer-level courses. I think our current response to AB1705 has put far too much onus on faculty to cobble together our own solutions for classes of students who lack the foundational knowledge to progress on SLOs. If we continue to offer a large selection of online courses, we need to have a testing center on campus so that students can take proctored in-person exams to maintain academic integrity. We need to give students better access to food and supplies. With the cafeteria's limited hours and the bookstore's closure, our students find sustenance and materials difficult to obtain on campus. Barnes and Noble has caused significant delays and price increases. Keep flex day on voting day in the fall… as agreed.

Priority Areas to Address Ranked by Programs within Your Division/Area



Other Priority Areas to Address to Carry Out the College Mission

9 Responses

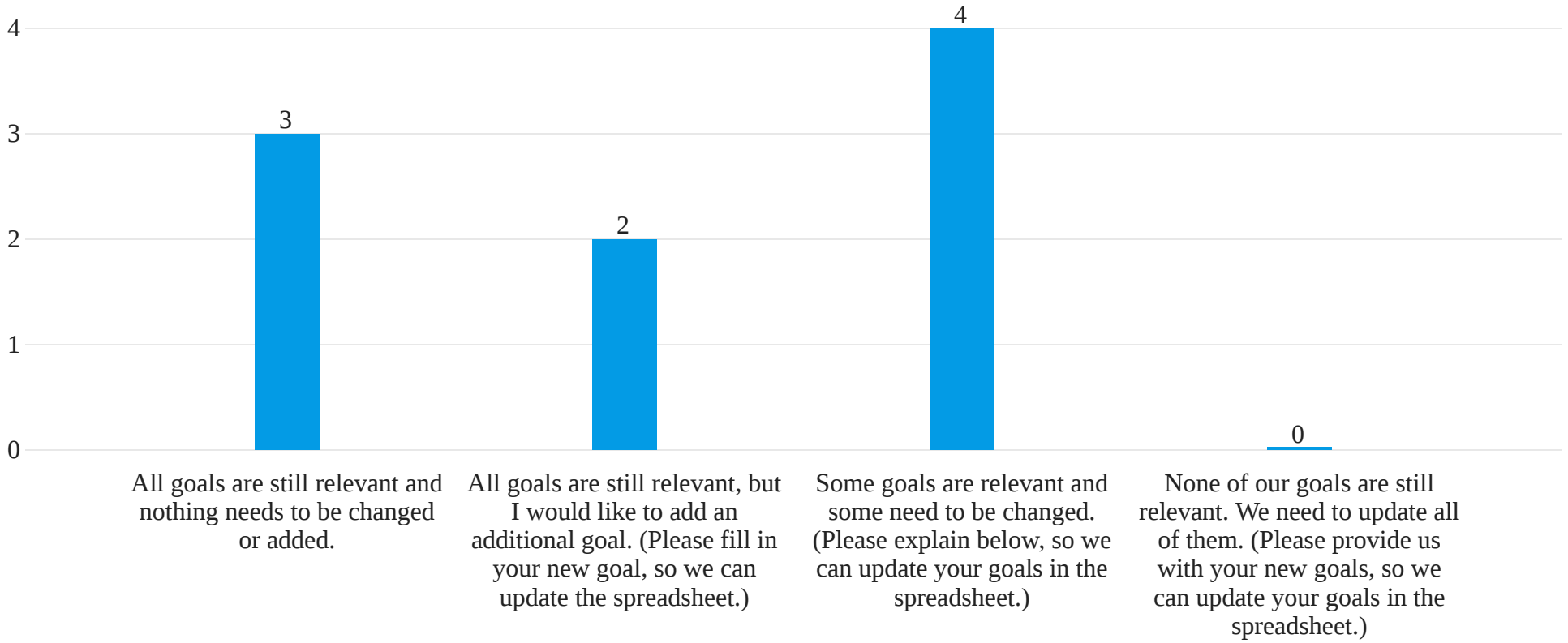
Name of Program, Discipline, Area or Service	Question: If you believe there is an important issue to address to carry out the college mission that is NOT mentioned in the previous list, please describe below (optional).
Astronomy	I just want to give extra importance to dedicating resources for the implementation of impending mandates, especially AB1705. We should improve our offerings of student services on campus. We need improved selection and access to food and supplies. We need to replace our on-campus bookstore. We need to serve our community, including students who are on campus in the afternoons and evenings and students who do not have reliable access to web purchasing and deliveries.
Chemistry	Emergency procedures (evacuation routes, etc.) and training are out of date (e.g. the evacuation area for several chemistry labs is listed as parking lot C, which has not existed for over 5 years). Also, the current faculty prioritization process is competitive, not collegial.
Computer Science	N/A
Earth and Environmental Sciences	N/A
Engineering	Make it easier to get things done. Provide feedback of when paperwork is approved or where it is in the approval process, such as timesheets, pafs, requisitions, and other forms. Streamline processes to get approved and move toward a system where everything is easy to submit and is accessible to see where it is in the "pipeline" of approval.
Life Sciences	It would be beneficial to help students obtain more opportunities on how to apply to Chabot through mixed media and in person events.

Math	N/A
MESA TRIO STEM	N/A
	I just want to give extra importance to dedicating resources for the implementation of impending mandates, especially AB1705.
Physics	We need to improve our offerings of student services on campus. We need improved selection and access to food and supplies. We need to replace our on-campus bookstore. We need to serve our community, including students on campus in the afternoons and evenings and students who do not have reliable access to web purchasing and deliveries.

Reflections on Goals

Keeping in mind, you only have one year left in this PAR cycle to accomplish these goals, please take a look at your goals to determine:

9 Responses



9 Responses

Name of Program, Discipline, Area or Service	All goals are still relevant, but I would like to add an additional goal. (Please fill in your new goal, so we can update the spreadsheet.) - Text
MESA TRIO STEM	N/A
Physics	N/A
Astronomy	N/A
Computer Science	N/A
Earth and Environmental Sciences	N/A
Math	Need to design corequisite support for Engineering Calculus (MTH 1) and Business Calculus (MTH 15), in response to AB 1705 opening up those courses to all students.
Life Sciences	N/A
Chemistry	Better understand course-by-course and section-by-section variation in success rates.
Engineering	N/A

