

## PROGRAM REVIEW Fall 2017

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**Program:** Biology

**Division:** MSEPS

**Date:** 7/11/17

**Writer(s):** Jill Carbone, Ann Hight, Segal Boaz, Barbara Zingg, Darcy Ernst, Michal Shuldman

**SLO/SAO Point-Person:** Ann Hight

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**Audience:** Deans, Vice Presidents of Student Services and Academic Services, All Planning and Allocation Committees. This document will be available to the public.

**Uses:** This Program Review will be used to inform the campus and community about your program. It will also be used in the processes of creating Division Summaries, determining College Planning Priorities and allocating resources. A final use is to document fulfillment of accreditation requirements.

**Time Frame:** This Program Review should reflect on program status during the 2016-17 academic year. It should describe plans starting now and continuing through 2017-18. This document also provides the opportunity to describe more long-term plans (optional).

**Sections:** The first section of this Program Review focuses on general program reflection and planning. The second section is a review of curriculum. Only programs with curriculum need to complete Section 2. The third section is a CTE update, to be completed by CTE programs only.

**Topics:** A list of topics of particular interest to Program Review readers can be found here:

<https://goo.gl/23jrxT>

**Help:** Contact Karin Spirn: [kspirn@laspositascollege.edu](mailto:kspirn@laspositascollege.edu)

### **Instructions:**

- 1) Please respond to each question as completely as possible.
- 2) If the requested information does not apply to your program, write "Not Applicable."
- 3) Optional: Meet with your dean to review this document before October 13.
- 4) Send an electronic copy of this form to Karin Spirn and your Dean by October 16
- 5) Please note: Some information needed for this Program Review will become available in August 2017.

### **Links:**

Program Review Home Page: <https://goo.gl/XATgjJ>

Fall 2016 Program Review Updates : <https://goo.gl/YV8QOt>

Frequently Asked Questions: <https://goo.gl/ilhRtt>

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## Section One: Program Snapshot

**A. Data Review: Describe any significant changes to your program’s data since last year’s Program Review Update (Fall 2016).**

Possible sources of relevant information might include, but are not limited to, the following:

- Data generated by your program
- Data from the Office of Institutional Research [available August 2017]
- CEMC Data
- Labor Market Data
- SLO/SAO Data

Since fall 2016 we have added four sections to the class schedule: two sections of Bio 30 in summer 17, one section of Bio 1C in spring 17 and one section of Bio 20 in fall 17. We continue to add more classes to the schedule and hire new faculty to meet student demand.

**B. Changes to Program and Needs: Describe any significant changes to your program or your program’s needs since the previous Program Review Update (Fall 2016).**

