



## 2018-19 Program Review – Chemistry

### **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. This foundation aims to serve students in their future programs of study and aligns with all aspects of the college mission statement.

List your Faculty and/or Staff

Full Time Lab Technician: Tim Sano  
Full Time Contract Faculty Members:  
    Jennifer Shanoski  
    Raymond Chamberlain  
Part Time Faculty Members:  
    Yasmin Fathi-Torbaghan  
    Laura Cooper  
    Kaitlin Duffey  
    Lucas Ginsberg  
    John Kluesener

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.

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

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

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. Prior to taking a

break from the department to serve as PFT President, the department co-chair Jennifer Shanoski was working with the PFT and DAS to advocate for more PD that focuses on pedagogy.

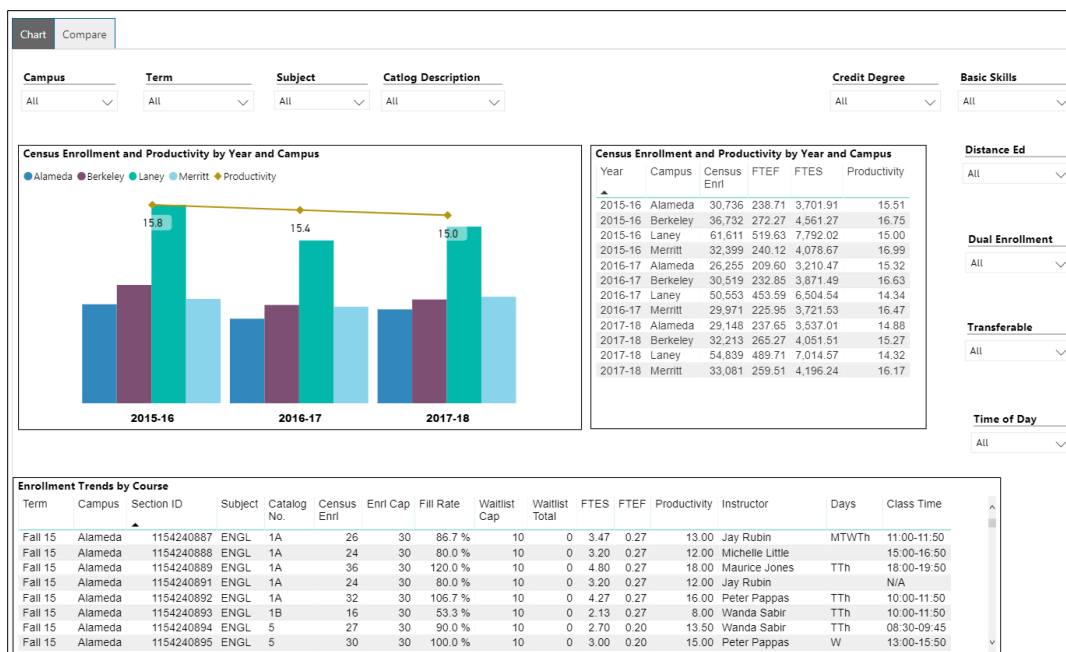
Describe your current utilization of facilities, including labs and other space

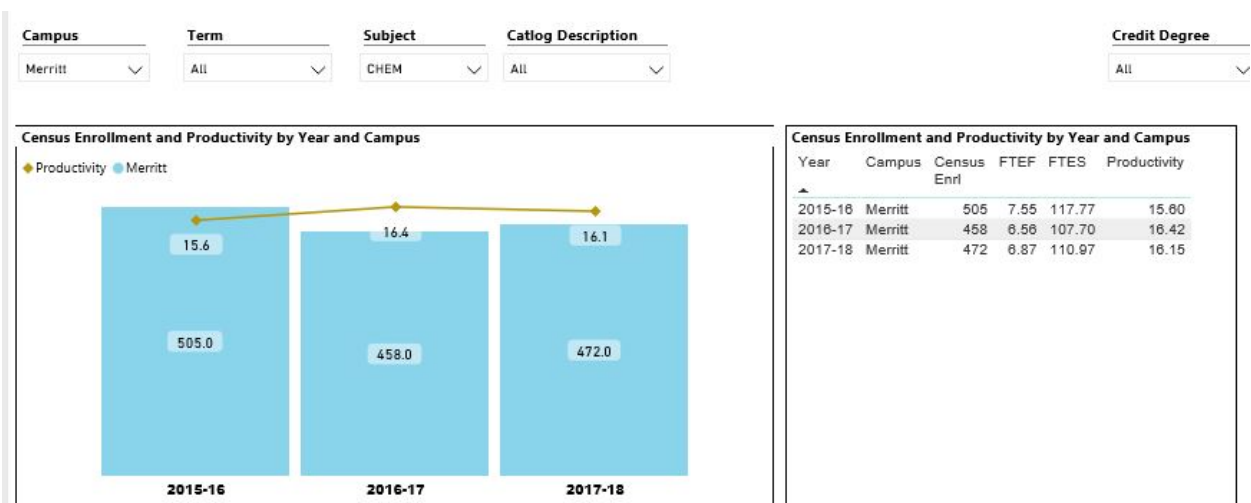
Organic Chemistry lab, general chemistry lab, introductory chemistry lab, one computer lab. These rooms are located in the S building: S 452, S 454, S 444, S 437

