

Crafton Hills College - Outcomes Assessment Report

General Education Outcome: Natural Science

Assessed: 2023-2024

Learning Outcomes Statement

Students successfully completing a course in this area will be able to apply a problem solving strategy such as the scientific method or other systematic process of inquiry and to recognize the contributions of science and technology in our world.

Means of Assessment (Measurement Method)

Students were assessed during either the Fall 2023 or Spring 2024 semesters. Assessments occurred in 197 sections and resulted in a total of 4,037 assessments.

Summary of Evidence

Table 1: Number and Percent of students scoring 3 or Higher on the GEO.

GEO #	General Education Outcome	# 3 or higher	% 3 or higher
1	Students successfully completing a course in this area will be able to apply a problem solving strategy such as the scientific method or other systematic process of inquiry and to recognize the contributions of science and technology in our world.	3,162	78.33%

List of courses where outcomes were mapped to the GEO (24 Unique Courses).

ANAT-101		
ANAT-150		
ANAT-151		
ANAT-159		
ANAT-259		
ASTRON-150		
ASTRON-160		
BIOL-100		
CHEM-101		
CHEM-102		

Use of Results/Proposed Actions – Individual Submissions

1	<ul style="list-style-type: none"> • Try new strategies? Students are introduced to various dissection techniques by the instructor. • Add content? Provided [NAME] dissector book. • See notable improvement in class performance? Yes, students interact with each other in the cadaver dissection room. • Identify any learning gaps? ANAT 259 students guides ANAT 159 students. <p>In future will you</p> <ul style="list-style-type: none"> • Try new strategies? No plans to as the current techniques work well. May encounter student-to-student interactions more. • Make recommendations for content, assessment, or SLO modification? Not at this time.
2	<ul style="list-style-type: none"> • Try new strategies? Used of the iPads provided through the Strong Workforce Grant increase the student success. Faculty lead has eLab manual and lab exercise intros loaded onto the iPads for students access. New anatomical models were added to the lab. • Add content? Review sheets were introduced in all labs by the lead faculty for this semester. • See notable improvement in class performance? Yes, more student interactions in the laboratory setting where SLOs are assessed. • Identify any learning gaps? Yes, some students tend to interact with the iPad more. May have to release iPad time and more anatomical model time. • Try new strategies? Not for now. Will continue with this model. • Make recommendations for content, assessment, or SLO modification? Not at this point. Will continue to use the lab practical to assess the SLOs as all labs use the same lab practical for consistency.
3	Class perform better at the end. Need to have more tutors provided for this class.
4	Continue building the class
5	Continue to give informative feedback for assignments throughout the term.
6	Continue to listen to student feedback and look into ways to improve student's learning experience.
7	Gaps are still present, but improving. Will work on having more inclusive curriculum to potentially help close the achievement gap.
8	Group discussions and brainstorming sessions will be applied to develop new strategies.
9	Having students practice their measurement skills each week greatly improved the outcome of the lab practical exam (SLO #3). Lab final multiple choice section (SLO #5) scores still low, more emphasis on reviewing those formulas next semester.
10	I did notice some improvement in student motivation for learning this term compared to the first year we returned from remote instruction. To enhance student comprehension and engagement, I've introduced additional content in the form of several worksheets.
11	I have been struggling to increase the performance of student for this evaluation. While still relying on exams for quantification, I decided to break the topic up and spread it across 2 different exams. The logic was that possibly student struggle had to do with the breath of the exam as this topic is considerable in size (3 bulky chapters). I moved the third and largest portion to the following exam. After averaging the results of the exam it was clear that goals still remain to be met and I view no positive increase in performance. I return to the idea that exams may not be the best tool for evaluation.

12	I have incorporated active learning techniques which have increased the level of engagement considerably. Also, providing multiple low stakes assignments and assessments to identify areas where students are struggling.
13	In the future I will introduce forming a hypothesis and analyzing data earlier in the semester. Students struggled with basic math skills, such as calculating percentages. Reviewing formulas and examples was critical. Students scoring at level 1 were absent during lab activities, skipped lecture and had many missing assignments. Learn options available for reaching out to students to encourage attendance and participation.
14	Lab information is not being retained. Weekley quizzes may be necessary.
15	more emphasis in lab knowledge is needed.
16	More emphasis needed in lab understanding.
17	More focus on making measurements in the lab
18	New lab was introduced this semester, results were consistent and positive.
19	New strategies were implemented to improve student's math skill. More work sheets and group activities were very helpful. The lab partners were able to help each other to complete the Lab in addition to the prelab lectures and procedures.
20	New strategy: I tried using a new lecture notes for students to utilize during lecture. Students stated that these were valuable. There was a slight improvement in overall class performance. In the future: Greater encouragement for student to complete assignments and quizzes. There were more students like this in the current class than in previous BIOL 100 courses that I have taught.
21	of the 12 students enrolled in this class, 6 students were no shows. they did not complete assignments, laboratory, exams or final exams. This made the SLO target percentages very low. Students struggling in this class were extremely weak in basic math skills.
22	Proposed actions will be considered at the time of the PPR.
23	Reflect and comment on the successes and challenges in this class. Did you: <ul style="list-style-type: none"> • Try new strategies? No, we need for lab instructor to focus on the 'histology' portion of this course for future courses. • Add content? Will continue use of review sheets. • See notable improvement in class performance? No, in fact more challenges to get faculty to teach more of 'histology'. • Identify any learning gaps? Yes, some students have a tendency to interact with the iPad more. In future will you <ul style="list-style-type: none"> • Try new strategies? Ask faculty to focus more on physiology in program meetings. • Make recommendations for content, assessment, or SLO modification? No plans for SLO modification for now.
24	Reflect and comment on the successes and challenges in this class. Did you: <ul style="list-style-type: none"> • Try new strategies? No. We had new anatomical models were added to the lab.

	<ul style="list-style-type: none"> • Add content? No. Continue used of Review sheets. • See notable improvement in class performance? Yes, more student interactions in the laboratory setting where SLOs are assessed. <ul style="list-style-type: none"> • Identify any learning gaps? Yes, some students have a tendency to interact with the iPad more. <p>In future will you</p> <ul style="list-style-type: none"> • Try new strategies? Not for now. Will continue with this model. • Make recommendations for content, assessment, or SLO modification? Not at this point.
25	<p>Reflect and comment on the successes and challenges in this class. Did you:</p> <ul style="list-style-type: none"> • Try new strategies? No. • Add content? No, just more questions from students. • See notable improvement in class performance? Yes. • Identify any learning gaps? None. <p>In future will you</p> <ul style="list-style-type: none"> • Try new strategies? Not for now. Will continue with this model. • Make recommendations for content, assessment, or SLO modification? Not at this point.
26	Same as my other section here. I think I could benefit from having more inclusive curriculum.
27	Students are struggling more with math then in the past ever since they are allowed to self place into math. I will give them more math review worksheets to see if this helps.
28	Students are weak in Math and knowledge of the pre-requisite for this course.
29	Students need more practices on excel or computer programing to do problem more efficiently. Students perform better on chapter 6,7,8,9 and 10 compared to chapter 1 to 5.
30	students who are weak in math do not do well with the critical thinking skills and laboratory skills. More research needs to be done to see how these students are can overcome the shortage of basic math
31	The class was offered as a full face to face rather than a hybrid class. it was very successful.
32	The new strategy used was writing the "textbook" and making the class a zero cost class. Students have complemented the reading (text) and it will be continued to be used. There are plans for revisions and updates to include current events, provide more equity and inclusion and examples for better student understanding.
33	<p>The semester posed some challenges as I observed a notable decrease in student attendance and an increase in course drops. While the projects implemented were well-received by students, it became apparent that more guidance and stricter rules for missing assignments are necessary to enhance retention.</p> <p>Successes:</p> <p>Exploration through Projects: The introduction of projects was a success, with students expressing enthusiasm. I was able to see them delve into how course content relates to their majors or future careers, exploring areas like fractals in-depth.</p> <p>Challenges:</p> <p>Student Engagement and Retention: Unfortunately, a significant number of students either stopped attending class or dropped the course, impacting overall comprehension.</p>

	<p>Future Plans:</p> <p>Stricter Assignment Rules: To address the issue of missing assignments, my plan moving forward is to drop students who fail to submit assignments for two consecutive weeks without presenting a plan for catching up.</p> <p>Enhanced Guidance for Projects: While the projects were successful, I recognized the need for additional guidance to maximize their impact.</p> <p>Transition Homework to Group Work and Implement Check-ins: I am moving towards incorporating group work as homework assignments to foster collaboration and decrease work outside of class. Regular check-ins on portfolio progress will be implemented to ensure continuous improvement.</p>
34	<p>The semester posed some unique challenges as I observed a notable decrease in student attendance and an increase in course drops. This class, in particular, experienced a considerable number of mental health crises among students. While the projects implemented were well-received by students, it became apparent that more guidance and stricter rules for missing assignments were necessary to enhance comprehension.</p> <p>Successes:</p> <p>Exploration through Projects: The introduction of projects was a success, with students expressing enthusiasm. I was able to see them delve into how course content relates to their majors or future careers, exploring areas like fractals in-depth.</p> <p>Challenges:</p> <p>Student Engagement and Retention: Unfortunately, a significant number of students either stopped attending class or dropped the course, impacting overall comprehension.</p> <p>Future Plans:</p> <p>Stricter Assignment Rules: To address the issue of missing assignments, my plan moving forward is to drop students who fail to submit assignments for two consecutive weeks without presenting a plan for catching up.</p> <p>Enhanced Guidance for Projects: While the projects were successful, I recognized the need for additional guidance to maximize their impact.</p> <p>Transition to Group Work: I am moving towards incorporating group work as homework assignments to foster student connection and reduce work outside of class. Regular check-ins on portfolio progress will be implemented to ensure continuous improvement.</p>
35	<p>This course, and evaluation of SLO, has traditionally been quantified using exam scores. I am learning that student exam scores do not necessarily reflect their comprehension of the material. In future courses it may be useful to find another means of evaluation or quantification.</p>
36	<p>This is 8 week online class so it's very challenging for students to catch up with materials. It would be better if this class can be offered as 10 weeks.</p>
37	<p>This quarter there was a substantial drop in grades for this class compared with the summer cohort. As highlighted above 14 enrolled students has minimal participation, total</p>

	<p>scores ranging from .67%- 49.0%. I used Star fish to notify these students, however their involvement remained minimal. Several students tried to submit, all 8 weeks of assignments in the last two weeks of class. While these were excepted, the late penalties on the dropped the grades significantly. Additionally, it was apparent, the assignments were not properly completed missing word count and not meeting defined rubrics. The upper portion of the class was incredibly engaged. Emailing with extra questions and setting up zooms to discuss further study in the area. A new strategy I may try is requiring readings and lecture videos to have a "mini" comment specifically regarding covered content worth points and barring students from "hopping" around modules. Sports nutrition is a highly technical topic (biochemistry based) and many students seem unaware of this when enrolling for what they believe will be an easy class about getting ripped. I'm pleased with the comments I received from students that engaged in the class, as they broadened their understanding and applied the knowledge to their personal wellness journey.</p>
38	<p>This was a small class with successful results. % Assessed was all higher than 70% and all the targets were met.</p>
39	<p>This was a very strong class. I had only one student who really didn't understand material. I see no changes to make in the next semester as they all performed well this semester.</p>
40	<p>This year, the course utilized zero-cost textbooks and materials. The reading assignments, crafted as textbook replacements, were designed with a focus on inclusion, race, and equity. They incorporated videos, pictures, and highlighted topics to reinforce these principles.</p>
41	<p>Though this data indicates an increase in performance it is associated (stacked) with section 65, which did not show this increase in performance. This course, and evaluation of SLO, has traditionally been quantified using exam scores. I am learning that student exam scores do not necessarily reflect their comprehension of the material. In this case the exam data supports reaching goals, but also reflects that some excel in exams where others do not, even with literally the same instruction. In future courses it may be useful to find another means of evaluation or quantification.</p>
42	<p>Try new strategies? Yes, use of "practice" labels during the lab.</p> <ul style="list-style-type: none"> • Add content? Continue with review sheets in all labs by the lead faculty for this semester. • See notable improvement in class performance? Yes, more student interactions in the laboratory setting. • Identify any learning gaps? There remains a small number of students have a tendency to interact with the iPad more. <p>• Try new strategies? Not for now. Will continue with this model.</p> <p>• Make recommendations for content, assessment, or SLO modification? Not at this point. Will continue to use the lab practical to assess the SLOs as all labs use the same lab practical for consistency.</p>