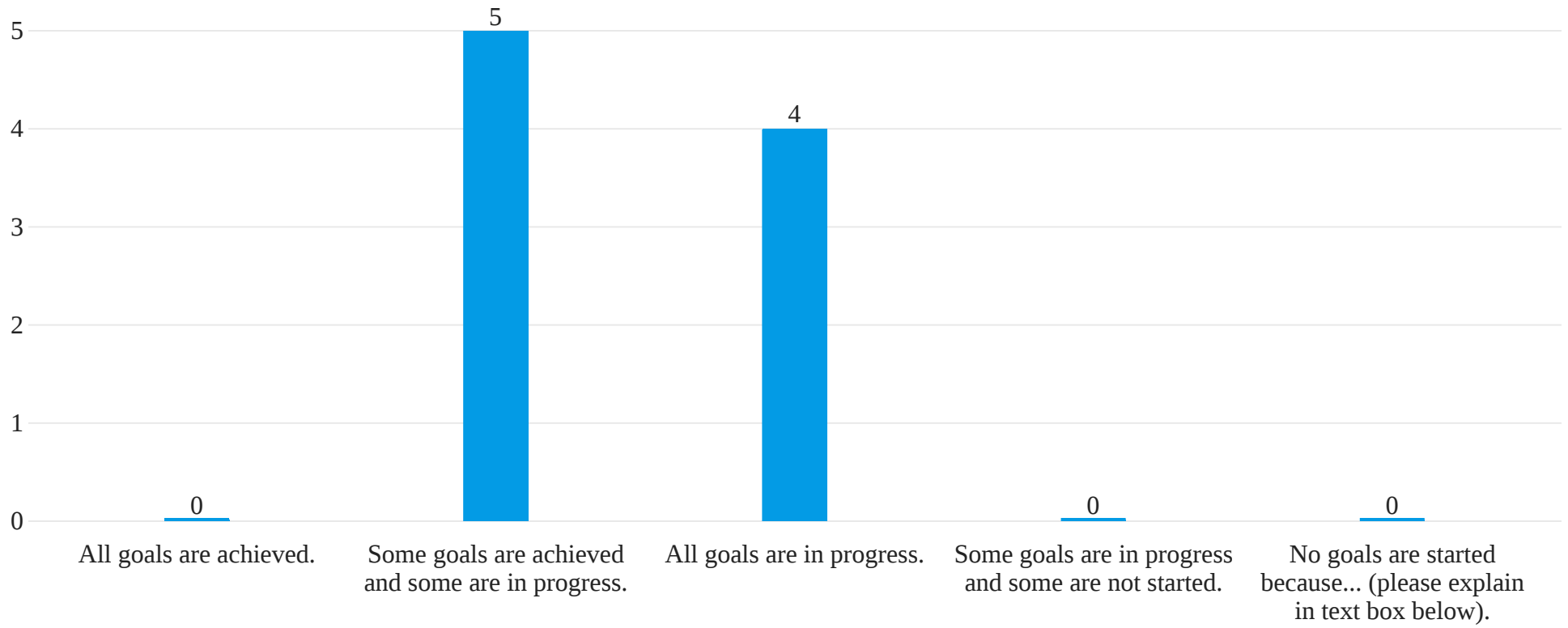
9 Responses

Name of Program, Discipline, Area or Service	Some goals are relevant and some need to be changed. (Please explain below, so we can update your goals in the spreadsheet.) - Text
MESA TRIO STEM	N/A
Physics	We have successfully hired a FT tenure track physics and astronomy faculty and a multi-disciplinary classified professional (lab tech). However, we need to keep goal 1 in place due to an additional retiring Full-time faculty member. Please remove goal 2. We completed our goal 3 of Bluetooth-enabled lab equipment. We would like to update goal 3 to read, “Outfit our physics laboratory with equipment that gives students a cohesive and relevant experimental physics experience.”
Astronomy	Goal 1 will not be achieved as the Bio Phase II building does not have the budget to add an observing platform. We would like to amend Goal 1 to be “Continue to promote the construction of an astronomy observing platform on the Chabot College campus.” I would like to add an additional goal 5: “We would like to integrate one or more student assistants/ embedded tutors into our Astronomy 30 course (evenings from 6:30-9:20 pm) to assist with observing nights.”
Computer Science	N/A

Earth and Environmental Sciences	Goal 1: Hiring a full-time faculty has been successfully completed Goal 2: This goal of working with faculty across disciplines has only just started and will be ongoing for several more semesters. This goal should focus on developing shared curriculum through the lens of sustainability and climate. Goal 3: Building novel courses in the Earth & Environmental Sciences that will be strongly focused on outdoor field studies or hands-on research activities (such as work on the Scanning Electron Microscope, which was recently acquired at Chabot College). Herein, the department hopes to develop multi-day field courses that would include overnight camping. Goal 4: (new goal) Build the Earth & Environmental Sciences program, particularly through increasing enrollment in GEOS and ENSC classes, by liaising with Chabot College administrative offices, related departments and programs on campus.
Math	N/A
Life Sciences	Revised Goal 1 language: Align the program and PLOs with skills needed in upper division courses, of transfer institutions, and also employer needs for Biology majors.
Chemistry	N/A
Engineering	N/A

What are the statuses of your program's/area's goals right now?

9 Responses



9 Responses

Name of Program, Discipline, Area or Service	So far, what is going well regarding completing your program's/area's goals? Please include reflections on achievement of outputs or outcomes.
Astronomy	Goal 2: Scott Hildreth was selected as the 2021 NASA Airborne Astronomy Ambassador and was one of the first community college faculty members to participate in the NASA Airborne Astronomy Ambassador Program. He was able to do an observing session on the Stratospheric Observatory for Infrared Astronomy (SOFIA) and take infrared astronomy data that he was able to turn into a laboratory exercise for our Astronomy 30 class. This brought real, relevant research to our students! Goal 2: Shannon Lee was part of the inaugural class of the PARTI program at Chabot College and uses culturally responsive teaching pedagogy in her astronomy courses. She specifically did her final project for PARTI, creating a culturally responsive and anti-racist lesson plan for her astronomy courses that focused on multi-cultural representations of the night sky. Goal 4: Both astronomy professors are working to integrate SLOOH (a robotic online telescope service that gives real-time access to remote telescopes in Chile and the Canary Islands). This would allow students the opportunity to do real observing from home. We have purchased access accounts for two classes of students at a time, and the interface allows us to assign observing quests. We are still testing how well students respond to this type of astronomy lab activity to see how well it will replace traditional observing on campus (avoiding lighting issues, weather challenges, and visual obstructions)
Chemistry	For Chemistry’s goals, we have had some qualified success in increasing student success. However, this increased success came in the Spring of 2022, when we returned to in-person instruction for almost all of our courses. Considering that students enrolled in the in-person courses might be self-selecting, we are reluctant to call this increase a trend. Also, we kept our class size at the stated capacity, so our course sections were smaller–this may also contribute to student success. Another area that has seen moderate success is the piloting of instructional methods for increasing equity in chemistry classes. In particular, Dr. Pitcher started using standards-based grading in Spring 2022 with the result of no students dropping and all students passing his sections of Chem 1A and Chem 1B. He continued through last year (Chem 12A and 12B), with improved success rates but lower scores on the standard ACS exam. The piloting is continuing this semester in his two sections of Chem 12A. More analysis is needed to see if these trends persist .