Chemistry Lab Stockroom in S building, 4<sup>th</sup> floor.

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

## Enrollment Trends





### [Enrollment Trends Power BI dashboard](#)

Note: Please consider the most recent 3 years when answering the questions below.

Set the filters above to your discipline, and discuss enrollment trends over the past three years

Chemistry maintains a productivity above 15 for all semesters and is close to the target of 17.5. The 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.

Set the filter above to consider whether the time of day each course is offered meets the needs of students.

Chem30A (Intro. General Chemistry) and Chem30B (Intro. Organic & Biochemistry) are the most in demand courses and we offer more sections of these courses than any others. We have a night section of Chem30A every semester and offer two other sections on different days (M/W and T/Th). Fewer students take Chem30B and so night sections are only offered in the fall. We consult the other chemistry departments in the district when constructing our schedule. All sections of Chem30A fill every semester and so we are certain that we are meeting student demand. We added another evening course, Chem1A.

Are courses scheduled in a manner that meets student needs and demands? How do you know?

The enrollment in the summer has decreased because we no longer offer Chem1B which we have not been able to fill in the past. Chem1B is a very demanding course which requires too much in-class time in the summer to allow students to complete it successfully. The enrollment in Chem12B has been low ever since BCC started offering sections of the same course.

The enrollment in Chem1B was low in the Spring 2015 semester as a new instructor was teaching the course. All other courses remain fully enrolled with waitlists each semester.

Describe effective and innovative teaching strategies used by faculty to increase student learning and engagement.

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.

How is technology used by the discipline, department?

Over the past three years most course instructors have incorporated moodle and canvas into their curriculum. Most instructors also utilize smart classroom technology into their lectures and demonstrations.

For laboratory instruction the chemistry department uses nuclear magnetic resonance, infrared spectrometer, atomic absorption spectrometer, pH meters, Vernier calculator systems, chemistry classware, hazardous/flammable/volatile chemicals/waste.

How does the discipline, department, or program maintain the integrity and consistency of academic standards with all methods of delivery, including face to face, hybrid, and Distance Education courses?

Faculty undergo regular observation and evaluation, which includes verification that content knowledge is applied well and course material is delivered with the level of rigor detailed in the course outline of record approved by our curriculum approval processes. There are no hybrid or distance education courses offered by this department at this time.

## **Curriculum**

Please review your course outlines of record in CurricUNet Meta to determine if they have been updated or deactivated in the past three years. Specify when your department will update each one, within the next three years.

| <b>Subject Code</b> | <b>Course #</b> | <b>Course Title</b>                   | <b>Status</b> | <b>Updated</b> |
|---------------------|-----------------|---------------------------------------|---------------|----------------|
| CHEM                | 001A            | General Chemistry                     | Active        | 12/1/2016      |
| CHEM                | 001B            | General Chemistry                     | Active        | 10/3/2017      |
| CHEM                | 030A            | Introductory General Chemistry        | Active        | 10/31/2016     |
| CHEM                | 030B            | Introductory Organic and Biochemistry | Active        | 9/11/2014      |
| CHEM                | 012A            | Organic Chemistry                     | Active        | 4/18/2017      |
| CHEM                | 012B            | Organic Chemistry                     | Active        | 4/18/2017      |

All courses have been updated within the past two years, except CHEM 30B which will be updated this academic year.

