

Dean/Administrator	Program Review Committee Reader(s)	SLO Committee Reader(s)
Nan Ho	Angela Amaya Christina Lee	Ann Hight Gina Webster

Division/Area	Programs
MSEPS	Administration of Justice Biology Chemistry Emergency Medical Services Engineering Environmental Studies Fire Service Technology Geography Geology Horticulture Mathematics Occupational Safety and Health/Radiation Safety Physics/Astronomy Viticulture

Executive Summary: Please describe the most important themes, trends, and developments in your division or area. Your summary should identify accomplishments, objectives and barriers to success. Your summary should be approximately 250-500 words in length.

Three major themes arise from the analysis of 13 Program Review Updates, representing 15 disciplines in Math, Science, Engineering, and Public Safety.

- Faculty and staff deliver **outstanding learning opportunities** for students, whether in the classroom and lab or through a wide range of student activities and opportunities to support student goals, including Honors Projects, Independent Study, student clubs, honor societies, internships, seminars, conferences, poster exhibits, transfer, scholarships, and learning communities. Math is leading efforts in the HSI and Basic Skills Transformations grants.
- Faculty and staff increasingly struggle with the **lack of adequate time** to complete their many non-teaching tasks and to create comprehensive, thoughtful progress on several fronts: curriculum; SLOs; staff development and other training within and between departments, facilities, student support; and K-20, community and industry outreach.
- As programs have grown and modernized, there is the significant need for increased access to three types of **resources—funding, space, and people**.

Other main themes:

- Many programs have updated **curriculum**, with course outline updates, new courses, and a newly approved AJ certificate and Biology AD-T. Some disciplines are exploring different modes of delivery, such as non-credit, co-requisite, hybrid, OEI, DE, and Emporium model. There are still a significant number of course outlines in need of revision, especially in departments with one or no full-time faculty.
- **SLOs** are being expanded and revised, with a wide range of engagement participation, development, and assessment. Several programs report pedagogical improvements based on results. A challenge is to bring together FT and PT faculty for meaningful dialogue on SLOs.
- **Professional development** opportunities are desired for several reasons, including currency in the field, time to work within and across disciplines, and Canvas and eLumen training. Multiple programs identify the inclusion of part-time faculty as important goals.
- Several programs are at capacity in existing spaces, while others are in outdated facilities. The existing Facilities Master Plan does not reflect all of these needs. **New and renovated facilities** are required to meet the teaching, learning, personnel, and storage space needs of various

programs—these include a Public Safety Training facility, a new science building, renovation of Buildings 1800 and 1850, dark-sky space, student learning center, more computer labs for math, and a horticulture/teaching winery/viticulture building. There is broad support for keeping CTE programs close to the center of campus, so that CTE is not physically isolated from other programs.

- Programs emphasize the importance of the Library and other specialized **learning spaces** such as the Integrated Learning Center, Open Math lab, Biology Learning Center, and Maker Space. These specialized facilities require increased funding, staffing, space, and equipment improvements.
- Some disciplines continue to need **additional FT faculty and increased classified professional support**. Smaller departments with one or no full-time faculty are disproportionately affected by the amount of work required of faculty.
- Programs have been successful in using the Instructional Equipment Request process to improve instruction. There is sustained need for funding for **supplies and equipment**. Maintenance of current and future facilities must be sustainable.
- There are currently several successful **community relationships and partnerships**. An additional event/lecture venue would support community outreach, since existing spaces are impacted. Programs are responding to **external and other factors**, such as accreditation and state initiatives. Work-based learning specialists have had a positive impact on programs.
- A **part-time faculty pool** is highly desired by multiple programs.
- A **proctoring center** will help all programs.
- **Technology needs** include software and hardware updates.

Recommendations: Please list your most important recommendations for planning in your division or area. Note any recommendations that are connected to our College's Planning Priorities or Educational Master Plan.

