



ALAMO COLLEGES

PALO ALTO COLLEGE

Program or Certificate: Pre-Nursing, Associate of Science

Academic Year Assessed: 2013 - 2014

Program Lead Faculty: Sara Wilkins and Linda Ibarra-Gonzales

Department Chair: George E. Hagen

#1	Apply the Scientific Method to the processes of learning, critical thinking, and problem solving.
	<p>Assessment Measure for this Outcome: Assessment of this measure is obtained from the completion of the Unknown Project in Biology 2420, Microbiology for Nursing and Allied Health, a sophomore level capstone course for pre-nursing majors. The Unknown Project assesses a student's ability to identify an unknown microbe. Students are expected to use their knowledge of the characteristics of microbes and laboratory skills in the identification process. Students submit a written report detailing the process and identity of the microbe. A matrix is used to evaluate.</p>
	<p>Courses in the degree plan that address this outcome: BIOL 2420</p>
	<p>Achievement Target for this Measure: 70% success</p>
	<p>Results: Tallying data from Spring 2014 and Summer 2014, including 4 total classes, the average grade received on the Unknown Project paper was a 79.3 (n = 59 students). Eighty-one percent (81%) received a grade over 70, while 19% received a grade below 70. Two students did not submit an Unknown Project paper; therefore, these should be treated as missing data sets.</p>
	<p>Target Met or Not Met: Met</p>
	<p>New Action Plans: There will not be a change to this learning outcome. Faculty of Microbiology feel this is an excellent method to analyze the application of the scientific method to the process of learning, critical thinking, and problem solving. While 19% of the students did receive a grade below 70, some of these students did not follow the clear instructions regarding the format of the paper, bibliography guidelines, submitting the paper on time, etc., which was all outlined in the detailed scoring matrix/rubric. Microbiology faculty will encourage the students to submit the Unknown Project on time to possibly alleviate the issue of missing data sets in the future, and reinforce the scoring matrix/rubric and discuss with the students the details of how the project will be assessed. Not submitting the Unknown paper also adversely affects their grade tremendously. Microbiology faculty will continue to use the same scoring matrix/rubric, same microbial organisms, and same biochemical tests. We will also still collaborate on the calendar and due dates.</p>
	<p>Evaluation of Previous Cycle's Action Plans: Microbiology faculty have collaborated and agreed upon the same scoring matrix/rubric to use for all classes so we are consistently using the same grading parameters. The Microbiology faculty also follow the same calendar with due dates, and have also agreed to use the same microbial organisms and biochemical tests to analyze the unknown organisms.</p>
#2	Communicate clearly and in a way that reflects knowledge and understanding of the human body and demonstrates the ability to adapt information to different audiences and applications.
	<p>Courses in the degree plan that address this outcome: BIOL 2402</p>
	<p>Assessment Measure for this Outcome: Assessment of this goal is obtained from a written research paper assigned during A&P II, a sophomore-level capstone course for pre-nursing majors. The paper assesses a student's ability to apply the anatomical and physiological concepts learned in A&II to a pathophysiological</p>



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	condition. Students are expected to research scholarly literature and adapt this information as per a set of guidelines using the APA method. A matrix is used to evaluate.
	Achievement Target for this Measure: 70% success
	Results: Data was collected from three of the four Spring 2014 laboratory sections. The total number of students from which grades were collected is 45 (n = 45). Forty of the forty-five students (89%) received a 70 or above on this assignment.
	Target Met or Not Met: The target was met.
	New Action Plans: A new action plan is not necessitated.
	Evaluation of Previous Cycle's Action Plans: The Anatomy and Physiology faculty standardized the guidelines for the completion of the research paper several years ago. However, prior to the Spring 2014 semester, the faculty collaborated on the design of the grading rubric for the research paper. This is used by all of the Anatomy and Physiology faculty to grade the research papers.

