Program: Chemistry

Division: Science, Technology, Engineering and Mathematics

Date:

Writer(s):

SLO/SAO Point-Person:

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 creating Division Summaries, determining College Planning Priorities, and allocating resources. The final use is to document fulfillment of accreditation requirements.

Please note: Program Review is NOT in itself a vehicle for making requests. All requests should be made through appropriate processes (e.g., Instructional Equipment Request Process) or directed to your Dean or supervisor.

Time Frame: This Program Review should reflect on program status during the 2022-23 academic year. It should describe plans starting now and continuing through 2023-24.

Sections: There are two sections to this document. Sections and questions identify the name of the committee or office that will use the information and where you can get additional help.

- The first section focuses on general program reflection and planning.
- The second section focuses on data analysis, including SLOs/SAOs/PSLOs
- The final section is a review of your pathway maps and curriculum, to be filled out only by programs with curriculum offerings.

Topics: The Program Review Glossary defines key terms. Writers should review this glossary before writing: https://bit.ly/2LqPxOW

For Help: Contact Nadiyah Taylor: ntaylor@laspositascollege.edu.

A list of contacts for help with specific sections is provided on the Program Review website under the "tools for writers" tab. [https://bit.ly/3fY7Ead]

Instructions:

1) Please respond to each question with enough detail to present your information, but it doesn't have to be very long.

2) If the requested information does not apply to your program, write “Not Applicable.”
3) Optional/suggested: Communicate with your dean while completing this document.
4) Send an electronic copy of this form to Nadiyah Taylor and your dean **by November 1, 2022**

Helpful Links:

Program Review Home Page

Fall 2021 Program Reviews

Frequently Asked Questions

Throughout this document you'll see that equity is a guiding principle.
Here is the LPC definition:

Las Positas College will achieve equity by changing the impacts of structural racism, ableism, homophobia, and systematic poverty on student success and access to higher education, achieved through continuous evaluation and improvement of all services. We believe in a high-quality education focused on learning and an inclusive, culturally-relevant environment that meets the diverse needs of all our students.

LPC Equity Definition: Equity is parity in student educational outcomes. It places student success and belonging for students of color and disproportionately impacted students at the center of focus.

Section One: Your Program In 21-22 – Please check N/A where relevant

A. Accomplishments: Identify accomplishments from the 21-22 AY.

Some areas you may want to note in your explanation are:

- Did your accomplishments support your program's plans identified in 21-22 PR
- Did they relate to guided pathways, and/or
- Did they support areas in the equity definition above

_____N/A

Accomplishments
1 A replacement full-time faculty member was hired, trained, and is being mentored through his first year at LPC
2 The department responded to the needs of the ever-changing society by offering in-person and hybrid courses while maintaining departmental standards.
3 Participating in new STEAM building use planning. Our department desperately needs more lab space, especially if/when we transition to the 16-week semester.
4 The department recruited, hired, and integrated two new adjunct faculty members to fully staff our classes.
5 SLO data from 21/22 were analyzed and presented to department faculty. We are pleased to report that there were no observable equity gaps when "Scientific Communication" was assessed in our classes.
6 Environmental chemistry (Chem 6) and Energy and Sustainability Lab (EVST 5L) were created and are being developed. They will be first offered Fall 2023.
7 Two untenured faculty were co-coordinators of the department while the only other full time faculty member was on sabbatical. Our challenges included hiring new adjunct faculty during a pandemic, managing adjunct faculty concerns, and reacting the everchanging rules and policies while providing quality instruction in our courses, fostering a climate of discovery for our students, and inspiring students to succeed.

Tab to add more lines as needed

B. Challenges, Pain Points, and Needs:

What significant challenges or obstacles did your Program face during AY 21-22 especially related to accomplishing program goals/plans? You may want to consider areas in the equity definition on page 2.

