

Program: Drone Technology (NAVI)

Division: PATH

Date: 11/4/2024

Writer(s): Daniel Cearley

SLO/SAO Point-Person: Daniel Cearley

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 23-24 academic year. It should describe plans starting now and continuing through 2024-25.

Helpful Links:

- ★ [Tools for Writers](#) - with contacts for help with specific sections.
- ★ [Program Review Glossary](#) - defines key terms you can review when writing.
- ★ [Fall 2023 Program Reviews](#)
- ★ [Program Review FAQs](#)

For help with your program review, please contact Karin Spirn at kspirn@laspositascollege.edu

Sections

There are four sections to the document:

1. Review your program, including curriculum updates, accomplishments, challenges, and planning.
2. Data Analysis
3. SLO/SAO Review
4. Feedback on the PR template and process

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 form to Program Review chair, Karin Spirn, and your Dean by Monday, Nov. 4, 2024

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.

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 1: Your Program In 2024-2025

Please place an X next to N/A where relevant

A. Accomplishments: Identify your main accomplishments from the 23-24 academic year.

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

- Did your accomplishments support your program's plans identified in recent PRs?
- Did they relate to guided pathways?
- Were they in support of the colleges [equity definition](#)?
- Did they connect to any of the college [planning priorities](#)?
- Did you receive any positive/negative feedback from students?
- Are there any innovations or new processes you'd like to integrate?
- Has your program changed in response to the SCFF model of college funding? (completions, increasing enrollment, offering certificates, degrees, etc.)?

As a relatively new program, we have accomplished a fair amount in a short amount of time with the aim of maintaining momentum and expanding. The Drone Technology program offers four non-credit courses, each 4-5 weeks in length, and when completed a student may petition for a Certificate of Completion. These courses are taught in succession during a single semester and allow students direct hands-on experience with professional grade equipment equal to current industry standards. Student goals range between recreational enjoyment and individuals who view their training leading to direct employment or as small business entrepreneurs. Broadly speaking, the program has healthy numbers with most classes filled and waitlisted.

Over the academic year the program continues to show positive trends in enrollment and other metrics. Last year's investment in new small and relatively inexpensive aircraft allowed all wait-listed students to be accommodated.

In response to student and industry feedback, we made incremental curriculum changes. We separated our intermediate course into two thematically unique courses, we now have a dedicated photography/videography course and another on mapping /remote sensing. The result has been positive with our courses now taught directly out of the Photography programs facility in Building 700. This shifts storage and redirects attention to the Photography program. The NAVI 202A Drone Photography and Videography is also being taught by one of the photography instructors who completed the Drone Technology certificate program last year. Additionally, we are hiring two part-time instructors. This will allow more flexibility in scheduling and provide a more diverse learning experience for students.

As the result of collaborating with the LEEDS summer science youth educational program in 2023, we have created new curriculum involving a credit-based summer camp for high school students. This will be a computer programming-based camp that will be taught in partnership with LEEDS and the Computer Science program. This is an exciting opportunity that will strengthen our K-12 pathways.

Ancillary to these courses, our program received Strong Work Force funding for a series of student interns. The interns are computer science majors who are working on various drone related projects. Most significantly, each month they conduct flights over the Campus Hill vineyard using a multispectral camera, post-process the data, and update our website. Our focus is developing a data dashboard that can be used by our Viticulture program as part of their crop management process. The intern program is a unique opportunity for students to collaborate on

active research projects. It also provides a space to develop best practices for drone related projects which ultimately can be integrated into future drone courses.

We are proud of our [web presence](#) and social media efforts. The program webpage has additional informational pages that highlight exciting and informative aspects of our program. There is a dedicated section describing our remote sensing work at the Campus Hill vineyard. This includes access to reports and links to monthly vineyard data sets. To help people interact with these data sets we have created short video tutorials on how a user can download, view, and interpret remote sensing data. Additional web pages showcase our internship program that includes bios of each intern and their transfer successes. We have plans for new pages related to how other LPC programs are using drones, such as Journalism and Photography. Lastly, we are making progress on building a social media presence using Instagram, we have increased our followers from 100 to 174 and are nearing 200 posts after our second year of use. We see Instagram as an easy way to share drone images and maintain ties with past students.

