COMPREHENSIVE PROGRAM REVIEW REPORT

Chemistry

Program Context

1. Mission

Share how your program contributes to the College or fits into the College's Mission. For example, what other academic programs and student/academic services does your program engage with? Examples of student/academic services include the Learning Center, Library, STEM Center, SparkPoint, Dream Center, etc. Another example, how does your program fit into any of the College's plans (such as Equity, Technology, Strategic Enrollment, etc.)? If your program has a mission statement, you may include it here.

Mission Statement

The Chemistry Department at Cañada College is committed to fostering an inclusive and engaging learning environment that empowers students to explore the fundamental principles of chemistry. Our mission is to provide high-quality education that emphasizes critical thinking, hands-on laboratory experience, and real-world applications. We strive to create a department that actively addresses socio-academic inequity, ensuring that all students have the opportunity to achieve academic excellence in our field of study.

As of Fall 2024, the department engages with: The Learning Center, the ZTC Adoption Program, the DRC, PCC, Title IX Reporting Center, the Library, the Transfer Center, the ICC and SparkPoint. The integration of these student services into our departmental function helps realize of both our own mission statement and Cañada College's 2022-2027 educational master plan. A comprehensive list of the department's activities and collaborations that align with the College's plans are listed below.

I. Supporting the College's *Equity* Goals:

- Eleven Open Educational Resources (OER) have been created or secured by the department for use in all offered chemistry courses.
- Reduced class maximums for the "general-organic chemistry series" (CHEM 210-220 + CHEM 231-232), thus increasing the student-to-instructor ratio by up to 33%.
- Personally funded course materials for student use and consumption (each full-time faculty member has a store of spare notebooks, goggles, calculators, etc.).
- Respond to student crises and proactively file CARES reports, including Title IX incident reporting.Provide snacks from the SparkPoint program for chemistry-specific student areas.
- Secured accessible furnishings and seating options for students outside lab rooms and instructor offices.

II. Suppoting the College's *Accessible Technology* Efforts:

- Securing laptops for exclusive student use in chemistry labs, replacing obsolete and old equipment.
- Acquiring UV-Vis Absorbance Spectrophotometers and analytical-grade pH meters; replacing 40 and 10-year-old laboratory equipment, respectively.
- Working toward replacing other old industrial-standard equipment.

III. Supporting the College's *Strategic Enrollment Initiatives*:

- Chemistry course offerings have been diversified according to course time, with an increase in the number of Friday, Evening, and Saturday courses offered.

2. Articulation

Are there changes in curriculum or degree requirements at high schools or 4-year institutions that may impact your program? If so, describe the changes and your efforts to accommodate them. If no changes have occurred, please write "no known changes."

Post COVID-19, CSU and UC degree requirements for all transferable "majors" chemistry courses (CHEM 210, 220 231, and 232) have reverted back to fully in-person laboratory contact hours. The career-track CHEM 410 course for students pursuing a specialized profession within the health sciences (e.g. Nursing, Physician's Assistant, and Kinesiology

Programs) are following suit and are program-dependent. Thus, the department has changed all laboratory course components to meet in a face-to-face, on-campus, and in designated laboratory space. The current exception to this policy is CHEM 192, which satisfies the physical science course requirement needed for earning a high school diploma when offered in a fully-online modality.

No known changes have been made to the general-organic chemistry series' curriculum (CHEM 210, 220, 231, and 232) aside from laboratory contact hours. However, the department anticipates a change in curriculum for transferable courses as the college's Curriculum Committee implements the singular general education pathway for California Community College students to fulfill lower-division general education requirements. (Cal-CETC). Furthermore, CHEM 192, which is sometimes taken by students in the Radiologic Technology program, is expected to require in-person laboratory contact hours. An OER laboratory manual has already been developed in anticipation this change.

3. Community & Labor Needs

Are there changes in community needs, employment needs, technology, licensing, or accreditation that may affect your program? If so, describe these changes and your efforts to accommodate them. If no changes have occurred, please write "no known changes". CTE programs: identify the dates of your most recent advisory group meeting and describe your advisory group's recommendations for your program.

There is an increase in demand for a local workforce equipped with robust knowledge in organic chemistry, analytical chemistry, and laboratory instrumentation. To be employed locally, it is critical that Canada College offers an Associate's Degree for Transfer in Chemistry (AS-T, Chemistry) as an exit pathway for students. The department is planning to develop the program for the Associates Degree for Transfer and Associate in Science Chemical Technician Program, which will be further researched with the goal of developing a four-year vocational baccalaureate degree to meet the needs of the current workforce.

Justification

The demand for employes with a strong chemistry background is projected to grow by about 10-15% over the next decade, driven by increasing R&D spending and the need for innovative solutions in healthcare and materials science. According to the California Employment Development Department (EDD), the Natural sciences sector in the Bay Area employed approximately 46,000 individuals in 2022, with 30,000 persons employed in specialized knowledge in organic, materials, and analytical chemistry. Employment of chemists and biochemists is expected to grow faster than average, driven by demand for discovery of small molecules for new medical therapies and sustainable technologies in companies like Genentech, Novartis, and Thermo Fisher.

The University of California, California Starte University, and California Polytechnic State University systems offer a BS in Chemistry and a BS in Biochemistry *exclusively* through their chemistry departments, not biology. The department requests that this transfer certification be resurrected to meet the needs of the current local workforce.

Looking Back

4. Curricular changes

List any significant changes that have occurred over the prior years in your program's curricular offerings, scheduling, or mode of delivery. For decisions made by your department, explain the rationale for these changes. If applicable, how have state policy changes affected your curricular offerings?

With the "end" of the COVID-19 pandemic and the hiring of two new full-time faculty in January 2023, multiple changes in course offerings, scheduling, and modality were made within the department during this review period:

I. Changes in *Course Offerings*

The department has continuously increased the number of sections offered for most courses in the department. To demonstrate, the total chemistry course offerings in the 2021-2022 academic year was 18 sections, which increased in 2023-2024 to 22 sections. From Spring 2023 to Spring 2024, the total sections of chemistry courses increased by 33%, from 9 sections to 12. Similarly, the total courses offered by the department in Summer 2024 rose 150% compared to Summer 2023, from only two courses to five. The growing size of the department is projected to continue, with 24 scheduled sections offered in 2024-2025.

Student demand for CHEM 410 has notably increased post-pandemic. In Spring 2023, the department committed to offering an additional section every semester - instructor and stock room resources permitting. This additional section of CHEM 410 is anticipated to become a permanent scheduling choice once all the required resources are provided.

II. Changes in *Course Delivery*

The department has established new class maximums for CHEM 210, 220, 231, and 232 - hereby referred to as the "General-Organic chemistry series" – from 30 to 24 (CHEM 210/220) and 30 to 20 (CHEM 231/232). This was decided based on the American Chemical Society's safety recommendations for instructional laboratories. At the time of this

review, all chemistry courses are offered in both a fully in-person and a hybrid modality. The only exception to this decision is the organic chemistry series, CHEM 231 and 232, which show low retention and low success when delivered in a hybrid modality. CHEM 192, offered once a semester including summer, is the sole fully online course remaining in the department.

III. Changes in *Course Scheduling*

To serve a larger demographic of students and be a more inclusive program, the department has implemented a course schedule that puts students' time needs first, in alignment with Canada's Strategic Enrollment Initiative C.1.3. Chemistry course offerings have been diversified according to course time, with an increase in the number of Friday, Evening, Saturday, and Summer term courses offered for high-headcount classes like CHEM 410, CHEM 210, CHEM 220 and CHEM 231. Not only does this differentiation by course time provide more equitable course scheduling for students, but this change also continues to increase the total overall course offerings.

IV. Improving *Equitable Access to Course Materials and Technology*

Our department has a goal of implementing ZTC materials for all course offerings, with 100% of our courses listed as Low Cost by 2027. Currently, there are eleven Open Educational Resources the department has either created or secured to diminish cost as a deciding factor in student success:

- Laboratory Manuals for all current CHEM courses: CHEM 192, CHEM 210, CHEM 220, CHEM 231, CHEM 232, and CHEM 410.
- ZTC Textbooks for: CHEM 210, CHEM 220, CHEM 231, CHEM 232, and CHEM 410.

Instructor-developed CHEM 220 and CHEM 232 ZTC Textbooks are in progress at the time of this review, and open-resource homework platforms will follow.

The above changes align with the College's Educational Master plan for 2022-2027 (Initiative 4.1.0).

5A. Progress Report - IPC Feedback

Provide your responses to all recommendations received in your last program review cycle.

I. Response to Recommendations on *Program Access & Completion*

To improve successful completion of our program, the department is committed to increasing the total number of courses offered with a large variety in the offered course times, days, and modalities that increase enrollment, improve retention, and meet the articulation needs for both our local degree and other certificates like the Allied Health Associate's in Science Degree and Early Childhood Education Associate in Science Degree Program. This includes offering in-person laboratory instruction for CHEM 192 and CHEM 410 and offering CHEM 114 for each respective program.

II. Response to Recommendations on *Improving Student Equity*

The chemistry department is currently planning to implement the following strategies moving forward:

- Partner with programs like UMOJA and MESA to better serve disproportionately impacted students in our department.
- Secure, through the Program Review Resource Application Program, additional laptops and upgraded laboratory equipment in quantities that allow every student to have hands-on access.
- Work with the TRABAJO grant to give more students exposure to the real-world application of chemistry as a profession.
- Apply for the NSF "Innovation in Two-Year College STEM Education" Grant.
- Create department standards and policies about the timing, circumstancs, and use of academic Early Alerts, CARES reports, and Title IX reporting.
- Collaborate with STEM Counseling to ensure students are given multiple class loads, timelines, and pathways that promote success before entering our classes.