Goal 1 :
Achieve lower withdrawal rates and higher pass rates, especially in CSCI 14 and CSCI 15. This metric should be combined with indicators of meaningful success, including fewer instances of academic dishonesty and improved student preparedness in subsequent courses. More conversations are needed to find effective ways to measure student preparedness.

We've made progress on reducing academic dishonesty by framing programming assignments as preparation for an eventual job interview rather than a means to get a passing grade. Students appreciate hearing from past students who needed to study the material for CSCI 15 for a year after graduating just to get to the point where they could pass a technical interview. The obvious point wasn't lost on students: Doing your own work pays off and cheating doesn't. CS workshops and other activities at the STEM center also help student stay on the straight and narrow. Kudos to the dedicated work of STEM Center and MESA staff for supporting our CSCI students!

Goal 2:
Grow the Computer Science program to better serve both transfer and vocational students. Demand for Computer Science graduates continues to grow in the Bay Area along with demand for vocational training among working programmers.

Computer Science

We have not made progress on Goal 2 because we currently do not have enough faculty to staff existing courses, let alone offer new ones. This is very frustrating because we are in a period of strong enrollments and increased student interest in AI, Machine Learning and other aspects of Computer Science. In short, we desperately need more full-time instructors to have any hope of growing or even maintaining the computer science program!

Goal 3:
Increase enrollments and success rates in Computer Science among populations that are currently under served or underrepresented.

We have made some progress increasing enrollments and success among underserved populations primarily due to a strong demand for Computer Science graduates in the current job market as well as more support for students through MESA and the STEM Center. Progress is stalled due to one full-time faculty remaining after two retirements in the last three years. A position was requested for year 2023-2024 but we did not make the cut since only four new positions were approved for the college. We want to emphasize in the strongest terms that having just one full-time faculty member to staff CSCI is not a sustainable situation for the health of the program or for the health of the remaining full-time faculty member.

Earth and Environmental Sciences	Goal 1: Output—A Full Time Faculty has been hired Goal 2: Output—The full time faculty started in January 2023, and is currently working with other faculty to develop and submit several courses to the Curriculum Committee for the Fall 2023 deadline. While conversations started in Spring 2023 semester, this work has significantly ramped up this semester as the new full-time faculty has become more acquainted with fellow faculty and become more adept at the Meta curriculum system.
Engineering	Goal 1- Increase PLTW courses offered at high school level and advertise/engage with surrounding high schools districts. Over the past year, we have engaged with over 20 classroom visits, had over 60 students attend summer bridge in engineering, started the process to update articulation agreements and contacted high schools for a Design Competition. We plan on applying for an NSF grant in Dec 2023 to help high schools start or expand their PLTW courses offered and will increase articulation agreements and dual enrollment. Goal 2- Increase engineering awards earned. This year, we drastically changed our engineering certificates and degrees to make it easier for most engineering majors to earn a certificate each year and transfer with an AS degree. Although we have seen an increase in awards given the past two years, we believe that these changes will drastically increase awards given from approximately 15 per year to 60 per year. We have seen an increase in Work Based Learning by offering research and project opportunities as well as guest speakers and field trips. Goal 3- Increase Chabot articulation with transfer universities. We have increased our articulation to San Jose State University and UC Berkeley by adding/updating MTT 70, ENGR 15, 16, 40, and 85
Life Sciences	Progress towards last year’s goals: -SASE approved funding for FIG (faculty inquiry group) around equity and best practices in biology. We need to confirm PRAC funding, recruit faculty, set goals for group, establish a timeline for meeting goals, and develop the materials for a framework. We also met with Carmen and Kristin to discuss their work CCEPG and how we might implement similar strategies. -Work with new STEM Counselor to develop partnerships with local industries: find out what they are looking for and how we can align courses to develop skills that are desired; explore opportunities for internships and job placement in biological fields; create “industry panel” -Started work with HSI STEM SST group on aligning majors course sequence; need to continue looking at skills and concept development across all course sequences -We are collaborating across courses to mirror SLO assessment through course series so that we can track skill progression and retention. -We want to ensure that we are broadening our work in this area to the whole program and not stopping at PLOs.

Math	Many faculty are adopting OER in their classes. We have default OER in MTH 21, 22, 55, 204, and at least one faculty has tried OER in all other math classes. Use of OER in calculus courses have increased over the last couple of years!
MESA TRIO STEM	Coming out of the “covid” years where engagement with students was low – we are finally starting to rebuild a strong sense of community for our MESA-TRIO STEM students. Throughout covid, we did a good job on retaining students in the program – and now the challenge is get the students re-engaged in an active campus environment.
Physics	We have succeeded in our hiring goals (goals 1 and 2) by hiring a Full-time Physics and Astronomy instructor as well as a Classified Professional Lab tech supporting physics, engineering, astronomy, and geology. We are integrating our new lab tech into our division and working together across disciplines to create smooth and organized procedures. We continue to spend our budget on new equipment and technology to provide students with a modern level of experience in lab science (goal 3). We purchased Bluetooth-capable equipment from our supplier that integrates well with our program. We are extremely proud that we were able to pool funds together from 3 different disciplines (physics, engineering, and geology) to purchase a Scanning Electron Microscope, which provides many new opportunities for students and staff. We are continuing to adapt our Physics 18 curriculum to provide additional fundamental skills for our incoming students who may have significant learning gaps (goal 4). We have also made significant progress on our curriculum change from physics 4ABC/5 to 7 ABCD and are just waiting now on articulation agreements from 4-year schools.

