Science, Technology, Engineering, and Mathematics

Reader Division Summary Draft 2024-2025

Readers Assigned - *see font color*	**Programs Read** *Each Reader: Please identify the programs you have completed reading*
• Paula Checci (Dean) • Irena Keller • Karin Spirn	• Biological Sciences • Chemistry • Computer Studies (CIS/CNT/CS) • Engineering • Environmental Studies • Geography • Geology • Horticulture • Mathematics • Occupational Safety & Health • Physics & Astronomy • Viticulture & Winery Technology

The goal for this reading document is to prepare to meet with the Deans for identifying Division priorities and completing the Division Summary.

PRC team members are responsible to set up the Division Summary Meetings with the Dean in January – by November 29th

Send the finalized MS Word document to Karin Spirn and your assigned Dean by January 24th at 5:00 pm.

There are five (5) sections to the reading form – please make sure all are completed prior to meeting with the Deans

A. Accomplishments (page 1)
B. Challenges (page 2)
C. Other observations not captured elsewhere (page 3)
D. Priorities (pages 3 - 4)
E. Evidence for future accreditation cycles – if you find something (pages 4-5)
    a. (Part E is not part of the final division summary)

This document is shared – you don't need to repeat items that are already listed

Section A: Accomplishments & Notable Items

Overarching Themes for Accomplishments/Notable

- A lot of great outreach to industry and local establishments
- Increase in student internships
- Increased enrollments after pandemic dips.
- Encouraging students to get degrees and certificates.
- Guided pathways--More SEPs are getting completed.
- Increased student supports through support classes, tutoring, etc.

Program Specific Notes (List them alphabetically by program)

Biological Sciences

- Good outreach/community involvement: camps, clubs, events, including e LLNL Science Seminar Series.
- Good faculty professional development participation: master classes, courses at USF, UC Berkeley

- New: Designed and expanded distribution of take-home lab kits

Chemistry

- Nothing to report

Computer Studies (CIS/CNT/CS)

- Good outreach/community involvement: camps, 4 clubs, events on campus (open house, preview night) and outside of campus, including partnership with Lawrence Livermore National Lab, Pedrozzi Foundation and Quest Science Center, ISC2 cybersecurity organization
- Supporting/working with MESA Scholars program

Engineering

- 47 students transferred from LPC to an Engineering program in a UC or CSU
- 13 students earned engineering AS degrees and one earned a certificate. Engineering professors reminded students to meet with counselors and apply for degrees.
- 7 Engineering students got summer internships at LLNL in 2024.
- Collaborated with other disciplines to ensure an optimal schedule with no conflicts for students
- Participated in numerous outreach activities including HS preview day, open house day, local innovation fairs, CTE fairs at local high schools, and other collaborations with high schools.
- Numbers of female students increased to pre-Covid levels
- LPC was awarded a National Nuclear Security Administration (NNSA) Minority Serving Institution Partnership Program (MSIPP) in collaboration with the Lawrence Livermore National Lab (LLNL) to provide a series of career technical workshops through LPC Community Education. The first workshop was held last year and served students of a diversity of ages, educational backgrounds, and ethnicities.
- New club: Women in STEM Association

Environmental Studies

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Geography

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Geology

- New full-time faculty was hired and now there is primary instructor and program coordinator.
- Acquired new scientific equipment—two seismometers.
- High program success rates - 88%!
- Monthly faculty meetings as part of furthering the college's caring campus initiative.

Horticulture

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Mathematics

- Developed two pre-calculous options to provide an accelerated pathway as an alternative to the current two-semester pathway. This is a response to AB1705.
- Developed Math 1 materials to add to Math Emporium
- Added embedded tutors to emporium sections as well as some concurrent support and lecture classes.
- Outreached to local high school students: many HS students took summer geometry classes, synchronous evening Math 3 offered for HS students, outreached to Middle College.
- Attended AMATYC Student Math League competition, ranked 7th CC nationally!
- Held informal department meetings for FT and PT faculty to discuss equitable teaching practices
- Updated the GPS and Degreeworks recommendations to prepare for launch of AB1705
- Faculty members will create support videos using AB1705 money.

Occupational Safety & Health

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Physics & Astronomy

- Enrollment is skyrocketing!
- Physics club is a big success for second year: fieldtrips to local laboratories and STEM employers have positively impacted student employment/internships as well and have inspired students to persist in STEM.

- First year as part of the ASTRAL Consortium, in which LPC is connected to Lick Observatory in San Jose, and the partnerships has many great benefits for our students.

Radiation Safety

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Viticulture & Winery Technology

- New great facilities
- New instructional equipment through RAC including 4-300L stainless steel wine tanks to support student projects.
- A wine stemware loaner program and a Materials fee scholarship were created for students.
- Courses outlines are updated
- Enrollments are up.

