



2018-19 Annual Program Update

Program Overview

Please verify the mission statement for your program. If there is no mission statement listed, please add it here.

The mission of the chemistry program is to provide students with a strong foundation in chemistry in an accessible, engaging manner.

The Chemistry Department offers first- and second-year college-level chemistry courses for transfer and pre-medical requirements. We also offer introductory-level courses designed for allied health programs such as nursing and dental hygiene, and which provide support to the Biomanufacturing program – a joint venture between the Biology, Chemistry and Math departments. Our introductory-level classes prepare students for our transfer-level courses. Any of our courses can be used to satisfy a laboratory science general education requirement. Many of the students in our chemistry classes intend to pursue biology, biochemistry, nursing, medicine, pharmacology, or other health fields and most of them do this by participating in some type of transfer program. All of our classes count for credit at the CSU and UC level due to the articulation agreements we have in place.

List your Faculty and/or Staff

Full-time

Michelle Fossum
Pinar Alscher
Stephen Corlett
William Trego

Part-time

Dorota Sawicka
Abraham Reyes
Yasmin Fathi-Torbaghan
Joseph Lipson
Phillip Tou
Neeta Sharma

The Program Goals below are from your most recent Program Review or APU. If none are listed, please add your most recent program goals. Then, indicate the status of this goal, and which College and District goal your program goal aligns to. If your goal has been completed, please answer the follow up question regarding how you measured the achievement of this goal.

Goal 1. To increase student success rates in General Chemistry (CHEM 1A and 1B).

The Chemistry department has long strived to help students succeed in this fundamental course, where students have historically arrive with inadequate preparation. As one attempt to overcome this issue, over the last year, Laney, and the other 3 colleges, added an essential prerequisite to the CHEM 1A class - students must show that they have successfully completed Introductory General Chemistry, CHEM 30A, or its equivalent. We also provide optional means to show their aptitude and proficiency in chemistry by offering the chemistry assessment exam (the California Chemistry Diagnostic Test, or CCDT) - students who meet the cutoff score (21 out of 44) meet the prerequisite. And, just this Spring 2019 have added another option - completion of the online Chemistry Preparation Course offered ALEKS (a product of McGraw-Hill Education). All four chemistry departments worked together to choose the detailed coverage of topics for the online class and matched them to the course objectives for CHEM 30A. Ample documented evidence from other educational institutions throughout the state and country, public and private, have shown the effectiveness of this online platform to prepare students for General Chemistry.

What needs to be done over the course of the next few semesters is to follow the students who are entering the CHEM 1A class to ascertain whether completion of any and which type of prerequisite has increased their success rate in the class. To be certain of the means that students are entering the CHEM 1A class - which option of the prerequisite did they complete, or not complete - we recently produced and distributed a survey to be administered to all CHEM 1A students who are enrolled this spring 2019 term. The text of this survey is below:

Chem 1A Questionnaire – Prerequisites

Peralta Community College District

The Chemistry Departments of the four Peralta community colleges would like to gather information on how students are satisfying the chemistry prerequisite for Chem 1A and on the effectiveness of each of the prerequisites. We appreciate your responses!

Your name: _____

How did you satisfy the chemistry prerequisite for Chem 1A? (Please choose one of the following options.)

1. I passed Chem 30A (Introductory Chemistry).

If so, how long ago did you take Chem 30A? Where did you take it?

2. I passed the AP Chemistry Exam.

If so, what was your score?

3. I took the Chemistry Assessment/Diagnostic test at the Assessment Center on campus and scored above the cutoff score.

If so, what was your score?

4. I didn't take any chemistry or the diagnostic test – a counselor waived the chemistry prerequisite.

If so, which counselor?

5. None of the above – I am taking this class with no previous chemistry knowledge (*this is not recommended*).

Instructor use only:

Overall grade in class at the end of the semester: _____

If overall grade is W, approximate date student stopped attending class: _____

Further, to guarantee that our assessment exam (CCDT) is an accurate and unbiased means to place students in the CHEM 1A class, we must still perform an analysis of test results for each student who takes the CCDT compared to their gender, ethnicity, and/or special population status. Although dozens of community college chemistry departments in the state utilize this test in a similar fashion, our school and district still need to

demonstrated that its use as an assessment tool doesn't introduce any type of bias or have a disproportional impact (DI) on any category of student. The accurate analysis of these results will require careful record keeping on exactly which students takes the exam and for institutional research efforts at each campus to note their demographic information.

Goal 2. Find and hire qualified chemistry faculty to teach in our department.

A seemingly endless endeavor, has been to find qualified instructors to teach in our department.