III. Response to Recommendations o*n Completion & Success Rates Online*

As only one class in the department is offered fully online, a plan to improve student success rates in online chemistry classes is not a current priority for the department.

In our program, in-person modalities have better student success rates than their hybrid counterparts. As the department stabilizes its number of course offerings, the proportion of hybrid to in-person modalities offered per course, and personnel, a deeper investigation into improving student success and completion in hybrid courses will follow.

Program Review

In the interim, chemistry instructors who teach hybrid modalities will be encouraged to perform paid district trainings for asynchronous online instruction - like the QOTL series – and apply for professional development funds to attend trainings and seminars to learn current best-practice pedagogies for hybrid STEM courses. The department will also seed collaborations with the Business, Design, and Workforce Development Division, where the use of VR simulations as auxillary instructional resources are being implemented.

5B. Progress Report - Prior Program Goals

Provide a summary of the progress you have made on the program goals identified in your last program review.

The prior goals of the chemistry department and the progress made on achieving them are given below. Please see Question 6A for a more in-depth analysis of how the department is limited by resources that directly correlate to our stated goals from the 2018-2021 review cycle.

I. GOAL: *To ensure student access to the application of computers in the chemistry laboratory.*

The department has since improved the access and use of computers by students enrolled in our laboratory courses. We have purchased and required the use of 30 laptops for exclusive student use in chemistry labs. These laptops are furnished with professional-grade software and applications such as Microsoft Excel and Chemicalize. Furthermore, these laptops were selected for specifications that are compatible with equipment-specific programs for use with laboratory instruments. However, with the expansion of the program, more computers are needed so that access is guaranteed for every individual student.

II. GOAL: *To increase retention and completion of students of all groups by offering an ongoing qualified and reliable academic support and academic intervention.*

Chemistry course offerings have been diversified according to course time, with an increase in the number of Friday, Evening, Saturday, and Summer term courses offered for high-headcount classes like CHEM 410, CHEM 210, CHEM 220 and CHEM 231, which has increased enrollment. However, the lack of college-provided academic supports for evening and weekend courses means that students in these courses - particularly Saturday sections, where retention is lower than the departmental average - is necessary. Evening sections have a 2.5x higher enrollment in 2023-2024 compared to the prior academic year, meaning more academic support is needed "agter hours" as well. The department is working towards meeting this goal by increasing the number of overall tutors in The Learning Center, advocating for embedded laboratory tutors for all evening and Saturday courses, and requesting additional instructional personnel be hired.

III. GOAL: *To offer hands-on laboratory activities based on articulated laboratory curriculum to teach relevant technical skills and critical thinking skills in any offered instructional delivery modality.*

The department is working towards 100% of all laboratory courses offered in-person for articulation neeeds, ensuring all students are able to have a hands-on laboratory experience that meets their transfer and/or degree goals. As of Spring 2025, all* course offerings except CHEM 114 will have an associated OER Laboratory Manual with a list of universalized, in-house experiments that meet each COR, SLO and Cal-GETC requirement.

*Note: At the time of this review, CHEM 410 has been submitted for curriculum approval by the state to meet Cal-GETC requirements for CSU/UC transfer.

The department has made progress in ensuring that laboratory courses are furnished with industry-standard equipment to help develop students' technnical skills. Specifically, thirteen GENESYS 40 UV-Vis Absorbance Spectrophotometer have replaced the 40-year-old set of Spectronic 20D Spectrophotometers, and 13 analytical-grade pH meters have replaced 10-year-old Vernier probes which are meant for use in K-12 instructional labs. These instruments will better prepare students for their academic and professional futures by ensuring they are both familiar with and skilled in using professional-grade equipment.

6A. Impact of Resource Applications

Describe the impact to date of previously requested new resources (assignment, equipment, facilities, research, funding) including both resource requests that were approved and not approved. What impact have these resources had on your program and measures of student success? What have you been unable to accomplish due to resource requests that were not approved?

I. Request for *Set of 35 Laptops with Microsoft Office Suite and Charging Carts*

This resource was requested to fulfill the prior Program Goal, "*To ensure student access to the application of computers in the chemistry laboratory."* The department's Resource Application for 35 Laptops in the 2018-2021 Comprehensive Program Review was denied.

Outside of the Program Review Resource Request channel, the department has secured 30 chemistry lab-specific laptops and two docking carts for student use. These laptops, purchased July 1st 2023 and secured for use in Fall 2023, have significantly improved how students are able to collect, analyze and discuss their experimental data. The standardization of use of this technology in the lab is now a vital component of laboratory instruction and curriculum, where both computational and graphical data manipulation is a foundational skill. However, this currently means that only two of the

three laboratory rooms have a set of laptops available for use at any time, meaning some sections are forced to do without this technology.

Thus, the department requires a 1:1 student-to-laptop ratio supplied in every lab room. Considering the increase in the number of in-person labs offered by the department, there are now three chemistry laboratory spaces that span two buildings (Building 18 and Building 16). This requires a minimum of 25 computers in the general chemistry lab rooms and 21 computers in the organic chemistry Lab room.

II. Request for *Instructional Aide I*

This resource was requested to fulfill the prior Program Goal, *"To increase retention and completion of students of all groups by offering an ongoing qualified and reliable academic support and academic intervention."* The department's Resource Application for Instructional Aid I in the 2018-2021 Comprehensive Program Review was denied.

The full breadth of chemistry course offerings at Canada College requires a vast and diverse set of learning goals, skillsets, and knowledge base that is differentiated even amongst subject matter experts (instructors). For example, the instructional supports required by students enrolled in General Chemistry necessitates strong math and computer skills, whereas Organic Chemistry requires a deeper level of chemical theories and laboratory applications than are presented in prerequisite courses. To accommodate the most impacted student groups, we have recommended for hire up to seven Learning Center Tutors and three embedded student tutors in chemistry labs, with some positive impact on student success observed in the program in the most recent semesters. However, the number of students available for tutoring and their schedules are limited, as they are also STEM students taking multiple 4-5 unit courses. Additionally, finding a diverse group of student tutors who are able to support introductory through advanced chemistry topics remains a challenge - by the time a new group of students are beginning CHEM 231, most of the potential peer tutors who successfully completed CHEM 231-232 have already transferred.

Furthermore, a large population of students are enrolled in evening chemistry classes. These students typically have other, non-academic responsibilities like work, childcare, etc. during the day, and are usually only able to focus on their studies outside of the College's operating hours. For example, The Learning Center closes at 7:00 pm M-F, and the Library closes at 3:00 pm on Saturdays (when students in Saturday courses are in lab). The early closure of The Learning Center (compared to a lab that ends at 9:00 pm, for instance) has been identified by students directly as a support service they do not have equitable access to. Thus, there is a definitive need of instructional support programs and college services on campus at later times and on the weekends.

To ensure all students have access to academic support, the department needs a full-time subject-matter expert (Chemistry Instructional Aide I). This role would provide consistent support throughout the year, helping students with coursework and laboratory data at the Learning Center during its operating hours. Additionally, since peer tutors are restricted to the Learning Center, the Chemistry Instructional Aide I could extend support by offering tutoring in the library or via Zoom during evenings, Friday afternoons, and Saturdays.

III. Request for *Laboratory Student Assistant (20 hrs/wk)*

This position was requested so the department could have adequate staffing to create, in-house, take home laboratory kits for use in online laboratory courses. The department's Resource Application for a Laboratory Student Assistant in the 2018-2021 Comprehensive Program Review was denied.

The take-home Chemistry Laboratory kits, designed by college faculty and staff, were rejected for use at the District level in 2023. However, the increased course offerings and more inclusive scheduling highlight the need for not just one but two student assistants to support the single stockroom staff responsible for all three lab rooms across two buildings, which operate M-Th from morning until 9 p.m. and on Saturdays.

IV. Request for *Seed Funding for the Completion of In-House Laboratory Kits ($5000)*

This request was approved at an augmented amount of $3,000, and take-home laboratory kits were made in 2021 and 2022. However, the change in lab modality from online to face-to-face Labs in Spring 2023 to meet articulation needs renders an analysis of the impact of this resource request inconsequential to our program's review.

6B. Impact of Staffing Changes

Describe the impact on your program of any changes within the last program review cycle in staffing levels (for example, the addition, loss or reassignment of faculty/staff). If no changes have occurred please write "not applicable."

Between Spring 2022 and Spring 2023, the Chemistry Department underwent significant staffing changes. In Spring 2022, only one full-time instructor remained, and by Fall 2022, there were no full-time faculty due to retirements. Although senior adjunct faculty were highly engaged and dedicated to student success, the absence of full-time instructors made it challenging to maintain a stable teaching and learning environment.

In Spring 2023, two full-time instructors were hired. However, by Fall 2024, only 35% of the department's FTEs were taught by full-time faculty, giving the department the lowest full-time faculty-to-FTE ratio at the college. Despite growing demand for course sections and requests for new courses, the number of sections offered remains limited by both faculty and

stockroom staff availability. The department plans to submit requests for additional full-time faculty and stockroom staff to meet current and next-academic year demands.

Current State of the Program

7A. Enrollment Trends

Use the data provided by PRIE to examine your enrollments by department or courses. Describe trends in headcount, FTES, and load. If applicable, describe any other enrollment data that is relevant to your program.