<p>1) Since our last Program Review, we hired a full-time faculty member to fill the position vacated when a former faculty member became dean.</p> <p>2) We are currently investigating if Bio 30 is required for the new Public Health degree. If it is, we will need to add more sections of Bio 30 to meet student need as this class is already impacted.</p> <p>3) Our laboratory coordinator/safety officer retired this fall and we have also lost three other lab technicians in the past year. This high turnover trend is likely to continue, and is stressful for the remaining laboratory technicians and the instructors. In addition, frequent lab tech turnover has a negative impact on the Biology and Chemistry programs as a whole. A possible reason for this is the downgrading of the laboratory technician position, carried out without any faculty input. An additional reason might be that several of our lab tech positions are part-time and/or 10 months employments.</p> <p>4) Due to a lack of laboratory space, we cannot add any further anatomy courses to meet student demand.</p>	<p>Mark an X next to each area that is addressed in your response.</p> <p>Definitions of terms: <a href="https://goo.gl/23jrxt">https://goo.gl/23jrxt</a></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;"></td><td>Community Partnerships/Outreach</td></tr> <tr><td></td><td>Curriculum*</td></tr> <tr><td style="text-align: center;">X</td><td>Enrollment Management</td></tr> <tr><td></td><td>External Factors</td></tr> <tr><td style="text-align: center;">X</td><td>Facilities,** Supplies and Equipment (Including Software)</td></tr> <tr><td></td><td>Financial/Budgetary</td></tr> <tr><td style="text-align: center;">X</td><td>Human Resources</td></tr> <tr><td></td><td>Learning Support</td></tr> <tr><td></td><td>LPC Planning Priorities <a href="https://goo.gl/LU99m1">https://goo.gl/LU99m1</a></td></tr> <tr><td></td><td>Pedagogy</td></tr> <tr><td></td><td>Professional Development</td></tr> <tr><td></td><td>Services to Students</td></tr> <tr><td style="text-align: center;">x</td><td>SLO/SAO Process</td></tr> <tr><td></td><td>Technology Use</td></tr> </table>		Community Partnerships/Outreach		Curriculum*	X	Enrollment Management		External Factors	X	Facilities,** Supplies and Equipment (Including Software)		Financial/Budgetary	X	Human Resources		Learning Support		LPC Planning Priorities <a href="https://goo.gl/LU99m1">https://goo.gl/LU99m1</a>		Pedagogy		Professional Development		Services to Students	x	SLO/SAO Process		Technology Use
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5) Deferred maintenance for greenhouse has been ongoing and must be addressed. Major maintenance needs to be completed in order to reduce the quick-fixes that have been holding the greenhouse together.	*Curriculum will also be addressed in Part 2 (Curriculum Review).
	**Facilities will also be addressed in Question H.

**C. Reflection: What plans from the 2016 Program Review Update or any previous Program Reviews/Updates have been achieved and how?**

<p>1) We hired a full-time faculty member to fill the position vacated when a former faculty member became a dean. This was achieved through the FHPC.</p> <p>2) A CO<sub>2</sub> delivery system was researched and adopted by faculty and staff. It was purchased through RAC.</p> <p>3) Through the CEMC, we added four sections to the class schedule. (See above under A.)</p> <p>4) The Biology and Chemistry Departments hired a new lead lab technician/safety officer to fill the position vacated due to retirement. This was achieved through RAC and the division office.</p> <p>5) Though the budget remains stagnant, the biology program continues to grow which results in increased supply needs and expenses, as well as increased shipping expenses. This concern was addressed in an April 2017 budget planning meeting with the dean, faculty coordinator, and lab coordinator. We were able to shift some money from the aquarium co-curricular account and from some over-funded maintenance/service accounts back into biology supplies. Without this infusion of nearly \$6,000 we would not have been able to fund the end of the Spring 2017 Semester. This is not a sustainable fix. We look forward to getting a budget that meets the on-going needs of the program without borrowing from other areas.</p>	Mark an X next to each area that is addressed in your response.	
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**D. Impacts to Students (Optional): Discuss at least one example of how students have been impacted by the work of your program since the last Program Review Update (only if you did not already answer this in Questions A, B or C).**

Our program continues to add new sections to the schedule every semester to meet student demand. While we still have	Mark an X next to each area that is addressed in your response.
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<p>some impacted classes, we have made significant improvements to students' ability to enroll in biology classes, and to degree completion times.</p> <p>We would like to add more Allied Health and Bio 30 classes to meet student demand. We are seeing long waitlists in Microbiology, Anatomy and Physiology. For these courses, we are limited by available FTEF, but equally importantly, by facility space. When students are unable to enroll in the required classes, they are unable to complete their Allied Health pathway within a reasonable timeframe. Alternatively, they transfer to other community colleges to complete the prerequisites needed.</p>	Definitions of terms: <a href="https://goo.gl/23jrxt">https://goo.gl/23jrxt</a>
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**E. Obstacles: What obstacles has your program faced in achieving plans and goals?**