#3	Interpret graphs, tables, and images of anatomical and physiological data to demonstrate analysis skills.
	Courses in the degree plan that address this outcome: BIOL 2402
	Assessment Measure for this Outcome: Assessment of this goal is obtained from successful completion of several questions as part of three laboratory practicals administered throughout the semester. Students are presented with EKG tracings, enzyme assay, blood typing and respiratory volume data and expected to provide an analysis on the basis of a set of questions.
	Achievement Target for this Measure 70% success of the specific questions on the lab practicals
	Results: A total of eight questions addressing the analysis of EKG tracings, enzyme assays, blood typing and respiratory volumes were part of two of the three laboratory practicals in the Spring 2014 semester. (It should be noted that the third practical does not cover activities relative to the data that was collected.). The following are the results for each question: Question 1 (blood typing): 71% success; Question 2 (EKG tracing): 91% success; Question 3 (respiratory volume): 51% success; Question 4 (enzyme assay): 9% success; Question 5 (enzyme assay): 64% success; Question 6 (enzyme assay): 62% success; Question 7 (enzyme assay): 46% success; Question 8 (enzyme assay): 42% success. In summary, 70% success was met in only 25% of questions.
	Target Met or Not Met: Not met.
	New Action Plans: It is speculated that the time given to analyze the enzyme assay and respiratory volume data is insufficient. For example, three of the five enzyme assay questions are part of a question set of four items, as are the other two questions. The Anatomy and Physiology faculty have agreed to reduce the question set to include only two questions rather than four. This should provide adequate time to analyze the data.
	Evaluation of Previous Cycle's Action Plans: The laboratory practicals have all been standardized; however, questions may be changed to reflect different data or reworded for clarity. Thus, all sections use the same practical questions, consequently, all students are tested over the same content. Faculty have the liberty to make any changes to the standardized test as long as the new questions address the standardized objectives for the content. This standardization process of the laboratory practicals, laboratory objectives as well as laboratory practical review sheets, and laboratory assignments will allow us the Anatomy and Physiology faculty to determine if the proposed new action plan will increase the success rate.
#4	Correlate laboratory techniques and technology with Science concepts.



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	Courses in the degree plan that address this outcome BIOL 2420
	Assessment Measure for this Outcome: Assessment of this goal is obtained from the completion of laboratory skills on the first lab practical in Biology 2420, Microbiology for Nursing and Allied Health. The completion of selected essential laboratory skills provides students an opportunity to demonstrate their abilities in using the microscope and incorporating aseptic technique during a Gram Stain and creating a quadrant-streak plate, critical techniques required in any laboratory or clinical setting in a health-related profession. Evaluation is accomplished through the hands-on demonstration of microscope use and using aseptic technique during the performance of a Gram stain and creating a quadrant-streak plate free of contaminants.
	Achievement Target for this Measure 70% success of the skill demonstrations for the lab practical
	Results: Tallying data from Spring 2014 and Summer 2014, including 4 total classes, the average grade received on the Laboratory Skills portion of Practical 1 in Microbiology was an 81.5 (n = 61 students). Eighty-five percent (85%) received a grade over 70, while 15% received a grade below 70. Laboratory skills included performing a quadrant-streak plate correctly using aseptic technique and performing a Gram stain using aseptic technique, which included the ability to properly mount and view the Gram stain under the microscope.
	Target Met or Not Met: Met
	New Action Plans: There will not be a change to this learning outcome. Faculty of Microbiology feel this is an excellent method to analyze the appropriate use of laboratory techniques and technology with Science concepts. While 15% of the students did receive a grade below 70, all students had a study guide for the practical that listed these techniques that would be demonstrated on the practical so they could prepare ahead of time. Also, students were given several opportunities to repeatedly practice these techniques during lab time before the practical, and students were reminded several times by their Microbiology lab instructor about having to perform these skills on the practical. Microbiology faculty will continue to use the same practical skills techniques that will be graded using the same grading format across all the Microbiology 2420 lab courses. We will also still collaborate on the practical review sheet, calendar and due dates.
	Evaluation of Previous Cycle's Action Plans: The Microbiology faculty have collaborated about using the same practical lab test with the same practical skills to perform. The same answer sheet, same practical questions, same point values, same review study guide, and the same Microbiology lab calendar were used by all the Microbiology faculty.



