



## Welcome to Program Review

Merritt College - 2019

CHEM - Instruction

Annual Program Update

### Program Overview

**Please verify the mission statement for your program. If your program has not created a mission statement, provide details on how your program supports and contributes to the College mission.**

The mission of the chemistry program is to provide students with a strong foundation in chemistry in an accessible, engaging manner. This foundation aims to serve students in their future programs of study and aligns with all aspects of the college mission statement.

### Program Total Faculty and/or Staff

#### Full Time

Jennifer Shanoski  
Raymond Chamberlain

#### Part Time

Kaitlin Duffey  
Laura Cooper  
Lucas Ginsberg  
Michael McDowell  
Bob Holloway

**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.**

To revise course SLOs in a way that allows assessment to be more functional and informative. Completed. All course outlines were revised fall 2016 including SLOs to ensure that they are assessable.

Status

In-Progress

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

College Goal

Completion: Increase number of degrees and certificates by 20% over the next 5 years.

District Goal

Advance Student Access, Equity, and Success

To develop a general education chemistry course with high enrollment and success. Ongoing. A general education "Food Chemistry" course is currently under development.

Status

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

In-Progress

College Goal

Completion: Increase number of degrees and certificates by 20% over the next 5 years.

District Goal

Build Programs of Distinction

To increase student success rates across all groups by 10%. Ongoing. A new "Barbara Lee Science Academy" is in the works with a comprehensive curriculum and college-readiness program to support incoming students

Status

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

In-Progress

College Goal

Equity: Reduce the achievement gaps for African-American, multiethnic and male students.

District Goal

Advance Student Access, Equity, and Success

To advocate for and participate in more focused professional development. Ongoing. The chemistry department has worked within the assessment of our ILOs to advocate for PD activities.

Status

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

In-Progress

College Goal

Completion: Increase number of degrees and certificates by 20% over the next 5 years.

District Goal

Strengthen Accountability, Innovation and Collaboration

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

Organic Chemistry lab, general chemistry lab, introductory chemistry lab, one computer lab. These rooms are located in the S building: S 452, S 454, S 444, S 437

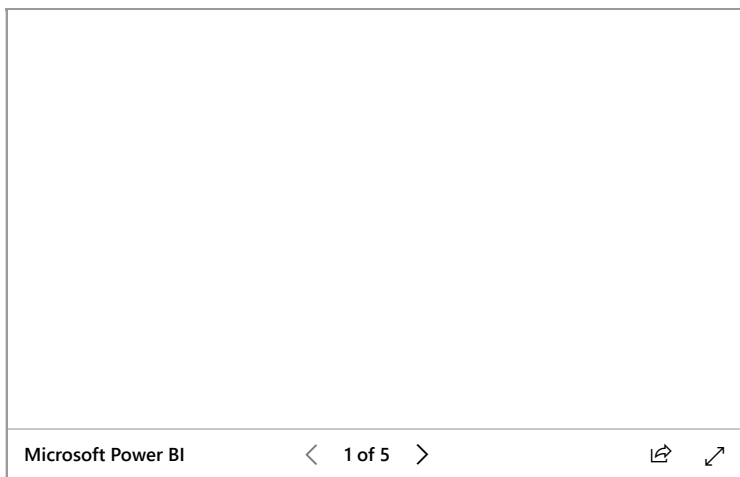
Chemistry Lab Stockroom in S building, 4th floor.

Lecture classrooms: S 455, S 106, P 208, S 211

## Program Update

### Semester End Enrollment/Usage Pattern

Review your Semester End Enrollment by setting the filter to your college and subject



**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.**

There a significant achievement gap in terms of race/ethnicity. This may be due to a lack of diversity among the instructors. This is something that we hope to rectify by participating in the FDIP. Jennifer Shanoski spent a semester on sabbatical aimed at research activities for addressing the achievement gap in African American and Hispanic/Latino populations. She has worked with faculty in other disciplines to develop a summer bridge (boot camp style) program that would strengthen skills for students entering STEM classes as first year college students. In 2018-19 females completed at a rate of 76% compared to the average discipline completion rate of 80%. Foster youth have increased completion rates during the past three years. Students of low income have been disproportionately impacted. Veteran completion rates have increased over the past three years. In general, course completion rates are much higher (and comparable to the college rates) in the spring term and much lower in the fall term. In the fall term, Chem1A (General Chemistry) and Chem12A (Organic Chemistry) are offered. These courses are very demanding and a large number students enter them under-prepared; the success rates, therefore, in these classes is low. This effect is not present in the spring and so success rates are higher.