<p>We added four sections to the schedule this year (See A) consistent with our typical growth rate. Overcrowded facilities are the greatest barrier to our growth and pose considerable scheduling challenges. For example, it is difficult for full-time faculty to make load while scheduling classes that do not run concurrent to other programs' offerings required by students to complete degree pathways (e.g.: math, chemistry, physics etc.). The use of our lab rooms is highly impacted, with labs running from 8:00am-9:50pm. We have very few available time slots to add future labs into the available laboratory rooms.</p> <p>Students requiring the Biology Learning Center (BLC) for study and completion of class projects are impacted by increased crowding. Decreased student access to space and necessary equipment in order to conduct projects and studies is not conducive to increasing student success. Microbiology and Anatomy students are especially impacted. Increased, dedicated workspace is urgently needed for those disciplines.</p>	Mark an X next to each area that is addressed in your response.
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<p>It is clear that we have outgrown Building 1850 and need additional facilities.</p> <p>We would like to add more Allied Health and Bio 30 classes to meet student demand. We are seeing long waitlists in Microbiology, Anatomy, and Physiology, however we are limited by available FTEF, and more importantly, facility space. Because students are often not able to enroll in their required classes, they are unable to complete their Allied Health pathway within a reasonable timeframe, or they transfer to other community colleges to complete the pathway.</p> <p>Although we added a new late-shift lab technician position about 4 ½ years ago, it is difficult to properly staff early morning and late evening labs with only one late-shift technician to cover seven labs in two separate buildings.</p> <p>In summer 2017, the addition of botany was difficult for lab staff because the budget for student techs was adjusted down by \$1,000 per year about 2 years ago and we are required to hire work-study students. These students often do not have the experience or background to work well in the prep room and we do not have sufficient work hours to prepare the labs.</p> <p>We have not been able to find an acceptable new location serving as the Biology Food Storage area (currently housed in 1813). The food storage area is used 10 -15 times a semester for Bio 7B, Bio 30, Bio 1A, Bio 1B, Bio 50, and it is also used by chemistry labs. These classes conduct lab activities that require a refrigerator and/or freezer to safely store food products. Close proximity to the biology classrooms is desired as timing is of essence in delivering the samples to the outside of the lab rooms. We also store household goods, paper, plastic, salts, quinine, napkins, towels, cups, knives, &amp; candy in two large food lockers to prevent rodent cross-contamination and maintain the OSHA required separation of chemicals &amp; biologics from food or ingestible items. The alternate space in the 1804 office will not meet the curriculum needs or OSHA requirements for this food storage area in at least two ways:</p> <ul style="list-style-type: none"> <li>• The food lockers may not fit, and the file cabinets are not rodent proof. This office, in particular, has been the subject of some major rodent infestations.</li> <li>• Lawrence Moglia from Keenan during his recent safety audit, recommended that we not use 1804 for food storage as it does not meet the OSHA intent of separation for food items from biologics &amp; chemicals with its direct entrance into 1805. He recommended a separate outside entrance only.</li> </ul>		Professional Development
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**F. Short Term Planning: What are your most important plans (either new or continuing) for next year?**

