

# Ohlone College

## Program Review Report

- **Program Description and Scope:**

- *Program Review Title:* Chemistry
- *Academic year:* 2015/2016
- *Review Type:* Instructional Disciplines
- *Program/Departments:* Chemistry (19001)
- *Authority Code:* 44-Dean, Science, Engineering, and Mathematics
- *External Regulations:* Yes\_ No X
- *Provide a brief narrative that describes the instructional program/discipline:*

The chemistry program at Ohlone College serves students seeking professions in the sciences as well as life-long learning. In this program, we have the following courses: Chemistry 102, Chemistry 108, Chemistry 109, Chemistry 101 A and B, and Chemistry 112 A and B. Chemistry 102, 108, 109 and 101A and B represent General Chemistry, but at different levels of difficulty. Chemistry 102 is the precursor to Chemistry 101A and is considered comparable to a high school level chemistry class. Chemistry 108 is designated as a survey of chemistry with no laboratory practicum. Chemistry 109 aims to provide students in the allied health disciplines with a general foundation in chemistry. Chem 101A and B are the most rigorous General Chemistry courses and the series is the feeder to other science courses such as, Biology 101A, Engineering 140, and Chemistry 112 A and B, the organic chemistry courses.

The department marks three paths for students: transfer, GE requirement and allied health track.

- **College Mission:**

- *Mission Statement:*

Ohlone College responds to the educational needs of our diverse community and economy by offering high quality instruction supporting basic skills, career development, university transfer, and personal enrichment and by awarding associate degrees and certificates to eligible students in an innovative, multicultural environment where successful learning and achievement are highly valued, supported, and continually assessed.
- *Program Relation to College Mission:*
  - University Transfer
- *State Your Program Mission/Purpose:*

The mission of our Chemistry Department is to provide our students with a solid foundation in Chemistry that prepares students for transferring, and to support students' professional and career goals. We strive to educate Ohlone students with quality classroom and state-of-the-art laboratory experiences, in order to

allow students to perform and compete in the technologically-advanced environment of the 21st century.

o *Briefly Describe Program Accomplishments:*

During the summer sessions student retention and success are high, probably because students who enroll know already the expectations of the course. due to the large number of motivated high school students enrolled in the courses. When Chem 101A or B are offered during the summer, the course lasts six weeks, and it is very intense course since students and instructor are together everyday for six plus hours. Students get to know each other better, get a feeling of community and form study groups that help them with their success in the course. We had not been able to offer Chem 101A or B for two summers due to budget cuts, but we offered in summer 2012 with over 95% retention and 90% success. During the Spring and Fall attrition is about 50%. This high number is not surprising due to the rigorous nature of the program transfer chemistry courses. However we expect than once the changes that we are proposing have been implemented student success will certainly be greater.

In spite of high attrition rate, by the end Chem 112B, the students in the class have a near 100% transfer rate with students transferring to UCLA, UCB, UCSD, UC Davis and Stanford among others.

• **Achievement and Resource Data Analysis:**

1. *Research Questions:*

• **Resource Assessment Summary:**

1. *Academic Year:* 2013-14
2. *Activity Center Fund 10 Budget Allocation:* \$766321.00
3. *FTEs:* Fall: 117 Spring: 131 Summer: 0
4. *WSCH/FTEF:* Fall: 586 Spring: 556 Summer: 0
5. *Course Sections Offered:* Fall: 20 Spring: 23 Summer: 0
6. *Sections Taught FT Faculty:* Fall: 3 Spring: 4 Summer: 0
7. *Sections Taught PT Faculty:* Fall: 17 Spring: 19 Summer: 0

• **Human Resources:**

1. *# of FT Faculty:* 3
2. *# of PT Faculty:* 10
3. *# of Classified Staff:*
4. *# of Administrators:*
5. *% Faculty release/reassigned time:*
6. *Technology:*
  - Specialized Software

- Technology Enhanced Instructional Equipment
  - Laptops
- 7. *Physical Resources:*
  - General Classrooms
  - Specialized Labs
  - Tutoring/Learning Center
- **Program Analysis PSLOs - Student Learning:**  
*(Key: I-Introduced, P-Practiced with Feedback, M-Demonstrated at the Mastery Level)*

1. *PSLO Matrix:*

<b>Course</b>	<b>PSLO-1</b>	<b>PSLO-2</b>	<b>PSLO-3</b>
CHEM 101A	M	M	M
CHEM 101B	M	M	M
CHEM 102	P	P	P
CHEM 108	I	I	I
CHEM 109	P	P	P
CHEM 112A	M	M	M
CHEM 112B	M	M	M

2. *Please Indicate the PSLO(s) which you are reporting on:*
  3. *Analyze and summarize your assessment findings. What in the data jumped out?*
  4. *Give examples of assessments used for your PSLO analysis:*
  5. *Describe input from Program Advisory Committee (if applicable):*
  6. *Comments:*
- **Program Improvement Objectives**
    1. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

Increase the number of students obtaining Certificates of Achievement and Certificates of Accomplishment in Chemistry in order to increase the students' opportunities on obtaining a higher paid job.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

*Program PIO will address the following:*

- Success Rates
- Increase Degrees/Certifications

*How will you assess the effectiveness of your PIO:*

Compare the number of certificates awarded after the implementation of the PIO with previous years.