### **CurriQunet Meta**

Please summarize the Discipline, Department or program of study plans for curriculum plans for improvement. Below, please provide details for individual course improvement. Add plans for new courses here.

Jennifer Shanoski is planning to develop a food chemistry course.

### **Assessment – Instructional**

Student Learning Outcomes Assessment

List your Student Learning Outcomes

#### **CHEM 001A STUDENT LEARNING OUTCOMES**

1. Outcome: Solve quantitative chemistry problems and demonstrate reasoning clearly and completely. Integrate multiple ideas in the problem solving process and check results to ensure that they are physically reasonable.

Assessment: Students are expected to show increasing competency throughout the semester through quizzes, exams, and laboratory reports.

2. Outcome: Describe, explain, and model chemical and physical processes at the molecular level in order to explain macroscopic properties.

Assessment: Students are expected to demonstrate increasing competency throughout the semester through quizzes, exams, and laboratory reports.

3. Outcome: Clearly explain qualitative chemical concepts and trends.

Assessment: Students will demonstrate increasing competency throughout the semester through quizzes, exams, and laboratory reports.

4. Outcome: Safely perform laboratory techniques accurately and precisely.

Assessment: Students will demonstrate increasing competency throughout the semester through laboratory exercises and reports.

5. Outcome: Analyze the results of laboratory experiments, evaluate sources of error, synthesize laboratory information, and express it clearly in written laboratory reports, notebooks, and graphs.

Assessment: Students will demonstrate increasing competency throughout the semester in laboratory reports.

### **CHEM 001B STUDENT LEARNING OUTCOMES**

1. Outcome: Solve higher level quantitative chemistry problems and demonstrate reasoning clearly and completely. Integrate multiple ideas in the problem solving process. Check results to make sure they are physically reasonable.

Assessment: exam, essay

2. Outcome: Clearly explain advanced qualitative chemical concepts and trends.

Assessment: exam, essay, student project, written exercise

3. Outcome: Describe, explain, and model chemical and physical processes at the molecular level in order to explain macroscopic properties.

Assessment: exam, essay, student project, written exercise

4. Outcome: Safely perform laboratory techniques correctly accurately and precisely.

Assessment: skill demonstration

5. Outcome: Analyze the results of laboratory experiments, evaluate sources of error, synthesize this information, and express it clearly in written laboratory reports, notebooks, and graphs.

Assessment: other (describe below): Laboratory reports

### **CHEM 012A STUDENT LEARNING OUTCOMES**

1. Outcome: Predict three-dimensional structure using IUPAC naming, basic bonding principles, hybridization, and conformational analysis and vice-versa.

Assessment: exam

2. Outcome: Predict products of common synthetic reactions and design reactions to make specific products.

Assessment: exam & laboratory assignments

3. Outcome: Use spectroscopic techniques to determine molecular structure and predict spectra based on structural elements.

Assessment: exam, skill demonstration, and laboratory reports

4. Outcome: Apply thermodynamic and kinetic principles to characterize reaction energy changes, mechanisms, and rates.

Assessment: exam

5. Outcome: Demonstrate an ability to correctly conduct experiments using standard laboratory techniques while keeping a laboratory notebook according to established guidelines.

Assessment: skill demonstration and laboratory assignments

### **CHEM 012B STUDENT LEARNING OUTCOMES**

1. Outcome: Predict three-dimensional structures from names using IUPAC naming, basic bonding principles, hybridization, and conformational analysis and vice versa.

Assessment: exam

2. Outcome: Predict products of common synthetic and biochemical reactions and design reactions to make specific products.

Assessment: exam and laboratory assignments

3. Outcome: Use spectroscopic techniques to determine molecular structure and predict spectra based on structural elements.

Assessment: exam, skill demonstration and laboratory assignments.