- Support curriculum processes (departmental review, curriculum committee) to encourage regular review of curricular needs in course outlines, certificates, and degrees. (Planning Priority-Curriculum; Educational Master Plan-Educational Excellence)
- Dedicate resources, including training, to assist faculty with collaborative work on curriculum and SLOs. (Planning Priority-Curriculum, SLOs; Educational Master Plan-Supportive Organizational Resources)
- Support evaluation and prioritization of Measure A/Facilities Master Plan to reflect the specific needs of programs; encourage user groups to form and begin more detailed analysis of needs. (Planning Priorities-Tutoring Services and Student Success)

- Support departments in engagement of part-time faculty in more program work. (Planning Priority-Curriculum, SLOs; Educational Master Plan-Organizational Effectiveness)
- Facilitate professional development opportunities within and outside LPC. (Planning Priorities-ACCJC Standard; Educational Master Plan-Educational Excellence, Organizational Effectiveness)
- Support departments in identifying and requesting sufficient resources for staffing, equipment, supplies, and technology. (Educational Master Plan-Educational Excellence, Supportive Organizational Resources)
- Continue development of part-time faculty pools. (Educational Master Plan-Supportive Organizational Resources, Organizational Effectiveness)
- Support cross-disciplinary work on optimizing scheduling. (Educational Master Plan-Educational Excellence)
- Streamline and standardize processes institutionally to alleviate time demands on faculty and staff. (Educational Master Plan-Supportive Organizational Resources, Organizational Effectiveness)
- Shift allocated college time towards more opportunity for shared work on program needs. (Flex day, 2nd hour of Town Meeting, Convocation/college day, etc). (Educational Master Plan-Supportive Organizational Resources, Organizational Effectiveness)
- Provide institutional support and funding of various specialized student learning spaces and programs (Integrated Learning Center, Open Math Lab, Biology Learning Center, Math Jam, Maker Space). (Planning Priorities-Tutoring Services and Student Success; Educational Master Plan-Educational Excellence)
- Support program outreach to the community and external agencies. (Educational Master Plan-Community Collaboration)

Please describe the most important themes, accomplishments and challenges for your division/area in each of the following categories. If a category does not apply to your division/area, or if that category was not discussed in your division/area's Program Review Updates, please write "Not Applicable."

Category	Themes, Accomplishments and Challenges
Curriculum	<p>Themes Many programs are moving forward curriculum (course outline updates, new courses, degree and certificates). There remain many course outlines in need of revision. New modes of delivery are being explored, including non-credit, co-requisite, hybrid, OEI, DE, and Emporium model. Support for curriculum work is needed at all levels.</p> <p>Accomplishments The Administration of Justice Certificate of Achievement is under review. The AS-T in Biology was approved and a new Biology FT faculty will lead curriculum development for Bio 30 and GE offerings. The EMS program became credit-based in Fall 2016. Geology expanded its online offerings. Physics is re-ordering its sequence of Physics 8. Math introduced Math 55 and Math 39 as alternatives to Math 50 and Math 38, respectively, and updated Math 1, 2, 3, removing the Math 1 and 2 TBA hour. Horticulture is revising multiple course outlines and has created non-credit adaptive horticulture classes.</p> <p>Challenges Nearly all programs have a few to several outdated course outlines. Limited time available to work on curriculum is a concern, especially in departments with only one or no full-time faculty. Course offerings need to be evaluated against discipline lists. The paramedic program did not have a sufficient cohort in 2016-17, so the current year is a chance to build the program and plan for the different funding streams for the program as a credit-based class. The Chemistry AD-T will not be able to meet the 60-unit maximum requirement to fit the model curriculum. Fire Service students are not able to complete a Fire Academy degree at LPC, so the FST program will add new curriculum and explore online or hybrid classes. With new Horticulture courses that address sustainability, there is an opportunity to grow the program; however, the program is hindered if class offerings are limited, impacting student completion of their certificates. The Occupational Safety and Health program and the Radiation Safety program have all courses needing revisions.</p>