Our top priority always is to hire full-time faculty - we continue to request and advocate for the hire of full-time instructors at every opportunity. We have the need due to the demand in student enrollment to justify hiring more full-time faculty. However, where all departments at Laney must compete for full-time positions and every department has essentially the same needs, and where the district currently does not show the likelihood of supporting the burgeoning need to hire full-time faculty, we are most often not able to pursue this avenue to find instructors.

As our second option, we seek part-time faculty to cover the demand. Finding and hiring sufficiently qualified instructors has been a constant challenge. Where the our primary needs are in the area of Introductory General Chemistry, where we have the largest enrollment demands, we have found that most candidates and applicants that we encounter are simply not well-qualified or trained to teach chemistry courses. Additionally, the reliance on part-time faculty is complicated by the unsurprising need for part-time faculty to maintain teaching duties in more than one district at a time to make a living wage. This practice inevitably dilutes the instructor's commitments to any one chemistry department and leads to less than ideal involvement in our overall chemistry program.

To help address this issue, over the last few years we have made a significant effort to provide our own faculty orientation to new candidates or hires, so that our teaching faculty can be adequately prepared to maintain consistency and continuity in the provided lecture and laboratory course material offerings. To this end, one of our full-time faculty members (Fossum) has volunteer to be the liaison between new faculty and the Laney College Chemistry department and all of the college's educational resources. Additionally, we have prepared guidelines for all of our high demand courses (CHEM 30A/B, CHEM 1A/B) that list suggested topic coverage, format of laboratory schedules, and general principles on assessing students (exams, etc) - these are presented to new faculty in order bring them up to speed with our teaching practices and standards in the department - practices that the department prides itself on as our means to providing quality education to all of our students.

Further improvements planned in this area are possible revisions to the current guidelines to reflect changes in our current textbooks and coverages, and in the language that clarifies that the guidelines are "recommendations" and not "requirements" for new faculty. Also, to expand the offering of guidelines for other course, we still need to develop one for the organic chemistry courses (CHEM 12A/B). Ultimately, we envision these guidelines to form the basis of a chemistry faculty handbook, which will also include other vital information about campus resources, policies, and needed contact information (IMC, Deans information, etc.).

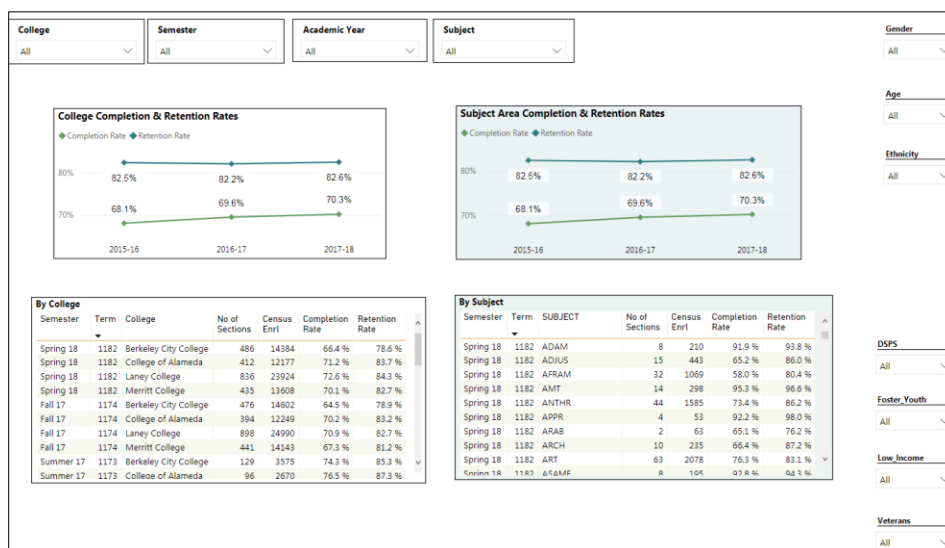
Describe your current utilization of facilities, including labs and other space

Chemistry lectures are currently held in A233, A239, A266, A273, B254, D200, E200, and E211. Chemistry laboratory sections meet in A235, A236, A237, and A277 (dedicated for CHEM 12A/B).

Faculty offices are shared by full- and part-time faculty and all directly attached to laboratories - A236A, A237A, and A276. The chemistry department laboratory technician office is room A235A. The department utilizes A235B and A237B for chemical and equipment storage for the intro and general chemistry laboratory program, and A278 and A279 for the organic chemistry laboratory program.

The department maintains the following instrumentation and equipment: HP/Agilent Gas Chromatographs (3), Shimadzu High Pressure Liquid Chromatographs (HPLC) (2), Anasazi Instruments, EFT 60 MHz NMR Spectrometer, Perkin Elmer Infrared Spectrophotometers (2), Agilent UV-Vis Spectrophotometer, Spec20 Spectrophotometers (12), Varian Atomic Absorption Spectrophotometer.

Program Update



Program Update Power BI dashboard

Using the dashboard, review and reflect upon the data for your program. Describe any significant changes and discuss what the changes mean to your program. Consider whether performance gaps exist for disproportionality impacted students. Focus upon the most recent year and/or the years since your last comprehensive program review. Cite data points from the dashboard to support your answer.

Total enrollment in CHEM is fairly constant throughout the last three years 315-383 students/semester with 13-14 sections, with the exception of CHEM 12A/B where offering too many sections district-wide has led to low enrollment in select sections (mostly CHEM 12B) - better enrollment management of these classes is needed to alleviate the risk of cancelling any one section at one of the colleges due to low enrollment. All of the classes in CHEM are in high demand, either for Allied Health professional pathways or for Science transfer degree pathways.

Some notable items from the BI dashboard seen over the last three years:

1. Overall completion (64.7%) and retention (75.6%) rates are up from previous two years
2. Overall female rates are higher than males in both completion and retention.

3. Rate of completion and retention are from highest to lowest Asian>Black>Hispanic, where completion rate is below 50%

Describe the department's progress on Student Learning Outcomes (SLOs) and/or Administrative Unit Outcomes (AUOs) since the last Program Review/APU. If your discipline offers a degree or certificate, please describe the department progress on Program Learning Outcomes (PLOs).

The Chemistry department performs regular assessments of all sections of each class offered every semester. The minimum is that each course assessed at least on course SLO. Nearly all data has been added to Curricunet for Fall 2018 and is listed as either a draft or in review.

Laney College	CHEM	CHEM 1B 24750 SLO1 Spring 2018 Evening	6/6/2018	In Review
Laney College	CHEM	CHEM 1B 24748 SLO1 Spring 2018 Day	6/6/2018	In Review
Laney College	CHEM	CHEM 1B 24750 SLO6 Spring 2018 Evening	6/6/2018	In Review
Laney College	CHEM	CHEM 1B 24750 SLO7 Spring 2018 Evening	6/19/2018	In Review
Laney College	CHEM	CHEM 1B 24750 SLO5 Spring 2018 Evening	6/21/2018	In Review
Laney College	CHEM	CHEM 30A AGG 41447 41451 SLO1 Fall 2018 Day	1/15/2019	In Review
Laney College	CHEM	CHEM 30A AGG 41449 41445 SLO1 Fall 2018 Evening Saturday	1/15/2019	In Review
Laney College	CHEM	CHEM 1A AGG 41816 41435 41487 SLO5 Fall 2018 Day	1/16/2019	In Review
Laney College	CHEM	CHEM 1A 41433 SLO5 Fall 2018 Evening	1/16/2019	In Review
Laney College	CHEM	CHEM 30A Sec AGG SLO1 SPRING 2018	1/18/2019	Draft
Laney College	CHEM	CHEM 1A 41434 SLO5 FALL 2018 day	1/22/2019	Draft

Two items not shown above, but have been recently entered in Meta, are:

1. SLO 2, predicting the structures of the products of organic reactions was assessed for CHEM 30B in the Fall 2018 semester using data collected from the ACS standardized exam.
2. SLO 3, applying thermodynamic and kinetic principles to characterize organic chemical reactions and mechanisms, was assessed for CHEM 12A (both sections) in the Fall 2018 semester using a question on the final exam.

The Chemistry department currently does not offer any degrees or certificates, so nothing to report here on PLOs.

Describe the outcomes and accomplishments from previous year's funded resource allocation request.

Brief description of funded request	Source (any additional award outside your base allocation)	Total Award Amount	Outcome/Accomplishment
Purchase of digital vacuum gauges for organic chemistry laboratory use	IELM funds - 2017-18	\$1182	<p>Items were purchased and are ready to be incorporated into "high" vacuum apparatus for use in the organic laboratory teaching program. Planned installation, Spring 2019.</p> <p>Purchase of the digital version of this type of gauge has allowed the department to eliminate the use of toxic mercury-based gauges.</p>

Prioritized Resource Requests Summary

In the boxes below, please add resource requests for your program. If there are no resource requested, leave the boxes blank.

