

Program: Physics and Astronomy

Division: STEM

Writer(s): Robin Rehagen

SLO/SAO Point-Person: Robin Rehagen

Email your completed form to Karin Spirn and your dean by November 3.

Helpful Links:

- ★ [Tools for Writers](#) - with contacts and info for help with specific sections.
- ★ [Program Review Glossary](#) - defines key terms you can review when writing.
- ★ [Discipline Data Packets](#) – institutional research about disciplines and student services
- ★ [Course Success Rates Dashboard](#) – allows you to research your program's success rates

Detailed information and instructions appear at the end of this form. For help, please contact Karin Spirn at kspirn@laspositascollege.edu.

1. Please describe your program's most important **achievements** in year 24-25.

- Our enrollment in physics continues to rise. We have filled (and waitlisted) all our physics and astronomy courses, including Physics 1D, which used to have fewer than 10 students. To support increased student need we have increased the number of lab sections offered for all courses in the calculus-based physics series.
- Our Physics Club continues to support students through community- and career-building activities like field trips to research facilities and universities, scientific talks, and career mentoring.
- The ASTRAL consortium (a collaboration with Lick Observatory) has grown into a research group with bi-weekly meetings led by two of our part-time faculty. This collaboration allows students throughout all LPC's physics and astronomy classes to complete honors projects and independent-study projects using data from research grade telescopes. Students engaging with this collaboration learn many research skills, including image reduction, data analysis techniques, programming, and scientific writing.
- We converted our astronomy lab course to a CCN course: ASTR C1001L

2. Please describe your most important **challenges** in year 24-25.

- We constantly face a deficit of qualified instructors to teach our courses. This has been exacerbated by the huge increase in student demand for physics courses. Physics's FTEF allocation has gone up 60% in the last 10 years, but there is no new full-time faculty member to help staff the new courses we are offering. We applied for a new full-time faculty position this fall, but the position was not funded because of the number of replacement faculty requested by other departments. Most part-time faculty in our department have full-time jobs and cannot teach the large unit load (9.25 CAH) of a typical physics class. We have therefore been forced to have different PT instructors teach the lecture and lab portion of these classes, which inevitably leads to a disconnect between lecture and lab and poorer experience for the students. A third full-time faculty member is desperately needed.

Program Review Update 2025

- The impending compressed calendar is a huge disaster for LPC STEM students, in terms of both their ability to effectively learn and their ability to complete their graduation requirements in a timely manner.
 - Physics courses were previously scheduled in 5-hr blocks twice a week, which were already mentally and physically taxing for both faculty and students. Compressed calendar extends this time to 6 hours. If a student takes two STEM lab classes on the same day, which nearly all of them are forced to do, classroom time could easily total 10-11 hours straight with no breaks. This does not account for study time, commute time, and part-time jobs. Student success will suffer under these conditions.
 - STEM classes (physics, chemistry, math, engineering, etc.) have huge unit loads and many required hours of classes. The increased length of each “block” mandated by compressed calendar inevitably causes a decreased number of blocks. This will effectively make it impossible to create a STEM scheduling matrix that allows for students to complete all their graduation requirements each semester. Classes will conflict, STEM students will not be able to get into their required classes, and their graduation will be delayed. Obviously, the STEM faculty will work closely together when planning the schedule to minimize the detrimental effects, but I can almost guarantee that there will be course conflicts that we cannot prevent.

3. What SLO(s) or SAO(s) if any did your program assess or discuss since your last program review? Please describe any findings and planned actions.

- We assessed the Physics Communication SLO. We found that scientific writing skills did improve across the physics sequence (PHYS 1A, 1B, 1C, 1D) and plan to continue our current strategy of scaffolding training in scientific writing. Based on faculty feedback, these were the most effective strategies to teach scientific writing across the physics sequence:
 - 1. Scaffolded writing tasks:** starting with short summaries in PHYS 1A, moving to longer lab reports in PHYS 1B and 1C.
 - 2. Explicit instruction in scientific writing:** dedicated labs/assignments on writing style, use of LaTeX, and proper formatting (e.g., verb tense, plots, captions).
 - 3. Iterative improvement:** multiple assignments spaced out so students can apply feedback and steadily raise their performance.
 - 4. Frequent opportunities for feedback:** detailed comments, plus revision opportunities.
 - 5. Office hours / one-on-one help:** the single biggest factor in whether students’ writing improved significantly.

4. What are your upcoming plans? Please note any ways that these support student achievement and equity.

- Our upcoming plans center around supporting students during the transition to compressed calendar, including course scheduling, lab content and skills, writing assignments, pedagogy, etc.
- We also plan to continue interviewing part-time faculty, and hope that we will gain a third full-time faculty member in the next hiring cycle.

CTE REPORT (CTE DISCIPLINES ONLY)

1. Does this program continue to meet a labor market demand?

- Yes or No:
- Explanation/evidence:

2. Are there similar programs in the area? If yes, list the programs and their institutions.

- Yes or No:
- Explanation/evidence:

3. Has the program demonstrated effectiveness as measured by the employment and completion success of its students? Provide employment and completion success based on Perkins Core Indicator Report.

- Yes or No:
- Explanation/evidence:

4. Does the program provide opportunities for review and comments by local private industries? Attach most recent Advisory Committee meeting minutes.

- Yes or No:
- Explanation/evidence:

Detailed Instructions and Information

Instructions:

1. Please answer each question with enough detail to present your information, but it doesn't have to be 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 completed form to Program Review chair Karin Spirn and your Dean by November 3.
5. Even if you don't have much to report, we want to hear from you, so your voice is part of the college planning process.

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 inform the audience about your program. It is also used in creating division summaries, determining college planning priorities, and determining the allocation of resources. The final use is to document the fulfillment of accreditation requirements.

Please note: Program Review is NOT 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 your program status during the 24-25 academic year. It should describe plans starting now and continuing through 2025-26. It is okay to include information outside of these time windows as needed.

Program Review Process: Comprehensive Program Reviews will be completed every three years, in alignment with the SLO/SAO cycle. On the other years, programs will complete an update.

SLO/SAO Process: SLOs and SAOs should be assessed according to a three-year plan, with comprehensive reporting on the third year. For more information, contact SLO chair John Rosen:

jrosen@laspositascollege.edu

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.