De Anza College

Instructional Annual Program Review 2021-22

**Instructions**: The first column is section and question number, followed by ask without explanation The third column fully describes the information that the IPBT is requesting. The blank or fourth column is where you will type your response. Save program review as a Word document. This is the document you will send to your Dean. It will be posted on the De Anza website in pdf format.

In addition to this document, please also submit to your Dean the Resource Request spreadsheet making sure facilities requests are on “Facilities” tab and large-ticket items are on Large-ticket Items” tab.

Due: Friday May 6, 2022

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|  | **Information Requested** | **Explanation of Information Requested.**  | **Enter your answers here** |
|  | Department Name: |  | Chemistry |
|  | Program Mission Statement: | How does your program mission statement relate to the mission of De Anza College and our Institutional Core Competencies”? (<https://www.deanza.edu/about-us/mission-and-values.html> ).  | The Program Learning Outcomes (PLOs) forthe Chemistry Department are:1. Demonstrate an understanding of the scientific method and utilize the method in a laboratory situation
2. Demonstrate knowledge of basic chemical concepts as well as mathematical skills as they relate to the study of chemistry
3. Demonstrate basic chemical hygiene and safety in a laboratory environment
4. Demonstrate the ability to acquire and analyze data through empirical observation and the use of appropriate instrumentation.

Three of the PLOs (1, 2, and 4) are commensurate with three of the Institutional Core Competencies (ICCs): Communication and Expression, Information Literacy, and Critical Thinking. The ability to conduct experiments in the laboratory, to gather and critically analyze data from a variety of sources, and to lucidly communicate both the results of the experiments and the implications of those results require that students be able to communicate and express ideas, to use and evaluate chemical literature and manipulate concepts, and to apply critical thinking to the methods used and to the interpretation of the results.The remaining PLO (3) directly relates to the ICC areas of both Physical/Mental Wellness and Personal Responsibility and Civic Capacity for Global, Cultural, Social, and Environmental Justice. A crucial componentof conducting chemical experiments is the ability to do so safely, following all applicable protocols for the storage, handling, and disposal of hazardous waste. Beyond the laboratory setting, it is also crucial for our students to understand the role of chemistry in everyday life, both in the way that it positively affects society through the discoveries that chemistshave made but also in the way that it has harmed society through the misuse and mishandling of chemicals. |
| I.A.1 | What is the Primary Focus of Your Program? | Choose from General Education, Transfer. Career/Technical, Learning Resources/Academic Services, personal enrichment or N/A | Transfer |
| I.A.2 | Choose a Secondary Focus of Your Program. | Choose from General Education, Transfer. Career/Technical, Learning Resources/Academic Services, personal enrichment or N/A | Career/Technical |
| I.B.1 | # Certificates of Achievement Awarded | State the number of Certificates of Achievement awarded during the 2020-21 academic year. Please refer to: <https://www.deanza.edu/ir/AwardsbyDivision.html> . If you do not offer Certificates of Achievement please state “none offered”. | None offered |
| I.B.2 | # Certificates of Achievement-Advanced Awarded: | State the number of Certificates of Achievement - Advanced awarded during 2020-21 academic year. Please refer to<https://www.deanza.edu/ir/AwardsbyDivision.html> If you do not offer Certificates of Achievement” please state “none offered”. | None offered |
| I.B.3 | # ADTs (Associates Degrees for Transfer) Awarded | State the number of Associate Degree Transfer awarded by you department during the 2020-21 academic year. Please refer to <https://www.deanza.edu/ir/AwardsbyDivision.html> . If you do not offer Associate Degree Transfer, please state “none offered”. | None offered |
| I.B.4 | # AA and/or AS Degrees Awarded: | State the number of Associate of Arts or Associate of Science degrees awarded during the 2020-21 academic year. Please refer to <https://www.deanza.edu/ir/AwardsbyDivision.html> .If you do not offer Associate of Arts or Associate of Science Degree, please state “none offered”. | None offered |
| I.B.5. | Trends in # Total Awards | If applicable to your program, has total number of certificates and degrees increased, decreased or stayed the same? What thoughts do you have on these changes?  | The number of degrees granted has remained unchanged.  |
| I.B.6. | Strategies to Increase Awards | What strategies (1, 2, 3. . . .) does your department have in place to ensure students are obtaining awards when it is applicable to their educational goal? (e.g. Outreach, In-reach, graduation workshops, collaborations with other offices, etc.) | The department is evaluating the feasibility of implementing an Associate Degree for Transfer in Chemistry given the unit restrictions imposed by the UC system on this degree path. |
| I.C.1  | CTE Programs: Review of Perkins Core Indicator and SWP Outcomes Metrics | Review the most recent Perkins Core Indicator and SWP Outcomes Metrics data for your program(s). Cite planned interventions and activities to enhance student and program outcomes.Perkins Core Indicator Reports provided by Margaret Bdzil. Cal-PASS Launchboard SWP Metrics: <https://www.calpassplus.org/LaunchBoard/Home.aspx>  | N/A |