The chemistry department has undergone a period of rapid growth during this cycle. In the academic year 2021-2022, the department offered 11.36 FTES. After the retirement of the last full-time faculty member in Spring 2022, the department's course offerings decreased by 12% at the close of AY 2022-2023. However, after hiring of two new full-time faculty members in January 2023, the FTES increased to 12.6 FTES. On average, chemistry is within the top 10 largest departments at the college as of Fall 2024. This trend is projected into the current and 2024-2025 academic year, with a total of 14 anticipated FTES; this increment is calculated being concervative based on space and staff limitation.

The total average headcount in the department from Fall 2021-Spring 2024 (quantified as headcount) was around 670 students, accounting for 7% of the total college enrollment over this time period. In the academic year 2022-2023, department enrollment reduced compared to the previous year due to stated departmental changes. However, the enrollment in academic year 2023-2024 increased. The same trend is observed for FTES and Load, with a department fill of 92% and and retention rate of 86.2%, respectively. Retention was minimally changed (< 2%) within this review period.

Meanwhile the data indicates that the percentage fill rate of the chemistry department is 1.5 times the college average, being between 87% and 97%. Furthermore, in the Spring and Fall semesters of 2024 the chemistry department has been breaking records for the number of sections offered compared to pre-pandemic offerings.

7B. Significant Changes in Your Program

Have there been any significant changes in enrollment trends or course offerings? For example, has there been a significant increase or drop in FTES or Load? If applicable, consider trends in class cancellation rates and how it might have affected your course offerings. If needed, consider how the pattern of course offerings (times/days/duration/delivery mode/number of sections) affected your enrollment?

In the wake of the the COVID-19 pandemic and the hiring of two new full-time faculty in January 2023, multiple high-impact changes were made to our program:

I. Changes in *Staffing and Personnel*

In Spring 2022, the department had only one full-time instructor, and by Fall 2022, there were none due to retirements. This directly affected the number of FTEs the department could offer, as part-time faculty have limits on the number of FTEs they can teach. Although two full-time instructors were board-approved in January 2023, the delay in their hiring caused Spring 2023 assignments to be postponed, leading to student hesitation in enrolling for sections without assigned instructors. While no sections were canceled, this resulted in the department's lowest enrollment in the last three years.

II. Changes in *Laboratory Modality*

After coming back from COVID, the courses of general chemistry, Organic Chemistry and Chemistry for Health Science are not transferable if the lab component is delivered fully online. The Chemistry Department intentionally offers a mix of hybrid and face-to-face modalities for the highest-headcount chemistry classes (CHEM 410, CHEM 210, and CHEM 220) to accommodate student populations that benefit from flexible scheduling.

CHEM 192 has been maintained offered once a semester in a fully online format. CHEM 192 enrollment has been driven pre-health program requirements like Radiologic Technology, students preparing to take the CHEM 210/220 sequence, and high school students completing a requirement for graduation and/or advanced placement chemistry courses.

Traditionally, CHEM 192 is expected to serve as a science course with a lab component to fulfill general education requirements. Considering that the objectives of the class could be met through an online modality, CHEM 192 became the only course offered fully online, providing maximum flexibility for students.

Recently, programs like Radiologic Technology have started requiring in-person lab components for chemistry courses. As students applying for these programs can alternatively take CHEM 410 or CHEM 210, the enrollment for CHEM 192 had been impacted. While moving this class to a hybrid modality will revert the trend, limitations in faculty and staffing resources within the department resulted in the decision to continue to offer CHEM 192 as it has been in the past, despite changes in articulation for certain certificates and programs.

III. Changes in *Course Scheduling*

Chemistry course offerings have been increasingly diversified by course time and day, with an increase in the number of Friday, Evening, and Saturday courses offered for large-enrollment classes like CHEM 410, CHEM 210, CHEM 220 and CHEM 231. Not only does this differentiation by course time provide more equitable course scheduling for students, but this change also continues to increase the total overall course offerings. Our department has intentionally made these

changes to support student access in alignment with The San Mateo County Community College District's Board of Trustees' Initiative C.1.3.

7C. Planning for Your Program

What changes could be implemented, including changes to course scheduling (times/days/duration/delivery mode/number of sections), curriculum, marketing, and articulation of pathways that might improve these trends? If applicable, include plans for faculty recruitment and faculty training. NOTE: If other sources of data are used, please upload these documents or provide URLs.

General Program Plans

To improve trends in access, headcount, success and completion rates, the department plans to make the following changes. In order, we plan to:

1. Continue to increase the offering of courses and prioritize changing course modalities to better match articulation needs for courses with laboratory components.
2. Form collaborations and learning cohorts in chemistry with MESA, UMOJA, and other college-wide academic support services for disproportionately impacted students in chemistry.
3. Develop and pilot the Chem Jam program to prepare students for the skills and technology required for use in their chemistry courses. Jams will be differentiated by course and organized by requisite topics and knowledge for said course.

These additional academic support services will help improve overall retention and success rates in chemistry.

4. Create a series “Just in Time” co-requisite support courses to provide additional, structured support to student learning throughout each semester, organized by topics.
5. Develop the Chemistry Associate in Science Degree for Transfer (AS-T) and an Associate in Science Chemical Technician Program, which will be further researched with the goal of developing a four-year vocational baccalaureate degree. The second certification (and eventual Bachelor’s Degree) will entice students to enroll in chemistry courses at Canada due to the high demand for skilled laboratory technicians in local labor markets.

Comprehensive Plan and Action Items

The objective of Step 1 above is to increase the total chemistry course offerings in a way that strategically targets courses that are not meeting the enrollment and access demands of our students. This plan leads to a total of 14 FTEs offered by the department in major terms, which requires the hiring of *at least* 3 full-time instructors to bring the proportion of courses taught by full-time faculty to 71% FTEF (currently, the department is operating at only 35% FTEF - the most deficient ration within our division). These hires will bring chemistry closer to the 75% annual goal. In turn, increasing the number of courses offered and diversifying the time at which these courses run requires *at least* one additional stockroom staff personnel to ensure safe and equitable access to our labs. Once these needs are met, our program will offer a consistent and inclusive course chedule.

List of sections to add:

- One section of CHEM 114, a required course for the completion of the Elementary Teacher Education Associate in Arts Degree for Transfer. While online modality can be an option, in-person or hybrid are preferred based on observed success rates in these modalities and to ensure Cal-GETC transferability.
- One section of CHEM 192 with in-person modality.
- Two sections of CHEM 410, a morning section, and a Saturday section (optional Friday sections).
- One section of CHEM 210 offered in the evening.
- One section of CHEM 220 offered in the evening.

While Step 1 of our program plan is in progress, the implementation of the Chem Jam program (Step 3) before each semester will give students the confidence to start classes with a strong foundation, increasing the headcount and retention. To alleviate the cost of the development of the Jams and implementation, the plan is to apply to dedicated grants by NSF "Innovation in Two-Year College STEM Education”.

While CHEM Jams are established, the development of “Just in Time” co-requisite support courses will begin. These courses will be modeled after the "Just in Time" courses offered in the Mathematics Department. Once developed (Step 4), the department anticipates an increase in success rates for foundational courses like CHEM 210, CHEM 220, CHEM 231, CHEM 232, and CHEM 410.

Once provided with enough faculty resources and Step 4 is in progress Step 5 will begin with the development of a Chemistry Associate in Science Degree for Transfer will support the transferability of our students and position them as competitive applicants for transfer.

Program Review

Following the AS-T in Chemistry, the program will begin building a Chemical Technician Associate's in Science Degree Program, which will prepare our students with the skills and experience to work in every sector of chemical industry, from basic research, operating industry-standard high performance chemical equipment, to hazardous waste management. This degree will fundamentally help first-generation students to envision a better paid job as a qualified employee in the biotech sector in the Bay Area. For this step, at least three more courses should be developed: Analytical Chemistry, Inorganic Chemistry, and Advanced Chemical Instrumentation. This work can be viable only with additional full-time-time faculty.

8A. Access & Completion

Describe the student completion and success rate in your courses and/or program using the data provided by PRIE. Look at your course offerings, in the last program review cycle was it possible for a student to complete your certificates or degrees while only completing courses at Cañada College? How can the college help you improve student completion and success? What changes could be made?

I. *Student Access* in the *Associate's in Science Degree for Chemistry Program of Study*

To complete the Chemistry Associate in Science Degree Program, students must pass all courses in the general-organic series (CHEM 210, CHEM 220, CHEM 231, CHEM 232). Historically, including COVID-19 enrollment trends, the fill rates for these four courses from Fall 2019 – present have an average of 93%, initially suggesting these courses have low accessibility in comparison to the Division (73.4% average fill rate) and the College (39.1% average fill rate) during the same time period. However, the high fill rates for our courses, which often exceed 100% in CHEM 210 and CHEM 220, indicate that an insufficient number of course sections - particularly for “series completion” courses like CHEM 220 and CHEM 232 – are offered by the department to meet student demand. In other words, a surface-level correlation of student accessibility as % fill rate does not suggest that students are able to complete our program *exclusively* at Canada College. The registration of these courses has, in the last four major terms, have students on full waitlists, and courses are near to their maximum (after drops) across all sections. As a result, faculty are faced with the choice of accepting an overage or turning students away. It is our assessment that Canada students do not have a maximized opportunity to take chemistry courses at Canada. Accessible courses are considered as courses that have a fill rate within 10% of the maximum: the courses are filling, but not to the point of exclusion of potential students. For context, a 90% fill rate in our largest course, CHEM 410, is the difference of only three open seats.

CHEM 210 from Fall 2021-present had an average fill rate of 95%. CHEM 220 had an even higher average fill rate of 103% during this same period. Accounting for fill rate data in the 2021-2022 academic year, where enrollment overages (% fill > 100%) for fully online modalities were easily accommodated, the demand for these courses are high with a 92% fill rate. Trends in the organic chemistry courses are similar but had a higher sensitivity to the change to distance education and full-time faculty staffing. The average fill rates of CHEM 231 and 232 during the 2021-2024 cycle were 88% and 77%, respectively.