SLOs/SAO Process	Themes SLOs are being expanded and revised throughout disciplines, though there is a wide range in the levels of participation, development, and assessment. There is a desire for faculty collaboration within and between programs to work on improving SLOs. Several programs report pedagogical changes to improve student success. Accomplishments MSEPS has achieved nearly 100% success with stating SLOs on every syllabus. SLOs are being developed, edited, and assessed across all programs, to varying degrees. Administration of Justice trained nearly all PT faculty on eLumen in early 2016, but they will need to be-trained on the updated software. Biology showed high achievement in PSLO supported by the IER funding of upgrade of microscopes and Best of the Best-funding of durable student lab supplies. EMS achieved 85-90% pass rate on the National Registry Exam by increasing lab hours to develop skills proficiency. Geography has a common SLO for all courses in the discipline, assessed SLOs in all courses, and demonstrated increased mastery of a GEOG 2 SLO after a change in teaching methodology. Math incorporated more teaching resources onto its department Blackboard site after reviewing results of Math 65 SLO results. Chemistry FT faculty helped PT faculty enter eLumen date. Physics continues its revisions of Physics 8 labs. Challenges The eLumen update has been going more slowly than expected. Faculty continue to encounter time constraints surrounding the SLO process, not only for their own work, but also in recruiting full participation and eLumen training of part-time faculty (e.g. scheduling department meetings when PT faculty attend). Some programs do not have any or sufficient reassigned time to focus on SLOs in addition to meeting other obligations. The lack of access to anatomy models and the lack of funding to purchase supplies are on-going challenges to meeting SLOs in Biology. Some programs (Engineering, Viticulture, Geography) report continued challenges with the rate of SLO assessment. Both Physics and Chemistry would like to develop course or program SLOs to measure lab skills.

Pedagogy/ Teaching Methods (Not limited to Academic programs/areas)	<p>Themes Faculty members, supported by classified professionals, continue to create and deliver outstanding learning experiences, including innovative contextualized classes and more collaborative/inquiry-based assignments. Faculty note the burden of administrative processes that take away from time dedicated to teaching. Multiple programs express a desire for more opportunities for professional development to stay current in their fields and for bringing together FT and PT faculty, and lab technicians.</p> <p>Accomplishments Administration of Justice reported that the donation of a police car to the program gave students more realistic learning opportunities. Biology noted that having a second cadaver increased hands-on learning opportunities and demonstrations. Environmental Studies is developing its first lab course. Geology has shifted toward more problem-solving approaches and graphical representations, and has incorporated adaptive learning into Blackboard. Geography and Physics report increased student success and satisfaction due to pedagogical changes. Math Jam and the Engineering Cohort program continue to demonstrate great success with their innovative approaches.</p> <p>Challenges Overarching challenges include developing professional development opportunities for all (especially PT faculty), creating cross-disciplinary dialogue, and lack of time (e.g., insufficient reassigned time for coordination, leaving less time for pedagogy and teaching responsibilities). EMS notes the challenge to increase professional expert hours to provide support skills training for labs and certification. Environmental Studies faces a constantly changing field and a lack of coordination with faculty in other related fields. Geology has concerns over student attention span and time-management skills that have arisen due to more self-paced lab offerings. Special programs (such as Math Jam and Engineering Cohort) often require a large up-front investment in resources; as these become institutionalized, processes must be created and streamlined to handle budget, enrollment, hiring, supplies, and support).</p>