9 Responses

Name of Program, Discipline, Area or Service	Question: What are some challenges regarding completing your program's/area's goals? Please include reflections on challenges with producing outputs or outcomes so far.
Astronomy	We are still advocating for an observation platform for our telescopes on every single building that is planned for construction. Unfortunately, construction costs balloon and the budgets are too tight to add on simple access to a roof. We currently lack a reliable, minimal light pollution area to do night sky observing that is safe for students and faculty. With the absence of a dedicated observing platform, we need control of exterior lighting in a limited area so that we have some chance of a dark sky. This will help facilitate PUBLIC observing nights as well as for our astronomy students. As of now, we cannot reliably offer telescope observingfor anyone due to permanent campus lighting in open areas. Goal 3 has been put on hold due to enrollment constraints. We have tried to offer ASTR 45 but that class is continually cancelled due to low enrollment. We will keep trying.
Chemistry	One area where we face challenges is in our enrollment. Our enrollments have not yet returned to pre-pandemic levels. One noted exception is Chem 10, which could run a third section if we had faculty to teach it. However, 1A enrollments are up compared to last year, so the trend may be slowly reversing.
Computer Science	In Spring 2023, CSCI had over 4 total FTEF, yet only 1 FTEF of full-time faculty. The current full-time faculty member is stretched thin teaching a huge overload while serving as program coordinator and handling several difficult staffing issues. This situation is not tenable if we hope to maintain a viable Computer Science program!
Earth and Environmental Sciences	Goal 1: N/A Goal 2: The major challenge in developing curriculum has been for the full-time faculty in Earth & Environmental Sciences to have (a) enough reassign time and (b) enough interest and contributions from fellow faculty. While the conversations with fellow faculty have helped the Earth & Environmental Sciences program to better understand the needs of Chabot and develop ideas for valuable courses, the majority of the work of building curricula, creating it in Meta and managing the proposal is still coming from the single full-time faculty hire.

Engineering

Goal 1- Challenges for increasing PLTW programs to high schools are limited funding and teachers interested or available to teach these courses. Many do not have an engineering background. It’s also difficult to know how to set up dual enrollment and make sure students who qualify actually earn the credit. Other challenges include increasing African American students and women to finish the engineering program and transfer to a university. Although they are substantially lower in entry level engineering courses compared with the college, we have found that almost none continue on to 2nd and 3rd year engineering courses. Multiple barriers including student readiness, imposter syndrome, and general discouragement from counseling, peers, clubs, families, and society in general. Reaching students earlier in elementary and middle school will help. Also advertising and marketing to show that African American students and women also belong in the engineering program will help as well.

Goal 2- Prior to Fall 2023, degree/certificate requirements seemed to always include an additional course that many students would not or could not take with overloaded schedules. Multiple barriers have been removed in Fall 2023 to allow more students to earn degrees and certificates.

Goal 3- Universities seem to be a whack a mole game where one class is articulated with a CSU or UC and then another requirement is added or we lose articulation with another course. Also, there is a large amount of variation in requirements from university to university and by each major. Some universities want students to take their engineering course, others have requirements that we can’t offer due to low enrollments

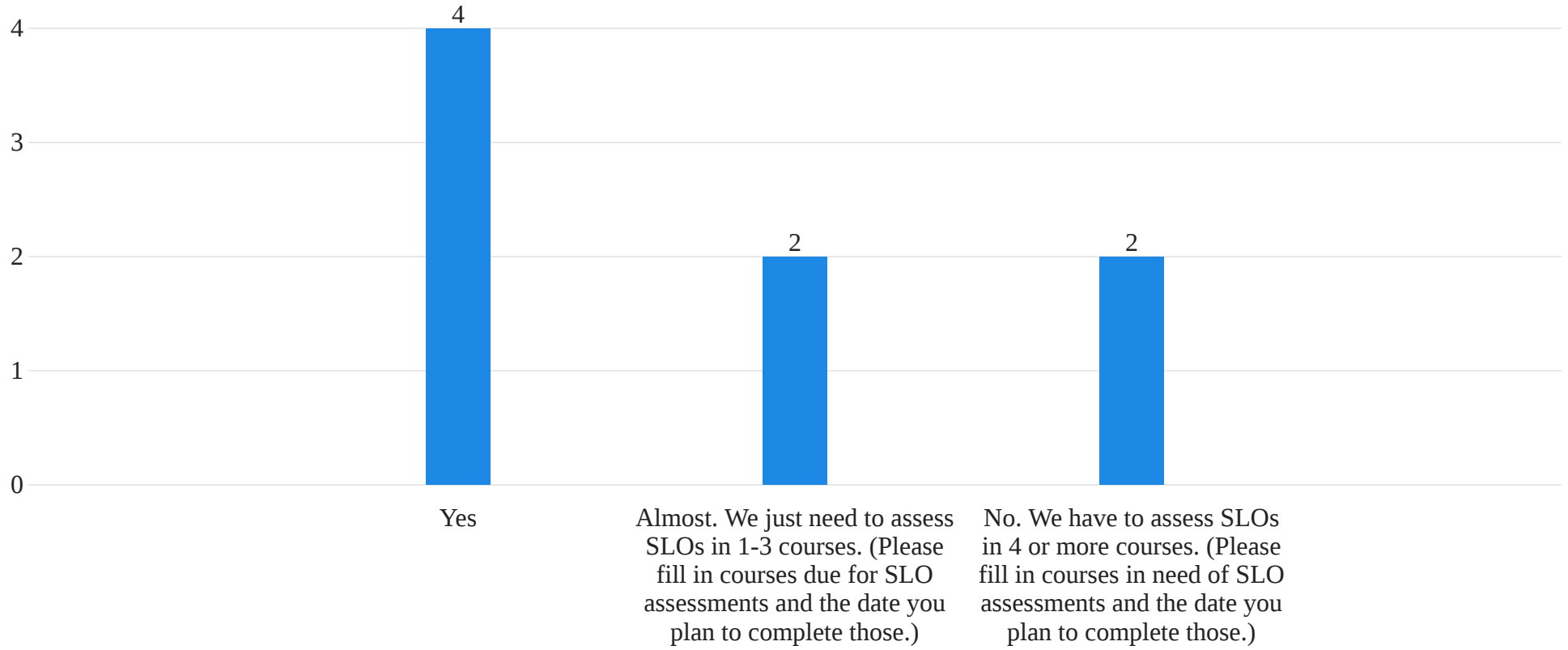
Life Sciences	-Finding time to meet and work for more than an hour at a time… faculty schedules all conflict with long lab schedules M-Th. We also have Friday courses, so that is not a good option either. -With three faculty retirements and only two new hires we have lost some institutional knowledge and are short staffed trying to cover existing classes with one less FT faculty member. This leaves less time for collaborative work as well requiring restarting some conversations to bring new faculty up to speed. -There have been many changes in leadership within the administration at Chabot , which has made it difficult to develop a consistent vision and implement a plan. -Ongoing facilities upgrades have created (hopefully short-term) disruptions in our teaching program. We are frustrated with the level of support we have received from the construction management team. A significant amount of our lab technicians' work time has been diverted to these efforts, and that diversion has not always been done with consideration for our limited time. Repetitive and inefficient tasking has been the norm. -Limited by classroom space in lab course offerings while we await a new building exacerbating bottlenecks and having to reduce sections offered
Math	AB 1705's removal of prerequisite enforcement to calculus courses calls for providing instructional support to students. If best practices like active learning is to be incorporated, we need some funding in order to pay faculty for curricular development that can be shared with all faculty teaching the course. We will need more FTEF allocation in Fa24 to mandate students who are at the lowest band of assessment to take coreq support.
MESA TRIO STEM	As stated above, getting students to re-engage and rebuild a strong community on campus has been challenging. We have been offering many of our services in the STEM Center to help rebuild our on-campus activities and community.