**PIO Action Plan:**

*How will you accomplish this?*

Instructors (CHEM101B and CHEM112B) should get informed of the requirements for obtaining these certificates, the dates of submissions and the application process. Instructors should inform students on the advantages of obtaining these certificates and facilitating ways to apply, especially to those students that are hesitant in obtaining one. Also, through embedded tutors, great support for student success will increase the chances that more students complete degrees and certificates.

*What is your timeline?*

One year, revised after that.

*Who is going to do this?*

M Grant for all sections of CHEM 101B and A Ganguly for CHEM 112B

*PIO Status:*

- In-Progress

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

- Money for embedded tutors. \$5,000

**PIO Resources:**

- Resource: People Time  
Description: Outreach activities
- Resource: Tutors - Students  
Description: embedded tutors  
Est. Cost: \$5,000.00

2. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

Review laboratory protocols for General Chemistry to replace any outdated lab protocols.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

1) A lab manual was rewritten for Chemistry 102. It is a significant enhancement to the course, but will be reviewed with fresh eyes by the newest full-time faculty member, Lisa Wesoloski. 2) The acquirement of 24 labquest devices has given the chemistry department the ability for students to work individually rather than in groups. The experiment protocols have to be revised now and adapted with specific instructions using labquest.

*Program PIO will address the following:*

- Student Learning & Achievement
- Course Retention
- Course Completion
- Success Rates

*How will you assess the effectiveness of your PIO:*

Assessment will be done with laboratory exams. The updated and new protocol experiments will be the targeted exam questions.

**PIO Action Plan:**

*How will you accomplish this?*

Review all laboratory protocols to ensure 1) the latest safety regulations are present including the use of newer technologies, and 2) all labs protocols are formatted similarly to reflect they are property of Ohlone College, 3) update any lab protocol tasks and information that are unclear to the student.

*What is your timeline?*

One year from the time the PIO is implemented.

*Who is going to do this?*

Lisa Wesoloski, who teaches all general chemistry courses, will perform the task. Any new labs that are introduced will be trialled and modified in accordance to the College's needs.

*PIO Status:*

- In-Progress
- Revised

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

- Staff position requested: Lab Tech not funded as of 6/22/15. Lab Chairs funded through instructional equipment budget 2014-15. Computer request - potential funding through Instructional Equipment 2015-16.

**PIO Resources:**

- Resource: People Time  
Description: An instructor that teaches general chemistry should have allocated time to perform this task.
- Resource: Staff/Administrative Position  
Position Title: lab technician for the evening classes

FTE: .5

Est. Cost: \$30,000.00

- Resource: Instructional Equipment  
Description: 25 Vernier interfaces and 6 chargers  
Est. Cost: \$1,600.00
- Resource: Non-Instructional Equipment  
Description: high chairs or stools for chemistry laboratory  
Est. Cost: \$6,000.00
- Resource: Computer Related Equipment  
Description: laptop computers for students' use at the chemistry laboratory  
Est. Cost: \$25,000.00

3. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

Modernize laboratory equipment for General Chemistry and Organic Chemistry to enhance laboratory experimentation as the curriculum demands: milligram balances, bomb calorimeter, IR spectrophotometer, and laptops with software updates.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

New lab chairs have been purchased for one of the labs. Students are more comfortable when students work on dry lab (laptop and worksheets) and assessment activities.

*Program PIO will address the following:*

- Career Technical Education (CTE) Related
- Institutional Effectiveness
- Student Learning & Achievement
- Access to high quality courses - community needs

*How will you assess the effectiveness of your PIO:*

Assessment will be done with laboratory exams. The updated and new

experiments will be the targeted exam questions.

**PIO Action Plan:**

*How will you accomplish this?*

All experiments in Chem 102, Chem 101A/B, Chem 112A/B will be updated reflecting the use of the milligram balances. A new protocol will be developed for the hands-on use of the bomb calorimeter. This will replace the 30 year old video presentation of a bomb calorimeter experiment. We also need to have more hands on instrumentation experience for our students. This is where IR spectrophotometer purchase will be very useful. Every year we are purchasing the licenses for two very powerful software programs, Odyssey and Spartan. The laptop computers that we presently have at the chemistry department do not have the ability to run these programs. We need new laptop computers in the chemistry lab to make use of these programs.

*What is your timeline?*

One year from the time the lab equipment has been put to use.

*Who is going to do this?*

Lisa Wesoloski and Maru Grant will make the appropriate lab modifications that impact all General chemistry courses and Anu Ganguly will do so for Organic Chemistry.