| I.C.2 | CTE Programs: Labor Market Demand and Industry Trends: | Review and summarize statewide and regional labor market (LMI) data for occupations that are closely aligned with your program. Cite current industry trends. Provide an overview of your program advisory committee's recommendations relating to existing and new course and certificate/degree offerings. Cite additional data when applicable.California EDD LMI Info: <https://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/areaselection.asp?tablename=occprj>  | N/A |
| I.D.1 | Academic Services and Learning Resources: # Faculty Served | Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of faculty served per year (Fall, Winter and Spring): Provide number from previous year, and # increase or decrease. To the extent possible, specify what data you used to arrive at this number. | N/A |
| I.D.2 | Academic Services and Learning Resources: # Students Served | Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of students served per year (Fall, Winter and Spring): Provide number from previous year APRU, and # increase or decrease. To the extent possible, specify what data you used to arrive at this number. | N/A |
| I.D.3 | Academic Services and Learning Resources: # Staff Served | Only for programs that serve staff or students in a capacity other than traditional instruction, e.g. tutorial support, service learning, etc. State number of staff served per year (Fall, Winter and Spring): Provide number from previous year APRU, and # increase or decrease. To the extent possible, specify what data you used to arrive at this number. | N/A |
| I.E.1 | Full Time Faculty (FTEF) | For ALL programs: State the number of FTEF assigned to your department/program. Refer to your program review data sheet: <https://www.deanza.edu/ir/program-review.20-21/index.html> . | 17.4 |
| I.E.2 | # Student Employees | If applicable to your program, state number of student employees and if there were any changes between number this academic year and the previous two academic years. | 0The department had 10 student employees who assisted in the chemistry stockroom. This number was reduced to zero when the pandemic forced the closure of campus. The stockroom is currently operating under Covid protocols that avoid students directly checking-out equipment from the stockroom, however when we resume regular operations, we intend to bring back student workers to support the stockroom.  |
| I.E.3 | Full Time Load as a % | State the percentage of courses taught by full-time faculty (exclude overload). Refer to your program review data sheet. <https://www.deanza.edu/ir/program-review.20-21/index.html> or access within the program review tool. | 28.0% |
| I.E.4 | # Staff Employees | If applicable to your program, state number of staff employees and if there were any changes. ONLY report the number of staff that directly serve your program. Deans will make a report regarding staff serving multiple programs.  | 2 |
| I.E.5 | Changes in Employees/Resources | Briefly describe how any increase or decrease resources/employees (exclude teaching faculty) has impacted your program. What strategies does your program have in place to ensure students are being supported and able to reach their full capacity when faced with these changes and challenges**?** (e.g. Mentors, embedded tutors, extended lab hours, instructional support, non-credit support, etc.) | The department has recently received long-needed support with the hire of a second full-time lab technician to provide additional coverage in the chemical stockroom. This has so far allowed us to restart the evening lab program, which had been suspended in the absence of any evening staff support. The department is currently exploring the possibility of expanding course offerings to include some limited Friday labs, as well as potentially evaluating avenues to provide support for makeup labs to allow for some flexibility when students miss a lab session due to unforeseen circumstances. |
|  | **Enrollment** |  |  |
| II.A | Enrollment Trends  | What changes in enrollment have you seen in the last three years? Refer to <https://www.deanza.edu/ir/program-review.20-21/index.html> or access within the program review tool. You do not need to list enrollments; rather reflect on enrollment trends. What strategies does your department have in place to increase or maintain current enrollment trends?  | Enrollment continued a trend of significant growth prior to the pandemic (+5.9% from 2017/18 to 2018/19 and +5.1% from 2018/19 to 2019/2020). Enrollment growth has softened somewhat more recently leading to a slight (0.6%) drop in enrollment from 2019/20 to 2020/21. It is difficult to predict whether demand will remain steady or rebound toward previous levels as the transition back to in-person instruction continues, however following the recent addition of a second full-time lab tech to the department, we are much better positioned to be able to consider offering additional course sections where demand warrants. |
| II.B. | Enrollment Trends for disproportionately impacted student groups | Using the program review data tool, what is the enrollment of African American, Latinx, Filipinx, and Pacific Islander students as a percentage of your entire program compared to other student groups in campus-wide percentages? You do not need to list enrollments, but rather reflect on what the trends look like. Link to equity plan and strategic plans1. What could be contributing to the differences?
