

2016-2017 Assessment Cycle

## Assessment Findings

### Finding per Measure

#### Hawaii Pacific University ILOs with PLOs (Copy 1)

##### Written Communication

Students will organize their thoughts and feelings, synthesize relevant information and concepts, and effectively, clearly, and persuasively communicate their perspectives through written language.

#### Outcome: PLO8

Communicate scientific information in written reports

- ▼ **Measure:** CHEM 4910 Senior Seminar Literature Review Paper  
*Program level Direct - Student Artifact*

#### Details/Description:

A written literature review paper from CHEM 4910 Senior Seminar (the capstone course of the chemistry program) was used to assess the ILO Written Communication and PLO 8 Communicate scientific information in written reports. Each student will write a review paper on an approved topic in chemistry of interest to and chosen by the student. The review will be based on a coherent collection of original research papers. Topics must be approved in advance by instructor. The review should include sections on background, the current status of research or treatment (if a disease), and future directions. A scientific review paper is a critical synthesis of the literature, therefore, the review should reflect the student's own insights, interpretation, and critical appraisal of the literature. The review papers will be scored against a modified University's Written Communication rubric.

#### Acceptable Target:

60% of students achieve a 60% on the rubric

#### Ideal Target:

75% of students achieve a 75% on the rubric or

above

Implementation Plan  
(timeline):

The written review papers will be submitted in  
Spring semester 2017.

Key/Responsible  
Personnel:

Yongli Chen and Gideon Berger

Supporting Attachments:

 Chem 4095 literature review assignment 2017.pdf (Adobe Acrobat Document)

### Findings for CHEM 4910 Senior Seminar Literature Review Paper

Summary of Findings:

CHEM 4910 is the capstone course for the Chemistry major. It is cross listed with the Biochemistry major capstone course CHEM 4095. A total of 7 students (5 biochemistry majors and 2 chemistry majors) were enrolled in the course in Spring 2017.

Of the 2 chemistry majors, 2 completed the course.

The Literature Review assignment rubric (attached) includes competencies for both Written Communication and Information Literacy. Two assignments were assessed for the Chemistry program, but 4 others were identically assessed for the Biochemistry majors in CHEM 4095.

The combined average score for chemistry majors for the assignment (including both Written Communication and Information Literacy competencies) was 84.4% of the maximum score (an average of 27 of 32 rubric points). The range for was 83-86%. When considering the 20 rubric points for Written Communication competencies (5 criteria x maximum 4 points each), the average was 82.5% and the range was 80-85%. The summary of

individual rubric scores is included in the attachment. Both students reached the acceptable target of a 60% score and both reached the ideal target of 75%.

The scores showed no collective weaknesses for either of the 5 criteria, except possibly the competency "Synthesis of relevant research questions" which was scored at 63% and represents the highest level function of the competencies . All other competency scores are 75% or higher.

Overall, this assessment as performed revealed no weaknesses in student outcomes or performance for Written Communication competencies.

Results :

Acceptable Target Achievement:  
Exceeded; Ideal Target Achievement :  
Exceeded

Recommendations:

The assessment revealed no weaknesses in student outcomes or performance, and we have no curricular recommendations. However, the narrow range of scores (when considering also the Biochemistry student performance as well) may suggest a rubric or application of the rubric that did not discern well between the highest performing and lowest performing students. At the same time, the assessment was conducted by only one faculty member. The Chemistry and Biochemistry program should consider reviewing the application of the rubric and scoring methods to ensure an effective use of rubrics across the program and between years and consider having multiple reviewers during years where the ILO is assessed University-wide.

Reflections/Notes:

None

**These Findings are associated with the following Actions:**

Chemistry Plan  
(Action Plan; 2016-2017  
Assessment Cycle)

Action details: Develop strategies to enhance the application of assessment rubrics for dual use in assessing ILO/PLO competencies for assessment and simultaneously assigning grades for an assignment, where appropriate.

Implementation Plan (timeline): 2017-2018 academic year

Key/Responsible Personnel: Gideon Berger and Yongli Chen

Measures: Successful application of innovative approach to dual use of rubric. Dr. Berger will apply the use of decimals to rubric scores for one or

more  
assignment  
during the  
2017-2018  
academic year  
and describe  
the approach  
to members of  
the program.

Budget  
approval  
required?  
(describe):

none

Budget request  
amount:

\$0.00

Priority:

Medium

Supporting Attachments:

## Overall Recommendations

The assessment rubric used in 2017 was also used as a grading tool for the assignment. Because there are few gradations in scoring each competency, this may have given less power to discern between different levels of quality for the grading of assignments that translate into a student grade. Although using the assessment rubric for dual purposes is efficient, the Chemistry and Biochemistry program should consider reviewing the application of the rubric and scoring methods to ensure an effective use of rubrics across the program and between years, including when rubrics are used for dual purpose of assessment and grading. For example, at least one scoring rubric method developed involves scoring competencies to one decimal (e.g., 3.3) where the decimal score is used to calculate the grade, but only the integer is used as the assessment score (e.g., 3.3 is used for grading for finer resolution and 3 is used for the rubric, which reflects the highest level of the given competency that was firmly achieved). In other words, decimal scores are always rounded down (e.g., a 3.8 would be a 3 for the assessment rubric score). This method is viewed by multiple members of the program as effective.

The program should also consider when to have multiple reviewers (e.g., one reviewer in addition to the primary instructor for the assignment) during years where the ILO is assessed University-wide.

## Overall Reflection

None.

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