However, the lower fill rate for CHEM 231 is affected by the 2022-2023 academic year, during which only one full-time chemistry faculty member was available to teach in Fall 2022. In Spring 2023, two new full-time faculty were hired for the department, and a change to CHEM 232 modality from exclusively online to exclusively face-to-face was made in January 2023. The incongruence in CHEM 232 course modality mid-year resulted in a reduction in fill rates, as students who enroll in the first half of a course series online are more likely to seek the same modality for the second half. However, fill rates for organic chemistry show a 20% increase from Fall 2023 to Fall 2024, projecting an increase in demand for these courses in future academic years. To ensure that every student enrolled in our program at Canada can take these requisite courses at only Canada, more full-time instructors are needed to meet the increase in demand for seats.

Currently the Chemistry Department does not have a transfer-specific AAS program (AAS-T), despite the 90.4% of students enrolling in general chemistry courses self-identify as seeking a degree for transfer (both to four-year universities/colleges and otherwise). The current employment and labor market trends identify a preference for professionals with an educational background in chemistry and biochemistry, which necessitates a four-year transfer exit pathway into these majors. The department will investigate and remedy the reasons for the lack of this exit pathway during the 2024-2027 academic years.

II. *Student Access* in Certificates Outside our Program of Study

Currently, the department does not offer CHEM 114 (sometimes cross-referenced as equivalent to PHYS 114), which is a requirement for students seeking to complete the Early Childhood Education Associate in Science Degree Program. Assuming the course is intended to be offered exclusively through the chemistry department, there is no accessible means of ECE students at Canada to complete this requirement at their home campus.

CHEM 192 and/or CHEM 410 are required courses for students seeking an Allied Health Associates in Science Degree, and are offered exclusively through the chemistry department. From Fall 2021-present, the average fill rate of CHEM 410 is 102%, showing inadequate accessibility for students. Adjusting for fully online modality, this fill rate is 95%, showing

comparable demand to General Chemistry I. Thus, the department requires more sections of this course be offered to ensure all Canada students may fulfill this requirement at Canada.

Conversely, CHEM 192 has an average fill rate that is significantly lower than the other courses offered by the department, with a 69% fill rate from Fall 2021-present. This course is offered once a semester and is provided in a fully online modality. As there is overlap in the AAS Allied Health chemistry requirement, it is possible that CHEM 192 is not a preferred selection for students pursuing this degree. Furthermore, due to changing transfer requirements in programs like nursing, kinesiology, physical therapy, etc., it is possible that the lack of an in-person lab offering for this course is impacting student access. An OER laboratory manual has already been developed in anticipation of the addition of an in-person CHEM 192 lab.

III. Student *Completion & Success* in Chemistry

From Fall 2021-present, the average success rate of students in the department was 69.7%, dipping below the 76.2% success rate in the 2021-2022 academic year to 62.8% in 2022-2023. This decrease in success rate across the board in the department correlates with other trends in enrollment and FTES for chemistry due to the major changes stated in other sections of this review. Success rates began to improve marginally in the 2023-2024 academic year to an average success rate of 66.5% overall by Spring 2024.

The department notes that success rates in Summer 2023 are 91.7% (an increase of 34% from Summer 2022). The two main differences in the department in these terms are 1) instructor and 2) modality. This suggests overall changes in modality from fully-online in 2022 to in-person in 2023 have a positive impact on student success for summer courses. Furthermore, a correlation in student success outcomes and reduced class sizes has been observed. Smaller instructor-student ratios allow instructors to provide differentiated instruction and attention to each student, which benefits all students. For example, success rates in chemistry in the 2022-2023 academic increased from 67.1% to 74.9% in 2023-2024 (7.8% increase). This higher instructor-student ratio particularly benefits first-generation students, low-income students, and student identities that have historically been marginalized in STEM, contributing to a more equitable pedagogical instruction. For example, the success rate of Hispanic-identifying students correlates with smaller class caps, with success rates in the 22-23 AY increasing from 55.9% to 64.4% in the 23-24 AY (8.5% increase) helping to reduce the equity gap for this ethnicity group.

8B. Student Equity

One of the goals of the College's Student Equity plan is to close the performance gaps for disproportionately impacted students. Use the data provided by PRIE that indicates which groups are experiencing a disproportionate impact in your program. Which gaps are most important for improving outcomes in your program? How can the college help you address these gaps? What changes could be made?

During this review, the chemistry department has identified two major equity gaps that we believe need ciritcal and immediate addressing. Student groups in our program that are disproportionately impacted by systemic inequities have been analyzed across race and gender:

I. Equity Gaps in *Black and Hispanic* Student Populations

Black, non-Hispanic students experience the largest inequity within the department, with a three-year average success rate 24.5% lower than their non-Black* identifying peers.

Academic Year	Black (non-Hispanic) Student Success Rate (%)	Total Success Rate (%)	Gap in Success
2021-2022	55.6%	76.2%	-27.1%
2022-2023	60.0%	62.8%	-23.2%
2023-2024	50%	70.0%	-23.4%

**Note: multiracial and "other" student ethnic identities were included in the non-Black student subgroup.*

This success rate gap persists in the department with only marginal improvement between academic years 2022-2023 and 2023-2024. This persistently large gap – over 20% larger than the next disproportionately affected ethnic group – demonstrates a systemic barrier to black student success. The department plans to integrate student support services that strategically support black-identifying students such as UMOJA, including running UMOJA sections of CHEM 410 and CHEM 210.

Additionally, from 2021-2024, Hispanic-identifying students had an average success rate 19.2% lower than their non-Hispanic peers. Below is an overview of Hispanic student success in chemistry by academic year:

Academic Year	Hispanic Student Success Rate (%)	Total Success Rate (%)	Gap in Success Ra

2021-2022	68.8%	76.2%	-10.2%
2022-2023	49.6%	62.8%	-23.5%
2023-2024	57.7%	70.0%	-19.3%

The gap was largest in the 2022-2023 academic year, where various major changes occurred in the department. Firstly, the department had only one full-time instructor in Fall 2022, with two new replacement faculty hired in January of 2023. Second, the instructional modality of courses changed from online in Fall 2022 to in-person in Spring 2023. Lastly, the time and day of courses offered shifted away from the traditional daytime scheduling. While it is difficult to pinpoint which of these factors widened the equity gap in Hispanic-identifying chemistry students from the prior year, current trends show an improvement in Hispanic student success rate, decreasing the gap in 2022-2023 by +21.8% in the 2023-2024 academic year. The department plans to integrate student support services that strategically support Hispanic-identifying students such as MESA. In reviewing our course offerings and enrollment data, however, a notable correlation between course time and Hispanic student retention and success rates was observed.

The department is currently offering evening and Saturday classes, which have demonstrated higher success and retention rates compared to their daytime counterparts. Filling rates for evening classes are in the 95% range, of which 64% identify as Hispanic. Furthermore, the number of Hispanic students enrolled in evening and Saturday courses (expressed as % retention) is 15% higher than those enrolled in daytime courses. Specifically, a positive trend in Hispanic student enrollment is observed day evening, and Saturday courses, respectively.

	Hispanic Student Demographic (%)	**Hispanic Student Retention Rate (%)**	**Hispanic Student Success Rate (%)**
Day Classes	49%	77.6%	59.0%
Evening Classes	56%	84.9%	61.9%
Saturday Classes	64%	55.6%	33.3%
Online	25%	75.0%	50.0%

The college can help the department close this gap by providing easily accessible academic support services (embedded tutoring, fully online tutoring, etc.) to students enrolled on Saturday and evening classes. Additionally, college services in general need to be made available after 8pm as evening and Saturday course offerings remain regular within our program.

II. Equity Gaps by *Gender and Ethnicity*

On average, 59% of students enrolled in chemistry courses from Fall 2021-Spring 2024 identified as female, with their gender representation in the department maintaining a 1.58 female to male proportion. Male, female, and gender-nonconforming students maintained a similar retention rate within the department, averaging at 85% across the prior cycle.

Despite representing more than half of the department in terms of enrollment, and comparable retention compared to other gender identities, women have approximately 3% lower success rates, with the gender gap only fully closed in AY 2022-2023 to 62.2% for both male and female students. However, during this academic year, course modalities were offered first exclusively online and then switched to in-person, leveling the success rate across genders to a net lower outcome of 62.2% compared to the prior year.

The department has identified that Hispanic women's success rates have widened by 24% in a foundational chemistry course, CHEM 210, from academic years 2022-2023 to 2023-2024. Performance in this course demonstrates the largest equity gaps for Hispanic-identifying women.

CHEM 210	**Hispanic Female Success Rate (%)**	**Non-Hispanic Female Success Rate (%)**	**Gap in Success Ra**
2021-2022	63.9%	67.7%	-10.3%
2022-2023	45.2%	70.4%	8.48%
2023-2024	53.5%	83.1%	33.3%

Program Review

Again, the 2022-2023 academic year was one of immense change within the department, and the variables that directly impacted female student success rates in CHEM 210 are inconclusive. However, beginning in the 2023-2024 academic year, the 12% decrease in female success rates is notable. The department is considering advising a "Gender in STEM" club that provides a safe space for women and gender-nonconforming students in STEM can build community and learn collaboratively.

Plan for Addressing Inequities in the Chemistry Program

At the program level, the Chemistry Department is dedicated to implementing several strategies to address inequities and support student success across diverse populations in a wholistic manner. During the first week of classes, the department will introduce students to the available college services, providing guidance on how to access resources such as academic support, financial aid, and technology support, and personal counseling. The department will actively encourage all students to take advantage of tutoring services in subjects such as chemistry, math, reading, and writing through the Learning Center.