Program or Certificate: Pre-Nursing, Associate of Science

Academic Year Assessed: 2014-2015

Program Lead Faculty: Sara Wilkins and Linda Ibarra-Gonzales

Department Chair: George E. Hagen

#1	Apply the Scientific Method to the processes of learning, critical thinking, and problem solving.
	<p>Assessment Measure for this Outcome: Assessment of this measure is obtained from the completion of the Unknown Project in Biology 2420, Microbiology for Non-science Majors, a sophomore level capstone course for the pre-nursing concentration. The Unknown Project assesses a student's ability to identify an unknown microbe by running a series of tests and experiments on that unknown organism. Students are expected to use their knowledge of the characteristics of microbes and laboratory skills in the identification process. Students submit a written report detailing the process and identity of the microbe. A matrix/rubric is used to evaluate.</p>
	<p>Courses in the degree plan that address this outcome: BIOL 2420</p>
	<p>Achievement Target for this Measure: 70% success for the Unknown Project Paper</p>
	<p>Results: Tallying data from Spring 2015 and Summer 2015, including 4 total classes, the average grade received on the Unknown Project paper was an 81.4 (n = 61 students). Eighty percent (80%, n = 49 students) received a grade of 70 or over, while 20% (n = 12 students) received a grade below 70. One student did not submit an Unknown Project paper; therefore, this should be treated as a missing data set. The student who did not submit the paper was ill, but did not want to drop the course.</p>
	<p>Target Met or Not Met: Met</p>
	<p>New Action Plans: There will not be a change to this learning outcome. Faculty of Microbiology feel this is an excellent method to analyze the application of the scientific method to the process of learning, critical thinking, and problem solving. While 20% of the students did receive a grade below 70, some of these students did not follow the clear instructions regarding the formatting of the paper, bibliography guidelines, submitting the paper on time, etc., which was all outlined in the detailed scoring matrix/rubric. Microbiology faculty will encourage the students to submit the Unknown Project paper on time to possibly alleviate the issue of missing data sets in the future, and reinforce the scoring matrix/rubric and discuss with the students the details of how the project will be assessed. Not submitting the Unknown Project paper also adversely affects their grade tremendously. Microbiology faculty will continue to use the same scoring matrix/rubric, same microbial organisms, and same biochemical tests. We will also still collaborate on the calendar and due dates.</p>
	<p>Evaluation of Previous Cycle's Action Plans: Microbiology faculty have collaborated and agreed upon the same scoring matrix/rubric to use for all classes so we are consistently using the same grading parameters. The Microbiology faculty also follow the same calendar with due dates, and have also agreed to use the same microbial organisms and biochemical tests to analyze the unknown organisms.</p>



#2	Communicate clearly and in a way that reflects knowledge and understanding of the human body and demonstrates the ability to adapt information to different audiences and applications.
	Courses in the degree plan that address this outcome: BIOL 2402
	Assessment Measure for this Outcome: Assessment of this goal is obtained from a written research paper assigned during A&P II, a sophomore-level capstone course for pre-nursing majors. The paper assesses a student's ability to apply the anatomical and physiological concepts learned in A&P II to a pathophysiological condition. Students are expected to research scholarly literature and adapt this information as per set of guidelines using the APA method. A grading rubric is used to evaluate the papers.
	Achievement Target for this Measure: 70% success
	Results: Data was collected from the three Spring 2015 laboratory sections. The total number of students from which grades were collected is 58 (n = 58). Fifty-one of the fifty-eight students (88%) received a 70 or above on this assignment.
	Target Met or Not Met: The target was met.
	New Action Plans: A new action plan is not necessitated.
	Evaluation of Previous Cycle's Action Plans: The grading rubric developed by the Anatomy and Physiology faculty for the Spring 2014 assessment has been adopted as the grading rubric for the Anatomy and Physiology II research papers. This is used by the entire Anatomy and Physiology faculty (including adjunct) to grade the research papers.



