Administrative Leadership Unit Review (ALUR) Template for FY 2024-25

Date: 3/18/2024

Division: STEM

Division Dean: **Folsom**

Please respond to the following prompts by clicking on the grey box:

I. List the programs that fall within your Division.

- Allied Health
  - Sterile Process Technology (was Central Services Technology)
  - Emergency Medical Technology
  - Respiratory Care-- Associates
  - Respiratory Care-- Bachelors
  - Surgical Technology
  - Anesthesia Technology (Not Active)

- Biology
- Biotechnology
- Chemistry
- Computer Science
- Earth Sciences (Geology/Environmental Science/Oceanography)
- Engineering
- Electronics Technology
- Health Science
- Mathematics
- Network Engineering Technology
- Natural Science
- Physics and Astronomy
- STEM Center
- Learning Communities: Engineering Tech Scholars, Biology Chemistry Scholars, Data Science Pathway, First Year Experience
- MESA Center
- PTK

II. Briefly describe any major changes to the Division or Programs' purview and functions during the past year.

a. Dr Jing Folsom transitioned to the Interim Dean from Acting Dean role because Dr. Carla Grandy accepted the permanent VPI position at College of San Mateo.

b. Loss of two Full-time faculty, one is in Surgical Tech program (Robert Lopez resigned during the summer 23) and one is in Respiratory Care Bachelor's program (Beatriz Qura Del Rio resigned after Spring 23) has impacted both programs. We had to hired more adjunct faculty to teach the courses and coordinate the program during Fall 23.

c. Hired a new full time Program Service Coordinator (Shruti Ranade) to support the Division and programs in general, especially in Surgical Tech and Emergency Medical Technology programs.
d. Loss of a full-time Program Service Coordinator (Bryan Swartout) in STEM Center started Feb 2024, we were able to hire a detail PSC in two weeks. Transition is ongoing.
e. Loss of a full-time instructional Aid II (Thanh Nguyen) and two part time Instructional Aid II in STEM Center has limited the services that we are able to provide to students. All three positions are still vacant as of today.
f. Hired part time simulation lab coordinator (Scoutt Kessler) who is coordinating with all Allied health programs to use the simulation lab for better learning and prep for clinical practice.
g. Expanding Your Horizon 2024 has been cancelled due to lack of staff and workshop volunteers. We hope the Division can come up with a planning committee and some modification for this event to serve our community better.
h. Our collaboration (Energized College program and Climate Protection Professional Skills Certificate, Environmental Science Dual enrollment courses) with Strategic Energy Innovations has ended at the end of 2022-2023 academic year.

III. Review the Improvement Platform's "General Information Summary" dashboard for program review completion and **note which programs within your division are (a) missing a CPR/PRU for their designated year, and are (b) scheduled for a CPR and/or PRU next year.**

(a) missing a CPR/PRU for their designated year:

(b) scheduled for a CPR and/or PRU next year:

CRP: Emergency Medical Technology**,** Health Science (will be postponed due to no full time faculty)
PRU: Biology

IV. Review the Improvement Platform's "Course SLO/ PSLO Assessment" dashboard for your division and **note progress on course SLO assessment (for instructional/ student service programs with courses) or program SLO assessment (for student services programs) for the current three-year cycle? Which programs may need your support, and how will you support them?**
They won't be marked as complete until the final draft is submitted and signatures are gathered.

V. Briefly describe the major challenges and achievements for your Division over the past year.

<u>Challenges in the STEM Division:</u>

a. STEM Center is short staffed, we have three Instructional Aid II positions vacant. One of them is full time IA II, and two are part time IA II.