4. Outcome: Apply thermodynamic and kinetic principles to characterize reaction energy changes, mechanisms, and rates.

Assessment: exam

5. Outcome: Demonstrate an ability to correctly conduct experiments using standard laboratory techniques while keeping a laboratory notebook according to established guidelines.  
Assessment: skill demonstration and laboratory assignments

#### **CHEM 30A STUDENT LEARNING OUTCOMES**

1. Outcome: Use dimensional analysis to solve quantitative problems and evaluate the results of calculations to make sure they are physically reasonable.  
Assessment: exam, essay, written exercise
2. Outcome: Clearly explain qualitative chemical concepts and trends.  
Assessment: exam, essay, written exercise
3. Outcome: Describe, explain, and model chemical and physical processes at the molecular level in order to explain macroscopic properties.  
Assessment: exam, essay, written exercise
4. Outcome: Perform laboratory techniques correctly using appropriate safety procedures.  
Assessment: skill demonstration
5. Outcome: Calculate experimental values from laboratory data and interpret the results.  
Assessment: exam, written exercise, other (describe below): Laboratory reports

#### **CHEM 030B STUDENT LEARNING OUTCOMES**

1. Outcome: Apply IUPAC naming rules to organic compounds.  
Assessment: exam, written exercise
2. Outcome: Predict the structures of the products of organic reactions.  
Assessment: exam, written exercise
3. Outcome: Predict and explain trends in boiling point and solubility of organic compounds using concepts of intermolecular forces.  
Assessment: exam, essay, written exercise, skill demonstration
4. Outcome: Perform lab techniques correctly using appropriate safety procedures.  
Assessment: exam, written exercise, skill demonstration
5. Outcome: Correctly analyze and interpret the results of laboratory experiments.  
Assessment: exam, student project, written exercise, skill demonstration
6. Outcome: Draw structures of and apply organic chemistry concepts to biological molecules.  
Assessment: exam, written exercise, skill demonstration

|          | Course Title                          | Course Status      | # LOS | 1     | 2      | 3              | 4     | 5     |
|----------|---------------------------------------|--------------------|-------|-------|--------|----------------|-------|-------|
| CHEM 12A | ORGANIC CHEMISTRY                     | Active Fall 2017   | 5     | 15-16 | 15-16  | 0              | 0     | 0     |
| CHEM 12B | ORGANIC CHEMISTRY                     | Spring 2018 Active | 5     | 15-16 | 15-16  | 16-17          | 16-17 | 0     |
| CHEM 1A  | GENERAL CHEMISTRY                     | Spring 2018 Active | 5     | 16-17 | 14-15  | 15-16 ,<br>f17 | 15-16 | 0     |
| CHEM 1B  | GENERAL CHEMISTRY                     | Spring 2018 Active | 5     | 15-16 | 0      | 0              | 0     | 15-16 |
| CHEM 30A | INTRODUCTORY INORGANIC CHEMISTRY      | Spring 2018 Active | 5     | 2018  | 2018   | S'18           | S'18  | 16-17 |
| CHEM 30B | INTRODUCTORY ORGANIC AND BIOCHEMISTRY | Active Fall 2017   | 4     | 15-16 | 15-16* | 0              | 0     |       |

Were there any obstacles experienced during assessment? What worked well? (Mainly based on evidence in the report, attach other evidence as necessary)

Most of the faculty teaching these courses are adjunct part time faculty. They have different schedules but they still manage to get together regularly 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.

What percent of your programs have been assessed? (mainly based on evidence in the report, attach other evidence as necessary; note: a complete program assessment means all Program Learning Outcomes (PLOs) have been assessed for that program)

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.

How has your dept worked together on assessment (planning together)? Describe how your dept works well on assessment? Describe things that went well or obstacles. What aspects of assessment work went especially well in your department and what improvements are most needed?

Courses that have multiple instructors (CHEM 30A) do a common assessment and meet to discuss what the assessment will be, results from the assessment, and the actions that will improve outcomes.

#### Collaboration

Faculty collaborate in developing the common assessment.

#### Leadership Roles

Prior to serving as PFT President in 2017, Jennifer Shanoski coordinated assessment efforts. Since then, djunct instructors have taken on leadership roles in chemistry assessment. These individuals include Laura Cooper, Kaitlin Duffey, and Yasmin Fathi-Torbaghan.

#### Planning Process



Dept meetings for Collaboration

Department meetings include dialogue regarding assessment and all faculty are encouraged to participate in professional day activities around assessment.

Data Analysis

What were the most important things your department learned from assessment? Did implementation of your action plans result in better student learning? In other words, how has your department used the results of assessment to improve student learning and/or curriculum? Please be as detailed as possible.