Learning Support (e.g. library, tutoring)	<p>Themes Multiple programs express the importance of library resources, including databases and reference materials. Some programs (Math ILC, Biology BLC, and Maker Space) have specialized facilities that are in need of staffing, space, and equipment improvements. Math is considering collaborating with science programs to develop Math Jam for science and supports a centralized learning support center. A proctoring center will help all programs.</p> <p>Accomplishments Math Jam served more than 350 students from basic skills to transfer-level math. The Maker Space continues to grow and expand. Biology successfully moved multiple biology lab manuals and guides to the Library, which will be able to provide more efficient access for students.</p> <p>Challenges A reliable and sufficient source of funding for the LRC is a major challenge. The Math X program needs additional Instructional Assistant hours. The Biology Learning Center is increasingly overcrowded, especially with the increased number of sections offered, and needs more space and more support (tutors, student assistants). Math supports a centralized Academic Support Center where ILC/Open Math Lab, RAW, Tutorial, Computer Lab (and possibly Math X and/or Library) are co-located to serve students. The Chemistry program will need funding to continue its successful Problem-Solving Sessions that was piloted in Fall 2016.</p>
Services to Students (Not limited to Student Service programs/areas)	<p>Themes Faculty and staff support a wide range of student activities and opportunities to support student goals, including Honors Projects, Independent Study, students clubs, internships, seminars, conferences, transfer support, and scholarships. Multiple Measures are being implemented for assessment in Math.</p> <p>Accomplishments Students are able to do Honors and Independent Study projects in Biology and Chemistry. Faculty and staff advise student clubs and support students in internships, seminars, conferences, and scholarships. Programs provide services to students through creative means (Open Math Lab, Maker Space, Biology Learning Center). More Engineering courses are being offered. Engineering technology cohort classes formerly available through grant funding only to Veterans have been opened up to all students. Math Jam continues to serve many students. Programs are successful at transferring students to 4-year universities. ILC hours were extended. Work-based learning specialists have made significant contributions to programs.</p> <p>Challenges Faculty face significant demands on their time. Outdated student forms form barriers to efficient processing of students requests. Math Jam needs to secure sustainable funding and FTEF to offer classes between fall and spring.</p>

Staff Development	<p>Themes All staff, and especially part-time faculty members need opportunities for professional development.</p> <p>Accomplishments</p> <p>Challenges The College will need to articulate the difference between professional development and professional responsibilities. EMS expresses the need for an instructor development program to meet CoAEMPSP accreditation and to be in compliance with 10:1 standard for AHA.</p>

Human Resources	<p>Themes Even with a few new and replacement faculty members, there remains the need for additional FT faculty and increased classified professional support (instructional assistants, professional experts, lab technicians). Growth in programs requires additional faculty beyond the replacement of retirements. A part-time faculty pool is highly desired by multiple programs. Restoration or implementation of reassigned time is needed to allow faculty to dedicate sufficient time for administrative tasks. Sabbatical and other leaves of absences create a challenge for departments, and smaller departments with one or no full-time faculty are negatively affected by the amount of work required of faculty. There are several retirements/vacancies among faculty and staff in the next two years.</p> <p>Accomplishments New FT faculty members have been hired (3 Math, 1 Physics/Astronomy, 1 Biology), Horticulture/Viticulture's new lab technician position was filled, and the evening Biology/Chemistry lab technician was replaced. Several programs added FTEF and new PT faculty to meet demands. Math X hired a temporary Instructional Assistant.</p> <p>Challenges Many programs note insufficient FT faculty and re-assigned time (Administration of Justice, Biology, Chemistry, Engineering, EMS, FST, Horticulture/Viticulture). Some have submitted requests for new FT positions (Biology, Chemistry, Math). The OSH/RAD program has only one regular part-time faculty member, and lacks the resources to complete program reviews, participate fully in SLOs, and develop long-term plans. EVST has no full-time faculty coordinating direction of program. Two programs (EMS and Horticulture/Viticulture) experienced failed searches for FT faculty, with significant negative impacts to their programs. Recruitment and clarification about the minimum qualifications for the faculty position is a challenge for Horticulture/Viticulture. Not hiring a FT Horticulture/Viticulture faculty means that leadership for Horticulture depends in part on part-time faculty. Several programs will need to submit requests and secure funding for various positions (Physics/Astronomy to expand lab technician position to 12 months, Math for additional instructional assistant support for Math X and Open Math Lab, Horticulture/Viticulture's lab technician to expand to full-time, Biology/Chemistry for new half-time lab technician, EMS for increased funding for professional experts). Programs must plan for retirements or other vacancies (move into Administration) of experienced faculty; this will be especially acute in departments with only one FT faculty member. Succession planning is critical. Similarly, for these small departments (Engineering), having a faculty away on leave (sabbatical or banked) presents challenges of continuity and leadership in the program.</p>