b. With the HSI-DOE grant, we have been supporting the tutoring services, offering both in-person support to students in STEM pathways for the last six years. However, this grant will end Sep 30, 2024. MESA fund has been supporting the tutor service this semester. Institutionalized the tutoring service to support STEM students is urgent.
c. Allied Health Programs' challenges:
    1. Overall challenge is hiring qualified faculty to teach in our allied health programs due to the non-competitive salary.
    2. Emergency Medical Technology adjunct faculty, Judith Crawford allowed her Paramedic license expired since 12/31/2019 without informing the Division, nor the College. After her resignation in Fall 23, EMT program was audited by the San Mateo County LEMSA and we're in the process of re-assessing all impacted (172) students' skills
    3. Clinical student placement is a big challenge in all allied health programs. Clinical sites have reduced capacity (short staff in the clinical sites), which has created a backlog of students who have not been able to complete their clinicals and thus their degree or certificate requirements. And often times, last minute change happens. When students were placed on hold for clinic practice, their skills got rusty and refresh their skills in later semester increased our faculty workload.
    4. Surgical Technology and Respiratory Care Lab courses has 10:1, student: instructor ratio. Hiring new faculty to teach the program with the current educational compensation is challenging.
    5. Funding supporting for all students' activities, such as orientation, graduation, greet and meet for all programs.
    6. Anesthesia Technology, without accreditation, the program is still not active. Heather, Allied health Director, will work with full time faculty to re-apply. Also, for this program, hiring qualified adjunct faculty is essential to sustain the program.

d. For 23-24 academic year, overall enrollment kept increasing in STEM Division. Most disciplines with a hands-on lab are back as fully in-person classes. Some disciplines, online, asynchronous classes are preferred by students. We are closely monitoring the enrollment and working to find a balance between student needs and pedagogical best practices for the various STEM disciplines.

e. We continue to move towards effective implementation of AB1705 to addresses issues underlying inequitable and uneven implementation of AB705 and supports the system's work to ensure that placement systems and curricular structures are designed to produce strong and equitable placement and completion outcomes.

f. Due to lack of classified professional support and not enough workshop presenters, after Division's discussion and assessment in December, 2023, we cancelled EYH for 2023-2024 academic year. With the hope of getting an effective planning committee up to organize this event for 2024-2025 academic year.

Achievements in the STEM Division:

- Most of the transfer sciences have transitioned back to fully in person lab to maximize students' hands on experience. One course in PHYS, continue using at home lab kits to offer virtual labs; some courses in Biology and Environmental Science, continue integrating virtual STEM labs to meet students' GE requirements. Other disciplines, such as CHEM have developed a hybrid format to better utilize space and time in the classroom.
- We hired a part time simulation lab coordinator to continue using the Simulation Lab on campus to meet student needs. EMT and RPTH programs have been collaborating with student activities to enhance the program learning outcomes. We're exploring the collaboration with CSM nursing program in the simulation lab.
- STEM Division has continued to update several instructional equipment in the following disciplines: Biology/Biotechnology, Respiratory Care, Emergency Medical Technology, Surgical Tech, Sterile Processing Technology, Engineering, Electronics, Mathematics, Networking Technology.
- STEM Division continue using external funds for various programs to promote STEM education and to increase equitable outcomes and diversity in STEM. Progress on grant projects this year:

    - **Data Science Pathways** (PI: Denise Hum) -- Passion Driven Statistics has been implemented in MATH 200 classes and math faculty have been trained to incorporate PDS into their classes. This project aims to serve to increase the number and diversity of STEM students. To do so, it will establish a new path into STEM majors and careers through statistics and data science for students at a Hispanic-serving two-year college. This new path is expected to improve STEM learning and teaching and increase the diversity of students pursuing STEM. This project may serve as a model for other community colleges looking to build a data science program and a new pathway into STEM. This grant will end on 9/30/24.
    - **Department of Education, Title V, HSI STEM Grant** – Grant continues to support STEM Retention Specialist, IAII in STEM Center. In addition, Winter Scholars Program continued this year and expanded to offer a winter research opportunity to 25 students. This grant has supported all disciplines in either equipment purchase, curriculum building and student STEM enrichment activities. This grant will end on Sep 30, 2024.
    - **NSF ATE SkyBayTech** (PI: Nick Langhoff) -- Creation of new Electronics Lab (paid through a combination of grant funds and capital improvement funds) and Electronics Technology Pathway in partnership with Strategic Partnership and Workforce Development Division in an effort to strengthen both dual enrollment offerings and pathway to Skyline College for local area high school students. Faculty (Nick Langhoff and Brooks McCall) have gone through the certification process and begin to offer certifications at Skyline. So far, we have awarded xxxx certificates to our students. We hired a coordinator to connect our program with local industry using the grant. This grant will end on 8/31/24.
    - **Innovative & Meaningful Mentoring to Enhance Retention, Success, & Engagement in STEM (IMMERSE)** (PI: Emilie Hein and Co-PI: Rick Hough) Skyline College has awarded a $1, 498,855 grant from National Science Foundation (NSF) to focuses on enabling academically talented, financially disadvantaged students to transfer to a

four-year university to earn a degree in STEM pathway. Students will be supported by scholarships (up to $10,000 per year, for 3 possible years), multi-tiered mentorship, workshops and internships. We awarded 11 scholars for the first cohort and another 11 scholars have been awarded for the second cohort. All scholars have been paired with a faculty mentor.