To reduce financial barriers, the department will strive to universally offer zero-cost or reduced-cost textbooks, homework assignments, and lab manuals whenever possible. It will also continue participating in the Bookstore Inclusive Access Program to ensure affordable access to course materials. Additionally, in-house experiments designed by faculty will be shared via the program's Canvas page for faculty, which allows all instructors to teach in-house experiments at zero cost to students.

The department will continue to work closely with the Disability Resource Center (DRC) to ensure that all recommended accommodations are provided, offering an equitable learning environment for students with disabilities. Additionally, collaboration with academic advising and STEM counseling will be made such that all students are advised to take a course load that prioritizes success, especially for students who may not be familiar with the intense emotional, physical, and time commitment a full-time load in STEM requires.

For faculty, the department will universally request that all chemistry instructors attend at least one Flex professional development opportunity per year that addresses culturally responsive and student-serving pedagogies targeting BIPOC, Hispanic, and non-male student demographics. We plan to set clear expectations that all instructors are to proactively submit academic Early Alerts system and CARES reports to assist students at risk early on in their classes. Additionally, the department will explore options like contract grading, the Cariño approach, and other inclusive pedagogies that aim to reduce barriers to student success in STEM higher education.

Support Required from the College

The college can help us to address equity gaps in our program by taking a proactive approach to each of the following:

1. Send clear and up-to-date information about Students Support Services before classes start, including information about academic counseling, learning success programs, financial aid, food bank, EOPS, etc. This includes regular and frequent in-person classroom visits by various program representatives.
2. Provide all new faculty hired in the department recieve College-provided onboarding that focuses exclusively on Student Support resources, forms, contacts, procedures, and expectations.
3. Extend the accessibility of tutoring by hiring more student tutors and increasing access through extending available tutoring hours.
4. Make computers available for use in the laboratory by all chemistry students.
5. Offer in-person follow-up meetings with both faculty and students as a component of the CARES, DRC, and PCC referral systems, as exclusively digital.
6. Monitor student's wellbeing, offer individualized assistance, and remind them of available resources on campus throughout the semester.
7. Eliminate the material deficiencies in chemistry learning spaces (access to food, calculators, pens, laboratory goggles, comfortable and accessible furniture, facilities with functioning HVAC, etc.). Recognizing the financial needs of students, full-time faculty have personally funded (voluntarily) a storage of essential course materials—including safety goggles, lab notebooks, and scientific calculators—which students can borrow or receive free of charge.

8C. Completion – Success Online

The college has a goal of improving success in online courses. Using the data provided by PRIE, what significant gaps do you see in success between online/hybrid and non-online courses? What changes could be made to reduce these gaps? If your program does not offer online/hybrid courses, please write "not applicable".

The only course currently offered in a completely online modality is CHEM 192. Based on the collected data, we consider that a hybrid option can reduce the gap observed, but currently we are lacking in staffing.

Considering that the courses of general chemistry, Organic Chemistry and Chemistry for health science are not transferable if the lab component is online, the Chemistry Department intentionally offers a mix of hybrid and face-to-face modalities for the highest-headcount chemistry classes (CHEM 410 and CHEM 210) to accommodate student populations that benefit from flexible scheduling.

Program Review

Overall, success and retention rates for **all** face-to-face courses are higher than their hybrid counterparts.
As no fully face-to-face courses were offered by the department until the Spring 2023 term, comparisons of hybrid and face-to-face are only possible for the 2023-2024 academic year:

Modality	Hybrid	Hybrid	Face to Face	Face to Face
Course Outcomes	Success Rate	Retention rate	Success Rate	Retention rate
CHEM 410	54.4%	74.4%	59.6%	86%
CHEM 210	74.4%	82.0%	76.1.%	84.8%
CHEM 220	76.6%	87.0%	88.1%	93.2%
CHEM 231	46.2%	73.1%	69.2%	92.3%
CHEM 232	54.4%	74.4%	59.6%	86.0%

9A. SLO Assessment - Compliance

Are all active courses being systematically assessed over a three-year cycle? Refer to the Program's /Department's Three-Year Assessment Plan and describe how the plan is completed across sections and over time.

SLO Assessments were paused during this cycle due to limited faculty resources.

9B. SLO Assessment - Impact

Summarize the dialogue that has resulted from these course SLO assessments. What specific strategies have you implemented, or plan to implement, based upon the results of your SLO assessment?

N/A

10 PLO Assessment

Describe your program's Program Learning Outcomes assessment plan using your Program/Department's Three Year Assessment Plan Summarize the major findings of your PLO assessments. What are some improvements that have been, or can be, implemented as a result of PLO assessment?

The direct method to assess PLOs in Chemistry is a capstone project in the second semester of organic chemistry. In this project, each student should develop a procedure for a laboratory experiment. Then each student should follow their procedure and make a complete analysis using analytical instrumentation. Students submit a concise report indicating their findings and improving points. Students have been successful in completing this project, thus demonstrating proficiency in the three Physical Sciences Program Student Learning Outcomes.

Looking Ahead

11. Planning for the future is an important part of Program Review. This is your opportunity to identify new directions for growth and improve your program. Based on your analysis of the data and your responses to the questions above, identify specific and measurable goals and action plans for achieving those goals. Consider goals such as, but not limited to: updating curriculum, closing equity gaps, responding to student and community needs, etc. Please enter your response in the textbox below

Please refer to Question 7C: "Comprehensive Plan and Action Items."

Next Step: If your program is requesting resources, please go to "STEP 2: Resource Request (OPTIONAL)" and submit your specific requests there. Otherwise, this is the last prompt in the comprehensive program review form.

Supporting Information

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
41 laptops with Office suite software (to split between the 3 lab rooms) and a charging cart (for the lab room in Building 16)

Item Description
Processor: Intel (or AMD equivalent) i5 or better processor, 7th gen or newer. Laptop secure storage is crucial. Ideal solution is a locking charging cabinet with padlock.

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Status
New Request - Active

Type of Resource
Instructional Expenses (over $5,000) e.g., equipment

Cost
62,500

One-Time or Recurring Cost?
One-time Cost

Critical Question: How does this resource request support closing the equity gap?
The purchase of student laptops directly supports closing the equity gap by providing all students, particularly those from underrepresented groups, with the tools needed to engage fully in their coursework and develop essential digital skills. Despite living in a technological world, many students, especially those from underserved communities, lack consistent access to professional software, modern technology, and reliable internet at home, which limits their ability to develop technological proficiency. This disparity can place them at a disadvantage, both in their academic performance and in their preparation for the job market, where digital literacy is increasingly essential.
Providing students with laptops ensures that they have access to the same digital resources, reducing disparities in access to technology. It also allows them to engage in digital literacy programs, use professional software in their coursework, and develop the technology skills that employers expect in STEM and other fields. For students with limited proficiency in English, having personal access to technology enables them to use language-learning tools and online resources that can enhance their learning experience and confidence.

Critical Question: How does this resource request support Latinx and AANAPISI students?
According to a 2021 survey by the Pew ResearchCenter and the US Census Bruearu's ACS Survey, Latinx students are more likely to rely on smartphones as their primary means of internet access, which limits their ability to fully engage with academic tasks that require more robust technological tools, such as data analysis, graph plotting, or running professional software used in STEM fields.

Students relying solely on smartphones often face challenges when completing assignments that demand a laptop or desktop, such as writing complex papers, using specialized software for chemistry or engineering courses, or analyzing data sets. By providing laptops, the college ensures that Latinx and AANAPISI students can fully participate in their coursework, both in and outside of the classroom. This resource also empowers students to practice and reinforce technological skills independently, which is essential for building the proficiency needed in today's job market.

Additionally, personal access to laptops allows students to engage in online learning tools, conduct research, and

complete assignments that enhance their overall academic performance. For AANAPISI students, this investment provides equitable access to technology, supporting their success and helping close achievement gaps in STEM and other fields.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture
Accessible Infrastructure and Innovation

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Ensure students (particularly part-time students) experience a sense of belonging and connection to the College that helps them persist and complete
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Better share what Cañada offers
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer
Manage resources effectively
Provide adequate access to technology

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
Flake Ice machine

Item Description
Ice Machine can produce up to 152 lbs. of ice per day, and it can store 75 lbs. in its bin, so it's perfect for high-volume commercial use.

Status
New Request - Active

Type of Resource
Instructional Expenses (under $5,000) e.g., lab supplies, Student Athletic supplies, calculators, etc.

Cost
2,500

One-Time or Recurring Cost?
One-time Cost

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion

Which of Cañada College's Strategic Initiatives does this resource request support?
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Better share what Cañada offers
Strengthen K-16 pathways and transfer

Resource Requests

Be the best college choice for local high school students
Provide adequate access to technology

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
14 Gas Chromatographs (Portable)

Item Description
Portable Gas Chromatographs are affordable models of analytical laboratory instruments that use carbon-nanotube chemiresistance detector to measure both polar and nonpolar compounds. Includes the specialized software Direct Mini GC and the free Vernier Instrumental Analysis® app, so students can separate, analyze, and identify substances contained in a volatile liquid or gaseous sample.

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Status
New Request - Active

Type of Resource
Instructional Expenses (over $5,000) e.g., equipment

Cost
53,200

One-Time or Recurring Cost?
One-time Cost

Critical Question: How does this resource request support closing the equity gap?
The purchase of mini gas chromatographs (GCs) supports closing the equity gap by providing hands-on access to essential industry-standard equipment for all students, including those from underserved communities. Knowledge of GC instrumentation is critical in many STEM fields, and having access to this technology ensures underrepresented students can gain the same practical skills that are required in the workforce and to be competitive candidates when applying for for transfer or to interships.