Enrollment Management	<p>Themes Some programs experience experienced significant growth, while other remained stable, or declined.</p> <p>Accomplishments Biology added 5 sections, Chemistry FTEF has increased by nearly 10%, Engineering and FST enrollments have increased, Math offered new classes, Physics/Astronomy increased its productivity and student success rates, and EVST reported high productivity, completion rates, and being able to offer EVST 5 each term. A Math class was offered at the District Office. Classes for the Engineering Technology cohort and ECD/Math cohort were opened up to all students.</p> <p>Challenges Increased offerings in some programs are creating difficulties in recruiting faculty. Weak enrollment affects some programs, including Horticulture, Viticulture, and RADS, so the challenge is to support student completion. Vineyard Operations class was canceled for the 3rd semester in a row, negatively affecting vineyard maintenance. Horticulture struggles to offer introductory classes to reach both day (typically younger) and evening students and must increase its enrollment to avoid class cancellations which would negatively affect timely completion of certificates and degrees. Engineering struggles with coordinating scheduling with other programs with required classes. An Astronomy class offered at a high school had low enrollment; other programs will need to select carefully if they wish to offer such classes. AJ has dropped below a 100% fill rate due to lack of reassigned time to market program and with negative publicity about police. Chemistry faces long waitlists, especially for the Chemistry 12 series, and will need additional FTEF and equipment. Math will need to work with A&R how to fast-track Math classes by Fall 2018. OSH is creating an online certificate program, which is being done without a full-time faculty member. Contextualized courses (Engineering Tech and ECD) face the challenge of being open to the non-homogeneous student population who do not connect with or need the contextualized instruction.</p>
Community Relationships and Partnerships	<p>Themes Faculty and staff need time and support to develop community relationships and partnerships. There are opportunities for the AHA and National Registry training centers to expand its offerings for students and community education. There are connections through the K-20 system, industry, labs, non-profits, and CAL Fire. Work-based learning specialists have had a positive impact on programs. Opportunities for outreach and partnerships occur on a regular basis; many are turned down due to lack of sufficient resources (faculty who can lead the effort).</p> <p>Accomplishments An ROP Justice Academy is being developed at Dublin High. The Engineering Technology program is in its 3rd cohort. Students have received internships with employers such as LLNL, Sandia, and Living Arroyos. The reputation of the FST program is growing. The LLNL/LPC Science and Engineering Seminar Series celebrates its 7th year of providing seminars across many science, engineering, math, and computing fields. The program has benefited greatly from institutional support (WBL specialist, evening IT).</p>

	<p>Challenges Administration of Justice is hindered in community outreach due to reduced reassigned time. AJ wants to host the ROP Justice Academy at LPC; this is being implemented for Fall 2017. Faculty time constraints make outreach a challenge. The LLNL/LPC Seminar Series fills Room 2420 to capacity and encounters scheduling conflicts due to classes held in that lecture hall. The Theater is not a sustainable option due to Performing Arts needs and logistics. A similar challenge exists across multiple disciplines in being able to dedicate resources (time, funds, oversight) to develop and sustain community outreach and partnerships. Reassigned time is requested in many programs partly for this reason.</p>
External Factors	<p>Themes Accreditation, standardized exams, industry needs, and state initiatives affect different programs.</p> <p>Accomplishments The ACS California Chemistry Diagnostic exam is undergoing validation with surveys being submitted by faculty and students. Math is conducting conceptual mapping of courses to core competencies in the Curriculum Alignment Initiative.</p> <p>Challenges Negative press about police, along with less recruitment and outreach by AJ program, has resulted in fill rates of less than 100% for the first time in a decade. Scheduling of courses essential to the engineering transfer program and veterans' cohort program has been inadequate and will require coordination with other required courses. The paramedic accreditation site visit resulted in some findings that the program is addressing; the lack of a full-time faculty member has made this process challenging and inefficient. Viticulture needs college support to become a bonded winery. The Fire Service Technology program is working toward recognition as a Regional Training Academy.</p>
Financial/ Budgetary	<p>Themes There is insufficient funding for supplies and equipment to match increased course offerings, especially in lab. There is a need for more FTEF and more full-time faculty, and more classified professionals to support programs.</p> <p>Accomplishments Math received 2 major grants (HSI and Basic Skills Transformations) that will improve student access and success and affect many activities of the department.</p> <p>Challenges The general supply budgets for biology, chemistry, and geology have not kept pace with increased student enrollments and additional sections of lab classes. There are insufficient funds to support Independent Study and Honors Projects. Geography and Viticulture need to secure funding for equipment, and have been encouraged to use existing processes through the Resource</p>