Chem 1A: About half the students completed the problem correctly with most getting partial credit (2017-18). This result led to a request for study skills course and participation points.  
Chem 12A: Students achieved quite well. Instructors decided to adjust assignments to improve outcomes.  
Chem 30A:  $\frac{3}{4}$  of the students were able to correctly do the titration with about  $\frac{1}{2}$  of them able to correctly complete the calculations. The faculty chose to model the procedure and calculations for one experiment prior to students doing the work.

Does your department participate in the assessment of multidisciplinary programs? If Yes, Describe your department's participation and what you learned from the assessment of the program that was applicable to your own discipline.

No. Previous efforts to assess the Natural Sciences multidisciplinary program yielded poor participation. It would be helpful if future assessment efforts could be coordinated by the division deans overseeing the various departments.

Does your department participate in your college's Institutional Learning Outcomes (ILOs) assessment? If Yes, Please describe your departments participation in assessing Institutional Learning Outcomes.

Jennifer Shanoski has participated in ILO assessment efforts.

What support does your department need from administrators, assessment coordinators and/or your campus assessment committee to continue to make progress in assessment of outcomes and implementation of action plans?

The chemistry department requests additional instructional assistants to increase student success rates and to improve student learning (outcomes assessment 2017-18).  
The chemistry department requests instructors to teach boot camp and study skills seminars (outcomes assessment 2017-18).

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. This foundation aims to serve students in their future programs of study and aligns with all aspects of the college mission statement.

### **Course Completion**

**College** 
**Semester** 
**Subject** 
**Catalog No.** 
**Academic Year**

Berkeley City College  
 College of Alameda  
 Laney College  
 Merritt College

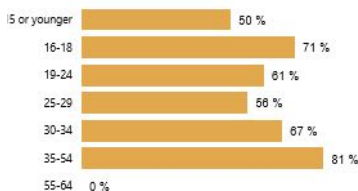
**Completion & Retention Rates by College**

| Academic Year | College         | Completion Rate | Retention Rate |
|---------------|-----------------|-----------------|----------------|
| 2017-18       | Merritt College | 69 %            | 82 %           |

**Completion & Retention Rates by Subject**

| Academic Year | Subject | Completion Rate | Retention Rate |
|---------------|---------|-----------------|----------------|
| 2017-18       | CHEM    | 63 %            | 72 %           |

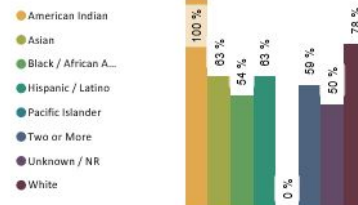
Age range



Gender



Ethnicity



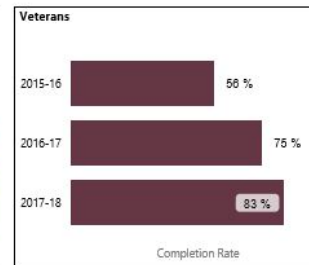
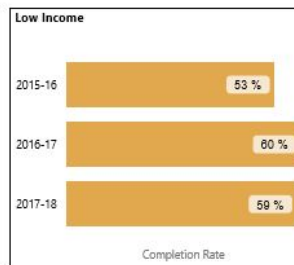
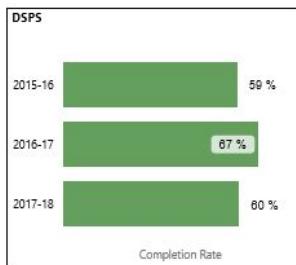
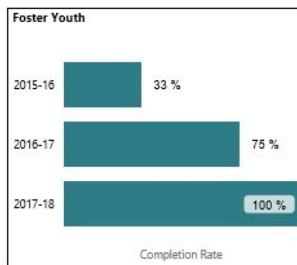
**College** 
**Semester** 
**Subject** 
**Catalog No.** 
**Academic Year**

**Completion & Retention Rates by College**

| Academic Year | College         | Completion Rate | Retention Rate |
|---------------|-----------------|-----------------|----------------|
| 2017-18       | Merritt College | 69 %            | 82 %           |
| 2016-17       | Merritt College | 69 %            | 83 %           |
| 2015-16       | Merritt College | 68 %            | 83 %           |

