

22-23 Annual Progress Report

Recommended actions for improvement identified in the 5-Year Self-Study.

- Increase coordination with biology and physics to minimize overlaps in scheduling of course offerings
- Increase dual enrollment course offerings to help mitigate decline in enrollment (CHEM 25 and 1A at Khan Lab School; CHEM 25 at Eastside Preparatory High School)
- Consider alternative course delivery designs such as hybrid courses or online supplemental instruction to improve retention and increase enrollment
- Explore solutions to address STEM readiness issues for chemistry courses, such as workshops, new curriculum designs, embedded and peer tutors, collaboration with learning communities, and increased online support for students.

Actions taken and progress made in accomplishing the improvement.

- Coordination with biology takes place quarterly during the schedule drafting process regarding BIOL 1A conflicts with CHEM 1B and 12A, BIOL 1B conflicts with CHEM 1C and 12B, and BIOL 1C conflicts with CHEM 12C.
- Implementation of a uniform lecture and lab block schedule to minimize schedule overlap with other STEM lecture and lab courses was discussed in spring 2022 and began in the 2022-23 academic year. This effort is ongoing.
- Three dual enrollment course offerings were offered during the 21-22 academic year: CHEM 25 in Winter 2022 and CHEM 1A in Spring 2022 in collaboration with Khan Lab School in addition to CHEM 25 at Eastside Prep in Summer 2022. These course offerings will continue into the 22-23 academic year.
- Moreover, many of our courses at Foothill continue to attract dual enrollment students. This applies to courses in the CHEM 1, CHEM 12 and CHEM 30 chemistry course series.
- There is considerable student demand for hybrid courses, where lecture instruction is online and lab instruction is in person. This change is reflective of the learning preferences of students who benefit from the flexibility of hybrid courses. Our department has offered schedules with multiple modalities for some courses.

Evidence used to evaluate progress.

(ex: What data are you using to make your progress judgment?)

We offered 103 sections in the 2021-2022 academic year, a 13% decrease from 119 sections in the previous academic year. In addition, we had a 25% decrease in enrollment from 3400 students in 2020-21 to 2565 students in 2021-22. Since the 2020-21 enrollments were much higher than the five-year average of 3016 students, we suspect that this is due to a generally greater interest in online course offerings during the pandemic in 2020-21. The enrollments in 2021-22 suffered due to department policy implemented that year to only offer hands-on in-person lab courses and to limit online offerings to hybrid courses.

Student success rates in chemistry remained fairly consistent at 76% for 2020-21 and 74% for 2021-22, and are also higher than those in 2017-18 or 2018-19 (71% and 72%). A similar trend is observed for student success rates by gender where the student success rate for women was 74% for 2021-22, which is higher than that for 2017-18 (71%). Finally, student success rates by ethnicity are flat with essentially no change over the last three years for most student populations. Notably though, Black students had a student success rate of 71% for 2021-22, which was substantially higher than the previous year at 63%.

As mentioned earlier, it is difficult to compare student success rates since the enrollment for 2021-22 at 2565 students was roughly two-thirds that of 2020-21 at 3400 students. In addition, the modalities of instruction were very different for 2021-22 (almost all on campus) and 2020-21 (all online).

New trends, policies, or state initiatives that have impacted your actions for improvement.

One key finding we all agree upon after our experiences teaching fully online courses in 2020-21 is that our laboratory courses can only meet lab-specific student learning outcomes with in-person instruction. Online laboratory courses that we explored were not suitable replacements for on-campus, hands-on learning of laboratory techniques and concepts. Hybrid courses with online lectures and in-person labs continue to be a popular option for students, particularly in the Chem 25 and Chem 30 series which are lab science courses students take for GE requirements.

Some chemistry faculty have also adopted OERs or developed online laboratory material for their courses in an effort to reduce the cost barrier for students in the various chemistry programs. This effort is ongoing.

Actions needed/designed to address the area of work/improvement for new trends, policies, or state initiatives.

The chemistry department is working with the Foothill Inquiries Team to begin conversations about teaching and learning at the department level. We hope our ideas, experiences, and perspective can contribute to the construction of the definition of learning at Foothill.

We have continued to implement the scheduling practices outlined in item 2 above for the 2022-23 academic year and beyond. We are also engaged in ongoing discussions about how to develop a student-centric schedule for the courses in our program.

This form is completed and ready for acceptance.

Administrator's Name:

Date:

Comments: