2025 INSTRUCTIONAL ANNUAL PROGRAM PLANNING WORKSHEET

CURRENT YEAR: 2025 **PROGRAM(S): CHEMISTRY**
CLUSTER: 1 - STEM **AREA OF STUDY: STEM**
LAST YEAR CPPR COMPLETED: 2024 **NEXT SCHEDULED CPPR: 2029?**

The Annual Program Planning Worksheet (APPW) is the process for:

- reviewing, analyzing and assessing programs on an annual basis
- documenting relevant program changes, trends, and plans for the upcoming year
- identifying program needs, if any, that will become part of the program's **Resource Plan**, which can be downloaded from the **IPPR Program Review Documents Folder**. Please review the **Resource Allocation Rubric** when preparing the resource plan.
- highlighting specific program accomplishments and updates since last year's APPW
- tracking progress on a Program Sustainability Plan if established previously

Note: Degrees and/or certificates for the ***same*** program ***may be consolidated*** into one APPW.

This APPW encompasses the following programs of study (degrees and/or certificates):

Chemistry AS, Premedical Studies CA

GENERAL PROGRAM UPDATE

Describe changes and improvements to the program, such as changes to the mission, purpose, or direction. In particular, indicate any changes that have been made to address equity gaps.

Since the last CPPR was completed:

- Dr. Lara Baxley returned from her sabbatical and has implemented work based on her work on culturally relevant pedagogy.
- 2 sections of CHEM201A were offered for Dual Enrollment this year at Arroyo Grande High School. This is the first year that any chemistry has been offered for dual enrollment.

PROGRAM SUSTAINABILITY PLAN UPDATE

Was a Program Sustainability Plan established in your program's most recent Comprehensive Program Plan and Review?

Yes ☐ If yes, please complete the Program Sustainability Plan Progress Report below.
No ☒ If no, you do not need to complete a Progress Report.

If you selected yes, please complete the Program Sustainability Plan Progress Report below after you complete the Data Analysis section. That data collection and analysis will help you to update,

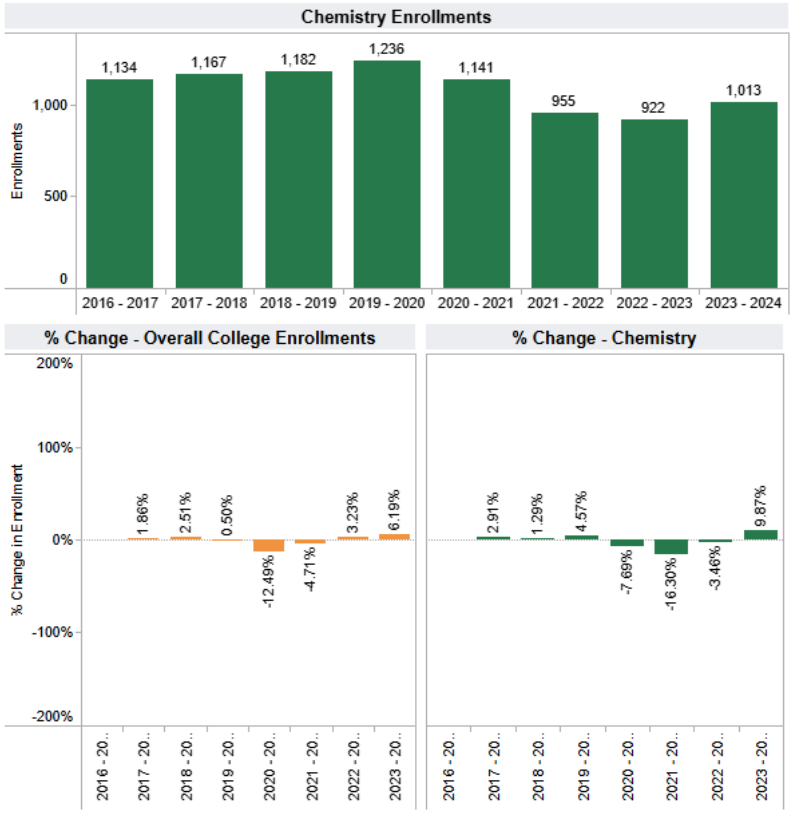
if necessary, your Program Sustainability Plan.

DATA ANALYSIS AND PROGRAM-SPECIFIC MEASUREMENTS

Your responses to the prompts for the data elements below should be for the entire program. If this APPW is for multiple degrees and/or certificates, then you MAY want to comment on each degree and/or certificate or discuss them holistically for the entire program being sure to highlight relevant trends for particular degrees and/or certificates if necessary. Responses in this document need only reference the most recent year's available data.

A. **General Enrollment (Insert Aggregated Data Chart)**

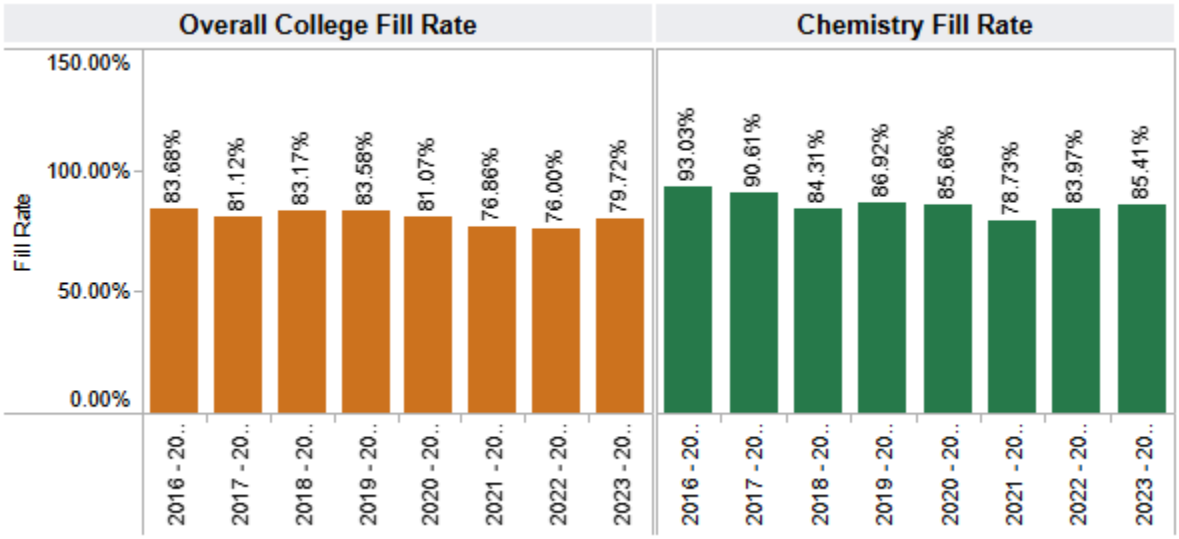
Insert the data chart and explain observed differences between the program and the college.



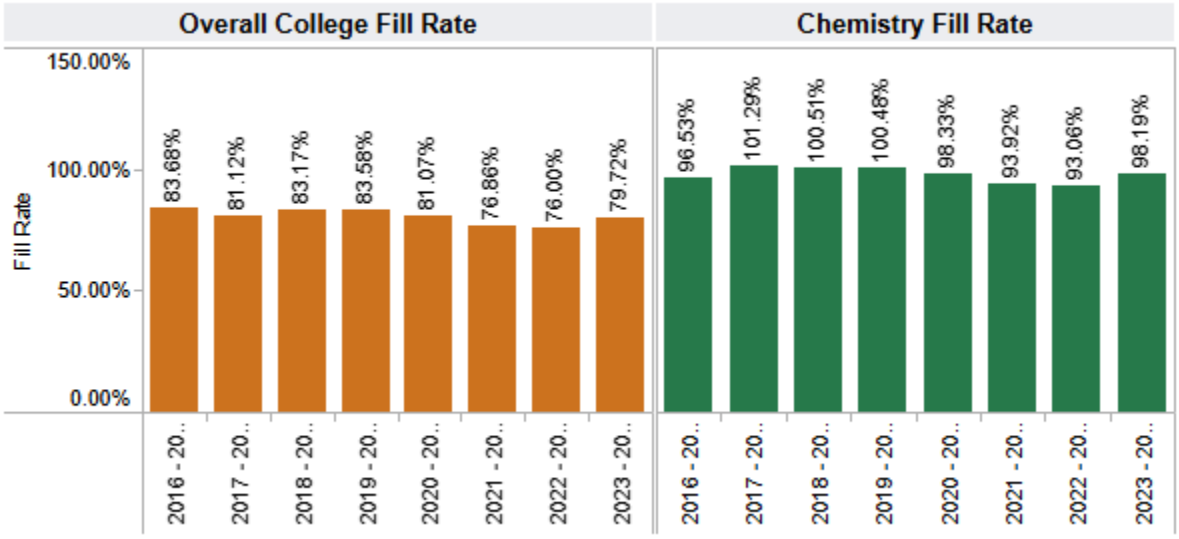
Chemistry enrollment was up 9.76% for the year 2023-2024, higher than the college increase of 6.2%. When looking into the changes in enrollments by course, CHEM201A and CHEM201B showed a staggering 12.2% and 14.15% increase in enrollments. STEM does a lot of outreach to recruit students; chemistry is a support course for many of the STEM majors so we see a lot of enrollment as a result. The recruiting efforts seem to be successful.

B. **General Student Demand (Fill Rate) (Insert Aggregated Data Chart)**
Insert the data chart and explain observed differences between the program and the college.

All Chemistry Classes:



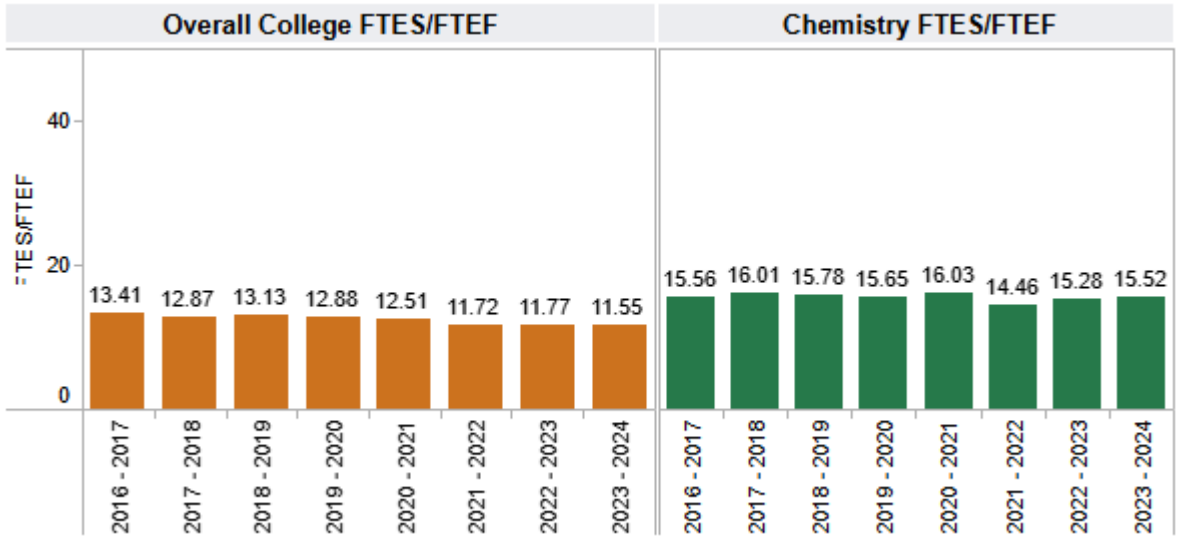
Only Chem 200, 201A/B, and 212A/B:



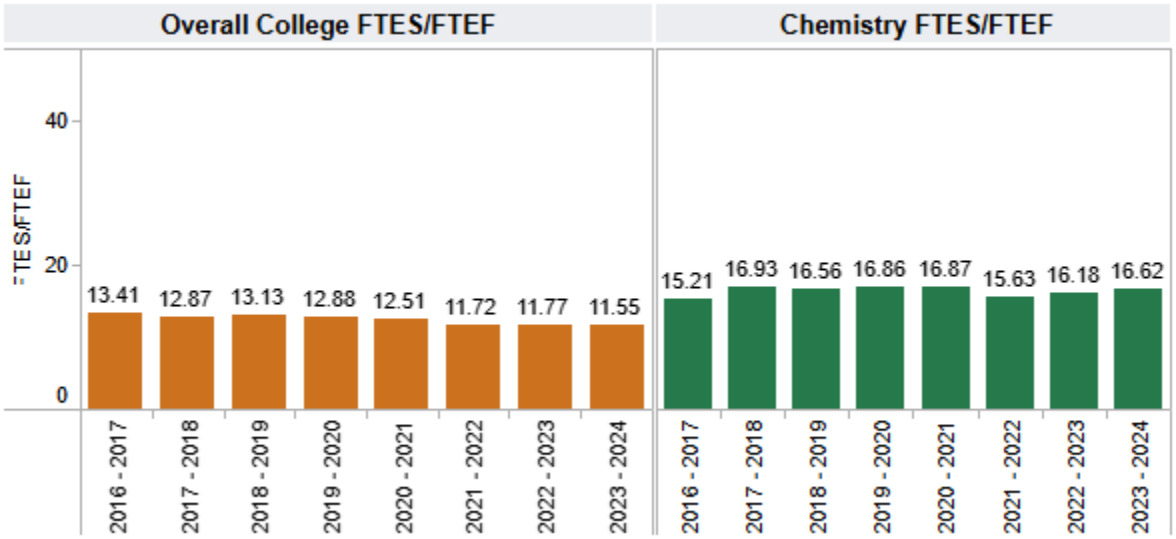
The main courses offered by Chemistry (200, 201A/B, 212A/B) had approximately 98% fill rates in 2023-2024, which is close to pre-COVID rates and much higher than the college average of 79.7%.

C. **General Efficiency (FTES/FTEF) (Insert Aggregated Data Chart)**
Insert the data chart and explain observed differences between the program and the college.

All Chemistry Classes:



Only Chem 200, 201A/B, 212A/B:

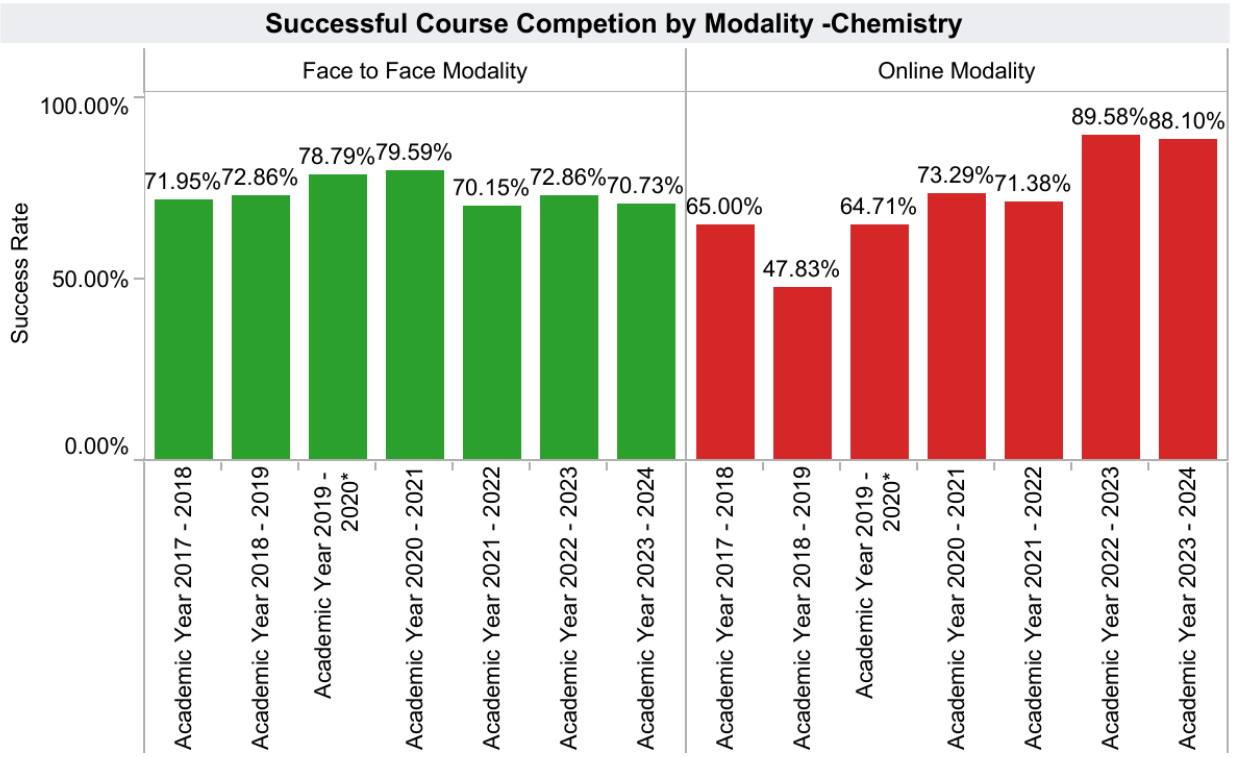


The main courses offered by Chemistry (200, 201A/B, 212A/B) had an efficiency ratio of 16.62 in 2023-2024, which is close to pre-COVID rates and much higher than the college average of 11.55. The introductory and general chemistry courses have higher efficiency than the college because our department often teaches these courses as doubles or triples (multiple lab sections in a single lecture section).

D. **Student Success—Course Completion by Modality (Insert Data Chart)**

Insert the data chart and explain observed differences between the program and the college.

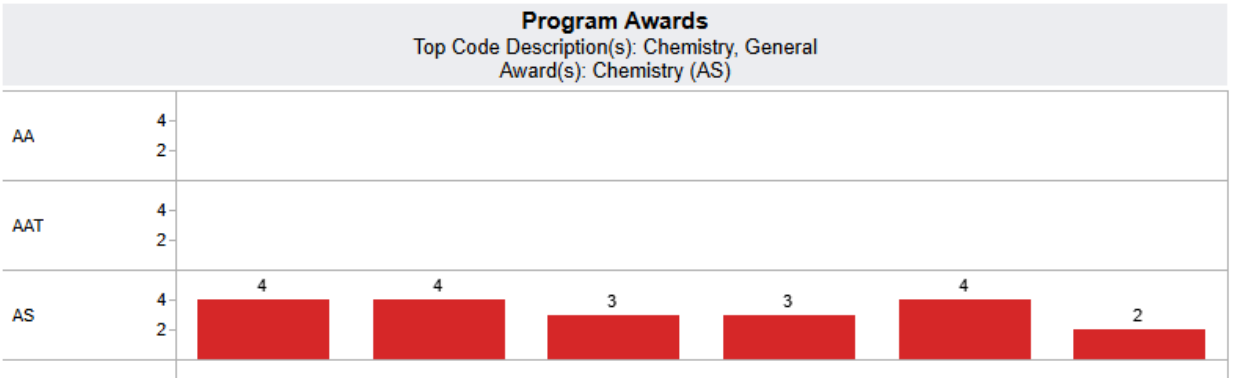
All Chemistry Courses:



For face-to-face classes, the college overall course completion rate is ~10% higher than chemistry success rate. Chem 201A success (65.6%) is a significant drag on Chemistry course success (75.3% if 201A is excluded). The success rate in the online modality is very high. Two of the courses chemistry offered fully online last year were CHEM201P and CHEM212P, prep courses for CHEM201A and 212A, respectively. The prep courses are pass/no pass support courses; usually, the only way a student can earn a "no pass" is via academic dishonesty or not participating so the pass rate in these courses is expected to be quite high. That said, success is still high in the other chemistry course that is offered fully online, CHEM231.

E. **Degrees and Certificates Awarded (Insert Data Chart)**

Insert the data chart and explain observed differences between the program and the college.

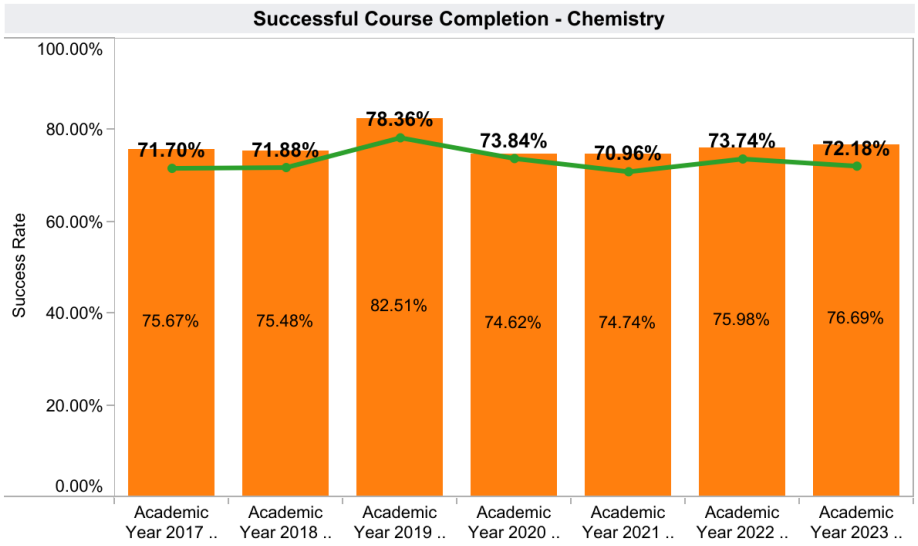


The chemistry program is mostly a support program for other majors and historically does not have a lot of majors. Additionally, without an AS-T in chemistry, students are less likely to complete degrees due to extra course requirements that are not required for transfer. In Fall 2025, the College will be implanting a new local General Education (GE) that eliminates graduation requirements. Because students will be able to earn local degrees by completing either the local GE pattern or the CalGETC transfer GE pattern, it will be interesting to see if this metric shifts.

To date, 0 premedical studies certificates have been earned. Anecdotally, students working towards this certificate has increased (2 students in CHEM212A were working towards this certificate in Fall 2024).

F. **General Student Success – Course Completion (Insert Aggregated Data Chart)**

Insert the data chart and explain observed differences between the program and the college.



The success rate in chemistry is overall lower than the college success rate. As stated earlier, the lower success rate in CHEM201A brings chemistry's average below the college average – success otherwise in chemistry courses is quite comparable to the college. Success in chemistry has stayed fairly consistent despite changes in math preparation – it will be interesting to see how success changes as AB705 and AB1705 implementation continues (along with whatever else the legislature is working on).

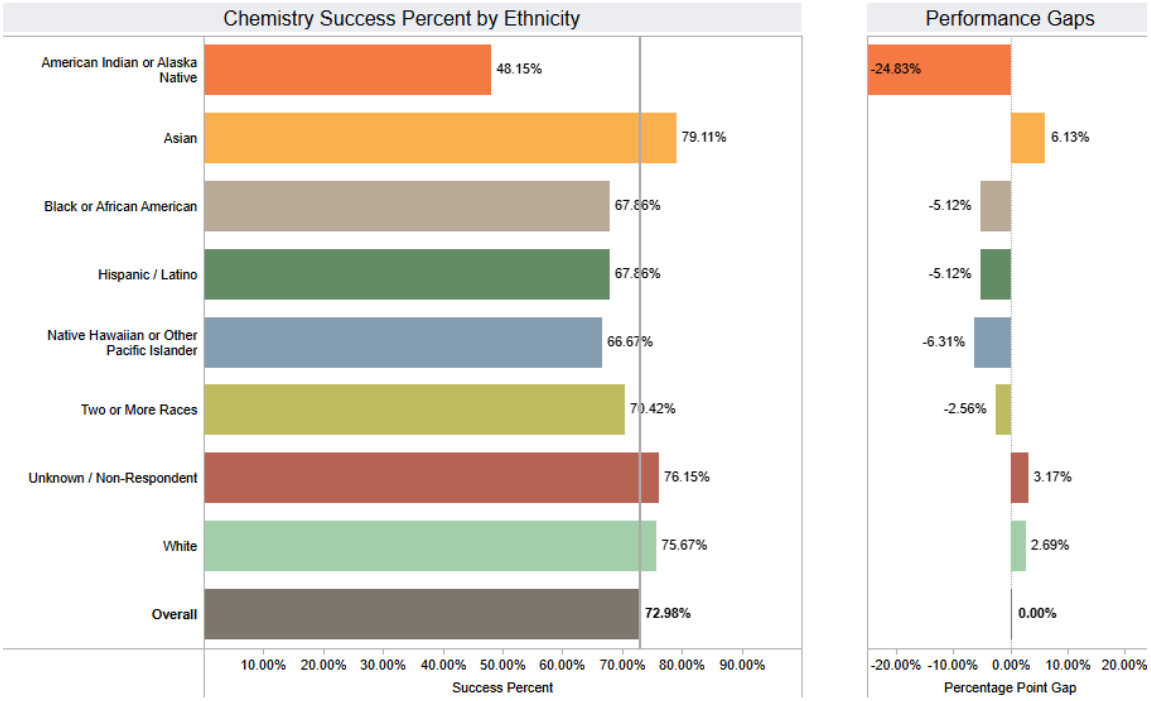
G. Review the **Disaggregated Student Success** charts; include any charts that you will reference. Describe any departmental or pedagogical outcomes that have occurred as a result of programmatic discussion regarding the data presented.