_____N/A

Challenges/Pain Points/Needs
1 Supplies and Equipment: Many of our Bunsen Burners, which are critical to chemistry, are several decades old and failing or don't work at all. At the best case this impedes the student's ability to perform the experiment, at the worst case it's an accident waiting to happen. Not having functional heat sources for experiments creates an environment that interferes with educational opportunities and does not support for completion of students' transfer, degree, and career-technical goals. In addition to the Bunsen Burners, our department contains one relatively ancient UV lamp, which is needed for organic chemistry experimental analysis, that currently has intermittent functionality. As in the case of the burners, not having this equipment impedes the student's ability to perform the experiment, leading to a decrease in the quality of educational opportunities for the students. Furthermore, our LabQuest 1 units are outdated, non-functional, and critical to not only our program but biology as well and need to be replace with more modern, compatible, and function equipment like the LabQuest 3 models in order to increase the quality of educational opportunities for our students.
2 Anecdotally, study skills and mental health have been significantly impacted by the restrictions placed on young people during the pandemic. Student tardiness, absences, and inability to complete assignments have all been issues.
3 Teaching with masks on are a literal barrier to communication and learning. An inability to communicate face-to-face (i.e. smile) makes it even harder for an instructor to relate to a diverse student population. This challenge is exacerbated in labs where goggles are also required.
4 Relatively low enrollment numbers and high number of withdraws, despite ongoing efforts to connect with students. Many students who are enrolled seem underprepared.
5. Difficulties in maintaining enough faculty to teach all of the classes offered, especially with the transition back to hybrid and in-person instruction. For this we collaborated with our adjuncts at unprecedented levels to address their concerns and help provide them with the best possible environment to continue offering excellent learning opportunities for our students
6. Advanced instrumentation to train our next generation of doctors and scientists requires constant upkeep and maintenance. The atomic absorption spectrometer, nuclear magnetic resonance instrument, infrared spectrometer, gas chromatographs, UV/VIS spectrometers, and particularly the GC-MS all require extra hours and support to remain operational for our students.

Tab to add more lines as needed

C. Reflecting on your program's experiences from 2020 - to 2022, what innovations or new processes did you integrate that you would like to continue?

_____N/A

The introduction of hybrid classes into our curriculum. Some students prefer an online classroom with in-person labs. Fewer days on campus means fewer cars on the road, saving time, money, and emissions.

Virtual department meetings are also a convenient way to meet that save time, money, and fuel.

Procuring funding for new equipment for the development of new lab experiments and to replace aging and non-functional equipment to allow us to give students a learning-centered, equity focused environment that offers educational opportunities and support for completion of students' transfer, degree, and career-technical goals that are as good or better than the experience at a CSU or UC.

D. Explain one way that your program is connected to the College Mission and/or Educational Master Plan. Identify the specific elements.

- *College Mission*
- *Educational Master Plan (see pages 72-76)*

_____N/A

One way that our program is connected to the both the College Mission and the Educational Master Plan is by offering an inclusive, learning-centered, and equity-focused environment that provides students with the knowledge and skills necessary for career readiness and advancement. Chemistry is a discipline that is required for many transfer programs and degrees. Thus, we serve a large and diverse section of the student population. Our department is constantly striving to further refine and improve our instruction, laboratory equipment and experiments, and course offerings to best serve our student population and, by extension, the community at large.

E. Planning: What are the most important plans, either new or continuing, for your Program?

_____N/A

Plan	New	Continuing	Short term	Long term
Participating in new STEAM building use planning. Our department desperately needs more lab space, especially if/when we transition to the 16-week semester.		x		x
To continue preparation for new environmentally focused courses Chem 6 and EVST 5L		x	x	
Procuring funding for new equipment for the development of new lab experiments and to replace aging and non-functional equipment to allow us to give students a learning-centered, equity focused environment that offers educational opportunities and support for completion of students' transfer, degree, and career-technical goals that are as good as or better than an experience at a CSU or UC.		x	x	x

Tab to add more lines as needed

F. If you have outreached to students in your department, program, or classes, please share information about what you discovered and how you have used the feedback.

___x_____N/A

Describe student outreach used to gather feedback. For example, through surveys, conversations, etc.	

What did you learn?	
How will you use the feedback?	

G. Are there institutional barriers to the equity work that your program would like to engage in, and what suggestions do you have for minimizing or eliminating these barriers? (See page 2, for the equity definition)

_____N/A

Barrier	Suggestions
Teaching effectively to a diverse student population requires understanding and trust. Trust requires being able to see a person's face. Masks are a barrier to equitable teaching.	Keep masks optional indefinitely

Section Two: Data Analysis – Quantitative and Qualitative

A. IR Data Review: Discuss any significant trends in the data provided by the Office of Institutional Research and Planning (or any other data you use for decision-making and planning).

(Note: Not all Programs have IR data available; if your program does not have a data packet or dashboard data, you may note that in the response box.)

- IR Data packets are available here (posted Fall 22): https://bit.ly/2IYaFu7
- Course Set Standard Overview & Success Rates Dashboard can be found in the middle of this page: https://bit.ly/2Y9vGpl

B. Program-Set Standard (Instructional Programs Only):

The program-set standard is a baseline that alerts programs if their student success rates have dipped suddenly. There are valid reasons a program does not meet the Program Set Standard; when a program does not meet this standard, they are simply asked to examine possible reasons and note any actions that should be taken, if appropriate.