**Completion & Retention Rates by Subject**

| Academic Year | Subject | Completion Rate | Retention Rate |
|---------------|---------|-----------------|----------------|
| 2017-18       | CHEM    | 63 %            | 72 %           |
| 2016-17       | CHEM    | 62 %            | 75 %           |
| 2015-16       | CHEM    | 58 %            | 73 %           |



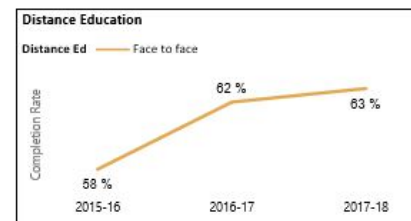
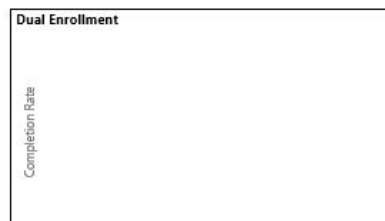
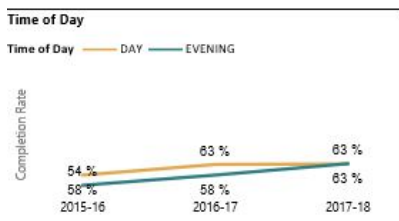
**College** 
**Semester** 
**Subject** 
**Catalog No.**

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| 2017-18       | Merritt College | 69 %            | 82 %           |
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**Completion & Retention Rates by Subject**

| Academic Year | Subject | Completion Rate | Retention Rate |
|---------------|---------|-----------------|----------------|
| 2017-18       | CHEM    | 63 %            | 72 %           |
| 2016-17       | CHEM    | 62 %            | 75 %           |
| 2015-16       | CHEM    | 58 %            | 73 %           |



## Course Completion Power BI Dashboard

Consider your course completion rates over the past three years (% of student who earned a grade of "C" or better).

Use the filters on the top and right of the graphs to disaggregate your program or discipline data. When disaggregated, are there any groups whose course completion rate falls more than 3% points below the discipline average? If so, indicate yes and explain what your department is doing to address the disproportionate impact for the group.

#### Age

Students aged 25-29 are disproportionately impacted.

#### Ethnicity

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 program that would strengthen skills for students entering STEM classes as first year college students.

#### Gender

In 2017-18 females completed at a rate of 60% compared to the average discipline completion rate of 63%.

#### Foster Youth Status

Foster youth have increased completion rates during the past three years, from 33% in 2015-16 to 100% completion in 2017-18.

#### Disability Status

With the exception of the 2016-17 academic year DSPS students have had an achievement gap. 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.

#### Low Income Status

Students of low income have been disproportionately impacted.

#### Veteran Status

Veteran completion rates have increased over the past three years, to 10% higher than the discipline average completion rate.

Consider your course completion rates over the past three years by mode of instruction. What do you observe?

#### Face-to-Face

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 of 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.

#### Hybrid

N/A

#### 100% Online

N/A

#### Dual Enrollment

N/A

#### Day time

Daytime courses and evening courses experience very similar completion rates in recent years.

Evening

How do the course completion rates for your program or discipline compare to your college's Institution-Set Standard for course completion?

The department retention rates are similar to the success rates with students dropping the course more often in the fall semester in Chem1A and Chem12A.

How do the department's Hybrid course completion rates compare to the college course completion standard?

Not applicable. There are no hybrid course offerings at this time.

Are there differences in course completion rates between face to face and Distance Education/hybrid courses? If so, how does the discipline, department or program deal with this situation? How do you assess the overall effectiveness of Distance Education/hybrid course?

There are no distance education/hybrid courses offered in Chemistry at this time.

Describe the course retention rates over the last three years. If your college has an Institution-Set Standard for course retention, how does your program or discipline course retention rates compare to the standard?