<p>Our efforts this year will be focused on: 1) program and curriculum development 2) maintaining lab safety, and 3) continuing our efforts to increase collegial collaboration with our adjunct faculty.</p> <p><b>Facilities:</b> We will investigate next steps for planning and developing a new Science Building, such as inclusion on the Facilities Master Plan. Any development of new programs will not be possible without adding new laboratory space.</p> <p><b>Program and Curriculum:</b> This semester, we are investigating several CTE programs that might have potential for Las Positas College. For example, we have started to examine the feasibility of creating a Medical Laboratory Technician program. Additional programs currently being explored are Bioanalyst, Clinical Research Coordinator or Clinical Research Associate, Quality Control, and Quality Assurance Technician for biological science fields.</p> <p>These programs prepare students for employment in clinical laboratories and hospitals, as well as in environmental and biotechnology industries.</p> <p>We will investigate the benefits of offering AA and/or certificate options, requirements for sitting for the national certification exams offered by American Society of Clinical Pathologists (ASCP) and American Association of Bioanalysts (AAB), requirements for accreditation by the National Accrediting Agency for Clinical Laboratory Sciences, etc.</p> <p>Additionally, we will continue working with members of the BioSci Advisory Board to create a degree and/or certificate in Computational Biology.</p> <p><b>Safety:</b> We will work on arranging for safety/hazmat training that includes all faculty and staff working in our laboratories. One option would be to conduct the training in conjunction with Chabot at Convocation. Another option would be to do the training during the fall LPC Flex Day.</p>	<p>Mark an X next to each area that is addressed in your response.</p>												
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<p><b>Department:</b> We want to continue building and maintaining an inclusive environment in the department, especially with our adjunct faculty.</p> <p>As our department has grown tremendously over the past several years, an effort to maintain cohesiveness and collegiality is becoming more important and difficult.</p> <p>We will continue to invite adjunct faculty to our department meetings. We will also organize casual community building events a few times each semester, and we will change the day of the week and time of day to try and include as many adjunct faculty as possible.</p> <p>In addition, we would like to suggest a meeting/workshop at the beginning of each semester, focusing on classroom management, teaching and learning, equipment training, and student success. Invitations for this event should be coming from the Office of Academic Services. We will try to secure funding as we have done in the past, so that adjunct faculty can be compensated to encourage their participation. By building and maintaining relationships between faculty, we will strengthen our ability to successfully work together on improving classes, assessing student learning, and developing common tools to promote student success.</p>	
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**G. Long Term Planning (Optional): Please detail any long-term plans for the next 3-5 years. (Only if you have significant plans, such as implementation of a grant project, creation of long-term initiatives including those using restricted funds such as Equity or SSSP, construction and outfitting of a new building).**

<p>Our long-term plans focus on 1) facilities and 2) staffing.</p> <p><b>Facilities:</b> We intend to work on developing plans for the construction of a new biology lab facility (see facilities section). This facility would be focused on Health Sciences majors (including a potential Medical Laboratory Technician Program). Our classes necessitate specialized laboratory facilities due to equipment requirements and safety constraints. For example, our Anatomy courses are severely impacted, but we cannot add more sections due to space limitations. This increases the time to completion or transfer for our Allied Health majors as mentioned above. In addition, also as previously mentioned, our enrolled Anatomy and Microbiology students are limited by the space availability in our Biology Learning Center. Students who regularly utilize the Biology Learning Center, working with the microscopes and the anatomy models, perform better in their courses which increases student success. Our current Biology Learning</p>	<p>Mark an X next to each area that is addressed in your response.</p>	
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<p>Center is too small to effectively accommodate both the Allied Health and Biology Major students.</p> <p><b>Staffing:</b> Currently there are only 2 full-time lab technicians who work 12 months a year. There are 3 lab technicians who work 10 months a year: one at 40 hours per week and two at 24 hours per week. It is challenging to retain staff when they are only paid a 10-month salary, for good reason. In addition, since the last Program Review, these 10-month positions were downgraded to a lower pay, with no opportunity for advancement. This occurred without faculty input and consultation. The increased turnover that we are starting to observe is detrimental to the success of the Biology and Chemistry programs. The college needs to pay these college-educated, well-trained individuals a competitive salary so that our programs can maintain some stability. Additionally, we propose that part-time positions are transitioned to full-time positions as our programs continue to grow.</p> <p>Additional technician time is also needed to staff a number of our Community Partnership/Outreach events that happen every semester, as well as a number of novel camps and summer workshops, e.g.: Biotech Boot Camp, Expanding Your Horizons, Chemistry Olympiad. The technicians are already trained on laboratory safety, handling waste, and working in the prep room. Increasing the technician hours to full-time will increase our retention rate of these part-time staff members, and reduce their high turnover rate.</p> <p>The extra technician time is needed to cover additional prep time due to the addition of more sections, especially during the summer. In the long run, hiring to replace several lab tech positions every year, is much more costly for the college, than to compensate the technicians appropriately in the first place.</p>	Professional Development
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**H. Do you have any facilities needs that are currently unmet? If yes, please describe.**