Critical Question: How does this resource request support Latinx and AANAPISI students?
To strengthen pathways from community college to laboratory-based careers, increasing hands-on research opportunities and access to industry-standard equipment, like gas chromatographs, can help ensure that underrepresented students, like Hispanic, Latinx, and AANAPISI groups, gain the necessary skills and confidence to enter the workforce or a 4-year university successfully.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps

Resource Requests

Better share what Cañada offers
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer
Provide adequate access to technology
Manage resources effectively

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
20 x Chromatography Syringes, 1 uL

Item Description
1 µL Microliter Chromatography Syringe Model 7001 KH, Knurled Hub, 25 gauge, 2.75 in., point style 2.

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Status
New Request - Active

Type of Resource
Instructional Expenses (under $5,000) e.g., lab supplies, Student Athletic supplies, calculators, etc.

Cost
3,000

One-Time or Recurring Cost?
One-time Cost

Critical Question: How does this resource request support closing the equity gap?
These syringes are required for the use of Gas Chromatographs. The purchase of chromatography syringes supports closing the equity gap by providing all students - including those from underserved communities - hands-on access to industry-standard equipment. Proficiency in GC instrumentation is critical in many STEM fields, and access to this technology ensures that underrepresented students can develop the practical skills required for the workforce, making them competitive candidates for transfer programs and internships.

Critical Question: How does this resource request support Latinx and AANAPISI students?
To strengthen pathways from community college to laboratory-based careers, increasing hands-on research opportunities and access to industry-standard equipment - like gas chromatographs - can ensure that underrepresented students, like Hispanic, Latinx, and AANAPISI groups, gain the necessary skills and confidence to successfully enter the workforce and/or a 4-year university .

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture
Accessible Infrastructure and Innovation

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Better share what Cañada offers
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer

Resource Requests

Help students explore and find employment in fields of their choice
Provide adequate access to technology
Manage resources effectively
Support innovative teaching that creates more equitable and antiracist learning environments

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
16 50.00 mL PYREX® Burette, Class A, PTFE Stopcock Plug

Item Description
Glassware designed for precise titration in chemistry labs. Made of durable boroscilicate glass with colored marking scale for easy reading, ensuring accurate measurements. PTFE (Teflon) stopcock plug minimizes leaks. Class A calibration meets high standards of accuracy for use in academic settings, where precision and durability are essential for student experiments and lab work.

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.n to ensure student can master Lab techniques and be competitive at 4-year institutions.

Status
New Request - Active

Type of Resource
Instructional Expenses (under $5,000) e.g., lab supplies, Student Athletic supplies, calculators, etc.

Cost
4,000

One-Time or Recurring Cost?
One-time Cost

Critical Question: How does this resource request support closing the equity gap?
The current set of burettes are used in CHEM 210, CHEM 220, and CHEM 192, and are shared between the chemistry labs in Building 18 and Building 16. This frequent transfer of equipment between locations increases the risk of breakage each semester.
Having an adequate supply of burettes directly supports closing the equity gap by ensuring that all students, regardless of background or resources, have equal access to essential lab equipment. When burettes are shared and frequently transferred between labs, the risk of breakage increases, potentially limiting access for students in key courses like CHEM 210, CHEM 220, and CHEM 192. Ensuring sufficient equipment for all labs reduces delays and ensures that every student, including those from underserved communities, has a fair opportunity to complete hands-on experiments, improving their learning experience and success rates.

Critical Question: How does this resource request support Latinx and AANAPISI students?
This resource request for additional burettes supports Latinx and AANAPISI students by ensuring that all students, regardless of background, have equal access to critical lab equipment. By reducing the need to share and transfer burettes between labs, the department can provide a consistent, high-quality lab experience for all students, particularly those from underserved communities. This promotes equity in learning by ensuring that Latinx and AANAPISI students can fully participate in hands-on lab work, which is crucial for mastering the techniques and developing the motor skill necessary for becoming competitive candidates when applying for transfer or to internships.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Accessible Infrastructure and Innovation
Equity-Minded and Antiracist College Culture

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer
Help students explore and find employment in fields of their choice
Provide adequate access to technology
Better share what Cañada offers
Support innovative teaching that creates more equitable and antiracist learning environments
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
ACS Science Essentials Package subscription

Item Description
Choose five ACS online journals from more than 70 titles, with no limitations on your journal selections. That means you can tailor this package to fit the needs of your institution. Focus on a specific area like materials science, medicinal chemistry, or environmental engineering, or build a multidisciplinary collection to serve a broad range of departments. Front File Access (1996 to present day).

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Status
New Request - Active

Type of Resource
Instructional Expenses (under $5,000) e.g., lab supplies, Student Athletic supplies, calculators, etc.

Cost
2,732

One-Time or Recurring Cost?
Recurring Cost

Critical Question: How does this resource request support closing the equity gap?
Access to research developments is one of the most important steps on the way to reaching equity and inclusion. Starting the academic journey, the absence of access to scientific publications, excludes many students from science based information, leaving them to rely on information available in internet with out the peer-review approval. Thus, moving towards even access to scientific journals bridges the gap between students and researchers from different parts of the world, impacting not only access to knowledge, but representation.

Critical Question: How does this resource request support Latinx and AANAPISI students?
Access to academic scientific journals supports STEM education for Latinx and AANAPISI students by providing them with up-to-date, peer-reviewed research, bridging the gap between classroom learning and current industry

advancements. This access enhances critical thinking and research skills, preparing students for advanced studies and careers. It also fosters independent learning and engagement with diverse perspectives, inspiring underrepresented students by showing them role models within the scientific community. Ultimately, it equips Latinx and AANAPISI students with the tools to stay competitive and succeed in their academic and professional STEM pursuits.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Equity-Minded and Antiracist College Culture
Student Access and/or Success and/or Completion
Accessible Infrastructure and Innovation

Which of Cañada College's Strategic Initiatives does this resource request support?
Ensure students (particularly part-time students) experience a sense of belonging and connection to the College that helps them persist and complete
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Better share what Cañada offers
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer
Provide adequate access to technology

Non-Personnel Item (2024 - 2025)

Non-Personnel Item (2024 - 2025)

Requested Year
2024 - 2025

Item Requested
Ongoing Augmentation to the Division Budget for Chemistry Stockroom Expenses

Item Description
This request proposes a fixed portion of the Science & Technology Division's budget exclusively for the chemistry stockroom. The chemistry stockroom is responsible for replacing broken equipment, purchasing consumables such as gloves and high-grade reagents, and managing hazardous waste. Recent inflation, combined with the "science tax"—a significant markup on scientific and educational materials—has caused the cost of regularly purchased supplies to increase substantially. These markups, which range from 20% to 200%, particularly impact consumables and lab supplies. This ongoing budget augmentation is critical to cover these unavoidable premiums, ensuring that the department can continue to procure reliable, research-grade equipment necessary for delivering high-quality, safe, and compliant laboratory experiences.

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Status
New Request - Active

Type of Resource
Instructional Expenses (under $5,000) e.g., lab supplies, Student Athletic supplies, calculators, etc.

Cost
4,500

One-Time or Recurring Cost?
Recurring Cost

Resource Requests

Critical Question: How does this resource request support closing the equity gap?
Having an adequate Lab supplies directly supports closing the equity gap by ensuring that all students, regardless of background or resources, have equal access to essential lab equipment. Ensuring sufficient equipment for all labs reduces delays and ensures that every student, including those from underserved communities, has a fair opportunity to complete hands-on experiments, improving their learning experience, success rates and sense of belonging.

Critical Question: How does this resource request support Latinx and AANAPISI students?
This resource request supports Latinx and AANAPISI students by ensuring equitable access to essential lab equipment for all students, regardless of background. With this funding, the department can provide a consistent, high-quality lab experience, particularly benefiting students from underserved communities. By ensuring that Latinx and AANAPISI students can fully participate in hands-on lab work, the department promotes equity in learning. This hands-on experience is crucial for mastering laboratory techniques and developing the motor skills necessary to become competitive candidates for transfer programs or internships.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Ensure students (particularly part-time students) experience a sense of belonging and connection to the College that helps them persist and complete
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps
Better share what Cañada offers
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer

Personnel - Instructional Faculty (2024 - 2025)

Personnel - Instructional Faculty (2024 - 2025)

Requested Year
2024 - 2025

Personnel Requested
3 FT/Tenure Track Chemistry Instructors

Position Description
3 FT/Tenure Track Chemistry Instructors

Status
New Request – Active

Duration of Position Requested
Permanent

Full-time Status
Full Time

Provide # of months
10

Resource Requests

Program Goals this Request Supports

Goal(s): To increase access and successful completion of students of all groups - with specific target populations of Black, Hispanic, AANAPSI and Women students - qualified, and reliable academic support and academic intervention.
To create a department culture that universally values and functions under a framework of equity, fairness and inclusion for both students and faculty such that no individuals in our department feel unsupported in their endeavors.

Critical Question: How does this resource request support closing the equity gap?

SLO review, innovation in education and consistency in the department are fundamental to develop a homogenize plan to close the equity gap.

Critical Question: How does this resource request support Latinx and AANAPISI students?

With an increase in the number of sections taught by full-time faculty, the program will be able to offer a more diverse range of courses. Greater flexibility in section availability, scheduling, and course modalities will help increase enrollment of Latinx and AANAPISI students, whose retention rates are currently 10-20% lower than the program's overall average. By expanding course access and improving the efficiency of department operation, this request aligns with its goal of increasing access and successful completion for all student groups. Additionally, more full-time faculty will allow for more consistent academic support and interventions, ensuring that these target populations receive the qualified and reliable support needed to thrive.