B. Challenges, Pain Points, and Needs

What significant or ongoing challenges or obstacles did your Program face during the 23-24 academic year, especially related to accomplishing program goals/plans? Consider funding, staffing, materials, facilities, outside requirements such as legislative mandates, working on equity gaps, etc. Highlight/identify any challenges mentioned in previous reviews.

There are a number of challenges that we are working on overcoming. From a teaching standpoint, the first introductory class that focuses on piloting skills requires a significant amount of set-up and break down that can be a challenge for instructors. We currently use 5 to 7 pop-up canopies and tables that the instructor themselves set-up and breakdown during Saturday classes. The equipment requires charging the day prior and then is transported from the 1000 or 700 building to the upper athletic fields, and then returned to storage. The shift of storage locations on the first floor of the 700 building makes this task easier, yet there might be other solutions. It may be helpful to have more accessible electric carts for transportation, since the current system for reserving a cart through M&O can be challenging, especially on weekends with the carts located behind multiple locked gates. Another solution may be to have a dedicated general purpose electric cart for use by staff and faculty located near the center of campus.

Our program is receiving various types of requests for off campus data collection. This includes at local vineyards, as part of local university archaeology programs, and most recently for Native American tribal land management projects. The program will be reaching out to the District about guidelines for creating MOUs that may be needed as these opportunities become realized.

Most commonly with new technology, the industry is rapidly evolving, and this program does require periodic investment in aircraft, ancillary equipment, software, and training of personnel. As a new program, we continue to refine our courses and invest in necessary equipment. A considerable amount of time is spent keeping current with local and federal legislation, and with trends.

C. Planning: What are your program's most important plans, either new or continuing?

We have three main goals that we are organizing around. The first involves assessing different options for creating credit-based courses that use the equipment we currently have in inventory. For example, the Viticulture and Geography program has shown interest in a GIS based remote sensing class. In conversations with LLNL, they identified the value in programming and fabrication-based engineering courses that leverage drones as a platform to learn a range of tasks. Other possibilities may involve converting our current courses into a semester-long format.

Secondly, we are considering partnering with local vineyards to apply the techniques that we have developed on-campus. This is currently exploratory with a potential pilot project being discussed with a local vineyard owner who is interested in an educational exchange program.

Lastly, we had a successful advisory committee which was strongly represented by local law enforcement agencies with Livermore PD and Hayward PD represented. This was the first time that law enforcement was involved, and it created some potential opportunities for collaboration. The group identified possible Police Officer Standards and Training (POST) courses that LPC could act as hosts. It seems there is a lack of drone related courses in northern California and both Livermore and Hayward are growing their programs.

D. Identify any college, district, or legislative barriers to your program's equity work. What suggestions do you have for minimizing or eliminating these barriers?

Barriers:

Suggestions:

N/A_____

E. Curriculum Updates

Reasons for updating include that it is required every two (CTE) or five (non-CTE) years, there is a program or college need, starting a new program, or new legislation.

1. Are you planning to update any curriculum in 24-25?

Yes___ No__X__

2. Comments (Optional):

3. Please review your program [maps](#). Do you need to make any modifications?

Yes__X__ No___

4. If yes, compare each [Program Map](#) to your current course offerings and sequencing. Pay close attention to prerequisite information, and classes offered only during certain semesters.

a) If your map requires a **non-curricular change** (i.e., course sequencing), consult your [Pathway counseling faculty liaison](#) to initiate changes.

b) **If your map requires a curricular change** (Program modifications) - these are initiated through the Curriculum Committee.

Any questions? Contact the [Curriculum Chair](#) or the [Curriculum and SLO Specialist](#).

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 and reach out to [the IR team.](#))

Here are a few samples of data to review and reference if that's helpful.

- IR Data packets [are available here](#) (Posted Fall 24)
- Academic & Career [Pathway Specific data](#) (Posted Fall 24)
- Your program's survey data
- [Transfer data](#)
- Course Set Standard Overview & Success Rates Dashboard are in the middle of [this page](#)

As a new program, we are excited to have data from two full academic years. We ran all three courses each semester and an additional introductory course in Spring 2023 resulting in slightly higher number each year. Our fill rate was 129% in the Fall and 113% in the Spring. We are starting to see some consistent trends, the male/female ratio is roughly 70/30 and the ethnicity is 50% white, 20-30% Latino, 10-14%, and 3-7% African American. Our age demographics remain split between youth and 30+, of these the largest grouping is above 50+. As a P/NP non-credit class our success rate is high.

