



Program Assessment Report due 11/21/14

Program or Certificate: A.S. Pre-Professional
Academic Year Assessed: 2013-2014
Program Lead Faculty: Peter G. Hernandez
Department Chair: George E. Hagen

Program Learning Outcome #1	Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 10% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	74.4% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment with the modification of increasing the sampling size to 20% of the total enrollment. Additionally, Canvas will be used as a platform to present critical thinking exercises to enhance the performance of students on this learning outcome.
Evaluation of previous cycle's action plans	The action plan was implemented on a representative sampling of students using a key assignment. It was successful in that 74.4% of the student's mastered the learning outcome which had a goal of 70% success.
Program Learning Outcome #2	Communicate effectively the results of investigations.



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Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 10% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	77.5% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment with the modification of increasing the sampling size to 20% of the total enrollment. Additionally, Canvas will be used as a platform to present samples of effective communication of laboratory investigations to enhance the performance of students on this learning outcome.
Evaluation of previous cycle's action plans	The action plan was implemented on a representative sampling of students using a key assignment. It was successful in that 77.5% of the student's mastered the learning outcome which had a goal of 70% success.
Program Learning Outcome #3	Convert units of measure and demonstrate dimensional analysis skills.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412



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Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 10% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	86.7% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment with the modification of increasing the sampling size to 20% of the total enrollment. Additionally, Canvas will be used as a platform to present examples of measurement conversion and dimensional analysis to enhance the performance of students on this learning outcome.
Evaluation of previous cycle's action plans	The action plan was implemented on a representative sampling of students using a key assignment. It was successful in that 86.7% of the student's mastered the learning outcome which had a goal of 70% success.
Program Learning Outcome #4	Demonstrates the ability to work in a group of 2 or more to collaboratively solve problems.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412



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Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 10% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	100% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment with the modification of increasing the sampling size to 20% of the total enrollment.
Evaluation of previous cycle's action plans	The action plan was implemented on a representative sampling of students using a key assignment. It was successful in that 100% of the student's mastered the learning outcome which had a goal of 70% success.



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PALO ALTO COLLEGE

2014- 2015 Program Assessment

Program or Certificate: Pre-Professional Associate of Science

Program Lead Faculty: Michael Shanklin

Department Chair: G. Ed Hagen

Program Learning Outcome #1	Be able to apply the scientific method to solve problems associated with medicine, pharmacy and dentistry
Courses in the degree plan that address this outcome	Chemistry 2323, 2325
Assessment Method	Performance on cumulative final exam in organic chemistry
Targets for Achievement	70 % performance or better on final
Evaluation of previous cycle's action plans	<ul style="list-style-type: none">• A comprehensive final exam that covers the application of the scientific method is given to every student in the class• Of the 8 students taking chemistry 2325 spring 2015, 7 out of 8 passed the organic comprehensive final with a score of 70% or better. The other student did not take the final and received a grade of D for the course.
Program Learning Outcome #2	Be able to maintain records and communicate scientific principles clearly and concisely
Courses in the degree plan that address this outcome	Chemistry 2223 and 2225
Assessment Method	Evaluation of laboratory notebook using a standard rubric. Performance on weekly lab reports and the formal lab report due at the end of the semester



Targets for Achievement	70 % performance on notebook and lab report scores
Evaluation of previous cycle's action plans	<ul style="list-style-type: none">• A standardized rubric was used to evaluate the formal lab reports, student lab notebooks, and weekly reports.• Five of the 6 pre-professional students that started the course turned in a lab note book and lab reports at the conclusion of the course. All five of those students received a 70 or greater on their lab notebooks and 4 out of 4 received a grade of 70 or better on their weekly lab reports.
Program Learning Outcome #3	Be able to use modern laboratory techniques and instrumentation to gather data on scientific problems. Then be able to use this data to draw conclusions and formulate scientific hypotheses
Courses in the degree plan that address this outcome	Chemistry 2223 and 2225
Assessment Method	Performance on weekly lab reports and laboratory final
Targets for Achievement	70% performance on laboratory reports and lab final
Evaluation of previous cycle's action plans	<ul style="list-style-type: none">• All of the laboratory reports and the laboratory final are designed to test a student's knowledge of modern laboratory techniques and instrumentation as well as problem solving skills. Four out of the six pre-professional students that finished the course obtained an average of 70% or greater on their weekly reports and 5 out of 6 passed the lab final with a grade of 70% or above. The remaining student failed the course.
Program Learning Outcome #4	
Courses in the degree plan that address this outcome	



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Assessment Method	
Targets for Achievement	
Evaluation of previous cycle's action plans	<ul style="list-style-type: none">• Summarize the implementation of the previous cycle's action plan.• What challenges emerged to the action plan?• To what extent was the action plan successful?



Program Assessment Report

Program or Certificate: A.S. Pre-Professional

Academic Year Assessed: 2015-2016

Program Lead Faculty: Peter G. Hernandez

Department Chair: George E. Hagen

Program Learning Outcome #1	Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 100% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	74% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment as a result of this learning outcome increasing from 70.2% in the previous cycle to 74% in the current cycle using a sampling size of 100% of the total enrollment for Spring and Summer sections in order to reflect a more precise representation of the student population.
Evaluation of previous cycle's action plans	The action plan was implemented on 100% of students using a key assignment. It was successful in that 74% of the student's mastered the learning outcome which had a goal of 70% success.



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Program Learning Outcome #2	Communicate effectively the results of investigations.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 100% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	69.2% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was not met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment as a result of this learning outcome increasing from 66.4% in the previous cycle to 69.2% in the current cycle using a sampling size of 100% of the total enrollment for Spring and Summer sections in order to reflect a more precise representation of the student population. Additionally, Canvas will be used as a platform to present samples of effective communication of laboratory investigations to enhance the performance of students on this learning outcome.
Evaluation of previous cycle's action plans	The action plan was implemented on 100% of students using a key assignment. It fell just shy of the goal by 0.8% in that only 69.2% of the student's mastered the learning outcome which had a goal of 70% success.



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Program Learning Outcome #3	Convert units of measure and demonstrate dimensional analysis skills.
Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 100% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	80.5% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment as a result of this learning outcome increasing from 77.4% in the previous cycle to 80.5% in the current cycle using a sampling size of 100% of the total enrollment for Spring and Summer sections in order to reflect a more precise representation of the student population.
Evaluation of previous cycle's action plans	The action plan was implemented on 100% of students using a key assignment. It was successful in that 80.5% of the student's mastered the learning outcome which had a goal of 70% success.
Program Learning Outcome #4	Demonstrates the ability to work in a group of 2 or more to collaboratively solve problems.



Program Assessment Report

Courses in the degree plan that address this outcome	BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412
Assessment Method	A representative sample such as a key assignment will be taken from BIOL 1407 and CHEM 1412 which provide students an opportunity to demonstrate knowledge or skills of this Program Learning Outcome. The student artifacts will be drawn from 100% of the total enrollment for the courses being measured.
Targets for Achievement	Of the sample of students analyzed, 70% or higher will master the program learning outcome.
Results	100% of the students sampled mastered this learning outcome.
Target Met or Not Met	The target for this learning outcome was met.
New action plan for improvement of student learning	The previous year' action plan will be implemented again for this year's assessment as a result of this learning outcome remaining at 100% from the previous cycle using a sampling size of 100% of the total enrollment for Spring and Summer sections in order to reflect a more precise representation of the student population.
Evaluation of previous cycle's action plans	The action plan was implemented on a representative sampling of students using a key assignment. It was successful in that 100% of the student's mastered the learning outcome which had a goal of 70% success.