2. What strategies does your department have in place to increase or maintain enrollment of these student groups?

Are there other trends that you see when drilling into the data that may be important to explore? | African American, Latinx and Pacific Islander students make up a slightly smaller fraction of enrollment in our department than at the college overall, while our Filipinx enrollment percentage is slightly higher than the college. As noted in our previous program review, LatinX and Filipinx enrollment is substantially higher in our CHEM 25 courses, and particularly in CHEM 30A (the first quarter of our allied-health chemistry sequence), where our Latinx students have made up one-third of our total enrollment in recent years, and the Filipinx enrollment rate has been more than double than for the college at-large. With demand for CHEM 25 and CHEM 30A remaining consistently strong and being driven in large part by interest from disproportionately impacted groups, it may be appropriate to incrementally increase our offerings in these areas, even as more broadly we shift toward sustaining current levels of course offerings rather than expanding them. Adding additional sections of CHEM 25 however does raise concerns about whether we will have sufficient capacity to accommodate those students in general chemistry as they seek to progress further down the pipeline. |
| II.C. | Overall Success Rate | What changes in student success rates have you seen in the last three years? You do not need to list success rates, rather reflect on trends in success rates. 1. What could be factors that influence success rates? Please refer to: <https://www.deanza.edu/ir/program-review.20-21/index.html>
2. What strategies does your department have in place to increase or maintain current success rates?
 | The overall course success rate in the department has remained relatively steady over the past 5 years, and within ±2% of the college every year. Although student success may have remained steady on paper, however, there have undoubtedly been pandemic-related losses in learning not yet reflected in the data, both in the form of students who never enrolled due to the larger disruptions that the pandemic brought to their lives, and due to the impossibility of providing certain experiential aspects of our classes remotely, particularly in the lab. As we return to campus, we are seeing the results of this lost experience as students enter advanced lab courses without some of the basic lab technique skills that we would normally expect, though the use of the at-home lab kits has mitigated this to some extent. It remains to be seen how quickly this skills gap will be made up, and whether it will be reflected in success trends in the coming years, but we continue to work together thoughtfully to manage the transition back to in-person labs in a way that makes allowances for the experiences that students have missed in the past two years. |
| II.D. | Success, Non-Success and Withdraw Rates for disproportionately impacted student groups | Using the [Disproportionate Impact Tool](https://www.deanza.edu/ir/program-review.18-19/Access_DI_tool.pdf) within the [Program Review Tool](http://deanza.edu/ir/PRGuide_PrintingPDF.pdf) explore differences in success rates by ethnicity, gender and special student populations (foster youth, individuals with disabilities, Veterans and low income students). Of the rows that are highlighted (which indicate there are disproportionate impacts for that group): 1. What differences do you see in successful course completion rates?