<p><b>Yes, our main facilities needs center on: 1) laboratory space and 2) student learning center space</b></p> <p><b>Laboratory Classrooms:</b> With the continued addition of new sections due to student demand, we are getting perilously close to our lab facility no longer meeting our needs. Currently, labs are running from 8:00am to 9:50pm, and we have very few available time slots to add future lab sections into these rooms.</p>
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**Biology Learning Center:** As discussed above, students requiring the Biology Learning Center for studying and completion of class projects are impacted by increased crowding and therefore decreased access. Microbiology and Anatomy students are specifically impacted and we require dedicated spaces for those disciplines.

**Greenhouse:** We use a greenhouse for laboratory materials, class projects and independent research projects. There are a number of things that we could add to the greenhouse to increase the lifetime. For example, adding a solar vent, repairing the shade screen, adding energy efficient LED lights, increasing ability for climate control and monitoring.

**I. Mission: Explain how your program's plans and accomplishments support the mission of Las Positas College:**

***Las Positas College is an inclusive learning-centered institution providing educational opportunities and support for completion of students' transfer, degree, basic skills, career-technical, and retraining goals.***

Our program has a high transfer rate to CSU and UC. We have inclusive class offerings of a wide variety of courses in biology that draw on different student populations. These courses support biology majors and other pre-professional transfer students. The courses also satisfy specific degree and certificate requirements, fulfill general education requirements, and provide intellectual enrichment.

We offer early morning, mid-day and evening classes to include students with different scheduling needs. We also have been increasing our class offerings in the summer and offer 2 online courses.

We are investigating the feasibility of developing a Medical Laboratory Technician Program, and various other certificate programs (see above, under F). We are also working on developing a CTE Computational Biology degree and certificate.

As a program we try to stay abreast of rapidly moving technology. For example, we are the only Community College in the western US to have a research grade carbon dioxide delivery system for fruit flies. This new system in the Biology Learning Center and the 1854 lab, provides the students with state of the art learning opportunities and skills, which will help them to get internships and jobs locally and at their transfer institutions.

**J. Program-Set Standard (Instructional Programs Only): Did your program meet its program-set standard for successful course completion? \_\_\_yes \_\_\_no**

**[This data will be available in August 2017]**

**If your program did not meet your program-set standard, discuss possible reasons and how this may affect program planning or resource requests.**

**K. SLOs/SAO Reflection: Describe an example of how your program used course SLO data (CSLOs), Student Service Area Outcome (SAO) data or Program SLO data (PSLOs) from last year (2016-17) to impact student learning or achievement. Focus on PSLOs or CSLOs where you have multiple semesters of data to analyze. (Copy the box below if you would like to discuss multiple examples.)**

Course Name, Program Name or Student Service Area: BIO 50 Anatomy and Physiology
Text of the CSLO, SAO, or PSLO: Upon completion of BIO 50, students will be able to research a relevant anatomical or physiological topic and communicate their findings to others, demonstrating content knowledge acquired from reliable scientific sources.
Describe the quantitative or qualitative results: Data was collected over three sequential semesters. All three instructors had the same activity of an oral presentation supported by slides. The vast majority (90%) of students earned "above average" or "mastery".
Discuss and reflect upon student achievement for this CSLO/PSLO/SAO. Discuss any actions taken so far (and results, if known) and your action plan for the future:  Reviewing the faculty reflections, two faculty reflected that those students who did not do well, it appeared that the students did not understand the assignment or waited the last minute to start it. Both faculty made notes to rectify these issues in future semesters.  One faculty reflected, "Students enjoyed researching a topic of interest and presenting their findings to the class".
What changes in student achievement are evident across the semesters you analyzed? What are some possible explanations for these changes in student achievement?  BIO 50 is required for the paramedic program or may be taken to meet general education requirements. The SLO is designed to engage students in a topic of their interest and ultimately understand that science is evidence-based as opposed to individual opinions. This SLO has been successful since its implementation.