In the most recent academic year DSPS (SAS) students have had greater completion and success than their non SAS peers, but in previous years the students in SAS have had gaps in performance. Chemistry and other departments including Biology having a large percentage of adjunct faculty are challenged to develop alternative ways to deliver examinations. The hours in the SAS proctoring center are limited, despite the excellent work of Mitra Mofidi. Adjunct faculty are not able to easily extend hours for examination or offer alternative distraction free settings for examinations. The college needs to put more resources into the SAS center. Despite this, our SAS students have found success and we hope this trend continues.

Chemistry courses are restricted in their enrollment due to laboratory safety issues to 24 students each. For organic chemistry the new recommended enrollment limit for safe college laboratory instruction is 20 students. The program ensures a high productivity by offering combined lecture sections (with two lab sections each). Second semester courses (Chem1B and Chem12B) generally have lower enrollment due to a lack of completion of the first semester courses. This is another factor that affects productivity overall. Further complicating the issue is that the courses have high unit counts for FTEF with laboratory sections. Our productivity is high in the fall but drops in the spring as we have continued to struggle to fill our Chem12B section. The district is offering too many sections of Chem12B and there are not enough students to fill all of them. We need to have district oversight of scheduling these courses.

**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).**

Most of the faculty teaching these courses are adjunct part time faculty. They have different schedules but they still manage to get together occasionally to plan and discuss assessment. It would be helpful if the campus could schedule more professional development days (no instruction scheduled) specifically for assessment dialogue. All of our courses have a laboratory component, which allows instructors to have a lot of one-on-one interaction with students. Students actively participate in the learning process through manipulation of materials in the laboratory. All faculty utilize a lecture style that heavily relies upon problem solving and student engagement. Courses that have multiple instructors (CHEM 30A) sometimes will do a common assessment and meet to discuss what the assessment will be, results from the assessment, and the actions that will improve outcomes. Chemistry does not have a program or certificate. Some of the courses in the discipline are included in the multidisciplinary program Natural Sciences AS degree.

**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 |
|-------------------------------------|--|--------------------|------------------------|
|-------------------------------------|--|--------------------|------------------------|

**In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.**

**Improvement Actions** Improvement Action

**Improvement Action**

| Action Item                                     | Description          | To be completed By | Responsible Person       |
|---|----------------------|--------------------|--------------------------|
| Maintain lab instruction supplies and materials | Chem lab consumables | 3/2/2020           | Tim Sano and Arja McCray |

**Resource Request**

|  |                                      |                |  |
|--|--------------------------------------|----------------|--|
| Supplies   | Instructional Supplies and Materials |                |  |
| Description/Justification  |                                      | Estimated Cost |  |
| Chemistry courses have a lab component that require consumables. |                                      | 8000           |  |

**Resource Request**

|  |     |                |  |
|--|-----|----------------|--|
| Technology and Equipment   | New |                |  |
| Description/Justification  |     | Estimated Cost |  |
| There are no printers readily available to chemistry part time faculty |     | 400            |  |

**Improvement Action**

| Action Item                               | Description  | To be completed By | Responsible Person |
|---|--|--------------------|--------------------|
| Boot Camp Instruction and In class tutors | Study skills and STEM instruction to help close achievement gaps | 8/20/2020          | Chemistry faculty  |

