

Program Review Update Dean's Summary Fall 2015

Dean/Administrator	Program Review Committee Reader(s)	SLO Committee Reader(s)
Lisa Everett	Angela Amaya Robin Roy Karin Spirn Catherine Suarez	Ann Hight Scott Vigallon Gina Webster

Division/Area	Programs
Science, Technology, Engineering, Math, and Public Safety (STEMPS)	Administration of Justice Astronomy Automotive Biology Chemistry Computer Information Systems Computer Networking Technology Computer Science Emergency Medical Services Engineering Environmental Studies (no review) Fire Service Technology Geology Mathematics Occupational Safety and Health (no review) Physics

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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.

The Division of Science, Technology, Engineering, Math, and Public Safety (STEMPS) currently houses 20 academic disciplines, including seventeen instructional labs, ten computer labs, the Open Math Lab, the applied technology tool room and the campus Computer Center. The Division is currently staffed by 1 dean, 1 administrative assistant, 37 full time faculty, 180+ part time faculty, 16 classified professionals, and 50+ professional experts.

The Division advances the mission of the college and the missions of its programs through effective and efficient services for faculty, staff, and students. The Division provides opportunities for communication to ensure collegiality, respect, and collaboration to support student completion of transfer, degree, basic skills, and career technical education goals. To support these goals, the Division of Science, Technology, Engineering, Math, and Public Safety pursues the following administrative unit outcomes (AUOs):

- Provide effective communication between the Division office and its programs as it relates to student access, retention, persistence, and success; curriculum; policies and procedures; and budgets.
- Produce a comprehensive schedule that meets the diverse and dynamic needs of our students.
- Inspire a culture of ongoing learning for faculty and staff through meaningful opportunities for professional development.

Each program within the Division completed an annual Program Review Update in Fall 2015 which looked back at AY 2014-2015, for the purpose of planning for AY 2016-2017. This executive summary attempts to capture the division-level themes, accomplishments and challenges that emerged from the program updates.

Several themes emerged from the Program Review Updates. Most themes are consistent with the previous year's themes.

A fair amount of curriculum was approved last year- AS-T Administration of Justice was approved, Biology consolidated to one BIO rubric, Math created several new courses for non-STEM students, many courses were awarded C-ID. There is still a lot of curriculum work to do. Implementation of ADTs continues to be a challenge for high unit majors. There remains a need (especially for CTE programs) to update course outlines, certificates, and degrees. Support for and assistance with curriculum remains a challenge.

Most programs are assessing SLOs, but meaningful dialogue that connects SLOs to changes in practice and

improvements in student learning is still limited to specific programs.

The faculty, staff, and programs in the STEMPS division support amazing opportunities for students to engage with faculty, academic material, and each other - Student clubs such as Public Safety, Biology, Welding; Honor societies such as Beta, Beta, Beta and Alpha Gamma Sigma; WeldCamp for high school students; the LLNL/LPC Science Speaker Series; Undergraduate Science Research projects and poster sessions; Independent Study opportunities in genetics/cloning and the cadaver lab; and Honor's projects; to name a few.

Additional classified support is needed across the Division, including instructional labs and CTE areas.

Like last year, many STEM programs, including Chemistry, Geology, Math and Physics, indicated a desire to make pedagogical shifts towards more conceptual understanding of material, graphical representations, and collaborative problem-solving, particularly for labs. Geology implemented some of these changes last year. Professional development in these types of pedagogies would assist both full time and part time faculty in implementing more active and engaging pedagogies. This is a potential grant funding area.

Multiple programs expressed the need to increase Part Time faculty pools.

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.

1. Provide curriculum support to faculty, the curriculum committee, and the college insure that all CORs, certificates, and degrees are regularly updated in a timely and efficient manner. (LPC Planning Priority-curriculum)
2. Provide professional development opportunities particularly on engaging/collaborative pedagogies, inquiry based laboratories, science laboratory equipment and Student Learning Outcomes. Opportunities should bring together full time and part time faculty, and laboratory technicians as appropriate. (LPC Planning Priority-SLOs)
3. Institutionalize and provide ongoing funding for learning supports such as Math Jam, Tutoring, and other academic support programs/systems such as the Biology Learning Center (BLC). (LPC Planning Priority-tutoring)
4. Develop clear strategies for implementation of ADT in high unit majors (Biology, Chemistry, Computer Science, Physics).
5. Provide expertise and support for SLO work to move us towards sustainable and meaningful assessment of student learning and improvement of student learning.
6. Increase Part Time Faculty Pools.
7. Right size classified staffing levels in and outside of the classroom.

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8. Connect district and college enrollment management process more closely with budgeting processes. (LPC Planning Priority-ACCJC standards)
9. Increase department supply budgets in line with increases in enrollment. (LPC Planning Priority-ACCJC standards)
10. Increase classrooms and computer labs.