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#3	Interpret graphs, tables, and images of anatomical and physiological data to demonstrate analysis skills.
	Courses in the degree plan that address this outcome: BIOL 2402
	Assessment Measure for this Outcome: Assessment of this goal is obtained from successful completion of several questions as part of three laboratory practicals administered throughout the semester. Students are presented with EKG tracings, enzyme assay, blood typing and respiratory volume data and expected to provide an analysis on the basis of a set of questions.
	Achievement Target for this Measure 70% success of the specific questions on the lab practicals
	Results: A total of nine questions addressing the analysis of EKG tracings, enzyme assays, blood typing and respiratory volumes were part of two of the three laboratory practicals in the Spring 2015 semester. (It should be noted that the third practical does not cover activities relative to the data that was collected.). The following are the results for each question: Question 1 (blood typing): 49% success; Question 2 (EKG tracing): 82% success; Question 3 (respiratory volume): 49% success; Question 4 (enzyme assay): 12% success; Question 5 (enzyme assay): 69% success; Question 6 (enzyme assay): 53% success; Question 7 (enzyme assay): 44% success; Question 8 (enzyme assay): 54% success. In summary, 70% success was met in only 22% of questions.
	Target Met or Not Met: Not met.
	New Action Plans: Due to an oversight by the lead instructor (L. Ibarra-Gonzales), the question set was not reduced to two questions rather than for as was suggested in the Spring 2014 action plan. However, it should be noted, that while 70% success was not achieved for all questions, the success rates increased for all questions, except for two, in comparison to last Spring. The lead instructor has since made the changes to the questions sets in the fall and will carry this process out in the upcoming Spring 2016 semester.
	Evaluation of Previous Cycle's Action Plans: As noted, the action plan was not implemented; however, increases in success rates were achieved in seven of the nine questions. The lead instructor has implemented the Spring 2014 action plan recommendations for the Fall 2015. Since the laboratory practicals are standardized all sections will have the opportunity to implement the recommendations.
#4	Correlate laboratory techniques and technology with Science concepts.
	Courses in the degree plan that address this outcome BIOL 2420
	Assessment Measure for this Outcome: Assessment of this goal is obtained from the completion of laboratory skills on the first lab practical in Biology 2420, Microbiology for Non-science Majors. The completion of selected essential laboratory skills provides students an opportunity to demonstrate their abilities in using the microscope and incorporating aseptic technique during a Gram Stain and creating a quadrant-streak plate, critical techniques required in any laboratory or clinical setting in a health-related profession. Evaluation is accomplished through the hands-on demonstration of microscope usage and using aseptic technique during the performance of a Gram stain and creating a quadrant-streak plate free of contaminants.
	Achievement Target for this Measure 70% success of the skill demonstrations for lab practical #1
	Results: Tallying data from Spring 2015 and Summer 2015, including 4 total classes, the average grade received on the Laboratory Skills portion of Practical 1 in Microbiology was an 78.5 (n = 62 students). Seventy-six percent (76%; n = 47 students) received a grade of 70 or over, while 24% (n = 15) received a grade below 70. Laboratory skills included performing a quadrant-streak plate correctly using aseptic technique and performing a Gram stain using aseptic technique, which included the ability to properly mount



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	and view the Gram stain under the microscope.
	Target Met or Not Met: Met
	New Action Plans: There will not be a change to this learning outcome. Faculty of Microbiology feel this is an excellent method to analyze the appropriate use of laboratory techniques and technology with Science concepts. While 24% of the students did receive a grade below 70, all students had a study guide for the practical that listed these techniques that would be demonstrated on the practical so they could prepare ahead of time. Also, students were given several opportunities to repeatedly practice these techniques during lab time before the practical, and students were reminded several times by their Microbiology lab instructor about having to perform these skills on the practical. Microbiology faculty will continue to use the same practical skills techniques that will be graded using the same grading format across all the Microbiology 2420 lab courses. We will also still collaborate on the practical review sheet, calendar and due dates. The Biol. 2420 practical 1 skills portion of the program assessment is given before the Biol. 2420 unknown project portion of the program assessment. The one student that completed the practical 1 portion (notice n = 62 students) did not submit the unknown project paper (notice n = 61 students).
	Evaluation of Previous Cycle's Action Plans: The Microbiology faculty have collaborated about using the same practical lab test with the same practical skills to perform. The same answer sheet, same practical questions, same point values, same review study guide, and the same Microbiology lab calendar were used by all the Microbiology faculty.



