

Crafton Hills College - Outcomes Assessment Report

General Education Outcome: Natural Science

Assessed: 2022-2023

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 2022, Spring 2023, or Summer 2023 semesters. Assessments occurred in 241 sections and resulted in a total of 3,703 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.	2,928	79.07%

List of courses where outcomes were mapped to the GEO (35 Unique Courses).

ANAT-101		
ANAT-150		
ANAT-151		
ANAT-159		
ANTHRO-106		
ANTHRO-116		
ASTRON-150		
ASTRON-160		
BIOL-100		

CHEM-101		
CHEM-102		
CHEM-123		
CHEM-150		
CHEM-151		
CHEM-212		
CHEM-213		
CSCI-230		
CSCI-240		
GEOG-110		
GEOL-100		
GEOL-100H		
GEOL-101		
GEOL-101H		
GEOL-112		
GEOL-113		
GEOL-160		
GEOL-195		
KIN/S-148A		
KIN-200		
KIN-231		
MATH-102		
MATH-115		
PHYSIC-100		
PHYSIC-250		
PHYSIC-251		

Use of Results/Proposed Actions – Individual Submissions

1	<p>The influence of a number of "adult" learners in this class had a positive influence on the overall class experience. Based on this I will continue to market this class in our senior gated communities. This positive influence was in both the social aspect of class as well as the appreciation for and efforts in the improvement and development of skills throughout the semester. Based on the assessment results of the knowledge of rules and strategies, I will continue to require the information tests that take place throughout the semester. These assessment opportunities give a clear emphasis on practical knowledge of playing strategies, rules, technique, and etiquette. One other component of class that worked exceptionally well this semester was the competitive component. I believe this went well this semester due to the overall balance of student skills and experience in the class. In the future I will utilize Starfish to a greater degree I believe this will help keep the students more informed about there since of progress throughout the semester. In addition when setting up teams to compete, I will utilize more creative and effective ways for team selection.</p>
2	<ul style="list-style-type: none"> - Several teaching methods were used to establish a teaching style suitable to students' learning outcomes. - Real-life examples were implemented during lectures to make the concepts more accessible for students. - A new format for laboratory reports was used to familiarize students with how a professional laboratory report should look. - Group's final project was presented in a conference format and drew students' interest.
3	<p>Attempting to reorganize this topic has lead to an increase in scoring, in this particular section, but this is a small sample size in comparison to section 65 which shares the same lecture and so exams. This section has shown that the newer organization can have a positive impact and so I will continue with this current organization with a few possible changes. Perhaps a different assignment type might be a better evaluation for this? Testing still remains the best option, but does not seem to fairly reflect interest if not retention of detail.</p>
4	<p>Attempting to reorganize this topic has not lead to an increase in scoring, though I feel the student engagement was increased. Perhaps a different assignment type might be a better evaluation for this? Testing still remains the best option, but does not seem to fairly reflect interest if not retention of detail.</p>
5	<p>Brainstorm to discuss the solution of the approach to the project in the class.</p>
6	<p>Changing some information due to new guidelines the students were very engaged and receptive with the information..</p> <p>this class compared to the late start was interesting to see the change in participation numbers by the end of the class.</p> <p>i will need to reflect and try and make changes from normal start to late start to try and keep student engagement more consistent.</p>
7	<p>Chemistry sec 60 was a much better student population, they had a slow start but by the end of the semester they got the hang of it and was much more attentive to their overall outcome. Only a selected few was not very complying to making the most effort to be</p>