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. 95% of the rolling 5-year average. There are valid reasons a program does not meet the Program Set Standard; when a program does not meet this standard, they are 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.](#)

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

Yes No

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

Section 3: SLOs/SAOs: Assessment of Student Learning and Support

Program Review is the college's major data source on student learning and support and is, therefore, regularly reviewed. *Each year, programs must discuss their PSLOs, CSLOs, or Service Area Outcomes (SAOs.) This helps us to see how our students are progressing in their learning.* For assistance with these questions and instructions on running reports using eLumen, [click here.](#)

Please complete at least one of the following three sections based on what is appropriate for your program. Check at least one below:

- 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)

To assess PSLOs within eLumen, CSLOs must be correctly mapped to only one PSLO, and every mapped CSLO must have assessment data. Please review the items below and proceed accordingly.

- If the CSLOs are mapped correctly and there is data for each CSLO, then continue to question 2.
- 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.
- If not all mapped CSLOs have assessment data, then you cannot assess the PSLO. In this case, continue to section C2.

1. [Please review your 3-year plan](#) and verify that all courses will be assessed by June 2026. (between Fall 2023 – Spring 2026)

Will at least one SLO be assessed in each course by June 2026?

Yes X No

If not, please update your 3-year plan to include any courses you missed. If you plan to revise your 3-year plan, then send your updated plan to the [Curriculum and SLO Specialist](#) and the [SLO Chair](#).

2. Based on your [3-year plan](#), list the PSLO(s) for the academic year 2023-2024 that your program selected to review and explain why these were chosen.
3. What percentage of faculty completed the planned CSLO assessments? (In eLumen, [run a Faculty Participation report](#) for 23-24).
 - _____%
4. Analysis of PSLO(s): What conclusions can be drawn about student learning and equity in your program based on eLumen and/or other data? You may want to consider disaggregated data. When using eLumen [See the Guide](#) for instructions on how to disaggregate PSLO data.
5. Based on discussions with others in your program, explain potential changes designed to improve student learning and close any equity gaps identified through the analysis of PSLO data. Please also note if you decide to update any CSLOs or PSLOs based on this analysis (If updating, then you may do this through eLumen, see the [SLO Handbook](#) if you need instructions on how to do this).
6. If you experienced any challenges in completing your PSLO assessment process, please list those below along with any items that would help you improve this process in the future.

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

1. [Please review your 3-year plan](#) and verify that all courses will be assessed by June 2026. (between Fall 2023 – Spring 2026)

Will all courses be assessed by June 2026?

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](#).

2. Based on your [3-year plan](#), list the CSLO(s) for the academic year 2023-2024 that your program selected to review.
Evaluate the legal (local, state, and federal) and ethical frameworks in order to safely operate common Unmanned Aerial Systems (UAS), more commonly referred to as drones.
3. What percentage of faculty completed the planned assessments for the selected CSLO? (In eLumen, [run a Faculty Participation report](#) for 23-24). 0%
4. What conclusions can you draw from the CSLO data and reflections in eLumen. If you used any additional evidence or methods to answer this question, please explain.
5. Explain potential program changes designed to improve student learning. Please also note if you have decided to update any CSLOs or PSLOs based on analysis (If updating, then you may do this through eLumen, see the [SLO Handbook](#) if you need instructions on how to do this).
6. 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.

The department has not been able to maintain reporting requirements for SLOs. This will immediately move to the top of our priorities and be remedied in a concerted effort with our adjunct faculty.

C3: Non-Instructional Programs (SAOs)

1. [Please review your 3-year plan](#) and verify that all courses will be assessed by June 2026. (between Fall 2023 – Spring 2026)

Will all courses be assessed by June 2026?

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](#).

2. Based on your [3-year plan](#), list the SAO(s) for the academic year 2023-2024 that your program selected to review.
3. Based on discussion with others in your area, what conclusions can be drawn from the SAO data and reflection questions from eLumen or other sources of data?
4. Explain any planned changes to improve outcomes in your service area. Please note if you have decided to update any SAOs based on this analysis.
5. 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.

Section 4: Suggestions for the Program Review Committee (optional)

What questions or suggestions about this year's Program Review forms or process do you have?