Chemistry Department Program Review Highlights
Instructional Planning Council Meeting
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by
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Chemistry Department Mission Statement

The mission of the chemistry department is to offer rigorous, adequate, and updated course work to support all students in achieving their individual academic goals.

Associate degree in Physical Sciences; preparation for transfer into STEM fields; general education; and personal enrichment are the current exit points.

Chemistry Department Courses at Glance

Course name and number	Associated Student Goal (not comprehensive)
Elementary Chemistry, CHEM 192	Rad. Tech.; Respiratory Care pre-req.; transfer GE
General Chemistry Sequence, CHEM 210/CHEM 220	Transfer requirement: ASTR, ENG, ENV, PHYS, etc.
Organic Chemistry Sequence, CHEM 231/CHEM 232	Transfer requirement, in addition to above sequence, for many critical infrastructure majors in the Bay Area: BIOL, CHEM, BIOTECH, BIOCHEM, BIOENG, etc. Transfer requirement to Professional Degrees: Dentistry, Medicine, Pharmacy, Veterinary, etc.
Chemistry for Health Sciences, CHEM 410	Pre-requisite for critical infrastructure majors: Nursing, Allied Health, Kinesiology, Nutrition, etc.

Curricular Changes

- Changed CHEM 192 from prerequisite to recommended course to reduce student barriers to degree completion.
- The instructional delivery modality in Fall 2020, Spring 2021, and Fall 2021 was fully online.
- New laboratory curriculum appropriate for Distance Education created to support CHEM 192 and CHEM 410 laboratories. Piloted in Fall 2020 by the creation of “in-house” laboratory kits. Further implemented in Spring 2021.
- New laboratory curriculum appropriate for Distance Education is under development to support CHEM 210 and CHEM 220 laboratories. Piloted in Spring 2021. Need support for revision and further implementation.

Impact of Curricular Changes

- The number of CHEM 210 sections offered doubled within one year after removing the CHEM 192 prerequisite.
- Overall enrollment in the Chemistry Department increased due to increased student accessibility with the adoption of the DE modality.
- Online laboratory instruction showed to be adequate for Elementary Chemistry and Chemistry for Health Science courses.
- The need for a variety of class schedule options to maintain accessibility became apparent. Options include: online only, hybrid, face-to-face, evening, and combinations.

Prior Goals Report

- Implementation of a “greener” laboratory curriculum. This goal was achieved by designing new experiments for all classes. This reduced the exposure of students to hazardous materials, and reduced the chemistry operational budget to dispose of hazardous waste.
- To increase student retention and completion by offering academic student support. The below programs were implemented with STEM Center grant support. Programs were not effective in achieving goal.
    a. CHEM Jam
    b. Just in time workshops
    c. Embedded Peer Instruction Cohort (EPIC)

Prior Goals Report continued

- Students who completed CHEM Jam were very well prepared for College Chemistry. However, the enrollment was low because students could not commit to a 30hr/week intensive course.
- Students welcomed the idea of shorter sessions on a focused topic offered in the “just in time workshops”. Once again, making time outside of scheduled class time was challenging for students. Attendance was very low.
- Embedded Peer Instruction Cohort (EPIC) was the most effective strategy but, budgetary and student facilitators schedules, limited the number of sections to implement the program.

Current State of the Chemistry Program

Year	Fill rate	Retention	Success	Load
2016-2017	100.7%	86.7%	79.8%	557
2017-2018	94.6%	85.9%	77.5%	562
2018-2019	87.1%	80.8%	73.1%	542
2019-2020	84.4%	82.7%	75.3%	542
2020-2021	96.5%	81.9%	73.6%	618

The fill rate showed a decrease in the period 2018-2020 but picked back up in 2020-2021. The retention and success rates in 2020-2021 are lower than anticipated based on the fill rate of that year. Given the DE instructional modality in 2020-2021, one can infer that courses are more accessible but, students need more academic support.

	Metrics	16-17	17-18	18-19	19-20	20-21
Asian	Enrollment Retention Success	148 97%	97 94%	83 86%	103 89%	146 91%
Black/AA	Enrollment Retention Success	*	*	*	*	20 75% 65%
Filipino	Enrollment Retention Success	46 89% 85%	33 94% 91%	26 81% 81%	39 92% 90%	58 81% 78%
Hispanic/ Latinx	Enrollment Retention Success	249 85% 72%	231 79% 69%	241 75% 63%	241 76% 63%	285 78% 65%
Pacific Is.	Enrollment Retention Success	*	*	14	*	*
White	Enrollment Retention Success	205 85% 82%	189 86% 77%	184 87% 83%	152 88% 85%	176 88% 79%

Observed Trends

For the Chemistry Department, Distance Education instructional delivery modality addresses accessibility but not completion and success of Black/African American or Hispanic/Latinx subgroups.

Looking Ahead

- Continue to participate in accessibility and affordability initiatives such as: Inclusive access, Zero cost textbooks, “in-house” laboratory kits, etc.
- We requested seed funding to continue to support the “in-house” laboratory kit project.
- Continue to explore alternatives to close the achievement gap of the Black/ African American and Hispanic/ Latinx subgroups by providing adequate basics skills, academic skills, and technical support specific to the chemistry curriculum.
- We requested an Instructional Aide I position but it could not be funded this time around.
- Explore a variety of class scheduling options to continue to address accessibility.
- Complete the replacement of the two fulltime faculty vacancies which will leave the Department with no fulltime faculty members at the end of the Spring 2022 semester.

Thank you for the opportunity to share the state of the Chemistry Program.

I am eager to answer your questions.