Resource Category	Description/Justification	Estimated Annual Salary Costs	Estimated Annual Benefits Costs	Total Estimated Cost
Personnel: Classified Staff				
Personnel: Student Worker	Request for 4 student workers to assist in the chemistry laboratory program.	?		
Personnel: Part Time Faculty	In CHEM for fall 2019 we need 3.25 Temp FTEF and for spring 2020, 3.25Temp FTEF. So, for the 2019-2020 academic year we will need 6.5 Part-time FTEF	?		
Personnel: Full Time Faculty	In spite of having four full-time faculty, our current coverage of classes for CHEM for 2019-2020 is with 53% full-time and 47% part-time faculty. We need to hire 2.0 FTE Chemistry faculty to cover our course load	?		

Resource Category	Description/Justification	Total Estimated Cost
Professional Development: Department wide PD needed		

Professional Development: Personal/Individual PD needed		

Prioritized Resource Requests Summary - Continued

Resource Category	Description/Justification	Total Estimated Cost
Supplies: Software	<p>1. ChemDoodle Site License (i-ChemLabs) - 2 year renewal - software for use in all chemistry courses - provides complete chemistry drawing software package for all students and faculty - current license expires 3/6/2019</p> <p>2. Spartan Student (Wavefunction, Inc.) - Software for Organic Chemistry classes, need 2 copies to install on department computers for general use by faculty and instructors (This request is in addition to the IELM request below)</p> <p>(these are possibly Technology requests)</p>	<p>1. \$3,562</p> <p>2. \$1,200</p>
Supplies: Books, Magazines, and/or Periodicals		
Supplies: Instructional Supplies	Annual budget for Chemistry (which includes Physics and Astronomy) supplies for chemical reagents, glassware, and consumables (paper, toner, etc.)	\$25,000
Supplies: Non-Instructional Supplies		
Supplies: Library Collections		

Resource Category	Description/Justification	Total Estimated Cost										
Technology & Equipment: New	<p>IELM request for Computer "Pack", Software and Cart</p> <p>Increasingly chemistry instruction turns to digital technology to reinforce concepts presented in our courses, and to expose our students to the practices utilized in academic research and industry. From using a spreadsheet program for data analysis and graphing in the laboratory to assigning projects that require students to use sophisticated computational chemistry software—the Laney Chemistry department is already utilizing digital technology in its curriculum. We have found that the use of technology in our courses is much more effective when the faculty can demonstrate the use of these programs while the students work along on a computer. Currently, such group instruction requires that the class visit a computer lab, or students bring personal computers to class. These approaches have several obvious disadvantages. Use of a computer lab is subject to lab availability, and specialized software generally cannot be installed in these campus labs. While a number of our students own laptop computers, this is not universally true. Ultimately, the use of technology in the classroom can result in unintended disparities in the student experience.</p> <p>We propose to purchase a set of laptop computers to be used in the chemistry lecture rooms and laboratories. Our proposal includes purchase of Spartan, a computational chemistry program, as well as Odyssey, an atomic/molecular visualization program for general chemistry. A secure cart will be required to store and transport the computers. We propose to initially purchase 14 computers, a sufficient number for every pair of students in a class to have access to a laptop during a group exercise.</p> <p>Proposal</p> <table data-bbox="620 1570 1104 1751"> <tr> <td>14 Lenovo T480 Laptops</td> <td>\$12,600</td> </tr> <tr> <td>Storage Cart</td> <td>\$530</td> </tr> <tr> <td>Spartan Lab Pack</td> <td>\$7,000</td> </tr> <tr> <td><u>Odyssey Lab Pack</u></td> <td><u>\$7,000</u></td> </tr> <tr> <td>Total</td> <td>\$27,130</td> </tr> </table>	14 Lenovo T480 Laptops	\$12,600	Storage Cart	\$530	Spartan Lab Pack	\$7,000	<u>Odyssey Lab Pack</u>	<u>\$7,000</u>	Total	\$27,130	\$27,130
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Technology & Equipment: Replacement	Both William Trego and Michelle Fossum are due for a faculty computer upgrade. 1 PC laptop for Trego 1 Mac desktop for Fossum	
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Prioritized Resource Requests Summary - Continued

Resource Category	Description/Justification	Total Estimated Cost
Facilities: Classrooms	Science classes rely heavily on whiteboards for presentation of material. Where the school has recently invested heavily on updating A/V technology in all classrooms on campus, we still require the use of whiteboards in our lecture and laboratory classes. Please ensure that in our most commonly used lecture rooms that we install multi-panel whiteboards to accommodate these pedagogies. The rooms include: A233, A239, A266, A273, D200, the Forum.	?
Facilities: Offices		
Facilities: Labs		
Facilities: Other		

Resource Category	Description/Justification	Total Estimated Cost
Library: Library materials		

Library: Library collections		

Resource Category	Description/Justification	Total Estimated Cost
OTHER		