Physics	Due to low enrollments and hiring policies adopted during COVID-19, we are concerned that our area will have a sustained faculty vacancy despite knowing of our colleagues' impending retirement. We wish that when a future vacancy is known far in advance, Faculty Prioritization and PAR could work together to fill the position ahead of the vacancy. Our campus’s decreased student service offerings mean that students are hungry and often miss critical supplies. Our new Barnes and Noble online bookstore is not stepping up to provide students with reliable and affordable access to the necessary supplies. Backorders and extreme price hikes are common for our discipline. Vending machines are a bandaid to our lack of food opportunities after 2:00 p.m. and should not be a sustained solution. Our curriculum changes are progressing, but we are finding the time constraints for articulation to be a hindrance. We have delayed our implementation for our first 7A class to be extra conservative, expecting potential delays (external to Chabot). Our curriculum changes also require a significant collaborative effort from our division faculty to replace Physics 4ABC/5 with Physics 7ABCD in all their prerequisites, degrees, programs, and certificates. We are also very dependent on our counseling faculty to ensure students are prepared for these changes. We have been in communication with them and asked for their wisdom to ensure that students see only benefits from this curriculum shift.

Learning Outcomes Assessment Results (SLOs & PLOs)

Is the assessment for all SLOs in your program up to date?

8 Responses



9 Responses

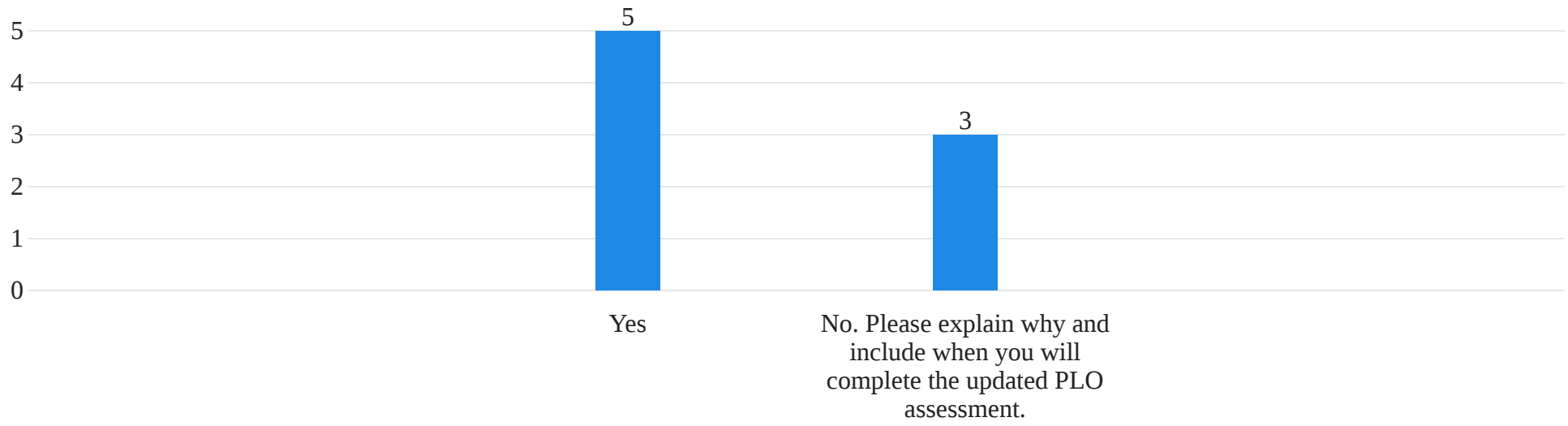
Name of Program, Discipline, Area or Service	Please fill in courses due for SLO assessments and the date you plan to complete those.
Astronomy	ASTR 20 and ASTR 30 need to be assessed and we will complete those assessments by the end of Spring 2024
Chemistry	N/A
Computer Science	N/A
Earth and Environmental Sciences	At present, we are up to date on SLOs except for ENSC 15 and 15L, but we do not expect to offer this class for a few semesters. However, as we are offering classes for the first time (GEOS 11 and 11L) and reviving classes (ENSC 11), we plan to assess SLO's for these classes at our earliest opportunity. That said, the SLOs for GEOS 11, 11L and ENSC 11 are all up to date.
Engineering	N/A
Life Sciences	N/A
Math	N/A
MESA TRIO STEM	N/A
Physics	N/A

9 Responses

Name of Program, Discipline, Area or Service	No. We have to assess SLOs in 4 or more courses. (Please fill in courses in need of SLO assessments and the date you plan to complete those.)
MESA TRIO STEM	N/A
Physics	We need to assess PHYS 4A, PHYS 11, PHYS 5, PHYS 4B, and PHYS 4C. We plan to complete the SLO assessment process by the end of Spring 2024. We would appreciate administrative support to ensure that all faculty participate in these assessments by the deadline.
Astronomy	N/A
Computer Science	CSCI 10, 21, 41 and 42 were last assessed in year 2018/2019. We will assess all four course this spring (2024).
Earth and Environmental Sciences	N/A
Math	N/A
Life Sciences	N/A
Chemistry	N/A
Engineering	N/A

Is assessment for all PLOs in your program up to date?