Section B: Challenges and Needs

Overarching Themes for Challenges/Needs

- Part-time faculty access to facilities (labs, restrooms in the new building!)
- Need more full-time faculty. Faculty are expected to do a lot of additional work in addition to teaching and basic duties, including outreach, overseeing grants, directing special events and initiatives.
- Need for more reassigned time allocation. It is an issue that new faculty cannot get reassigned time.
- External mandates such as AB1705 and common course numbering cause programs to not be able to offer classes in ways that will best serve students.
- Insufficient allocation of FTEF. Cannot put on schedule enough classes to allow students to complete degrees and/or certificates in a timely manner. FTEF is sometimes added at the last minute which causes a strain to staff and enroll sections.
- Increased demand in Honors projects puts a stain on faculty
- The student body in the program is very diverse (with many challenges) and helping them succeed is a challenge. Need to explore equity issues and resolve the difference between online and in-person pedagogy.
- Class sizes are too big to be able to implement caring campus and address equity issues (help struggling students).
- Compressed calendar and common course numbering pose a serious problem specifically for STEM.

- Barriers to getting needed student supports, including tutors and support services. Sometimes barriers are created by policies, such as inability to enlist volunteer tutors.

Program Specific Notes (List them alphabetically by program)

Biological Sciences

- Need more facilities due to the growth of the program and the compressed calendar, scheduling labs is becoming impossible.
- Need more faculty in general, but more specifically need:
    - a full-time Molecular Biology faculty member to maintain program development in biotechnology and molecular biology.
    - a dedicated faculty-lead to coordinate the Environmental Studies and Environmental Science program in collaboration with Physics Department, and also to help with developing a certificate for the Program.
    - more faculty teach Allied Health courses and to help with lab activities/manuals reviews.
- Need more budget for reagents that expire yearly, electronic check-out system for students borrowing supplies.
- Need to explore equity issues and resolve the difference between online and in-person pedagogy.

Chemistry

- Nothing to report

Computer Studies (CIS/CNT/CS)

- Increases in 2023-24 enrollment
- Only one full-time faculty and not enough FTEFs (taken because of cancelled classes), while enrollment increases.
- Part-time faculty access to facilities (labs and restrooms)
- Need shelving units for CNT labs
- Technology loaner program is inconsistent (first-come first-served, locked-down), NETLAB access and payment is a problem and many students don't have Windows (remote desktop available for students could help)
- Increased demand in Honors projects – strain on faculty

Engineering

- Excessive workload for the coordinator and sole FT faculty member. The coordinator must oversee two majors, teach a wide variety of courses, oversee corporate partnerships, coordinate with an advisory board and do outreach work to provide opportunities for

students, in addition to other common coordinator duties. The department requests more reassigned time to properly manage these extensive duties. More reassigned time and coordinator support would increase capacity to participate in equity-based initiatives. [Note: in addition to reassigned time, would they want to request a new FT position?]
- Need to ensure that engineering and welding classes needed by Engineering Technology students are not cut
- Not many engineering students qualify for a degree or certificate. Automatic awarding would help ensure that eligible students do earn their degrees.
- Reliable evening tech support is needed for Engineering 23, a computer graphics course.
- More space is needed in transfer-level engineering courses to accommodate an increase in physics students.
- Challenges finding engineering tutors including those for the MESA center. Qualified students have barriers to tutoring, while potential volunteers such as retired scientists are difficult to staff due to district procedures.
- There are ongoing updates to articulation to UC/CSUs, requiring engineering faculty to stay very up to date and continuously make updates as needed.
- Department data reveals opportunities to enhance transfer to UC Merced, SF State or CSUEB—no engineering students transfered there last year.
- No students received degrees or certificates in the Electrical Engineering UC Pathway or Mechanical Engineering UC Pathway—investigation is needed to determine the reason.
- Student surveys revealed that students would like more times/sections for courses.
- Challenges interpreting SLO reports and making use of eLumen data.

Environmental Studies

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Geography

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Geology

- A major challenge is getting enrollment back up to pre-Covid levels.
- New faculty had to step up into too many roles and responsibilities, is still learning a lot and is overwhelmed.
- The student body in the program is very diverse (with many challenges) and helping them succeed is a challenge.
- Class size is too big to be able to implement caring campus and address equity issues (help struggling students).