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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
<p>Curriculum</p>	<p>Themes There is a tremendous amount of curriculum that needs to be updated each year to comply with Title V updates, maintain alignment with changing mandates (C-ID, ADTs), and maintain currency with industry standards for CTE programs. Support for and assistance with curriculum work remains a challenge.</p> <p>Accomplishments A lot of curriculum work was completed in the past year: AJ ADT approved; new BIO rubric implemented; Math 50 for non STEM majors approved; Math 47 for Liberal Arts majors approved; AS Engineering Technology approved; and many courses were updated and approved for C-ID.</p> <p>Challenges As expressed in past program reviews, there is a lot of curriculum work still needed or in progress. AJ has more CORs to update, and a local AS degree to update. AUTO is in progress of updating all CORs, certificate, and degree to align with NATEF accreditation. CNT curriculum should be refocused to meet most pressing industry needs. Fire Service needs to rewrite FST 90 and KIN FSC, as well as update all CORs. Math is in progress of redesigning the precalculus > trigonometry sequence and beginning to explore a variety of acceleration models. WLDT CORs, certificates, and degree need to be updated. Implementation of ADTs for high unit majors including Biology, Chemistry, Computer Science, and Physics remains a challenge.</p>

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SLOs/SAO	<p>Themes Overall, the quality of the PRUs responses to the SLO section spanned the spectrum.</p> <p>Accomplishments Most departments have an integrated system with multiple SLOs developed for each course with on-going assessments. Moreover, good examples were provided of changes in pedagogy, acquiring new equipment, reducing lab size, developing new SLOs, etc. as a result of SLO assessment.</p> <p>Challenges At the other end of the spectrum, a few departments provided very little detail of how the SLO process was working for them. While their PRUs provided evidence of having at least one SLO assessed per course, there was not enough information provided on the PRU that the process was leading to on-going continuous improvement.</p> <p>One barrier noted for meaningful assessment across multiple programs was that adjunct faculty did not always participate in assessing SLOs. With the contract in place, this should no longer be an issue. Another barrier identified specifically to adding new SLOs or revising SLOs was the awareness that the definition of “outcomes” (compared to objectives) might be changing. An additional barrier identified was the difficulty of using SLOs in a systematic way. Instead of making meaning of the student learning assessments, faculty are investing much time entering and assessing in eLumen.</p>
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<p>Pedagogy/ Teaching Methods (Not limited to Academic programs/areas)</p>	<p>Themes Multiple programs expression the desire for professional development opportunities especially in investigative/inquiry based labs, collaborative problem solving, laboratory equipment, and student engagement in the classroom. There is a desire to bring full time and part time together, and laboratory technicians appropriate, for the professional development.</p> <p>Accomplishments There are some creative and innovative projects under way including a learning community for ECD students that incorporates math, a learning community for Engineering Technology that accelerates the delivery of Math 55>38>20. Geology has been shifting labs towards more collaborative, problem-solving approaches; and shifting numerical work in labs from calculations to graphical representations.</p> <p>Challenges Create opportunities for cross-disciplinary dialogue (Physics-Math; Bio-Math; CS-Math; Geol-Math) so that delivery of curriculum can build across disciplines and be contextualized for students. Professional development for SLOs is needed especially for part time faculty.</p>
<p>Learning Support (e.g. library, tutoring)</p>	<p>Themes Multiple programs noted the need for continued availability of library resources, including databases, and reference materials.</p> <p>Accomplishments Math Jam was offered January 2015 and August 2015, and served more than 250 students. Data demonstrates that students who participated in Math Jam nearly doubled their success rates in their math course.</p> <p>Challenges Administration of Justice notes that students demonstrate weak English writing skills, and this adversely effects their performance in the AJ classes. Math X needs more instructional assistance support. Biology Learning Center is overcrowded; needs more space and support.</p>

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<p>Services to Students (Not limited to Student Service programs/areas)</p>	<p>Themes The STEMPS faculty, staff, and programs support numerous opportunities and activities for student engagement.</p> <p>Accomplishments Student clubs such Public Safety, Biology, Welding; Honor societies such as Beta, Beta, Beta and Alpha Gamma Sigma; WeldCamp for Tri-Valley high school students; LLNL/LPC Science Speaker Series; Undergraduate Science Research project and poster sessions; Independent Study opportunities in genetics and cadaver lab; Honor's projects in chemistry.</p>
<p>Enrollment Management</p>	<p>It is a challenge to balance ADT required course offerings with low enrollments in those ADT courses. Math is interested in restoring late start.</p>
<p>Human Resources</p>	<p>Themes Multiple programs want to increase their pool of part time faculty. Multiple programs would like to increase the number of full time faculty hires. Classified staffing levels need to be right sized so that programs and students can be supported; specific classified needs called out include instructional assistance for math, summer lab techs, and coordination of public safety certifications and professional expert staffing ratios.</p> <p>Challenges Public Safety Professional Experts request a pay raise. Classified staffing levels are too low in some critical areas; request process for non-instructional positions seldom results in hires. Desire for reassign time to coordinate Math X program. Desire for Engineering Transfer Program Coordinator.</p>

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<p>Financial/ Budgetary</p>	<p>Themes Laboratory supply budgets will need to increase in line with enrollment increases.</p> <p>Accomplishments General Fund and grant budget lines were shared by Dean with each program at the start of the year.</p> <p>Challenges Improve materials fee and materials ordering process. FST will need \$2500 for Accreditation Site Visit. Institutionalize funding for Math Jam and other acceleration initiatives. Fund professional development opportunities</p>
<p>Technology</p>	<p>Accomplishments Welding is using Virtual Reality welding simulator</p> <p>Challenges Need to update department websites. Need additional computer labs. Geology would like 25 tablets or laptops (for labs). Microphones needed in classrooms (100 portables; geology labs) so faculty can be heard.</p>
<p>Facilities, Equipment and Supplies</p>	<p>Challenges Auto and Welding need more lab and yard space. Fire Science and Emergency Medical Services need additional storage space. Find a location for the mammoth femur. Need additional classrooms (and computer labs) Find new location for Astronomy dome (dark location at back of property) Biology needs equipment upgrades including replacement of old microscopes. Biology Learning Center needs expansion.</p>