8 Responses



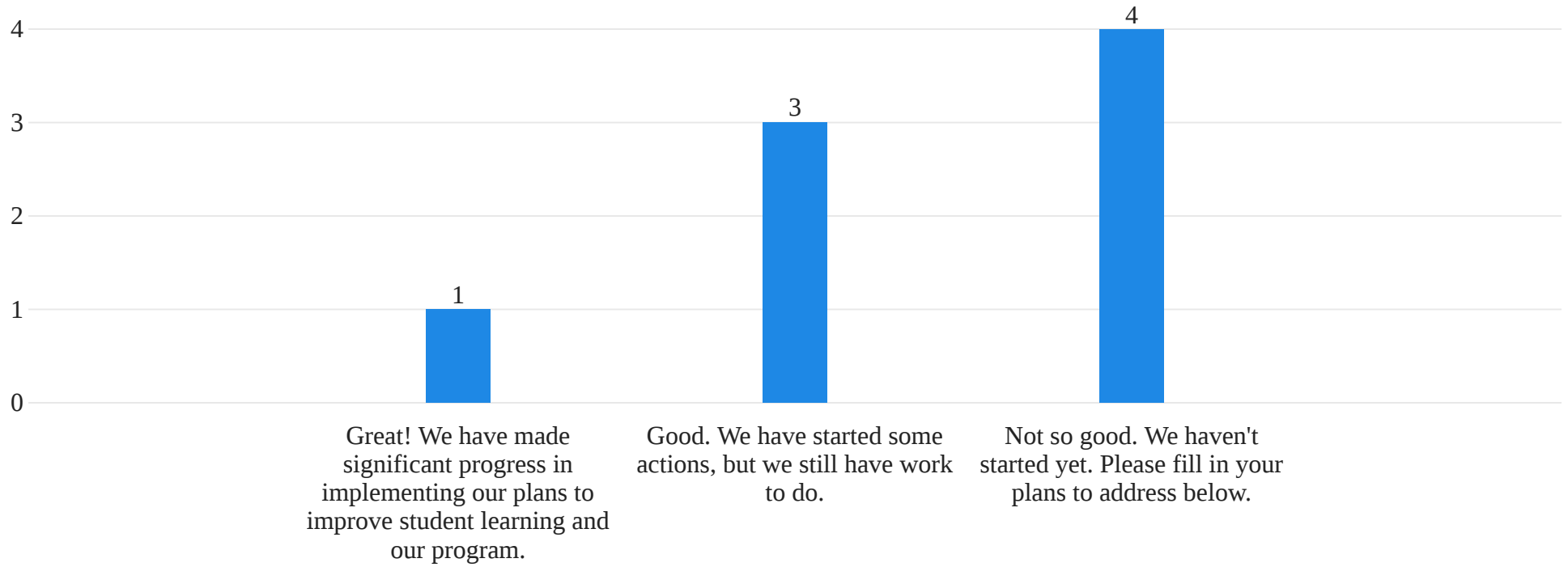
9 Responses

Name of Program, Discipline, Area or Service	If you selected 'No' above, please explain why and include when you will complete the updated PLO assessment.
Astronomy	There is no astronomy PLO
Chemistry	N/A
Computer Science	N/A

Earth and Environmental Sciences	This program is new and hence has not had the opportunity to establish PLOs yet. Once PLOs are determined, the department will aim to assess them on the correct timeline. Before developing PLO's, we would like to revisit the Environmental Sciences as well as establish a draft for the Geology degree at Chabot. After finalizing these degrees, we will plan to establish the PLO's for both ENSC and GEOS. We anticipate that PLO's will be developed by the end of Fall 2024 for both programs.
Engineering	N/A
Life Sciences	N/A
Math	N/A
MESA TRIO STEM	N/A
Physics	We lack the faculty time and availability to complete this assessment. We still need to do a deep dive into CCC physics programs to see how needed a physics AST really is and to assess whether a certificate may be more appropriate/beneficial according to new state funding models.

Please check one of the following boxes to describe how your discipline is doing regarding plans/actions for improving student learning based on SLO/PLO assessment data.

8 Responses



9 Responses

Name of Program, Discipline, Area or Service	If you selected 'Not so good. We haven't started yet' above, please fill in your plans to address below.
Astronomy	We are doing our best with the faculty availability we have. We will complete these assessments in Spring 2024. We will invite our part-time faculty, who currently only teach online, to participate.
Chemistry	N/A
Computer Science	N/A
Earth and Environmental Sciences	The ENSC program was without a full-time faculty for some time, as a result we are now working to re-establish the program and all courses developed will be assessed within the assessment time-frame. In addition, the GEOS program is new. This response is relatively neutral because we have only one prior report for ENSC 15 and it simply stated that from SLO assessments, students need more online tutoring and teachers need more support for online teaching. Given the current resources at Chabot, there is a significant online tutoring and related support for students on our campus, as well as many frameworks to guide and support faculty in successful online teaching. That said, this is the only SLO assessment found, and given that this program is being established, there is probably significant room for determining further student and faculty needs, improvement and growth.
Engineering	N/A
Life Sciences	N/A
Math	Need to pay faculty to work on supporting coreq to calculus courses in response to AB 1705. Example activities could include incorporating active learning, standards-based grading, and identifying remediation resources to prerequisite skills needed in calculus, depending on interest and bandwidth. We applied for the NLET COREQ Initiative provided by CCCCO as part of the AB 1705 funding.

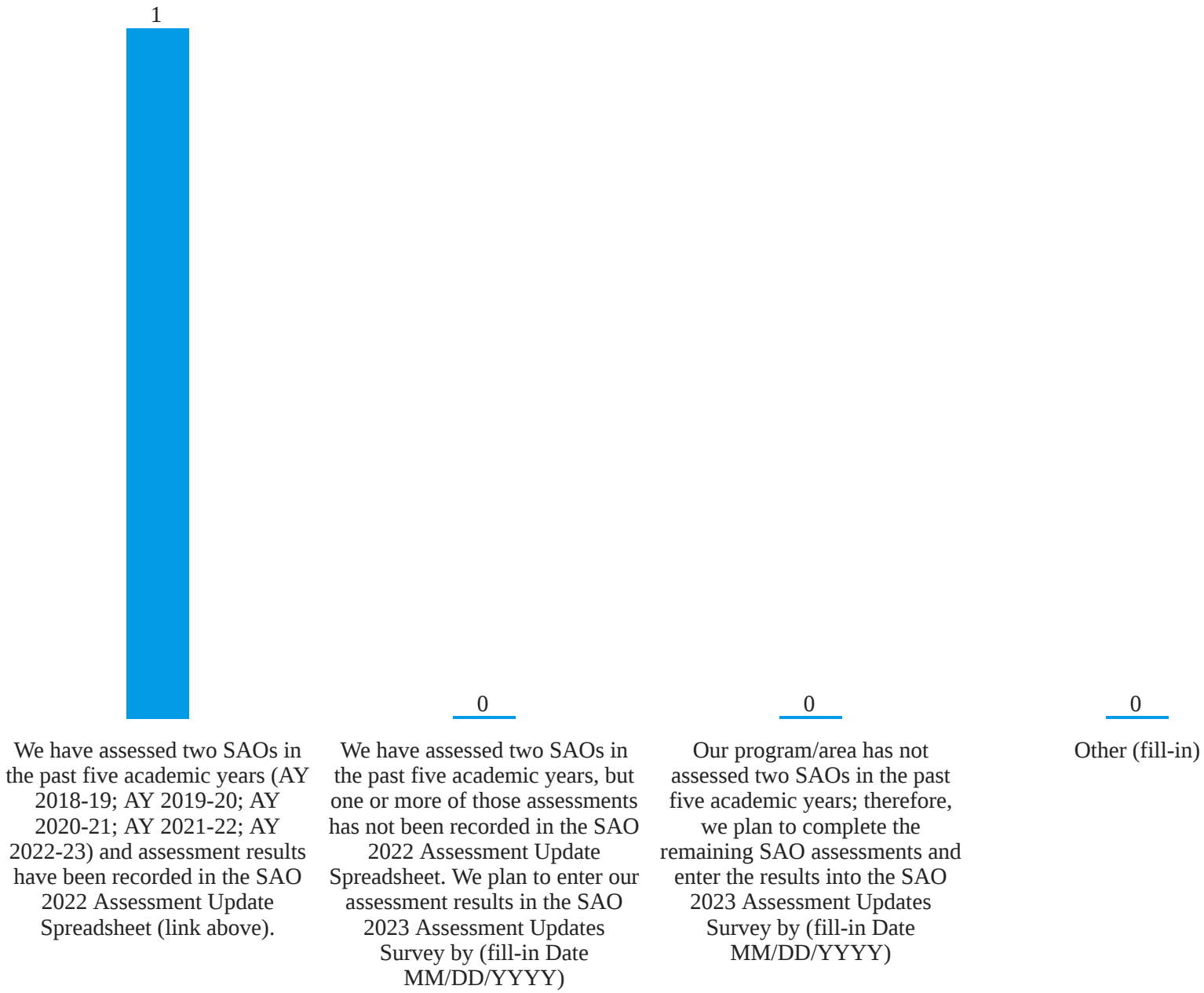
MESA TRIO STEM	N/A
Physics	We are doing the best we can with the faculty we have available. We will assess all of our course SLOs in the spring of 2024. Course cancellations due to enrollment meant that one class was not able to be assessed, but it will be offered in the Spring of 2024. We will gather our faculty together as best we can to implement the assessments and reflect on our lesson plans. We are a small discipline (3 full-time faculty) that can complete this work, and one member is retiring in Spring 2024.