**L. Plans for Analysis of SLO/SAO Data: Identify the PSLOs, CSLOs, or SAOs that your program plans on focusing on the upcoming year with subsequent analysis. (Copy the box below as needed.)**

Circle One:
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CSLO   **PSLO**   SAO

Course, Program Name, or Student Service Area:

AA Biology: Allied Health

Text of CSLO/PSLO/SAO:

Upon successful completion of an AA in Biology: Allied Health, students are able to explain and apply the basic processes of homeostasis in humans from the cellular to the organismal level.

**If you plan on analyzing a PSLO, identify the CSLOs that feed into the PSLO that will need to be assessed.**

Upon completion of BIO 7a, students will be able to identify the structures of the body systems using models, slides, cadavers, and/or visual media.

Upon completion of BIO 7a, students will be able to relate structure to the function of anatomical structures and be able to predict how a change in structure would alter function.

Upon completion of BIO 7a, students will be able to correctly describe location and parts of the body using anatomical terminology.

Upon completion of BIO 7b, students will be able to explain the physiological functions of each body system.

Upon completion of BIO 7b, students will be able to apply the principles of homeostasis and the use of feedback loops to control physiological systems in the human body.

Upon completion of BIO 7c, students will be able to acquire, articulate, and apply specialized language and knowledge relevant to microbiology.

**Section Two: Curriculum Review  
(Programs with Courses Only)**

The following questions ask you to review your program's curriculum. To see the last outline revision date and revision due date:

1. Log in to CurricUNET
2. Select "Course Outline Report" under "Reports/Interfaces"
3. Select the report as an Excel file or as HTML

**Curriculum Updates**

**A. Title V Updates:** Are any of your courses requiring an update to stay within the 5 year cycle? List courses needing updates below.

The following courses will be updated this semester to stay current.

BIO 10  
BIO 7C  
BIO 70

**B. Degree/Certificate Updates:** Are any degrees/certificates requiring an update to do changes to courses (title, units) or addition/deactivation of courses? List needed changes below.

NA

**C. DE Courses/Degrees/Certificates:** Detail your department's plans, if any, for adding DE courses, degrees, and/or certificates. For new DE degrees and/or certificates (those offered completely online), please include a brief rationale as to why the degree/certificate will be offered online.

NA

**Section Three: CTE Updates  
(CTE Programs Only)**

**A. Labor Market Conditions:** Examine your most recent labor market data. Does your program continue to meet a documented labor market demand? Does this program not represent unnecessary duplication of other training programs in the college's service area? (Please note: your labor market data should be current within two years. Contact [Vicki Shipman](#) or the current CTE Project Manager for access to data).

**B. Advisory Boards:** Has your program complied with advisory board recommendations? If not, please explain.

**C. Strong Workforce Program Metrics:** Utilizing LaunchBoard, review the Strong Workforce Program Metrics. Review the data and then answer the following questions.

(Contact [Vicki Shipman](#) or the current CTE Project Manager for help accessing the data).

C1. Does your program meet or exceed the regional and state medians **for increased enrollments, completions, and/or transfer since your last program review**? If not, what program improvements may be made to increase this metric?

C2. Does your program meet or exceed the regional and state medians **for students gaining employment in their field of study**? If not, what program improvements may be made to increase this metric?

C3. Does your program meet or exceed the regional and state medians **for student employment rates after leaving the college**? If not, what program improvements may be made to increase this metric?

C4. Does your program meet or exceed the regional and state medians **for increased student earnings and median change in earnings**? If not, what program improvements may be made to increase this metric?