Horticulture

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Mathematics

- Need for additional FT positions. Several retirements/resignations and one reassignment have occured without replacements.
- Credit-by-exam procedures are being developed for two courses but pragmatic issues will arise in the implementation which will need to occur at times when faculty cannot grade the exams due to workload or breaks.
- OER and ZCT are difficult to achieve due to faculty overwork and the lack of quality materials available without cost.
- Spring 24 enrollments were initially low, leading to class cancellations which then led to class shortages for late-enrolling students. Shorter waitlists might be helpful so students will have to distribute more through different sections.
- Responding to AB1705 and other previous mandates has led to instability in the math sequence and a constant need to redevelop the pathway. This is confusing for students and exhausting for faculty. In addition, there is an increased need for student support due to the new placement procedures, and math faculty does not have the capacity to provide such high levels of support though they are trying through concurrent support and math jam.
- AB1705 is meant to increase equity but actually harms equity by placing students in classes that they have not been prepared for thfough previous coursework. Math need significantly more FTEF and instructional assistant support to address this issue by expanding the hours and staffing of the math support center.
- Challenges with modalities: students enroll more in asynch classes but these have high attrition and lower success levels. There have been issues with hy-flex classes as well,
- There is a need for paid substitutes.
- Challenges doing equity-based training with some PT faculty due to their busy schedules and lack of capacity to do anything not required.
- Challenges finding new math Puente faculty bc only FT faculty are elibible.
- Majority of math students are now Asian and Latinx. Participation in Puente is one way math is currently supporting POC students.
- SLO data reveals that students need more support with modeling. Female students were struggling more than male students on this SLO. [I wondered, did the department have any ideas of why, or how to investigate?] Students are doing on the problem-solving SLO and seem to improve throughout the sequence of classes.

Occupational Safety & Health

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Physics & Astronomy

- With the skyrocketing enrollment there is a **desperate** need for FTEFs. There is a 60% increase in demand over 4 years.
- Manty students are completely blocked from transferring, because transfer institutions require the entire physics sequence (1A-1B-1C1D) to be taken **at one college** and there is not enough sections to offer it in LPC.
- Need a full-time faculty, the two current are overloaded and it's difficult to find qualified part-time faculty.
- The facility (1800) 50 years old and is deteriorating, the bad equipment (projectors, whiteboards) is interfering with teaching quality.
- The lab storage space is very small and disorganized, hard for faculty to locate necessary equipment or even find a space to work.
- Compressed calendar will make extremely high-unit load classes even more difficult for students and faculty.
- The Common Course Numbering (CCN) will affect curriculum and will result in significant loss of course hours for the degree program (20% reduction in hours).

Radiation Safety

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Viticulture & Winery Technology

- Getting all instructional equipment set up and operational in the new facility remains a challenge.
- Lack of personnel is a significant challenge, a manager of Winery Operations is **desperately** needed.
- Full Time Faculty is needed to fill a retirement.
- The supply budget and the maintenance budget lines both are insufficient to meet the needs of the program and have remained UNCHANGED for the last 18 years.
- Need more FTEF to continue to grow.

Section C: Anything else? Other important observations not otherwise captured (e.g., key writer observations, plans, etc.)

Other Observations

- [text]

Section D: Division Priorities

I. List of Universal needs/priorities - identified by all or most Programs in the Division

A. Quick fix (Can be done now or soon; may take little/no extra resources)
   - Provide more mentoring and support for new faculty
   - Unlocked bathrooms should be provided in the 2100 building. It would be good to unlock one per floor.
   - Create more honors sections.

B. Interim (more work required but can be done within the academic year)
   - Provide more FTEF for increased course sections to allow students to complete degrees/certs in a smooth way
   - There is a need for updated equipment and facilities in the science buildings especially 1850

C. Structural process (longer-term work to be done to "resolve")
   - Hire more faculty and provide more reassigned time to support faculty doing special initiatives
   - Advocate for reassigned time for untenured faculty.
   - Include needed infrastructure and reassigned time in funding proposals.

II. List of Program needs - identified by only one or a few Programs, but still needs consideration

A. Quick fix (Can be done now or soon; may take little/no extra resources)
   - Biology needs updated facilities so they don't need to share lab space.
   - Find creative solutions and/or add storage for physics supplies

B. Interim (more work required but can be done within the academic year)
   - Physics need more FTEF and increased faculty to provide sections for students.

C. Structural process (longer-term work to be done to "resolve")

Section E: Evidence for Future Accreditation Cycles

To help prepare for future evidence gathering, please review the ACCJC themes below. **Only** identify programs where you see clear and compelling examples.

ACCJC Standard (key themes in each cycle)	Program Name	Section and page # where evidence is located
Equity work happening at the program level	Biology Viticulture & Winery Technology Physics and Astronomy Geology Computer Studies (CIS/CNT/CS) Engineering Math Math Math Math	Achievements, Page 2 Achievements, Page 3 Achievements, Page 3 Achievements, Page 3 Achievements, Page 3 Achievements, Page 4 Achievements, Page 3 Section D, page 6 Section D, page 7 Section 2A, page 9
Identifying how the work of the program supports the college mission	Biology Physics and Astronomy Geology	Achievements, Page 2 Achievements, Page 3 Achievements, Page 3
Use of SLOs in planning and updating course work	Biology Physics and Astronomy Computer Studies (CIS/CNT/CS) Math	Planning, Page 4 SLOs, Pages 6-7 SLOs, Page 8 SLOs, page 11
Use of student feedback in planning and updating of program or course work	Viticulture & Winery Technology Engineering	Data Analysis, Page 5 Section 2, page 9
Use of disaggregated data to make changes in courses or programs	Biology Physics and Astronomy Computer Studies (CIS/CNT/CS)	Page 9 SLOs, Pages 6-7 SLOs, Page 8