   The following are some questions you might want to consider:

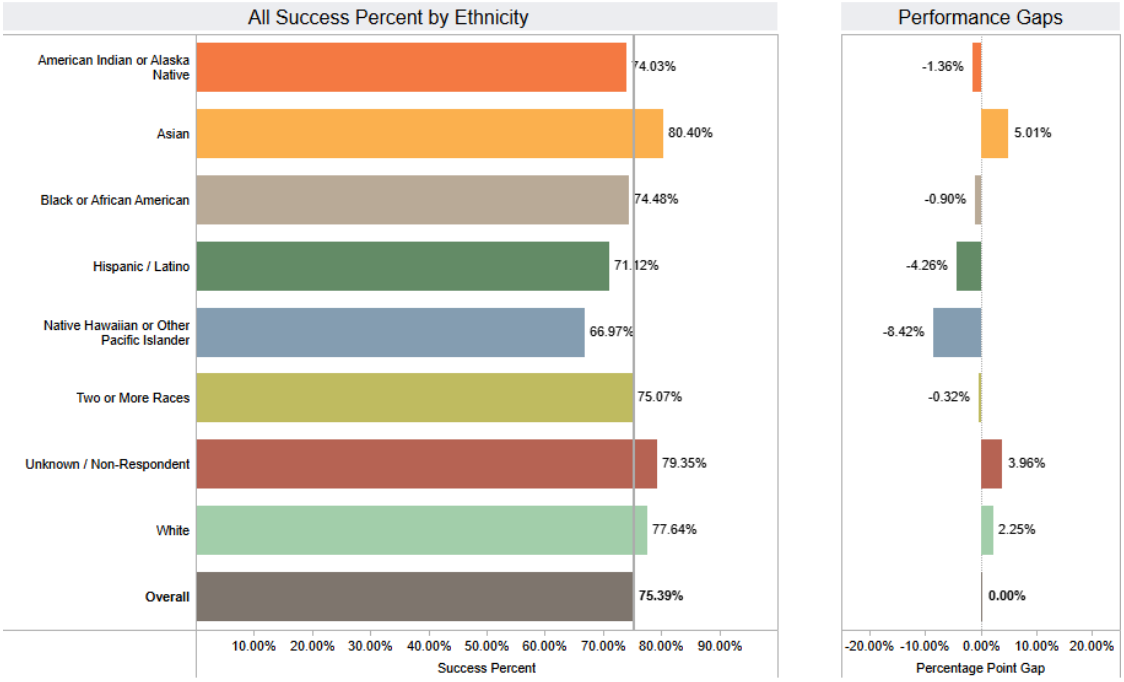
   - What specific groups are experiencing inequities? What patterns do you notice in the data? How have the equity gaps changed since the previous academic year?
   - What professional opportunities are your program faculty participating in to address closing equity gaps?
   - What strategies, policies and/or practices in your program have you implemented or what could be improved to better support students who experience equity gaps?

Ethnicity:

Chemistry Data: The graphs shown include data from Fall 2016 – Spring 2024

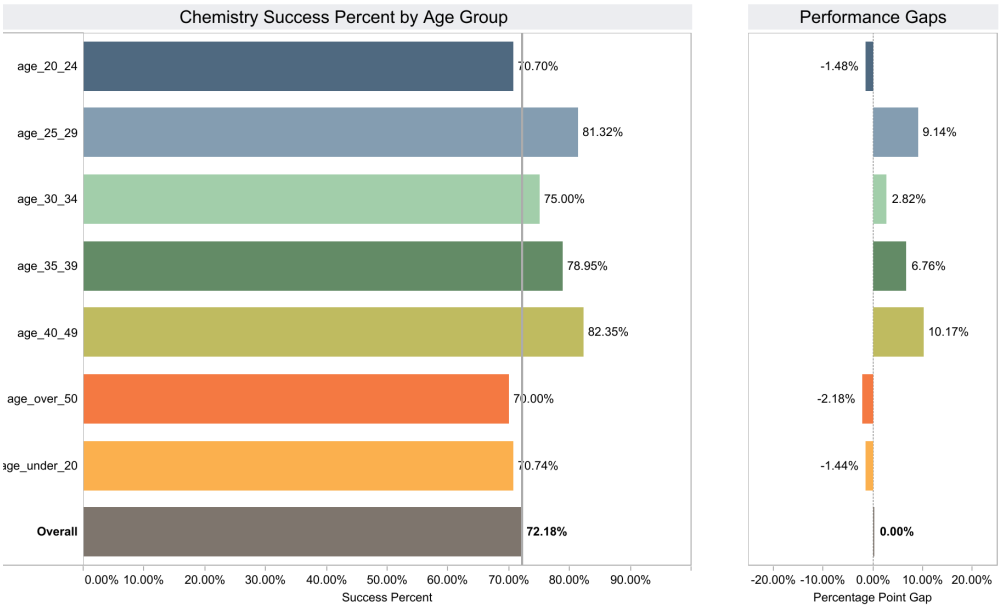


All College Data: The graphs shown include data from Fall 2016 – Spring 2024



While the equity gaps present have grown since last year, the number of students within the sample for several ethnicities is quite small so perhaps not as representative as a larger sample at the college level may be. The gaps have grown since the last academic year. We continue to work to narrow all equity gaps.

Age:



This past year, students ages 25 – 50 succeed at a higher rate than students 18-24. Generally, the trend has been a bit higher success for the older students but the performance gap difference between the older students and those of "typical" college student is quite large. The students that are 18-24 include those who were remote during late middle school and early high school due to the COVID-19 pandemic and reports show significant learning loss as a result. It will be important to monitor if the equity gap continues to widen for this group.

PROGRAMS AND CURRICULUM REVIEW PROGRESS

Section 1: Progress Check on Scheduled Curriculum Updates from CPPR

Directions:

For the following questions, please refer to #3 in Section 1 of the Programs and Curriculum Review Progress portion of last year's APPW.

1. List those programs of study (degrees and/or certificates) and courses that were scheduled for major or minor modification during the 2024 academic year in the 5-year calendar of the Curriculum Review Worksheet.

CHEM 193, CHEM201AX, CHEM201BX, CHEM201P, CHEM211, CHEM231, CHEM245ABC

2. From the list generated in #1, identify those programs of study and courses that underwent the scheduled modifications during the 2024 academic year. Complete the table below for those items only.

Program of Study OR Prefix and Course #	Major/Minor Modification (select one)	Date completed (semester and year)

3. From the list generated in #1, identify those programs of study and courses that did **not** undergo the modifications for which they were scheduled during the 2024 academic year. Complete the table below for those items only.

Program of Study OR Prefix and Course #	Past Due Date for Modification	Briefly state why modification was not completed on schedule	Re-scheduled date for modification (must be within 1 year)
CHEM193	9/1/2024	We forgot	2/21/2026
CHEM201AX	9/1/2024	We forgot	2/21/2026
CHEM201BX	9/1/2024	We forgot	2/21/2026
CHEM201P	9/1/2024	We forgot	2/21/2026
CHEM211	9/1/2024	We forgot	2/21/2026
CHEM231	4/1/2024	We forgot	2/21/2026
CHEM245ABC	4/1/2024	We forgot	2/21/2026

Section 2: Progress Check on Previously Out-of-Date Curriculum Updates from CPPR

Directions: For the following questions, please refer to #3 in Section 1 of the Programs and Curriculum Review Progress portion of APPW from years before the previous academic year where incomplete curriculum updates were re-scheduled to be

addressed in 2024.

1. List those programs of study and courses that are listed in the older APPW that were listed in #3. Complete the table below for those items only. If there were no courses included under #3 of previous APPW, please type "N/A" in the first box of the first row of the table.

Program of Study OR Prefix and Course #	Past Due Date for Modification	Re-scheduled date for modification	Completed (yes or no)
N/A			

2. From the list generated in #1, identify those programs of study and courses that did **not** undergo the modifications for which they were re-scheduled to during the 2024 academic year. Complete the table below for those items only. You may leave this table blank if you wrote "N/A" for the previous table.

Program of Study OR Prefix and Course #	Past Re-scheduled Due Date for Modification	Briefly state why modification was not completed as rescheduled	Second re-scheduled date for modification (must be within 6 months)
N/A			

OTHER RELEVANT PROGRAM DATA (OPTIONAL)

Provide and comment on any other data that is relevant to your program such as state or national certification/licensure exam results, employment data, etc. If necessary, describe origin and/or data collection methods used.

PROGRAM OUTCOMES ASSESSMENT CHECKLIST AND NARRATIVE

CHECKLIST

- ☒ SLO assessment cycle calendar is up to date.
- ☐ All courses scheduled for assessment have been assessed in eLumen.
- ☐ Program Sustainability Plan progress report completed (if applicable).