2. What are your thoughts on these differences?

What strategies might be helpful in closing gaps in successful course completion? | The departmental numbers show statistically significant gaps in success rate for Latinx and low income students, which in both cases are somewhat larger than seen collegewide. Some of this difference may reflect the fact that a high percentage of students entering our program have educational goals that require them to complete several courses in sequence, all of which are typically heavily cumulative. Successful achievement of those goals therefore requires a student to have the resources and support for a long-term sustained effort, often with substantial total financial costs. Additionally, with recent developments related to AB705 further restricting student access to the math prerequisites that are foundational to success in our courses, the need for not just financial support, but also readily accessible tutoring options, is likely to become more acute. The department continues to discuss ways in which we can lower the cost burden on students, from selecting low-cost or open class materials where appropriate, to providing gloves and other necessary materials when possible so that students do not have to purchase them. Beyond that however, we believe that our students would benefit substantially from expanded access to tutoring, as we discuss further in sections III.C and III.D. |
| II.E. | Changes Imposed by Internal/External Regulations  | Address program changes implemented as a response to changes in College/District policy, state laws, division/department/program level requirements or external agencies regulations? How did the change(s) affect your program? (e.g. any curriculum, reorganization of program AB 705, noncredit curriculum, loss of personnel, etc.) | We continue to anticipate ripple effects from AB705, particularly with recent changes that prohibit the college from even offering pre-collegiate level math courses that are listed as prerequisites for our courses. At present, we remain obligated to list these prerequisites to maintain UC articulation but are simultaneously prohibited from requiring them as a result of AB705. We await a resolution for handling of these contradictory guidelines.As with other departments and programs across campus, our department has been deeply impacted by the policy changes resulting from the pandemic, including most notably the extended cessation of in-person classes. As all of our courses include laboratory components, the department has had to go to great lengths to find ways for students to meet course objectives to the extent possible without access to physical lab facilities. We are now navigating the transition back to in-person learning, which has brought significant challenges of its own. A majority of our labs are back in person at this stage, and we anticipate that all will be in person beginning in summer to ensure continuing articulation to transfer institutions.  |
|  | **Equity** | In order to meet the goals within our [State Equity Plan](https://www.deanza.edu/sssp-se-bsi/documents/DAC_Student_Equity_Plan_2019-22_Final.pdf), [Institutional Metrics](http://deanza.edu/ir/planning/planning_files/InstitutionalMetrics_2019_4.29.19.pdf), and [Educational Master Plan](http://deanza.edu/ir/state-of-the-college-related-information/documents/EMP2015-2020_3-11-16.pdf), the following section asks you to reflect on questions focused on student equity to help inform our goals.  |  |
| III.A. | Equity Plans for groups other than the acknowledged disproportionately impacted groups | Are there other groups of students besides the acknowledged disproportionately impacted groups of African American, Latinx, Filipinx, and Pacific Islander students that your department intentionally focused support for. | While we would be interested in exploring ways to support a variety of other student groups (e. g. international students, non-native English speakers, LGBTQ+ students, dual-enrollment high school students and nontraditional college students returning to school later in life), to our knowledge, we do not have access to data on the representation of these student groups in our enrolled student population, making it difficult to identify the most productive areas of focus. |
| III.B. | Program Success | Describe any events/program changes/successes that you would like to share relative to your equity efforts? | During the pandemic, the department has succeeded in using Covid-related funds as a powerful tool to provide lab experiences to our students in a way that mitigated the disparate impacts of the transitions first to remote delivery and then back to the physical lab. After being dissatisfied with the online lab platform adopted by the California Community College system, which relied on students having access to computers with demanding technical specifications, the department explored and obtained approval for at-home lab kits provided to students by the college at no cost. This allowed students in our program to continue receiving a hands-on lab experience even during the campus closure. Upon returning to the lab, we were also able to use Covid funds to provide gloves and goggles to all returning students, defraying costs that normally fall on them. We hope to be able to find funds to continue to support students by providing PPE necessary for them to participate in labs. |
| III.C. | Equity Planning and Support | Has equity work generated any need for resources? If so, what is your request? Include staff/position needs. | We request that the college provide expanded access to tutoring for chemistry courses, as described further in the following section. |
| III.D. | Departmental Equity Planning and Progress | Identify which of the following resources you need? How would the resource help?* Professional Development – what areas?