- **Pathways to Improved Representation in Nuclear Physics** (PI: Emilie Hein)-- Due to the success of last grant, DOE has awarded grant extension during summer 23 and the renewal of another two years starting Sep 1, 2023. The first cohort of student trainees has recruited and being trained. With this grant, Dr. Emilie Hein have recruited students from communities not traditionally represented in nuclear physics and will mentor them through individual small-scale research projects in support of the nEXO nuclear physics experiment. Mentor and trainees will participate and present at multiple conferences. During Summer time, trainees will participate in local institutions' research laboratory to further their understanding of nuclear physics.
- **CSUEB Learning Lab subgrant building critical mass for Data Science---**this subgrant focus on curriculum development, outreach, and recruitment for a new Math Data Science course, and data science pathway, embedded tutoring for the new Math for data science course, and faculty training on the new math for data science course and existing Math 211 introduction to Data science course.
- **SFSU NSF IUSE Subgrant**---Strengthening student motivation and resilience through research and advising project. To enhance undergraduate engineering education through research internships, advising, lab tours, establishing a SFSU HSI Engineering Success Center with career development resources, and workshops for effective teaching methods for URM students.
- **MESA funding** – MESA continues to support Counselor hours and Tutor services for STEM students. Students have been actively participating in field trips and conferences, such as student leadership retreat, SACNAS Diversity in STEM conference, to enrich their academic journey in STEM field.
- **AB1705 Equitable Placement, support, and completing Funding**—this funding focus on academic supports and successful completion of math courses

- STEM Division has 64 paid internship/traineeships that have been funded and filled during the last year. The table also includes Faculty (PI/Co-PI) workload.

Grant	# of Positions	Position Description	Faculty
SkyBayTech	14	Students will complete Certificate of Specialization in Electronics Assembly and Fabrication after this semester	Nick Langhoff- Faculty Coordinator @ 20% FTE, Summer OVL -Non-instructional Laura Tudor – Adjunct Faculty, non-instructional, industry internship coordinator

STEM Research Scholars	25	Students engage in paid research focused program to prepare them for scientific research.	Susanne Schubert-Faculty Coordinator (OVL-non-instructional) Marco Wehrfritz as Adjunct Faculty, non-instructional
SPWD Funded	2	Students manage biotech manufacturing club to gain skills in facilitation as well as biotechnology laboratory procedures.	Eric Manning – Faculty Coordinator, 4 hours/week
Department of Energy	4	Students work with Skyline Fabrication Lab and then intern at SLAC and Stanford Labs.	Emilie Hein as Co-PI at 40% FTE Summer OVL – non-instructional
Learning Community, Measure K	10	BCS and ETS students conduct research projects related to their disciplines and major, gain research experience, will produce posters to share their research experience	Luis Prado, retention specialist is in support of printing their poster and organizing the presentation session.

- Continue offering PHYS, CHEM, and MATH Jams for Fall and Spring semester. The demand/need of Jam courses has been increasing. The goal is to build confidence and fundamental skills necessary to succeed in class.
- MESA center continues support counselor hours for STEM/MESA students in STEM Division.
- The STEM Center has been experiencing a strong coming back in person needs of the tutor service and study space. There have been over 4,000 student visits since Jan 17, 2024.
- Science in Action has continued to run weekly throughout last semester and this semester with options of in person or via zoom, allowing a broader participation of both speakers and student/faculty/staff participation. Science in Action is an opportunity for our students to learn about and ask question of recent STEM graduates as well as more senior scientists. We specifically recruit speakers from underrepresented groups in STEM and community college backgrounds so that students are able to see a variety of paths to STEM careers.

VI. List and describe the major goals for your Division – What will the Division focus on achieving over the next 1-3 years? How do your Division goals align with the College's M-V-V and Education Master Plan?