Program-set standard data can be found on this page

- Did your program meet its program-set standard for successful course completion?

  __X_Yes _____No

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

C. SLOs/SAOs: Assessment of Student Learning and Support

Program Review is our major source of data on student learning for the college and is therefore regularly reviewed. *Each year programs must discuss how their PSLOs, CSLOs, or Service Area Outcomes (SAOs) support the College Mission. This helps us to see how our students are progressing in their learning.*

For assistance with these questions and instructions on how to run the necessary reports in eLumen, click here.

You should complete at least one of the following three sections. Please choose the option(s) below that are appropriate for your program - Go directly to the section(s) you chose.

- C1: Instructional Programs with PSLOs (disaggregated PSLOs)
- C2: Instructional Programs with CSLOs *(Departments without degrees, non-major courses, and/or other courses up for assessment)*
- C3: Non-Instructional Programs (SAOs)

C1: Instructional Programs with PSLOs (disaggregated PSLOs)

1) To assess PSLOs, CSLOs must be correctly mapped to only one PSLO within eLumen and every mapped CSLO must have assessment data. Please insert a checkmark in one of the following options that correctly describes your data and move on accordingly.
    a. If the CSLOs are mapped correctly and there is data for each CSLO, then continue to question 2.
    b. If the CSLOs have assessment data and the mapping needs to be completed, then complete the mapping within eLumen (See SLO Handbook, p. 7) and continue to question 2.
    c. If not all of the mapped CSLOs have assessment data, then you cannot assess the PSLO. In this case, continue to question C2.

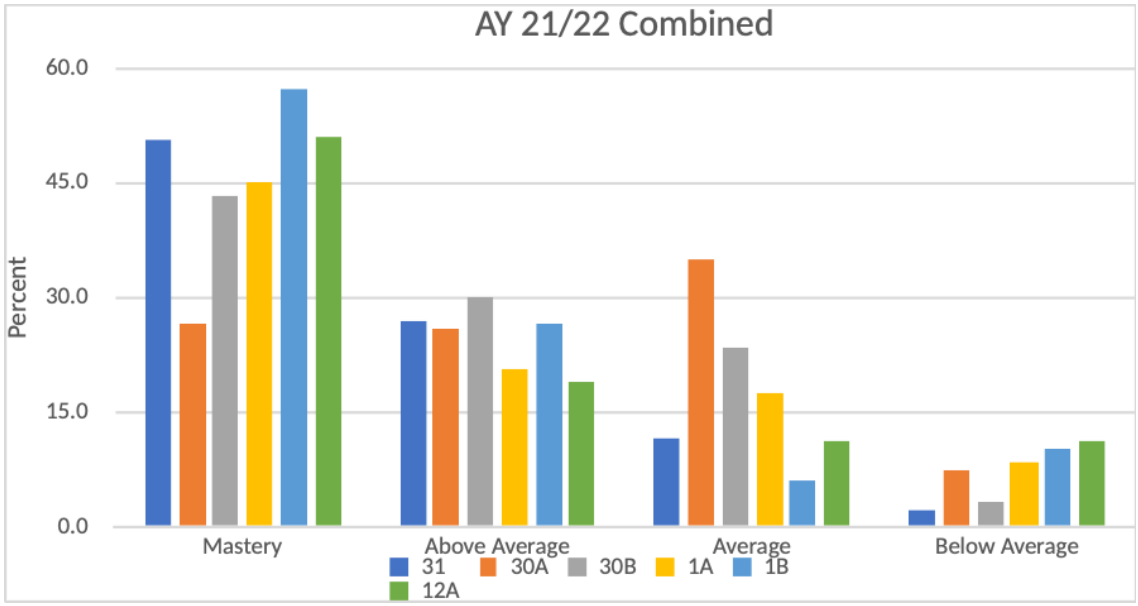
2. Based on your current 3-year plan, list the PSLO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

Upon successful completion of an AS in Chemistry, students are able to effectively communicate the methods, analysis, results, and conclusions of their experiments. This PSLO was chosen for all classes throughout the year because it has never been assessed and we needed to create a baseline.

2) What percentage of faculty completed the planned assessments for the selected PSLO? (run Faculty Participation report from last year). ____72_____%

3) Non-disaggregated Analysis of PSLO(s): In general, what conclusions can be drawn about student learning in your program?