* Enhanced support for students
* Departmental Collaborations
* Best Practices
* Coaching/Consultation
 | Enhanced support for students (specifically expanded availability of tutoring services)The ability of students to reliably access tutoring services for the full array of chemistry course offerings has been a long-standing issue that became more pronounced following the closure of campus. Our students would benefit substantially from expanded tutoring options including evening hours, embedded tutors (particularly for introductory courses that determine whether students successfully make their way into the chemistry pipeline), and some access to tutoring services provided by faculty, as it is difficult to find student tutors equipped to handle our terminal courses, since most students transfer shortly after completing those courses.  |
| III.E. | Assistance Needed to close Equity Gap | Would you like assistance with identifying strategies and/or best practices and/or resources to help facilitate student success? | Yes |
|  | **Assessment Cycle** | Navigate to <https://www.deanza.edu/slo/> and click “TracDat is gone” which will take you to accordion listing SLO assessments under “Student Learning Outcomes and Assessments Summaries by Division:” |  |
| IV.A | SLOAC Summary | Describe an accomplishment or enhancement that resulted from SLO assessment starting with Spring 2020 through end of Spring 2022.. | We have deferred the active assessment of SLOs in anticipation of the implementation of the eLumen system for SLO tracking, and plan to resume tracking once that system is in place. |
| IV.B | Assessment  | List the names of the courses in your department (e.g. CIS 22A) that are planned to be assessed by the conclusion of 2021-22 academic year.  | The courses on our agenda for the next round of assessment are Chem 25 and Chem 30B. |
|  | **Resource Requests** |  |  |
| V.A | Budget Trends | Over the past five academic years, describe impact, if any, of external or internal funding trends that you might be currently dealing with ( eg COVID demands) upon the program and/or its ability to serve its students. If you don’t work with budget, please ask your Division Dean to give you the information. | The largest disruption to the department during the last five years by a wide margin has been the Covid-19 pandemic and the resulting extended campus closure, which required a wholesale rethinking of how we offered our courses, in particular our lab program. The use of Covid-related funding streams has been critical in aiding our transition to online learning, most notably in the purchase of at-home lab kits distributed to students in our introductory, allied health and general chemistry courses, which allowed students to get at least some hands-on experimental experience even when access to the lab building was unavailable.More recently, as we have begun to transition labs back to campus, we have also been able to use funding to provide safety goggles for all students entering our in-person classes, which became necessary since we were no longer able to loan goggles to students who arrived without them on the first day of lab.  |
| V.B | Funding Impact on Enrollment Trends | Over the past five academic years, describe the impact, if any, of external or internal funding changes upon the program’s enrollment and/or its ability to serve its students. Refer to Program Review data sheets for enrollment information:  | The use of Covid-related funding has allowed us to continue to offer effective lab instruction during the pandemic, as described elsewhere (III.B, V.A), which has likely contributed to our ability to maintain generally strong enrollment. |
| V.C.1 | Faculty Position(s) Needed | Describe each request as: “Replace due to Vacancy”, “Growth”, or if none state “None Needed Unless Vacancy” | Growth |
| V.C.2 | Justification for Faculty Position(s): | Do you have assessment data available to justify this request for a faculty position? If so provide the SLO/PLO assessment data, reflection, and enhancement that support this need. If not, provide other data to support this need. | Courses in the chemistry department have been heavily impacted for many years, and even with the recent softening of enrollment districtwide, most of our sections continue to be waitlisted each term. Our ability to maintain the quality of the courses we provide, and to adequately support our students in finding success in those courses depends directly on having enough full-time faculty support to manage the needs of the growing department.The department has consistently expanded its course offerings over the years, increasing them by nearly 50% in the last two decades. Meanwhile, the number of full-time faculty is currently the same as it was in the 1999-2000 academic year. The result is that in the 2017-18 academic year, the percentage of full-time load in the department dropped as low as 25%, and while it recovered to just over 30% the following year after two successful replacement hires, it again fell below this mark in 2020-21 as we continued to incrementally increase our offerings in response to demand. This places the department’s full-time load percentage drastically below the level