*PIO Status:*

- New

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

**PIO Resources:**

- Resource: Instructional Equipment

Description: Bomb Calorimeter

Est. Cost: \$9,100.00

- Resource: Instructional Equipment  
Description: Melting Point Apparatus (times 5)  
Est. Cost: \$6,500.00
- Resource: Instructional Equipment  
Description: Balances (times 2)  
Est. Cost: \$800.00
- Resource: Instructional Equipment  
Description: Transformer (times 7)  
Est. Cost: \$2,800.00
- Resource: Instructional Equipment  
Description: Centrifuge (times 2)  
Est. Cost: \$1,000.00
- Resource: Instructional Equipment  
Description: Hotplate Stirrer (times 5)  
Est. Cost: \$1,000.00

4. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

The ACS exam will be given to students during the chemistry placement exam. Students that pass the placement exam are allowed to enroll in Chem 101A, but will be strongly recommended to enroll in Chem 102 if their ACS exam is a low score.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

The idea behind this PIO is to help guide students into the proper chemistry course. Incorrect placement of a student can affect their retention, success, financial aid and transfer rate. Too many students 'study' for the placement exam and the exam has a low bar to pass.

*Program PIO will address the following:*

- Institutional Effectiveness
- Student Learning & Achievement
- Course Retention

- Course Completion
- Persistence
- Success Rates
- Career Technical Education (CTE) Related

*How will you assess the effectiveness of your PIO:*

Students that pass the ACS exam (without studying) at the beginning of the semester indicate their readiness for Chem 101A. The enrollment numbers of Chem 102 will be also be monitored to determine if students act on the recommendation from the chemistry department.

**PIO Action Plan:**

*How will you accomplish this?*

ACS exam scores will be analyzed for Chem 101A students taking the exam at the beginning of the semester. A comparison of the scores will be made between the students of Chem 101A who were exempted from Chem 102 and those who were not. In addition, it will be analyzed the success of students in Chem 101A who opt out of Chem 102 vs students those that do take the course.

*What is your timeline?*

2 year timeline upon starting this process

*Who is going to do this?*

Lisa Wesoloski will carry out the analytics.

*PIO Status:*

- New

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

**PIO Resources:**

- Resource: No Resources Identified

5. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

To reduce clutter in the stockroom and labs, more storage space is needed for lab, demo and STEM Day equipment. In addition, the labs can benefit from more support for the preparation, set-up and breakdown of the lab classes.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

*Program PIO will address the following:*

- Institutional Effectiveness
- Use human, fiscal, technological, and physical resources responsibly,

*How will you assess the effectiveness of your PIO:*

It will be observed that lab storage of supplies and equipment are in accordance with lab safety regulations. How efficient the labs function will be assessed with a survey from all full-time and adjunct chemistry faculty.

**PIO Action Plan:**

*How will you accomplish this?*

An initial assessment will be made by Anu Ganguly, the chemical hygiene officer, on the lab storage and stockroom staffing improvements and she will write an assessment plan to the district.

*What is your timeline?*

A one-year timeline will be given to carry out the plan and improvement.

*Who is going to do this?*

Anu Ganguly, the chemical hygiene officer, will oversee the lab storage and stockroom staffing.

*PIO Status:*

- New

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

**PIO Resources:**

- Resource: No Resources Identified

6. *Based on the program data analysis and PSLO analysis, identify your Program Improvement Objective(s): What are you going to do? Why are you going to do it?*

Hire another person to support the work of the SEM Division.

*Notes (optional): Please include any notes related to your PIO. (2500 Character limit)*

The Chemistry Department needs more support from the SEM Division Office. There is only one Executive Assistant for 12 departments in the SEM Division. This is not sufficient support and it creates issues with our scheduling, contracts, ordering, etc. We have so many adjuncts in the department and they are not being supported due to the fact that there are so many in the Division. In addition, the SEM EA is not always able to be available and in the office when needed as she has to support faculty in both Newark and Fremont and is involved in meetings across the campus at times.

*Program PIO will address the following:*

- Institutional Effectiveness
- Use human, fiscal, technological, and physical resources responsibly,

*How will you assess the effectiveness of your PIO:*

Through tracking and evaluation of turn around time on projects, emails, etc.

**PIO Action Plan:**

*How will you accomplish this?*

Through evaluation process.

*What is your timeline?*

2016-17

*Who is going to do this?*

Request is being made, via this PIO to VPAA.

*PIO Status:*

- New

*Closing the loop - Describe the results of your PIO implementation or completion:*

*Conclusion: Complete if PIO has been completed*

*Fiscal Resources Status:*

- \$55,000

**PIO Resources:**

- Resource: Staff/Administrative Position  
Position Title: Office Assistant

FTE: 1.0  
Est. Cost: \$55,000.00

**Attached Files:**

- [Program Assessment .docx](#)