Program Assessment Report

Program or Certificate: Pre-Nursing, Associate of Science
Academic Year: 2015-2016
Program Lead Faculty: Sara Wilkins and Linda Ibarra-Gonzales
Department Chair: George E. Hagen

Learning Outcome #1:	Apply the Scientific Method to the processes of learning, critical thinking, and problem solving.
a. Courses in the degree plan that address this outcome	BIOL 2420
b. Assessment Method	Assessment of this measure is obtained from the completion of the Unknown Project in Biology 2420, Microbiology for Non-science Majors, a sophomore level capstone course for the pre-nursing concentration. The Unknown Project assesses a student's ability to identify an unknown microbe by running a series of tests and experiments on that unknown organism. Students are expected to use their knowledge of the characteristics of microbes and laboratory skills in the identification process. Students submit a written report detailing the process and identity of the microbe. A matrix/rubric is used to evaluate.
c. Achievement Targets	70% success for the Unknown Project Paper
d. Findings Summary	Tallying the data from Spring 2016 and Summer 2016, including 3 class sections of 48 total students (n=48), 91.7% (n=44) had a 70% or higher success rate on their unknown project. Only 8.3% (n=4) received a grade below 70. One student did not submit an Unknown Project paper; therefore, this student was treated as a missing data set. Also, two of the failing papers were submitted past the deadline, both being submitted 3 days late. Because the papers were submitted 3 days late, 30 points were deducted from each of the paper's final grade. Those were the only failing grades in all 3 classes.
e. Target Met or Not Met?	Met
f. Evaluation of previous cycle's Action Plan	The 91.7% was a higher value compared to the percentage from last year, with only 80% being successful (at or above 70) last year. This increase could be attributed to faculty stressing the importance of the unknown project, and telling the students that they must take their time writing it. Also, faculty stress to start writing the unknown project paper early and now wait until the last minute. Also, faculty tell the students to have someone else review your paper before submitting it



	to the instructor. The previous action plan stated that no changes were to be made to the action plan last year because the target was also met last year.
g. NEW Action Plan	No changes need to be made to the action plan.
Learning Outcome #2:	Communicate clearly and in a way that reflects knowledge and understanding of the human body and demonstrates the ability to adapt information to different audiences and applications.
a. Courses in the degree plan that address this outcome	BIOL 2402
b. Assessment Method	Assessment of this goal is obtained from a research paper assigned in Anatomy and Physiology II, a sophomore-level capstone course for pre-nursing majors. The paper assesses a student's ability to apply the anatomical and physiological concepts learned in A&P II to a pathophysiological condition. Students are expected to research scholarly literature and adapt this information as per set of guidelines using the APA method. A grading rubric is used to evaluate the papers.
c. Achievement Targets	70% success
d. Findings Summary	Data was collected from the four Spring 2016 laboratory sections. Two sets of data were collected since in one section three (3) students did not submit the research paper. Therefore, two sets of achievement target data were calculated. One for n = 70 and the other n = 67, where n = total number of students. Eighty-nine percent (89%) achieved seventy percent success where n = 70. Ninety-three percent (93%) achieved seventy percent success when n = 67.
e. Target Met or Not Met?	Met
f. Evaluation of previous cycle's Action Plan	In comparison to the previous cycle, the success rate was higher this year. There were more sections offered and thus more students. Success may be attributed to assignment of the paper on the first day of lab with a due date near the end of the semester, posted guidelines and directions for preparation of the paper, standard grading rubric, and library resources.
g. NEW Action Plan	A new action plan is not necessitated.