1. Fully implement the STEM Center Model and Student Success Team Model within the STEM Center, including institutionalizing STEM Center roles and MESA academic support opportunities within the STEM Center. (Values: Campus Climate, Open Access, Student Success and Equity, Academic Excellence, Community Partnerships | Ed Master Plan: Strategic Goals 1, 2, 3).
2. Continue improve Math placement procedures and Math course offerings to become fully compliant with AB705, AB1705 to ensure equitable outcomes for all students completing their Math course at Skyline College. (Values: Social Justice, Open Access, Student Success and Equity, Academic Excellence | Ed Master Plan: Strategic Goals 1, 2).
3. Continue to recruit and offer high quality Allied Health Programs that lead students immediately into living wage careers within the Bay Area and work closely with hospitals to ensure that students are gaining the skills necessary to be successful health care professionals. (Values: Student Success and Equity, Academic Excellence, Community Partnerships | Ed Master Plan: Strategic Goals 2, 3, 5, 6).
4. Fully implement the grant goals for grants currently held within STEM Division and continue to seek additional grant funding to support student success and engagement in STEM in an effort to meet workforce demand in the Bay Area and create opportunities for students to gain work experience, thereby opening opportunities for them. (Values: Social Justice, Student Success and Equity, Academic Excellence | Ed Master Plan: Strategic Goals 1, 2).
5. Keep update lab equipment to continue to offer high-quality, state of the art lab experiences with modern lab equipment and curriculum for all students in transfer and Allied Health related STEM lab classes. (Values: Student Success and Equity, Academic Excellence | Ed Master Plan: Strategic Goals 2, 3).
6. Work with SPWD to build community partnerships and biotechnology, Allied Health pathway from high schools/adult schools to Skyline College. (Values: Social Justice, Student Success and Equity, Academic Excellence, Community Partnerships, Sustainability | Ed Master Plan: Strategic Goals 1, 2, 3, 5).

VII. **Using the boxes below, list the resource requests that the Division is moving forward for consideration. Please note that the resource requests should be in declining order of priority, as indicated in the upper left corner of each box. For each resource request, describe how it connects with your Division goals, and the potential consequences of not securing the requested resource. In sum, please explain why filling this request should be a priority for the College.** (To see a list of requests submitted by your programs, please follow the separate instructions for downloading from the Nuventive Platform.)

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $
1	Program Service Coordinator for MESA	Classified Professional FTE	MESA	40,000

Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.

As more students return to campus, the MESA program has increased program activities on campus, college tours, and travel to conferences. A PSC would be very helpful in providing clerical support for these activities as well as increasing student recruitment and engagement with the program. This part time (48%) PSC is a position that is supported by MESA funding for work on programming to support MESA students in collaboration with the directors.

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $
2	Associate STEM Dean	Other	All programs in STEM	140,000

Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.

The disproportionally large size of the STEM Division is one of the great challenges as the same resources (in terms of administrative and classified professional support) are stretched across many more students, faculty, sections, and programs. This creates inequities in workload for the Dean and Division Assistant and inequities in support for faculty and students. With an associate Dean support, the workload could be manageable.

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $
3	STEM Center Manager	Other	STEM Center	120,000

Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.
STEM Center provides students with study space, tutor service and workshops. As more and more students return to campus, we have almost reached out capacity, both space wise and staff wise. None of the full-time classified professionals has the bandwidth to do any administrative work. This manager will help oversee the daily operation of the STEM center, scheduling, training tutors and organizing workshops. We'd like to adopt Learning center model, one manager oversee the STEM Center to provide more well organized support.

Order of Priority	**Resource Request Title**	**Type**	**Program(s) Impacted**	**Amount $**
4	STEM Center Tutor service	Student Assistants/ Workers	All STEM Programs	$30,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
• We have built strong PI team to support students cross the whole spectrum of STEM. HSI grant will expire on Sep 30, 2024. At the same time, MESA funding is limited for only MESA students, so at least half of STEM tutoring service will be unfunded for 24-25 AY. Our students will be impacted dramatically.				