NARRATIVE

Briefly describe program changes, if any, which have been implemented in the previous year as a direct result of the Program or Student Learning Outcomes Assessment. *If no program changes have been made as results of Program or Student Learning Outcomes Assessment, indicate: NONE.*

- The SLOs for CHEM212A were challenging to assess and not a lot of actionable information was gleaned from their assessment. The SLOs were revised last year and Fall 2024 was the first assessment of the updated CHEM212A student learning outcomes. These results still await discussion but no dramatic changes to modality or course format are envisioned after a preliminary review of the results. There is a plan, though, to further scaffold some topics, including more general chemistry review support, when it comes to physical properties of molecules (including solubility, polarity, and intermolecular forces and their role in phase changes).
- The CHEM201A/B instructors plan on discussing resuming a common assessment of SLOs on the final exam (for at least CHEM201A). There is also still a plan to discuss the review of the SLOs for CHEM201A and B and decide if they need revision.

PROGRAM PLANNING / FORECASTING FOR THE NEXT ACADEMIC YEAR

Briefly describe any program plans for the upcoming academic year. These may include but are not limited to the following: *(Note: you do not need to respond to each of the items below)*. *If there are no forecasted plans for the program, for the upcoming year, indicate: NONE.*

A. New or modified plans for achieving program-learning outcomes and addressing equity gaps

B. Anticipated changes in curriculum, scheduling or delivery modality

- Guidance released at the end of 2024 regarding AB705 and AB1705 extends the time that pre-calculus (or similar) can be offered. However, the math preparation of our students may change quite dramatically if these AB's reach full implementation. It is anticipated that a solution to support students to "catch up" on the math will be needed, including a discussion of how to implement (in course, supplement optional course, etc.).
- The current organic chemistry faculty have advised counseling for the last couple years that starting in Fall 2025, CHEM212A/B lab and lecture will be scheduled to align with Program Mapper and Student Education Plans (SEPs); this means that instead of scheduling CHEM212A/B to allow for students taking their classes in any order, CHEM212A/B will be scheduled to allow students to take those courses that, according to their Program Map, are taken at the same time as CHEM212A/B, but will not

accommodate any additional scheduling (so CHEM212A/B could be scheduled at the same time as one of these courses [since it should be complete already], allowing for more flexible scheduling of organic chemistry).

- Common Course Numbering (CCN) has descended upon introductory and general chemistry. New CCN templates are being developed. When these are finalized, chemistry will need to prepare course revisions to adopt the CCN templates CHEM 200, 201A, and 210B.

C. Levels, delivery or types of services

- In the Fall 2024 semester, chemistry had the opportunity for a chemistry-specific Instructional Aide (IA) in the Student Success Center (SSC). This aide was able to help support even more chemistry students. It is essential that there is regular, predictably-scheduled tutoring for chemistry – funding for a full-time IA for chemistry in the SSC is needed.

D. Facilities changes

- The NMR is nearing its sunset period, which means we will no longer have support if something happens to it. While the NMR is in good shape – the computer was replaced last academic year – replacing it is on the horizon.
- The Student Success Center (SSC) and library are about to undergo a large renovation. A majority of chemistry faculty hold at least 1 office hour in the SSC and work hard to encourage students to go to the SSC to work on assignments and to seek help from tutors. Cohorts of students in courses have built up due to the camaraderie in the SSC and it is concerning that that space will not be available for an extended amount of time. Now is a good time to seek a suitable temporary location – depending on what the college plans to do.
- The lecture classroom used on the NCC (N2401) for general chemistry needs an additional projector and screen to allow for multiple media to be shown at the same time.

E. Staffing projections

- Enrollment in CHEM201A and CHEM201B is increasing (and it is expected that CHEM200 will continue to be a high demand course) and the reassigned time in this department fluctuates. While we have excellent adjunct faculty currently, it is likely chemistry will need to search for and hire additional adjuncts to help cover lectures and/or labs.
- If Dual Enrollment continues to be a priority for the Chancellor's office and there is interest in expanding beyond the capacity of the current faculty, it is possible chemistry could try

to prioritize a FT hire with a Dual Enrollment focus, although this needs to be discussed by the department and the division.

F. Other

- The rapid-fire changes to the country since the new presidential administration took office makes it challenging to plan on a broader scale. Changes to (or the proposed elimination) of the Federal Department of Education, for example, affects many factors, including Cuesta's accreditation, the implementation of accommodations, and funding sources. Additionally, cuts to grant funding potentially put projects at risk.

PROGRAM SUSTAINABILITY PLAN PROGRESS REPORT

This section only needs to be completed if a program has an existing Program Sustainability Plan. Indicate whether objectives established in your Program Sustainability Plan have been addressed or not, and if improvement targets have been met.

Area of Decline or Challenge	Identified Objective (Paste from PSP)	Planning Steps (Check all that apply)	Has the Improvement Target Been Met?
Enrollment		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**
Student Demand (Fill Rate)		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**
Efficiency (FTES/FTEF)		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**
Student Success – Course Completion		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**
Student Success — Course Modality		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**
Degrees and Certificates Awarded		☐ Identified ☐ Resources Allocated ☐ Implemented	**Select one**

If Program Sustainability Plan is still necessary, provide a brief description of how you plan to continue your PSP and update your PSP to remove any objectives that have been addressed and include any new objectives that are needed.