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Learning Outcome #3:	Interpret graphs, tables, and images of anatomical and physiological data to demonstrate analysis skills.	
a. Courses in the degree plan that address this outcome	BIOL 2402	
b. Assessment Method	Assessment of this goal is obtained from successful completion of several questions on the laboratory practicals administered throughout the semester. These questions were presented in two of three practicals administered. Students are presented with EKG tracings, data from a digestive enzyme lab, blood typing and respiratory volume data and expected to provide an analysis on the basis of a set of questions.	
c. Achievement Targets	70% success of the specific questions on the lab practicals	
d. Findings Summary	A total of thirteen (13) questions were included in two of three practicals administered in Spring 2016. The following are the results for each question:	
	<ul style="list-style-type: none"> • Question 1 (blood typing): 45% success • Question 2 (EKG tracing): 71% success • Question 3 (respiratory volume): 54% success • Question 4 (respiratory volume): 42% success • Question 5 (respiratory volume): 11% success • Question 6 (enzyme assay): 14% success • Question 7 (enzyme assay): 31% success 	<ul style="list-style-type: none"> • Question 8 (enzyme assay): 65% success • Question 9 (enzyme assay): 39% success • Question 10 (enzyme assay): 79% success • Question 11 (enzyme assay): 33% success • Question 12 (enzyme assay): 29% success • Question 13 (enzyme assay): 32% success
e. Target Met or Not Met?	A 70% success was only met in two of thirteen questions. Therefore, the target was not met.	
f. Evaluation of previous cycle's Action Plan	The action plan called for rewriting the laboratory test questions because it was suspected students did not have enough time to analyze, interpret, and/or calculate in the time allotted. The practical questions are set up as stations, with each station having a set of two to four questions. Therefore, instead of having four questions per station, questions were rewritten such that only two questions were included per station. This was to allow for students to have ample time to answer the questions. Only 16% of the questions (two of the thirteen) were answered with a 70% or better success.	



	Students appear to have difficulty calculating and interpreting data therefore some changes were made to the objectives of the laboratory.
g. NEW Action Plan	The same action plan will be implemented but with some additions. A portion of the laboratory grade requires that students submit laboratory worksheets. These worksheets are in essence the laboratory objectives addressing the identification of various anatomical structures, various physiological concepts, and laboratory experiments. Students complete the worksheets outside of the scheduled laboratory period and submit them for grading. The laboratory practicals test over these objectives. The lead instructor added an objective to the laboratory worksheet addressing the enzyme assays. The objective is as follows: <i>Interpret data collected from experiments performed to determine the activity of enzymes and how they may be affected by pH and temperature.</i> A table with data has been included and students will answer questions using the data. This was implemented in fall 2016. An objective will also be added to the worksheet addressing the respiratory volumes. This was not implemented in fall 2016; however, it will be in time for the next cycle of evaluation. The objective will be as follows: <i>Calculate respiratory volumes and interpret the significance of the volumes.</i> A table with data and questions will also be included.
Learning Outcome #4:	Correlate laboratory techniques and technology with Science concepts.
a. Courses in the degree plan that address this outcome	BIOL 2420
b. Assessment Method	Assessment of this goal is obtained from the completion of laboratory skills on the first lab practical in Biology 2420, Microbiology for Non-science Majors. The completion of selected essential laboratory skills provides students an opportunity to demonstrate their abilities in using the microscope and incorporating aseptic technique during a Gram Stain and creating a quadrant-streak plate , critical techniques required in any laboratory or clinical setting in a health-related profession. Evaluation is accomplished through the hands-on demonstration of microscope usage and using aseptic technique during the performance of a Gram stain and creating a quadrant-streak plate free of contaminants.
c. Achievement Targets	70% success of the skill demonstrations for lab practical #1



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d. Findings Summary	Tallying the data from Spring 2016 and Summer 2016, including 3 class sections of 52 students (n=52), 90.4% (n=47) received a grade of 70 or higher on the skills portion of the first lab practical. There was 9.6% (n=5) that received a grade below 70 on the skills portion of lab practical #1. The number of students for this learning outcome is different from learning outcome #1, which only had 48 total students. The difference is attributed to the unknown project paper being due later in the semester after students have already dropped the course. This learning outcome is assessed earlier in the semester resulting in a larger sample size. The first lab practical is administered in the middle of the semester.
e. Target Met or Not Met?	Met
f. Evaluation of previous cycle's Action Plan	The 90.4% is an improvement since last year, then only 76% were above a 70. This might be attributed to students having more opportunities to practice the laboratory skills this semester, or the actual students just performed better on these particular skills this year. The previous action plan stated that no changes were to be made to the action plan last year because the target was also met last year.
g. NEW Action Plan	No changes need to be made to the action plan.