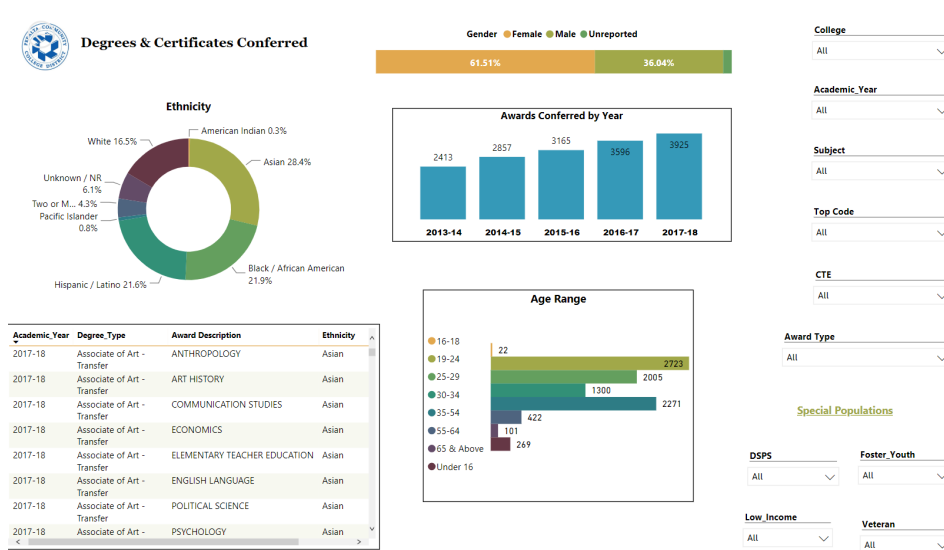
Success rates remain low and the chemistry department is actively seeking ways to improve this.

What has the discipline, department, or program done to improve course completion and retention rates?

The department has actively sought out funding for a variety of programs aimed at increasing retention and success. These include:

- Embedded tutors. Using funding from an NIH grant, the department has embedded tutors in Chem1A and all Chem30A sections. These tutors attend a course that they previously completed and the offer group tutoring sessions to the students.
- Math boot-camp. Many of the students entering Chem1A and Chem30A struggle with the math concepts that provide a foundation for the chemistry discussions. Without a strong foundation, students struggle with the prerequisite material and cannot engage with the course content and are therefore unsuccessful. The chemistry department has proposed a one week course for students to take either before the start of the semester or during the first two weeks. This course would be non-credit and available to all incoming chemistry students. This project has not been funded but is planned for the upcoming year.
- Study skills workshop. Many students entering Chem1A and Chem30A do not have the skills to be successful in college level science courses. These students would benefit from a series of workshops focused on topics like: how to read a science textbook, how to make flashcards, how to form/conduct a study group, how to talk to your instructor, and how to prepare a study guide. A weekly workshop led by science faculty could target these issues and provide a foundation for chemistry courses as well as other science courses. Funding has not been available for this type of initiative up to now. The chemistry department will continue to pursue this possibility.

## Degrees & Certificates Conferred



## Degrees & Certificates Power BI dashboard

What has the discipline, department, or program done to improve the number of degrees and certificates awarded? Include the number of degrees and certificates awarded by year, for the past three years.

N/A

Over the next 3 years, will you be focusing on increasing the number of degrees and certificates awarded?

N/A

What is planned for the next 3 years to increase the number of certificates and degrees awarded?

N/A

### **Engagement**

Discuss how faculty and staff have engaged in institutional efforts such as committees, presentations, and departmental activities. Please list the committees that full-time faculty participate in.

Over the past three years: Jennifer Shanoski: PFT Grievance Officer, MC Academic Senate Vice President, CIC member, Department Chair, PFT President

Discuss how faculty and staff have engaged in community activities, partnerships and/or collaborations.

Jennifer Shanoski is the faculty advisor for the Merritt College Chemistry Club (MCCC). The MCCC develops and executes a science fair each spring for participants in the Girls, Inc. Eureka Program. Jennifer Shanoski is the PI for a National Institute of Health (NIH) Bridges to Baccalaureate grant in collaboration with U.C. Berkeley. This grant is aimed at increasing the number of students from underrepresented populations who transfer to a four-year university to pursue a bachelor's degree in one of the biological sciences.

Discuss how adjunct faculty members are included in departmental training, discussions, and decision-making.



Monthly department meetings are held and all instructors are invited to participate. Faculty work in the same area and actively work collaboratively on class work, assessments, and department policies/procedures/obligations.