Our students are showing a high level of mastery in scientific communication. The only group with a normal distribution centered on “average” are our introductory nursing students in chem 30A.



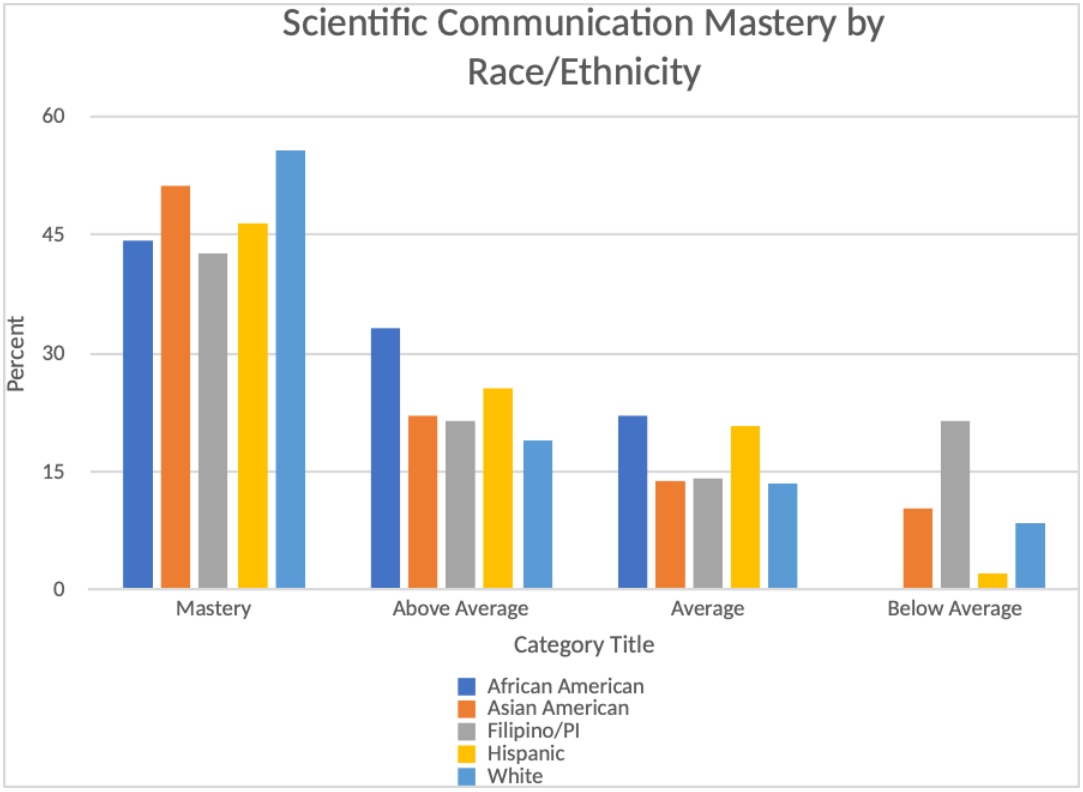
4) Disaggregated Analysis of PSLO(s) to identify potential inequity: Disaggregation allows you to examine inequities in student learning outcomes within sub-populations in your program. See the Guide for instructions on how to disaggregate PSLO data.

Which variables did you use to disaggregate the data? Mark all the apply.

- **Gender**
- Age
- **Ethnicity**
- EOPS
- Veteran
- BOG Recipient
- First Generation
- DE
- Online
- Hybrid
- Fact-to-Face

5) Did your data reveal any patterns of inequity? If so, please explain those patterns.

No significant patterns of inequity were identified with regards to scientific communication. The weighed average score (from 1-4) from the groups revealed no statistically significant differences.



Demographic Element	Average Score (Weighted)
African American	3.2
Asian American	3.1
Filipino/PI	2.9
Hispanic	3.1
White	3.2

The only exception in the distribution is that Filipino/PI had a noticeably larger percentage of students scoring “below average” in scientific communication.

6) Identify any challenges facing your department that may contribute to inequitable outcomes as revealed by your disaggregated PSLO data. (Refer to section 1B if needed)

1)

7)

7) Based on discussion with others in your program, explain potential changes that will improve student learning and address inequities identified through analysis of disaggregated PSLO data.

No significant inequities were observed

2)

8)

8) The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

Will all of your courses be assessed by June 2023?

__x__Yes _____No

If not, please update your 3-year plan to include any courses you missed or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

9) Are you planning on updating any CSLOs or PSLOs?