A. How does the proposed position align with specific objectives within the college's and/or Board of Trustees/District's strategic plans/recommendations, goals, or initiatives?

(SMCCCD Board of Trustees Goal #2) Reinforce a thriving and positive-oriented workplace where employees feel supported in professional growth and innovation (SMCCCD Board of Trustees Goal #5) Provide students with clear pathways to completion and support innovative approaches to delivery methods and industry engagement. (SMCCCD Board of Trustees Goal #6) Inspire stronger and more meaningful community partnerships that lead to seamless pathways from cradle to college.

Summative response: Increasing the number of full-time tenure-track faculty in the chemistry department supports multiple Board policies by addressing faculty burnout, improving student outcomes, and strengthening community partnerships. In a large department with a low FTEF ratio, overburdened faculty face burnout, risking retention. Adding tenure-track positions will ease this strain, provide clearer paths for professional growth and innovation, and enhance workplace morale, aligning with the Board's goal of a positive work environment.
With growing demand for courses like CHEM 192, CHEM 410, and CHEM 210, driven by expanding programs such as Nursing, more full-time instructors are needed to ensure timely course access, supporting student progression and completion. These instructors also drive curriculum innovation and align course offerings with industry needs, particularly in healthcare.
Additionally, full-time faculty are better positioned to engage with schools, community organizations, and industry partners, fostering sustained partnerships that bridge gaps between K-12 and college. This helps create seamless pathways to college, enhancing student success and community involvement. By expanding full-time faculty, the department aligns with the Board's goals of improving retention, supporting critical programs, and building strong community ties.

B. How does the proposed position address the program's or department's goals? Please refer to specific elements of the most recent program review (e.g., comprehensive review, annual update, mid-cycle review).

The proposed position directly supports the chemistry department's prior goal of increasing retention and completion for all student groups by ensuring the department can offer ongoing, qualified, and reliable academic support and interventions. With additional full-time faculty, the department can provide consistent academic assistance, more personalized mentorship, and timely interventions for students struggling academically. These factors are critical for keeping students engaged, addressing gaps in performance, and improving overall retention and completion rates. A well-staffed department ensures that students from all backgrounds receive the support they need to persist in their studies and reach successful outcomes, aligning with the goals outlined in the most recent program review.

Resource Requests

Program Need and Impact:

A shortage of full-time faculty may limit a department/program's ability to meet program, institutional, and site responsibilities such as committee work, program oversight, program review, etc. Certain disciplines may find it challenging to solve their staffing needs because faculty are unavailable and/or cannot be retained.

1. Number (headcount) of full-time faculty in the program or department.

3

2. What is the Full Time/Part Time ratio?

25%

3. Does your current FTEF (Total Full Time Equivalent Faculty) meet the 75% annual goal? What is the FTEF in both Fall and Spring semesters over the past 3 years? What is the average per year?

F21-44% S22-27% F22-0% S23-48% F23-44% S24-37% F24-35%, with a 3-year overage of 33%FTEF. The chemistry department has been insufficiently staffed by full-time instructors since 2018, which has only compounded to the present. Currently, the department is staffed by two full-time tenure-track faculty members, resulting in a ratio of FTES to FTF (full-time faculty) of 35%. Considering the need of additional chemistry sections leads to a total of 14 FTES (considering only major terms), and requires hiring at least 3 full-time instructors for a 71% FTEF ratio. Hiring three additional full-time tenure-track chemistry instructors will bring the department within four percentage points of the 75% ratio mandated by CA AB1725.

4. Average number of sections offered per year.

22

5. Average departmental Fill Rate per year.

92

6. Qualitatively and quantitatively describe student demand within this discipline, especially for those courses that will be assigned to the proposed faculty member.

CHEM 192 and/or CHEM 410 are required courses for students seeking an Allied Health Associates in Science Degree, and are offered exclusively through the chemistry department. From Fall 2021-present, the average fill rate of CHEM 410 is 102%, showing inadequate accessibility for students. At least One section of CHEM 192 and two sections of CHE 410 per year are needed to add. CHEM 114, is a course required to completion of Elementary Teacher Education associate in arts degree for Transfer, and no section have been offered in the last 3 years. CHEM 210 from Fall 2021-present had an average fill rate of 95%. CHEM 220 had an even higher average fill rate of 103% during this same period. At least two sections of CHEM 210 and one more section of 220 should be open per year. A sum of 2.48 FTEs should be added to an already at-capacity department.

7. Are there any course offerings, programmatic needs, and/or degree completions impacted and/or not available due to an inadequate number of faculty?

Currently, the department does not offer CHEM 114, which is a requirement for students seeking to complete the Early Childhood Education Associate in Science Degree Program. Assuming the course is intended to be offered exclusively through the chemistry department, there is no accessible means of ECE students at Canada to complete this requirement at their home campus.

8. Are there any course offerings, programmatic needs, and/or degree completions that will not be available if the position does not move forward at this time?

The department will be severely impacted if this request is not approve. The current number of sections cannot meet student demand, forcing students to seek required courses for degrees or transfer at other institutions. Furthermore, the department will be unable to offer enough sections of critical courses like CHEM 192, CHEM 410, and CHEM 210, which are essential for high-demand programs such as Nursing. This will create bottlenecks and barriers in student exit-pathways, delaying student progress and completion. Furthermore, without these positions, the department's ability to provide consistent academic support and interventions will be limited, disproportionately affecting students who need additional assistance. This shortage not only impacts timely degree completion but also hinders transfer opportunities and overall student retention, directly affecting the institution's mission to support student success, retention, and career readiness, especially in key fields like

healthcare and STEM. Approval of these positions is crucial to maintaining high-quality instruction and meeting the growing demand for essential courses.

9. Please explain any special circumstances not reflected in the data reported above such as reduced sections or services due to low staffing, department/program size, location specific needs versus district-wide needs, routine full-time faculty overloads, high-need courses offered infrequently because of staffing issues, chronic under-filling of required courses, etc.

Five of the seven courses offered by the department have reduced sections due to an instructor shortage, and one course has not been offered in at least three years. The department's only two full-time faculty members are already overloaded, with FTEs of 1.14 and 1.34, respectively. This ongoing overload has led to severe burnout, with both faculty expressing concerns about quitting, as they are struggling to sustain a department with less than half the necessary staffing. The reduced course offerings limit student access to essential classes, further compounding delays in program completion and transfer opportunities. The current staffing crisis must be addressed to prevent further strain on faculty and ensure that students can progress in their programs without disruption.

Map Request to College Goals and Strategic Initiatives

Which of Cañada College's Goals does this resource request support?

Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture

Which of Cañada College's Strategic Initiatives does this resource request support?

Be the best college choice for local high school students
Connect students to the academic program(s) and classes they need
Support innovative teaching that creates more equitable and antiracist learning environments
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps
Manage resources effectively
Ensure students (particularly part-time students) experience a sense of belonging and connection to the College that helps them persist and complete
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Better share what Cañada offers
Strengthen K-16 pathways and transfer

Personnel - Classified Staff (2024 - 2025)

Personnel - Classified Staff (2024 - 2025)

Requested Year

2024 - 2025

Hiring Division/Department:

STEM division - Chemistry Department

Position Title:

Chemistry Laboratory Technician

Status

New Request – Active

Is this position permanent?

Yes

Position Type

Part-time

If Part-Time, what percentage of Full-Time is this position?

0.48

Resource Requests

Provide # of months.
12

Program Goals this Request Supports
The proposed Chemistry Laboratory Technician position directly supports the program's goals, as outlined in the most recent program review, by providing the necessary infrastructure to increase retention and completion rates for students across all demographic groups. Additionally, the expansion of the chemistry department, which now operates two chemistry-specific stockrooms that must be manned since morning courses to evening courses ending the day at 9 pm, with day Friday and Saturdays courses.

Position: General Funds.
37,163

Critical Question: How does this resource request support closing the equity gap?
This resource request supports closing the equity gap by ensuring that all students, regardless of background, receive equitable access to well-prepared, safe, and fully supported laboratory experiences. The current lack of dedicated stockroom staff for the chemistry department has resulted in some lab sections running without proper preparation and support, which disproportionately affects students from underrepresented backgrounds, such as Latinx and first-generation students. These students often rely on consistent, structured environments to thrive academically. A dedicated Chemistry Laboratory Technician will ensure that all students, particularly those from marginalized or historically underserved groups, have equal opportunities to succeed through reliable, high-quality lab experiences. This position will help reduce disparities by supporting learning environments that contribute to retention, success, and closing achievement gaps in STEM.

Critical Question: How does this resource request support Latinx and AANAPISI students?
This resource request directly supports Latinx and AANAPISI students by addressing the specific needs of these populations, particularly as we've observed higher enrollment trends among Hispanic-identifying students in evening and Saturday chemistry courses. Our data shows that while Hispanic students have higher retention and success rates in evening courses compared to day classes.

A dedicated Chemistry Laboratory Technician would ensure that evening and Saturday courses receive the same high level of lab preparation and support as traditional day courses. This would enhance the quality and consistency of lab experiences for Hispanic and AANAPISI students, providing equitable access to well-prepared, safe laboratory environments. The Technician would also ensure that lab operations run smoothly during non-traditional hours, when many Latinx students are enrolled, addressing the specific barriers that may be contributing to lower success rates in Saturday courses.