	<p>engaged and work out through their problems in getting a better score.</p> <p>I have had many opportunities to for the latter group to able to turn in work with a different time frame. Most were not very interested in taking advantage of extra credit work or re-assessing low grades and improving their GPA. All other students did take advantage of this opportunity.</p> <p>More detailed lessons with emphasis on work habit needs to be evaluated with each student individually to allow more valuable work ethics. This will allow students to improve on wanting to succeed.</p>
8	Class almost met the target. The lab section always seems to make the target, whereas the lecture only does not at times. Students in the lecture only are also less likely to attend tutoring or SI sessions. Somehow engagement and motivation with the lecture only sections needs to be increased.
9	Continue to get feedback from students to improve their learning experience.
10	Continue to listen to students concerns and work to help the learning process for each student.
11	Continue to modify and update course.
12	Continue to support students by providing opportunities to overcome areas of weakness. For example math and pre-req. material
13	Current actions are sufficient.
14	<p>For Outcome 1, some students did not choose to come to office hours to have me help them on the lecture and lab assignments even though I let them know I was available and that it would be confidential. The problems were also discussed many times in class, and they did not listen or take notes as to what is expected nor read the instructions, nor reference their lecture notes that they should have completed. They were given many opportunities for help and did not seek it.</p> <p>I did see a change in Students commitment to learning, many came to class late and many just did not show up.</p>
15	I have continued to rely on testing for evaluation but have reduced the number of topics for this particular exam. Allowing more focus on this topic is resulting in increased success.
16	I tried new strategies and saw notable improvement in class performance when Visible Body content was added new to the canvas shell.
17	I was please with the results and the one studnet who did not get above 90%, maybe let them retake the quiz.
18	Increase retention in my online class. Students stopped attending after drop date.
19	My main objective was to be able to reach out to student to appreciate learning in a scientific and comprehensive manner. I wanted students to find the relevance of chemistry with every day life and personal daily interactions. Since Chemistry is a very hard subject for students and requires greater investment of their time, reaching at least 50% of the student body in being able to comprehend and critically understand and be able to see the significance of our science, is a great accomplishment. At Ivy 4 year colleges and university this 50% is not even reached in most chemistry class but a below 20% effectiveness. Plus our students within this class have not had any significant chemistry background from high school and their math skills are bare minimum. I plan in the future to be able to emphasize more on problem solving and mathematical interpretation for future student body and give a more indebt correlation of the problem solving to daily aspects.

20	Often I had two or three students who struggled with basic things like multiplying or reducing fractions, which made it extra challenging when going over permutations and combinations. So, I did add some new content to help with these learning gaps, such as frequent little quick side notes and examples of these fundamental concepts. The immediate verbal feedback from the students was typically positive.
21	One challenge was getting students to apply class content to a new situation. I had the students use an online chemistry lab simulator to do calculations for a titration. This was a strategy to discover if students are understanding concepts versus learning by rote or memorizing steps. I will continue with this strategy.
22	One student decided to no longer participate in class since they were already accepted as a transfer student. New strategies: Have students complete more of lab report in class. New Content: New worksheets developed Learning Gaps: I have made sure each student feels seen and has opportunity to talk without other students listening into the conversation.
23	Online format is not working for intro chem students. They are weak in math and generally are not disciplined enough to pay attention and follow direction on their own. Tutoring was offered and students did not use that option to make the outcomes better. For Fall 2023 chem 101 will not be offered online.
24	Online format is not working for intro chem students. They are weak in math and generally are not disciplined enough to pay attention and follow direction on their own. Tutoring was offered and students did not use that option to make the outcomes better. For Fall 2023 chem 101 will not be offered online.
25	Providing a more practical approach to the introduction of Kinesiology rather than a theoretical aspect helps students determine career paths earlier in the students academic career I found. if was able to teach this course again, there was a new interactive website and textbook that the students may find more useful and interactive New strategies would be find new ways for students to engage with their classmates in group assignments when the course is strictly online. This was the main struggle I found this course even though the groups were randomly assigned and a discussion board was available for the students to communicate and pick their topics.
26	Reflect and comment on the successes and challenges in this class. Did you: <ul style="list-style-type: none"> • Try new strategies: Added a comprehensive review sheet in lab and iPads are used in the lab. • Add content: Since we are back in person for the first time, there are more anatomical models, • See notable improvement in class performance: Yes, students are more engage and used the iPads in the lab is noticeable. • Identify any learning gaps: Students who were not as active in the class seems to not do as well. In future will you <ul style="list-style-type: none"> • Try new strategies: Work with the STEM and Tutoring centers more. • Make recommendations for content, assessment, or SLO modification: Will continue

	to encourage basic anatomy and physiology with the additional anatomical models that we have in the lab.
27	<p>Reflect and comment on the successes and challenges in this class. Did you:</p> <ul style="list-style-type: none"> • Try new strategies: Added a comprehensive review sheet in lab and iPads are used in the lab. • Add content: Since we are back in person for the first time, there are more anatomical models, • See notable improvement in class performance: Yes, students are more engage and used the iPads in the lab is noticeable. • Identify any learning gaps: Students who were not as active in the class seems to not do as well. <p>In future will you</p> <ul style="list-style-type: none"> • Try new strategies: Work with the STEM and Tutoring centers more. • Make recommendations for content, assessment, or SLO modification: Will continue to encourage basic anatomy and physiology with the additional anatomical models that we have in the lab.
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30	<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, this course has students who'd meant the ANAT 101 or had completed the ANAT 150/151 series with good grades. • Add content? We used the same techniques and prosections as there's not much new things added. • See notable improvement in class performance? N/A