9 Responses

Name of Program, Discipline, Area or Service	All goals are still relevant, but I would like to add an additional goal [fill in].
Earth and Environmental Sciences	N/A
Life Sciences	N/A
Chemistry	Better understand course-by-course and section-by-section variation in success rates.
Physics	N/A
Engineering	N/A
Computer Science	N/A
MESA TRIO STEM	N/A
Math	Need to design corequisite support for Engineering Calculus (MTH 1) and Business Calculus (MTH 15), in response to AB 1705 opening up those courses to all students.
Astronomy	N/A

Please check the statement that best describes your program's/area's SAO assessments.

1 Responses



Rationales for Resource Requests

9 Responses

Name of Program, Discipline, Area or Service	Which of your PAR goals, plans for improving student learning, and/or plans for reaching SAOs will need augmented or new resources?
Astronomy	Goal 1) We need an observing platform or designated area on campus to give students and the public access to observing nights. We would like additional funds to purchase planetarium shows for both student and public use.
Chemistry	N/A
Computer Science	Improving student success going from CSCI 14 to CSCI 15.
Earth and Environmental Sciences	PAR Goal #2: This department will likely need reassign time for several more future semesters to justify the amount of work in building new courses, particularly those across disciplines that will be focused on increasing sustainability and climate awareness on Chabot's campus. PAR Goal #3: In this goal, we would need significant funds to support outdoor field courses, particularly those that are multi-day with overnight camping (requiring transportation, equipment and food for students). These courses would significantly increase student-engagement and therefore the additional funds would improve student learning.
Engineering	Need additional lab and storage spaces.
Life Sciences	See H&W SST Planning Doc - https://docs.google.com/document/d/1rdSFfgGHAnaQch-SFtz_9Aa2fjCk4KCmM9ycTddPEFY/edit?usp=sharing Regarding a Biology Faculty Interest Group on Collaborative Teaching Methods , we need to connect with how the SASE funding recommendation has been made to PRAC and figure out the timing and amount of funding we are able to obtain.

	(You might have seen this response in the previous question, which was pasted incorrectly.)
Math	Need to pay faculty to work on supporting coreq to calculus courses in response to AB 1705. Example activities could include incorporating active learning, standards-based grading, and identifying remediation resources to prerequisite skills needed in calculus, depending on interest and bandwidth. We applied for the NLET COREQ Initiative provided by CCCCO as part of the AB 1705 funding.
MESA TRIO STEM	All of our goals will be better served if we were to add a full-time faculty/counselor coordinator to our program. The scope of our work has increased with our collaborations with guided pathways and the STEM Center and the program and students will be better served by increasing staff to help with the workload this has created.
Physics	We require funding, reassign time, and college support to implement solutions to the learning gaps caused by AB1705. Ideas include funding non-credit courses, reassign time or funding for workshops and math jams, online tutorial services (Aleks), and embedded tutors. It would be wonderful to tap into HSI funds as appropriate to financially support this work since the HSI target demographic makes up a significant portion of affected students.

Response to Enrollment (Optional Question)

9 Responses

Name of Program, Discipline, Area or Service	Question: Though slowly improving, Chabot's enrollment is far from reaching pre-COVID-pandemic levels. This impacts our funding. What are your thoughts on how we should respond? (e.g., ensuring smooth process for students from application to enrollment, mass retention campaign, mass marketing, planning for a smaller college, providing in-person/hybrid/hyflex course instruction and service delivery, other?)
Astronomy	Students will come if education is valued and the campus has the support they need to succeed. This support should be multifaceted and reflect that our college is an integral part of the community, not just for transfer students on a 2-year path. We shouldn’t push students who need to take more time, or force students who need to build up fundamental skills into courses where they are set up to fail. We want to create life-long learners, and we cannot do that by tossing them in the deep end.
Chemistry	N/A
Computer Science	For the sake of student learning courses should return to face-to-face instruction or hybrid formats, not fully online.
Earth and Environmental Sciences	There needs to be significant investment in transportation infrastructure to ensure that students can commute to Chabot College reliably on public transport. This would mean frequent shuttles from Hayward BART station. Currently, there is a strong focus of student enrollment on online courses because so many of our students are taking Ubers to school, and if they can avoid the fare, they will, because they need the money for so many other things.