Justification

1. Describe the specific needs for the position requested and the duties of this position in a brief statement.
Currently, the department is making a huge effort in closing inequity gaps by offering courses from morning to evening and during Saturday's, but it faces challenges with some lab sections running without stockroom staff, which negatively impacts the quality of preparation and overall lab operations. The Technician will serve for a better split on staff-shift, ensuring that labs are consistently well-prepared, stocked, supported, and aligned with safety standards. The duties are the ones already established for this position.

This successful filling of this position will also relieve faculty from the additional burden of managing lab preparations, allowing them to focus more on instruction, curriculum development, and student engagement. With better-prepared labs and a more efficient workflow, students will have an enhanced learning experience, particularly in hands-on activities, which are essential for building technical and critical thinking skills.

2. Explain how this position aligns with and supports the mission and strategic goals of the college.
The Chemistry Laboratory Technician position supports Cañada College's mission and strategic goals by ensuring equitable access to high-quality, safe, and well-prepared lab experiences, which are crucial for fostering student success, especially in STEM fields. This position aligns with the college's focus on improving retention, completion, and transfer rates by maintaining organized, efficient lab operations, allowing faculty to focus on teaching and mentoring students. Additionally, the Technician will support equity efforts by ensuring all students have access to well-prepared labs that enhance hands-on learning. This role also upholds safety and sustainability practices,

further aligning with the college's commitment to providing a supportive and forward-thinking academic environment.

3. Explain how adding this position will strengthen the department or division.

The Chemistry Stockroom Technician will be responsible for maintaining the two chemistry-specific stockrooms, ensuring smooth and efficient operations, especially during high-demand periods, such as evening and Saturday classes. This added support will enable the department to function more effectively, improving the overall quality of lab instruction and accommodating the needs of a growing and diverse student population. The Technician will be instrumental in enhancing operational efficiency, ensuring safety standards, and elevating the academic quality of the department's laboratory experiences.

4. Explain how this work will be accomplished if the position is not filled.

If the Chemistry Laboratory Technician position is not funded, the program will continue to face significant operational challenges that will negatively affect both the quality of instruction and student outcomes. Without dedicated support, many lab sections will lack proper preparation and supervision, leading to inconsistent lab experiences, fewer hands-on learning opportunities, and potential safety risks.

Faculty, already stretched thin, will be forced to take on additional duties related to lab preparation and management. This added workload will reduce their availability for teaching, mentoring, and curriculum development, likely contributing to faculty burnout and further diminishing instructional quality. Without a Technician to manage the increasing demands of the two chemistry-specific stockrooms, the department will struggle to meet its goals of delivering high-quality, equitable, and safe lab experiences—key factors in student success and program effectiveness. As a result, the department may need to reconsider its program plans, potentially closing lab sections.

All students, particularly those enrolled in high-demand courses and non-traditional schedules, such as evening and Saturday classes, will face reduced access to essential courses needed for progression in STEM fields and degree completion. This lack of access could disproportionately affect students from underrepresented groups and those balancing work or family commitments, ultimately widening the equity gap.

5. Critical Question: How does this resource request support closing the equity gap?

This resource request supports closing the equity gap by ensuring that all students, regardless of their background, have access to well-prepared, safe, and fully supported laboratory experiences. Currently, the lack of dedicated stockroom staff for the chemistry department means that some lab sections are running without proper preparation and support, which disproportionately impacts students who rely on consistent, high-quality instructional environments to succeed. A dedicated Chemistry Laboratory Technician would ensure that all students, including those from underrepresented groups, receive the same level of academic support and safety in the lab.

6. Critical Question: How does this resource request support Latinx and AANAPISI students?

"This resource request directly supports Latinx and AANAPISI students by addressing the specific needs of these populations, particularly as we've observed higher enrollment trends among Hispanic-identifying students in evening and Saturday chemistry courses. Our data shows that while Hispanic students have higher retention and success rates in evening courses compared to day classes.
A dedicated Chemistry Laboratory Technician would ensure that evening and Saturday courses receive the same high level of lab preparation and support as traditional day courses. This would enhance the quality and consistency of lab experiences for Hispanic and AANAPISI students, providing equitable access to well-prepared, safe laboratory environments. The Technician would also ensure that lab operations run smoothly during non-traditional hours, when many Latinx students are enrolled, addressing the specific barriers that may be contributing to lower success rates in Saturday courses."

Map Request to College Goals and Strategic Initiatives.

Which of Cañada College's Goals does this resource request support?

Student Access and/or Success and/or Completion
Accessible Infrastructure and Innovation

Resource Requests

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Support innovative teaching that creates more equitable and antiracist learning environments
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Better share what Cañada offers
Strengthen K-16 pathways and transfer
Be the best college choice for local high school students
Ensure students (particularly part-time students) experience a sense of belonging and connection to the College that helps them persist and complete
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps

This position has been reviewed by the department or division and is recommended for hiring.

Dean/Director/Hiring Supervisor Name
Ameer Thompson

Date
11/01/2024

Personnel - Classified Staff (2024 - 2025)

Personnel - Classified Staff (2024 - 2025)

Requested Year
2024 - 2025

Hiring Division/Department:
Science Division/Chemistry

Position Title:
Chemistry Student Aide

Status
New Request – Active

Is this position permanent?
Yes

Position Type
Part-time

If Part-Time, what percentage of Full-Time is this position?
0.48

Provide # of months.
12

Program Goals this Request Supports
Provide high quality education to ensure student can master critical thinking, lab techniques, and research skills, based on industry and research standards. Ensure that students can be competitive at any 4-year institution.

Position: General Funds.
20,000

Critical Question: How does this resource request support closing the equity gap?
This resource request supports closing the equity gap by providing consistent support to the department, aiding with industry-level equipment management, reserach efforts, collaborate in the testing of new educational experiments. it will help create an inclusive and welcoming environment for the student filling the position and for

the other students observing the potential of studing at Canada College. This fosters a sense of community and belonging, encouraging greater engagement from students who might otherwise feel marginalized.

Critical Question: How does this resource request support Latinx and AANAPISI students?
Many Latinx and AANAPISI students may be the first in their family to attend college or have additional work or caregiving responsibilities, which can limit their time to education. This position will provide to the student with a flexible source of income, including evenings, ensuring that these students can access a job on campus that fits their schedules. Additionally they will benefit by working and learning dirreclty with the chemistry faculty/staff, this personalized attention is especially beneficial for Latinx and AANAPISI students who may not see representation in their communities and it will support to build confidence in their academic abilities. This supportive environment will help bridge cultural and language gaps, contributing to higher retention and completion rates for these student populations.

Justification

1. Describe the specific needs for the position requested and the duties of this position in a brief statement.
There is a critical need for student workers in chemistry due to the expansion of the chemistry department. The current staffing is insufficient to meet the growing demands. By utilizing student aides in various applications like laboratory preparation and operations, this role helps create a more equitable learning environment where every student, particularly those who may already face barriers to success, has the tools and resources needed to excel in their chemistry courses. This additional support also allows faculty to be more efficient with their time dedicated to lab equipment and maintenance, to allow them to focus more on teaching and student engagement, fostering an inclusive and supportive academic environment that enhances equity across the department.

2. Explain how this position aligns with and supports the mission and strategic goals of the college.
This position supports Cañada College's mission and strategic goals by ensuring equitable access to high-quality, safe, and well-prepared lab experiences, which are crucial for fostering student success, especially in STEM fields. This position aligns with the college's focus on improving retention, completion, and transfer rates by maintaining organized, efficient lab and equipment operations, allowing faculty to focus on teaching and mentoring students.

3. Explain how adding this position will strengthen the department or division.
Increasing personnel in the department will lead to a more effective department, reducing the burn out on 3 full-time members of the department (Faculty and staff). This will improve the overall quality of instruction, and better serve the needs of a growing student population.

4. Explain how this work will be accomplished if the position is not filled.
If this position is not filled, not support to current member on the department can be accomplished.

5. Critical Question: How does this resource request support closing the equity gap?
This resource request supports closing the equity gap by providing consistent support to the department, aiding with industry-level equipment management, reserach efforts, collaborate in the testing of new educational experiments. it will help create an inclusive and welcoming environment for the student filling the position and for the other students observing the potential of studing at Canada College. This fosters a sense of community and belonging, encouraging greater engagement from students who might otherwise feel marginalized.

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Many Latinx and AANAPISI students may be the first in their family to attend college or have additional work or caregiving responsibilities, which can limit their time to education. This position will provide to the student with a flexible source of income, including evenings, ensuring that these students can access a job on campus that fits their schedules. Additionally they will benefit by working and learning dirreclty with the chemistry faculty/staff, this personalized attention is especially beneficial for Latinx and AANAPISI students who may not see representation in their communities and it will support to build confidence in their academic abilities. This supportive environment will help bridge cultural and language gaps, contributing to higher retention and completion rates for these student populations.

Resource Requests

Map Request to College Goals and Strategic Initiatives.

Which of Cañada College's Goals does this resource request support?
Student Access and/or Success and/or Completion
Equity-Minded and Antiracist College Culture
Accessible Infrastructure and Innovation

Which of Cañada College's Strategic Initiatives does this resource request support?
Connect students to the academic program(s) and classes they need
Create and sustain an inclusive and/or antiracist and/or equity-minded campus culture
Be the best college choice for local high school students
Strengthen K-16 pathways and transfer
Strengthen the college culture of continuous assessment and improvement in order to ensure all programs effectively serve students and close equity gaps
Support innovative teaching that creates more equitable and antiracist learning environments
Better share what Cañada offers
Help students explore and find employment in fields of their choice

This position has been reviewed by the department or division and is recommended for hiring.

Dean/Director/Hiring Supervisor Name
Ameer Thompson

Date
11/01/2024