	<ul style="list-style-type: none"> • 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.
31	<p>Reflect and comment on the successes and challenges in this class. Did you:</p> <ul style="list-style-type: none"> • Try new strategies? Yes, with the addition of the iPads provided through the Strong Workforce Grant increase the student success. 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 have a tendency to interact with the iPad more. May have to release iPad time and more anatomical model time. <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. <p>Will continue to use the lab practical to assess the SLOs as all labs use the same lab practical for consistency.</p>
32	<p>Reflect and comment on the successes and challenges in this class. Did you:</p> <ul style="list-style-type: none"> • Try new strategies? Yes, with the addition of the iPads provided through the Strong Workforce Grant increase the student success. • 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 have a tendency to interact with the iPad more. May have to release iPad time and more anatomical model time. <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. <p>Will continue to use the lab practical to assess the SLOs as all labs use the same lab practical for consistency.</p>
33	Saw improvement with daily concept checks.
34	Saw improvements with daily concept checks.
35	SLO assessed as passing of 70% or higher would show much higher % Passing SLOs
36	Student met target.
37	Student met the target. The course was difficult for them, but they were motivated and engaged throughout.
38	Students met the target easily. A really good group of students.
39	Students met the target, but just barely due to the smaller class.
40	Students performed well on this SLO.
41	Target met was assessed at at least a 70% (3 or better).
42	Target met was assessed at level 2 or higher (70+%).

43	The ANAT program will continue to provide unbiased high-quality instructions and work with students' diversities to ensure that the target goals are met. The lead faculty will continue to work with and provide support to all adjunct faculty members in this program. For the future, resources such as the eLab manual and customized virtual Lab website will be continued to be use to support student success.
44	The ANAT program will continue to provide unbiased high-quality instructions and work with students' diversities to ensure that the target goals are met. The lead faculty will continue to work with and provide support to all adjunct faculty members in this program. This section did not meet the goal set. Therefore, looking into the future, resources such as the eLab manual, customized virtual Lab website, and a lab review sheet will be supplied to support student success. Additionally, this program will continue to work with the STEM and Tutoring Centers to increase student success rate.
45	The ANAT program will continue to provide unbiased high-quality instructions and work with students' diversities to ensure that the target goals are met. The lead faculty will continue to work with and provide support to all adjunct faculty members in this program. For the future, resources such as the eLab manual, customized virtual Lab website, and a lab review sheet will be supplied to support student success. Additionally, this program will continue to work with the STEM and Tutoring Centers to increase student success rate.
46	The class met the target, but just barely due to the small class. The student who missed the target was not really engaged or motivated. This is an ongoing issue with the lecture only section.
47	The one honors student met the target.
48	The students did a great job in this class. This was the first time this field class was offered, and it went well. Some minor adjustments, mostly concerning logistics will be done before it is offered again.
49	The students who were engaged all semester did very well and applied their knowledge to weekly discussions and critical thinking effectively. I would like to continue my class to complete a group project, but I would like the try and have the students create their own groups hopefully to see a better outcome of participation. hardest challenge in the springs are students dropping out and completing partial of the work and then not finishing out the semester.
50	The summer course is asynchronous so I added more slides from the text publisher and added an article for the students to reach that falls in line with the chapter topic of the book. I made a requirement for the students to view all of the slides and take part in discussion before taking the quiz at the end of the week.
51	This is a general area of interest for students. Many seem motivated in lecture. There is a relatively high level of detail discussed/tested and perhaps this could be evaluated and slightly reduced or identify a new aim on testing techniques.
52	This is a small sample size issue, when taken into context with the over all class(including section 35) I am seeing a positive trend in the success rate for this SLO.
53	This is a very useful method of evaluating the effectiveness of the teaching strategies and communication between the teacher and students which should be continued since it helps the teacher adjust his/her teaching methods to better the learning outcome of the students.

54	This was a small class and it benefited students to get more one-on-one help and prepare better for the assessments. students were able to do group study session and use extra time in lab and outside of class to prepare. Use of study groups will be implemented in future semester based on the results of this group.
55	Took over class from a previous instructor. Only taught the class for the last half of the course. Students responded well to practice exams. Showed marked improvement during the final exam.
56	Took over the course mid semester. Only taught the final half of the course. Students seemed to respond favorably to practice exams as study guides. Marked improvement made during the final.
57	Try different strategies in delivering full term content in a short term course.
58	Try letting the students who did not fully meet the standards at the highest level to redo the assignment.
59	Two students stopped coming to class after the last day for a W. I did let all student know before that date that a letter grade will be assigned, they chose to not withdraw from the course.
60	With this group of students, there were many who were not engaged with the subject. Additional methodologies should be utilized to try to increase engagement.