	Allocation Committee. Math needs funding (FTEF, coordinator, instructional assistant) to support Math Jam, Math X, and Open Math Lab. Viticulture needs funding for vineyard maintenance and industry equipment. EMS and FST need to secure funding to increase professional expert compensation. FST needs to routinely replace Personal Protective Equipment.
Use of Technology (Instructional and Student Services)	<p>Themes There is ongoing need for resources for technology updates, computer lab rooms, and training and support. Canvas and eLumen training and support are major concerns.</p> <p>Accomplishments Math department and Blackboard websites are in continuous improvement.</p> <p>Challenges Training for the new eLumen software is required. Ongoing comprehensive support is needed for the conversion from Blackboard to Canvas. Geography needs software and hardware, Viticulture needs an updating of its website, and Math struggles with securing adequate classroom and computer lab space. Math expressed the need for multiple technology improvements (wireless hubs, hardwired Ethernet, smart-boards, class-room monitoring software for labs, etc.).</p>
Facilities, Supplies, and Equipment (Including Software)	<p>Themes Several programs are at capacity in existing spaces, while others are in outdated facilities. The existing Facilities Master Plan does not reflect current needs. New facilities are required to meet the teaching, learning, personnel, and storage space needs of various programs—these include a Public Safety Training facility, a new science building, renovation Buildings 1800 and 1850, dark-sky space, and horticulture/teaching winery/viticulture building. There is broad and deep support for ensuring CTE programs are not physically isolated from other programs. There is ongoing need for increased and more efficient and effective spaces, plus a continuing need for additional supplies, equipment. Maintenance of current and future facilities must be sustained.</p> <p>Accomplishments The Biology Learning Center increased its usable student spaces with some reconfigurations and new furniture in the room. Biology, Physics/Astronomy, and Viticulture were successful in acquiring instructional equipment through the IER process. A requested upgrade to the existing power grid was successfully completed for Viticulture. Upgrades to instructional equipment have had a significant positive impact on students.</p> <p>Challenges A new science building should be built to meet the significant growth needs of all the sciences. Scheduling is increasingly difficult in the sciences and math as lecture and lab spaces are all impacted (labs in 1800 and 1850, computer labs for Math, locker space</p>

for Chemistry students). The BLC is critically overcrowded and need additional reconfiguration in the short-term. Biology needs include a sustainable carbon dioxide delivery system, an efficient check-out system for student equipment, and a permanent OSHA-safe location for food and food-related activities. Geography and Math need to secure funding for supplies such as software, hardware, and graphing calculators. Viticulture needs sustainable funding for maintenance of the campus vineyard and a larger, fully equipped instructional space. Horticulture needs a classroom, a lab, a larger, energy-efficient greenhouse, and a larger Horticulture yard to be able to offer a complete program. Astronomy needs a dark-sky location for its telescope dome, which will be increasingly difficult when the campus continues to build out. As Math X transitions to the Emporium model, a new, flexible space will be needed.