Faculty mentoring is provided within the department but it would be very beneficial to part-time instructors if there were a more comprehensive program in place. Such a program could help mentor faculty so that they could move from part-time to full-time employment. Smart classroom training should be provided every semester as new instructors are constantly coming to Merritt College.

It would be very helpful and interesting for the college to host some talks/workshops focused on teaching pedagogy and 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.

**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.

| <b>Resource Category</b>            | <b>Description/Justification</b>  | <b>Estimated Annual Salary Costs</b>    | <b>Estimated Annual Benefits Costs</b> | <b>Total Estimated Cost</b> |
|-------------------------------------|---|---|--|-----------------------------|
| <b>Personnel: Classified Staff</b>  | Part time evening lab tech (2/5 PT lab technician working 5-9 PM Mondays through Thursdays) to support evening laboratory instructors, shared with the Biology department | Per salary steps schedule               | Per union – district agreement         |                             |
| <b>Personnel: Student Worker</b>    | Instructional Assistants  | \$5000                                  |  |                             |
| <b>Personnel: Part Time Faculty</b> | Five Part time instructors (currently hired)<br><br>Instructors to teach boot camp and study skills seminars<br>Boot camp instructor<br>Study skills workshop instructor  | Per salary steps schedule<br><br>\$4000 | Per union district agreement           |                             |

|                                     |                                     |                           |                              |  |
|-------------------------------------|-------------------------------------|---------------------------|------------------------------|--|
| <b>Personnel: Full Time Faculty</b> | 2 full time faculty currently hired | Per salary steps schedule | Per union district agreement |  |
|-------------------------------------|-------------------------------------|---------------------------|------------------------------|--|

| <b>Resource Category</b>                                       | <b>Description/Justification</b>  | <b>Total Estimated Cost</b> |
|--|---|-----------------------------|
| <b>Professional Development: Department wide PD needed</b>     | STEM teaching speakers<br>Faculty need to be apprised of the most current teaching resources for STEM learning.     |                             |
| <b>Professional Development: Personal/Individual PD needed</b> | More mentoring and training on best teaching practices for new faculty and ongoing training for mid-career faculty. |                             |

**Prioritized Resource Requests Summary - Continued**

| <b>Resource Category</b>                              | <b>Description/Justification</b>  | <b>Total Estimated Cost</b> |
|---|---|-----------------------------|
| <b>Supplies: Software</b>                             |   |                             |
| <b>Supplies: Books, Magazines, and/or Periodicals</b> |   |                             |
| <b>Supplies: Instructional Supplies</b>               | Chemistry courses have a lab component that require consumables.<br>The college does not pay vendors in a timely manner.<br>The lab technician needs administrative support (some | \$8000                      |

|   |  |  |
|---|--|--|
|   | issues may include IT) to acquire materials needed for laboratory. |  |
| <b>Supplies: Non-Instructional Supplies</b> |  |  |
| <b>Supplies: Library Collections</b>        |  |  |

| <b>Resource Category</b>                       | <b>Description/Justification</b> | <b>Total Estimated Cost</b> |
|--|----------------------------------|-----------------------------|
| <b>Technology &amp; Equipment: New</b>         | Department Printers              | \$400                       |
| <b>Technology &amp; Equipment: Replacement</b> |                                  |                             |

**Prioritized Resource Requests Summary - Continued**

| <b>Resource Category</b>      | <b>Description/Justification</b> | <b>Total Estimated Cost</b> |
|-------------------------------|----------------------------------|-----------------------------|
| <b>Facilities: Classrooms</b> |                                  |                             |
| <b>Facilities: Offices</b>    |                                  |                             |
| <b>Facilities: Labs</b>       |                                  |                             |

|                          |  |  |
|--------------------------|--|--|
|                          |  |  |
| <b>Facilities: Other</b> |  |  |

| <b>Resource Category</b>            | <b>Description/Justification</b> | <b>Total Estimated Cost</b> |
|-------------------------------------|----------------------------------|-----------------------------|
| <b>Library: Library materials</b>   |                                  |                             |
| <b>Library: Library collections</b> |                                  |                             |

| <b>Resource Category</b> | <b>Description/Justification</b> | <b>Total Estimated Cost</b> |
|--------------------------|----------------------------------|-----------------------------|
| <b>OTHER</b>             |                                  |                             |