**Resource Request**

| Personnel         | Description/Justification   | Estimated Annual Salary Costs | Estimated Annual Benefits Costs |
|-------------------|---|-------------------------------|---------------------------------|
| Part-time Faculty | Instructors will develop and deliver skill building workshops for incoming students during proposed STEM summer boot camp | 4000                          |                                 |
| % Time            |   |                               |                                 |
| 25                |   |                               |                                 |
| Total Costs       |   |                               |                                 |
| 4000              |   |                               |                                 |

**Resource Request**

| Personnel      | Description/Justification                                     | Estimated Annual Salary Costs | Estimated Annual Benefits Costs |
|----------------|---|-------------------------------|---------------------------------|
| Student Worker | Instructional assistants for in class activities and tutoring | 5000                          |                                 |
| % Time         |   |                               |                                 |
| 20             |   |                               |                                 |
| Total Costs    |   |                               |                                 |
| 5000           |   |                               |                                 |

**Improvement Action**

| Action Item              | Description                             | To be completed By | Responsible Person                            |
|--------------------------|---|--------------------|---|
| Professional development | Faculty mentoring and pedagogy training | 8/31/2020          | various individuals and outside organizations |

**Resource Request**

| Personnel                 | Description/Justification   | Estimated Cost |
|---------------------------|---|----------------|
| Professional Development  | Besides the faculty diversity internship program, there should be a more comprehensive program in place to train new instructors in pedagogy and classroom management. Such a program could help mentor faculty so that they could move from part-time to full-time employment. | 1000           |
| Department-wide PD needed |   |                |

**Resource Request**

Professional Development

Department-wide PD needed

**Description/Justification**

It would be helpful and interesting for the college to host some talks/workshops focused on inclusion. Issues such as stereotype threat and imposter syndrome affect many of our students but we are not trained to understand these concepts. Nor are we trained in methods for ensuring that our students can be successful with in our courses and beyond.

**Estimated Cost**

500

**Resource Request Summary**

Total Cost: \$18900

Total Resource Request: 6

**Program Update**

**Personnel**

| Type                     | % Time | Description/Justification   | Estimated Annual Salary Costs | Estimated Annual Benefits Costs | Total Costs |
|--------------------------|--------|---|-------------------------------|---------------------------------|-------------|
| Part-time Faculty        | 25     | Instructors will develop and deliver skill building workshops for incoming students during proposed STEM summer boot camp | 4000                          |                                 | 4000        |
| Student Worker           | 20     | Instructional assistants for in class activities and tutoring   | 5000                          |                                 | 5000        |
| <b>Sub-Total: \$9000</b> |        |   |                               |                                 |             |

**Professional Development**

| Type                      | Description/Justification   | Estimated Cost |
|---------------------------|---|----------------|
| Department-wide PD needed | Besides the faculty diversity internship program, there should be a more comprehensive program in place to train new instructors in pedagogy and classroom management. Such a program could help mentor faculty so that they could move from part-time to full-time employment.   | 1000           |
| Department-wide PD needed | It would be helpful and interesting for the college to host some talks/workshops focused on inclusion. Issues such as stereotype threat and imposter syndrome affect many of our students but we are not trained to understand these concepts. Nor are we trained in methods for ensuring that our students can be successful with in our courses and beyond. | 500            |
| <b>Sub-Total: \$1500</b>  |   |                |

**Technology and Equipment**

| Type                    | Description/Justification  | Estimated Cost |
|-------------------------|--|----------------|
| New                     | There are no printers readily available to chemistry part time faculty | 400            |
| <b>Sub-Total: \$400</b> |  |                |

**Supplies**

| Type | Description/Justification | Estimated Cost |
|------|---------------------------|----------------|
|------|---------------------------|----------------|

|                                      |  |      |
|--------------------------------------|--|------|
| Instructional Supplies and Materials | Chemistry courses have a lab component that require consumables. | 8000 |
| <b>Sub-Total: \$8000</b>             |  |      |

Facilities  
No Resources found for this category

Library  
No Resources found for this category

Other  
No Resources found for this category

## Sign and Submit

**Please provide the list of members who participated in completing this program review.**

Arja McCray

**Please enter the name of the person submitting this program review.**

Arja McCray