_____YES _____x_____NO

(If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

10) If you experienced any challenges in completing your PSLO assessment process please list those in the box below along with any items that would help you improve this process in the future.

Elumen is not able to disaggregate demographic data for courses outside of our AS degrees, so we're missing a lot of students in this analysis.

3)

11)

C2: Instructional Programs With CSLOs - Departments without degrees, non-major courses, and/or other courses up for assessment

1. Based on your current 3-year plan, list the CSLO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

1.

2.

2. What percentage of faculty completed the planned assessments for the selected CSLO? (run Faculty Participation report from last year). _____%

1. Using the CSLO data and reflection questions, what are some conclusions?

4. List changes that you plan on making to improve student learning.

1.

5.

5. The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

   Will all of your courses be assessed by June 2023?

   ____Yes _____No

   If not, please update your 3-year plan to include any courses you missed or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

6. Are you planning on updating any CSLOs?

   _____YES _____NO

   (If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

7. If you experienced any challenges in completing your CSLO assessment process please list those in the box below along with any items that would help you improve this process in the future.

2.

8.

C3: Non-Instructional Programs (SAOs)

1. Based on your current 3-year plan, list the SAO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

1.

2.

2. What percentage of staff completed the planned assessments for the selected SAO(s)? (run Faculty Participation report from last year). _____%

3. Based on discussion with others in your area: Using the SAO data and reflection questions or other sources of data, what conclusions can be made?

2.

4.

* If you used other sources of data, briefly explain below.

4. List changes that you plan to improve outcomes in your service area.

5. The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

Will all of your courses be assessed by June 2023?

____Yes _____No

If not, please update your 3-year plan to include any courses you missed, or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

6. Are you planning on updating any SAOs?

_____YES _____NO

(If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

7. If you experienced any challenges in completing your SAO assessment process please list those below, along with any items that would help you improve this process in the future.

Note: There is an opportunity to give feedback on the PR template on the last page if you won't be completing the next sections

Section Three: Guided Pathways & Curriculum Review

(Programs with Courses Only)

For assistance with these questions, contact the Curriculum Committee Chair

Part One: Guided Pathways: Your program's work with guided pathways

A. Program Maps - The Program Maps (degree and certificate course sequences) are found in Academic & Career Pathways

Up-to-date Program Maps are used by students in your pathway, for data collection to support in-reach to students in your Pathway, predictive scheduling recommendations for Discipline Plans, and may influence the allocation of FTEF.

Please compare each Program Map to your current course offerings and course sequencing. Pay close attention to prerequisite information and to classes that may only be offered particular terms.

1) Are your Program Maps accurate?

- Yes, all of my maps are accurate

- No. The Program Map for _____*(degree/certificate name)*_____ Requires an update
  - Requires a **non-curricular change** (ie: course sequencing) Please consult your **Pathway counseling faculty liaison**
  - **Curricular Change** (Program modifications) - Modifications are initiated through the Curriculum Committee. For mapping support contact the Curriculum & SLO Specialist.

Part Two: Curriculum Review

For assistance with this section, contact the Curriculum Committee Chair.

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

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

A. *Title V Updates [Curriculum Committee]: Do you need to update any courses to stay within the 5-year cycle? List courses requiring updates below.*

Reminder: updates to course title or units, and course deactivations, will require updating any program they are associated with. List programs requiring updating in question (C).

____x___YES _____No

Course Name & Number
Chem 29: Independent Study, Chemistry

B. *Degree/Certificate Updates [Curriculum Committee]: Do any programs require modification in this cycle? If yes, list them below.*

Reminder: Program modifications sent to the Curriculum Committee for approval require an updated Program Map. For mapping and curriculum support please contact the Curriculum & SLO Specialist.

_____YES _____x_____No

Certificate or Degree

C. *Are there any courses or programs for which a non-mandatory update is planned?*

Reminder: Program modifications sent to the Curriculum Committee for approval require an updated Program Map. For mapping and curriculum support please contact the Curriculum & SLO Specialist.

_____YES _____x_____Not at this time

If yes, explain details, rationale, or any support that might be helpful to the committee.

D. Does your program plan to create any new courses or programs this year?

Reminder:: New program proposals require a Program Map for Senate approval. Please ***contact the Curriculum & SLO Specialist if you are planning a new program.***

_____YES _____x_____No

If yes, please provide details and the rationale

E. Are there any courses that you plan to deactivate or sunset?

_____YES _____x_____No

Course Name & Number

Program Review Suggestions (optional): What questions or suggestions do you have regarding this year's Program Review forms or process?