Engineering	Post covid, AB 705, AB 1705 and general stress of surviving in the Bay Area has added multiple barriers to student enrollment, student success, and student confidence to pursue their educational goals. Many students need to focus on supporting themselves and their family. Many students also can find jobs that do not require college degrees and still make $20 - 30 per hour. Many jobs requiring an education do not pay much more than this rate. Also, competition with other colleges has become greater because students are offered free tuition and online classes. Here are a couple of strategies that I believe will help increase enrollment and retain students: Implement free college for all students Make it easier for students to get to campus, i.e. shuttle from BART Stations to Chabot Offer more hybrid, hy-flex, and online courses. At least one section per year in this modality Offer student jobs on campus Coordinate with local industries to incentivize employers to hire Chabot students Increase the number of certificates offered. If a program is a 2 year program offer at least one COA. If it's a 3 year program offer at least two COA's Coordinate with High Schools to offer more dual enrollment. Encourage more collaboration between Chabot and HS Faculty Offer more summer bridge programs starting in elementary through high school Some faculty are causing students to go elsewhere, whether poor teaching methods or personality conflicts. Implement a system to encourage faculty to teach other courses and rotate faculty members teaching those courses.
Life Sciences	-offer wide range of course offerings throughout day/week and provide support services (tutoring, cafeteria, counseling, student services, etc) to students taking courses during the off peak days/hours -provide quality instruction by highly qualified staff -help connect potential students with guidance in how to prepare to apply (peer advisors/mentors, outreach, web tools, videos).
Math	Online learning might be popular with students, but cheating in math classes has been a problem. It really ends up hurting the students when they cannot make progress in subsequent courses. I've seen students who can't take simple derivatives in second-semester calculus and who can't solve a simple system of linear equation in two variable in a linear algebra class. We need a Testing Center on campus to proctor exams for online classes and/or have more intrusive online proctoring protocols.
MESA TRIO STEM	N/A

I think we need to increase our on-campus student services. The majority of students do not succeed in online classes. They may like to register for them due to convenience and cost, but our discipline pass rates in online courses are extremely low. We need to give students value for coming on campus. We need to provide them with an environment that will foster community and a sense of belonging.

We need to increase the academic integrity of our online courses so that students are prepared to advance and succeed in their next course. We need a testing center so that online courses can have proctored on-campus exams that can work with a variable online student schedule. I have spoken with many students who said they earned good grades in online courses but “learned nothing.” I think online courses can be wonderful, but there needs to be more rigor and protection against cheating and AI. Despite low enrollment, we also need to offer more in-person sections; if we offer them, students will come. We need patience.

Physics

We could offer discounted parking, public transportation subsidies, and more free food events as funds allow us to ease the burdens of college. I had a great student drop out this semester because they could not afford the commuting costs to regularly attend class.

Registration should be as smooth as possible, and purchasing school supplies (textbooks, etc.) should be easy (and timely) to obtain.

Signage needs to be updated so that students feel confident they can navigate campus. Construction has made things challenging. They need to feel welcome and comfortable. Many of our students are coming to school from social isolation and are hesitant to form connections with peers and navigate the college experience independently.

One Thing To Tell President Cooks (Optional Question)

9 Responses

Name of Program, Discipline, Area or Service	Question: As you know, President Cooks assumed the role of Chabot's 10th College President on August 1, 2023. If your program/area could tell President Cooks one thing he needs to know about your program/area, what would it be?
Astronomy	Our planetarium is an incredible tool that allows us to interact with the public. Scott Hildreth has done AMAZING public and campus-wide events using his breadth of knowledge, experience, and enthusiasm to delight our community. Coordinating these valuable events takes a lot of time and effort. I think it would be wonderful if there were more folks who could help with these events so that it is not up to the astronomy faculty to plan, prepare, host, and clean up these events on our own. We get desperately needed assistance from the MESA program and its student assistants, but college support would be greatly appreciated. We have this amazing planetarium, and we would love to do more public events, but it really takes such a huge amount of effort outside of our normal duties that they are rarer than we would like. We would also love to do public observing nights with our telescopes, but lighting issues on campus make this nearly impossible. We would appreciate some help finding a safe, darkened spot on campus to reliably hold our astronomy observations for our students and the public.
Chemistry	N/A
Computer Science	Student interest in AI, Machine Learning, Data Science and Cybersecurity is at an all time high. This is an ideal time to grow the Computer Science program. We just need faculty to make it happen! Please support Computer Science by helping use get new full-time hires.
Earth and Environmental Sciences	President Cooks, this could be the program that opens the door for students from historically-excluded communities and transform the future of the Earth and Environmental Sciences to become so much more diverse and inclusive that it has been or is now. If we can create a sense of belonging through growing our program and innovative teaching methods, including field-based and research-laboratory based courses, our students at Chabot could believe and one day become the leaders at USGS, NASA and research universities around the world, investigating the farthest reaches of outer space and the deepest oceans on Earth and everything in between.

Engineering	Engineering is arguably one of the most challenging majors to complete requirements and transfer to a university. Though the courses are difficult, it is also one where the transfer requirements change significantly from school to school and by different sub-disciplines. Most engineering programs are also impacted, so students cannot just take the course requirements for their desired school, but usually need to have one or two back up schools, which often leads to an additional 1 - 2 semesters of classes they need to take. Students also have to take 15-17 units per semester to transfer in 3 years. It is also one of the few programs where an AS-T cannot be written, as it was purposely left out of the state law. Most students take over 100 units before transferring and can earn an AS degree in Engineering, Physics, and Mathematics before transferring, but most do not because of the additional GE requirements needed for an AS degree. Students simply do not have time in their schedules to take that one additional GE course. With the new SCFF, engineering students are funded at a much lower rate because of these barriers. On the state level, I would encourage laws to be enacted so an engineering major has one set of requirements to UC's and CSU's and an AS-T be created for engineering.
Life Sciences	We regularly turn students away because our classes are full. The move to a new building and delays in the process exacerbate the problem and creates bottlenecks in the existing programs. We do not have classroom space, and are limited in lab tech support (as they manage existing courses and moving to new buildings) and sometimes available faculty that would be needed to teach additional courses that would resolve the need to turn students away.
Math	Many students in the STEM pathway are seeking pretransfer level math courses despite our every genuine effort to start them at transfer level and to provide support.
MESA TRIO STEM	N/A

AB1705 places students who lack fundamental math skills (like division, percentages, fractions, etc.) into transfer-level math courses. They will not succeed without gaining these fundamental skills. How can we offer them? What can we do in a pre-calculus class when our students cannot divide? We just set them up for failure, and it's demoralizing for everyone. Students get humiliated and discouraged and drop out.

Physics

Our physics and engineering programs depend on these successful math students who progress with strong skills into our highest-level math courses. If these students don’t succeed in math, there are no physics students; if there are no physics students, there are no engineering courses.