prescribed by the American Chemical Society and the State of California (75%), and well short of the more modest goal of parity with levels at Foothill College (41-45% over the last 3 years), which currently has two more full-time faculty members, despite offering an essentially equivalent number of sections. The serious imbalance between the extent of our course offerings and the number of full-time faculty available to teach them has often made it challenging to fully staff our schedule, particularly in spring quarter when some of our very dedicated part-timers have exhausted their available load. This difficulty persists despite regular overloading by full-time faculty members, and it has at times meant that classes have gone unstaffed until shortly before the start of the term, leaving uncertainty as to whether they might have to be cancelled for lack of available instructors. Additionally, in the upcoming year it is likely that this difficulty will increase, as at least one of our full-time faculty will likely have a substantially reduced teaching load for an extended period due to service to the college in other areas. Full-time faculty members are essential for 1) curriculum development, 2) mentoring part-time faculty, 3) representing the department in collegelevel committees, and 4) engaging in district level activities. The department desperately needs a growth position to mitigate our low %FT ratio, to support the current program with respect to curriculum, SLO work, and equity, and to maintain academic excellence within the program. In summary, Chemistry courses are in high demand, often with waitlists. As demand has increased over the last two decades, we have been asked to support an increased number of class sections with no increase in faculty resources. In order to fully support our students, adjunct faculty, and program overall, we request to hire two additional full-time instructors. |
| V.D.1 | Staff Position(s) Needed | Choose: “Replace due to Vacancy”, “Growth”, “None Needed Unless Vacancy”Only make request for staff if relevant to your department only. Division staff requests should be in the Dean’s summary. | We have recently been able to hire a second full-time lab technician, and do not have a request for additional staff at this time. |
| V.D.2 | Justification for Staff Position(s): | Do you have assessment data available to justify this request for a staff position? If so, provide the SLO/PLO assessment data, reflection, and enhancement and/or CTE Advisory Board input to support this need. If not, provide other data to support this need. | N/A |
| V.E | Equipment Requests | List all equipment resource needs on the Excel spreadsheet. Be sure to include to justification and costs in appropriate columns. | See spreadsheet. |
| V.F | Facility Request | List all facility needs on the spreadsheet. Be sure to include to justification and costs in appropriate columns. | See spreadsheet. (Please note specific justification for lab HVAC  |
| V.G | Other Needed Resources | List any other resource needs on the spreadsheet. Be sure to include to justification and costs in appropriate columns. | See spreadsheet. |
| V.H.1 | Staff Development Needs | Based on what you have written above, what professional development support/resources do you need to achieve your goals? | Annual safety training is needed for faculty and staff. Additionally, both new and existing faculty need training on new Instrumentation available in labs. |
| V.H.2 | Staff Development Needs Justification | Please provide reasons for your professional development needs. If you have assessment data available to justify this request for professional development, please provide the SLO/PLO assessment data, reflection, enhancement, and/or CTE Advisory Board input, etc. to support this need. If not, provide other data to support this need. | The 2015-16 academic year was the only year in recent times that the department was provided safety training, going back roughly 15 years. This was paid for out of special funds obtained by the PSME deans at De Anza and Foothill college. We are in OSHA violation every year without having certified safetytraining. This training needs to be planned and paid for on a regular basis through augmentation of the B-budget. We will need a budgetary allocation of $5,000-10,000 per year to provide for both trainers salaries as well as compensating part-time instructors for attendance. |
| VI. | Closing the Loop | Over the last five years, how did you assess the results of the requested resources, and what were those results? How do you plan to reassess the outcomes after receiving each of the additional resources requested this year | Our intention to begin using the “ACS Assessment Tool for Chemistry in Two-Year College Programs” outlined in the previous program review cycle was frankly sidelined as the pandemic sent us into survival mode, from which we are only now beginning to emerge. When we have finished navigating our return to campus and when the dust begins to settle, we hope to revisit this tool to help us assess the fallout from the past two years. |
|  | Submitted by: | APRU writer’s name | Brendan Mar |
|  | Last Updated: | Give date of latest update  |  |