Order of Priority	**Resource Request Title**	**Type**	**Program(s) Impacted**	**Amount $**
5	Physics/Astronomy Tenure-Track Full time Faculty	Faculty/ Adjunct FTE	Physics/Astronomy	$100,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
• FT/PT ratio is very low. It is 30%705% for Physics and Astronomy combined, and 0%/100% for Astronomy only. As Physics and Astronomy has expanded, FT faculty have taken on new				

responsibilities, namely, the nEXO program (0.4 FTE for the only FT faculty), the MESA program (program lead is co-director of MESA, 0.3 FTE), as well as the S-STEM grant (0.2 FTE for program lead who is also PI on the grant).

- During CPR 21-22 Academic year, ASTR courses were observed to be courses of concern due to a low success rate. Given the high demand for these courses (as evidenced by consistently high enrollment), it was identified as an area with considerable potential for growth. A stark lack of diversity among the Astronomy faculty was also evident. Since then, Course Outlines of Record for each of our Astronomy course offerings were fully revised and a new adjunct Astronomy instructor was added to the team. Despite these positive developments, it is clear that Astronomy would further benefit from having a FT faculty dedicated to teaching and developing its courses.

- Our Conceptual Physics and Astronomy course offerings provide general education degree requirements needed for transfer. These courses are crucial in meeting students' academic goals. Astronomy is also a great "gateway" science and a strong program could inspire more students to pursue STEM careers, especially women and other underrepresented minorities in STEM.

- A significant number of sections in both Physics and Astronomy are primarily taught by adjunct faculty who are unable to be fully connected with department/college processes.

- With very few exceptions, every STEM transfer discipline requires one or more physics courses as part of their transfer sequence. (Goals 1,2,3 and 5)

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $
6	Designated Program Service Coordinator for Allied Health (EMT, SURG and Sterile Process Program)	Classified Professional FTE	EMT, SURG and Sterile Process Program	94,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
Due to external accreditation, we're required to keep students' documentation about attendance, exams, hands on skill tests and clinic participation, a dedicated PSC supporting EMT, SURG and Sterile Process program will ensure the compliance with all the regulations and audit.				

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $

7	Lab Coordinator	Classified Professional FTE	ELEC/ENGR/PHYS/ASTR	$94,604
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
When most of the physics, Engineering and electronic labs coming back in person, and additional lab demands from projects such as nEXO and various honors projects, the workload is becoming difficult to manage for only one lab coordinator, and hiring another lab coordinator is a high priority to provide high quality instruction and meet the needs of all of our students. (Goals 1, 2, 3 and 5)				

Order of Priority	**Resource Request Title**	**Type**	**Program(s) Impacted**	**Amount $**
8	One more classroom at Building 19	Rennovation/ Designated Space	NETX	100,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
With the expansion/update of the program, we'd like to request one more classroom in Building 19 due to the program is completely located in Building 19. This addition will allow the program build data center for teaching. Each classroom (only two for NETX) are equipped with specific equipment for certain courses.				

Order of Priority	**Resource Request Title**	**Type**	**Program(s) Impacted**	**Amount $**
9	Student Activity Space	Rennovation/ Designated Space	All STEM Programs	$10,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
STEM Center is back to serve students on campus with tutor support, study space and more. With more in person classes, active student clubs' activities and more workshops, the limited space can't meet the needs of STEM students. Often times, when there is an event going on, such as workshop, science in action, student club meetings, students were discouraged to stay in the space continuing				

their study or social engagement with their peers. STEM Division also has grants supporting students' hands on activities which requires a designed space for uninterrupted activities. (Goals 1, 2, 3 and 5)

Order of Priority	Resource Request Title	Type	Program(s) Impacted	Amount $
10	Funding support for PTK	Other	PTK	$30,000
Describe how this request impacts program/division operations, and how it will further completion of the Division goals stated above.				
The request for funding to support the Phi Theta Kappa (PTK) chapter, Beta Theta Omicron (BOO), will have a significant positive impact on the division's operations and goals. By providing resources for leadership development opportunities, events, and workshops throughout the academic year, BOO can continue to foster a strong sense of community and engagement among the student body. PTK welcomes over 190 Skyline students each academic year, offering them invaluable experiences that contribute to their personal and professional growth. Furthermore, the funding will enable BOO to create an inclusive and supportive environment that encourages student success, aligning with the division's mission to promote academic achievement and prepare students for future challenges.				

If you have additional resource requests, please copy and paste new boxes below, and be sure to update the priority ranking.