Crafton Hills College - Outcomes Assessment Report

General Education Outcome: Quantitative Reasoning **Assessed:** 2022-2023

Learning Outcomes Statement

Students successfully completing a course in this area will be able to interpret quantitative reasoning and perform mathematical operations in an effort to demonstrate quantitative reasoning skills.

Means of Assessment (Measurement Method)

Students were assessed during either the Fall 2022, Spring 2023, or Summer 2023 semesters. Assessments occurred in 176 sections and resulted in a total of 3,009 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
7	Students successfully completing a course in this area will be able to interpret quantitative reasoning and perform mathematical operations in an effort to demonstrate quantitative reasoning skills.	2,067	68.69%

List of courses where outcomes were mapped to the GEO (27 Unique Courses).

BUSAD-053	CIS-137	MATH-115	MATH-252	PHYSIC-252
BUSAD-105	CIS-140	MATH-117	MATH-265	PSYCH-120
CHEM-101	MATH-102	MATH-141	MATH-266	RESP-237
CHEM-150	MATH-103	MATH-160	MATH-902	
CHEM-213	MATH-110	MATH-250	MATH-903	
CIS-130	MATH-110H	MATH-251	MATH-915	

Use of Results/Proposed Actions – Individual Submissions

1	25% of active students in class failed. 75% of active students in class passed. Thus target was met for all SLO's. Students coming to Crafton Hills College after COVID-19 are not up to mathematical standards after graduating high school. The passing and failing rates are due to students not understanding the rigors of college mathematics, not having good study habits, thinking that college is like high school and will be passed through with no consequences, and having bad note taking skills. We will see this type of student for the next several years.
2	All the SLOs were met in my courses this semester. I will continue to implement the same teaching style and flow of the course I used this semester in other courses and hope for the same results. I been seeing improvement each semester; by adding in reviews and worksheets throughout the course has greatly helped improvement in my courses scores.
3	At the end of the semester I would like to spend more time on reviewing the concepts from earlier in the semester, the problems dealing with stuff from the beginning of the semester. I want to give more time in class for reviews and focus more time and effort on the real world problems and application of business calculus.
4	Be more effective reaching out to struggling students.
5	Chapter 4 went better than expected due to stressing how difficult the material was and how they really need to study 4.6 and 4.7 (coordinate representation and basis for the null space).
6	Continue as is.
7	Continue to schedule Math 110 classes in rooms with computers. Statistical software is cost-effective (equitable), plays a huge role in obtaining/visualizing results (inclusive for variety of learning styles), and allows students to engage with material/productive struggle before they ever leave the classroom.
8	Continue to support students by providing opportunities to overcome areas of weakness. For example math and pre-req. material
9	Create more opportunities for students to build on the responses of others, through student feedback. Create more real-world examples.
10	Focus more on reading comprehension and note taking skills.
11	Focus on reviewing algebra skills
12	Handouts gaves more time to do more examples in class. Videos have examples not done in class so students can go over a lecture at their leisure.
13	Honestly, I am at a loss to see these results. Normally, my class does very well. Before attempting to make any suggestions on improving student performance on the SLOs, I want you to know the following information. First, this course was asynchronous. Second, I aligned the SLOs to every final exam question in Canvas. Third, when students completed the final exam I ran the Canvas outcomes analysis report on my final exam which displayed the numbers I entered here into the SLO Cloud. Fourth, I searched the Canvas Community for information regarding how outcome results are tabulated and calculated without much success. Lastly, I am interested in the collected SLO data between asynchronous, synchronous, hybrid, and in-person. Analyzing this data could reveal strategies for asynchronous courses.
14	I am going to try mastery grading next semester.

15	I believe it was a successful class due to the students comradery. Student driven study groups after class.
16	I had a lot of students stop doing work after the census date. They never dropped the course and that is reflected in my failing grades. The students that stayed involved did well. I will try to keep students on track more for these online courses.
17	I had about 6 students stop coming to class and get zeros the last two weeks when the last exams happened. I will work on retention for summer in the future. More check in's with the students. More alternative assessments.
18	I had students stop doing the work after the census date. The students that continued did well. Keeping them motivated and accountable will be something I work on.
19	I let students take the test twice since distance learning is stressful for the students when they are evaluated. Each test question comes from a test bank so each student takes a similar test to other students and the second attempt at the test is not exactly like the first attempt at the test. Most students from this eight-week class take the test twice and this action reinforce the positive action of continuous effort to improve. (New) This semester I used starfish to contact students who missed the first attempt of a test. This implies that the students must have been preoccupied to miss the test the first time.
20	I tried making new handouts based on the lecture everyday to let students work and apply appropriate techniques for solving trigonomitric functions and equations.
21	I tried to group/lump the confidence intervals and hypothesis testing into a "big picture" lesson and then tried to apply it to the different parameters. I think it helped a little bit but could still use some work. Attendance is still an issue, encouraging more consistent attendance would help with the learning gaps. In the future I will continue to try new ways wo make content more accessible. This could be done by using relevant examples, flexible technology, maybe offer academic incentives for attending office hours. Also open to try new things.
22	I would like to find a way to incorporate more written assignments
23	I would like to integrate applications and projects more into the course.
24	Implement additional practice problems during lecture
25	Improvement from continuous 2nd chances.
26	In out come statements 1, 2, and 3. the 5 that is in the one column are students who gave up or did not drop the course and are considered inactive after the drop date. I am not counting those students in the results for target met.
27	In the future, I would like to present a group project where they would apply inferential statistics to make decisions about data and have students present in class. I've been looking for ways to incorporate more projects in class, and I believe this would benefit students understand these applications a bit more.
28	Increase engagement Cover important study skills
29	Increase one-on-one activities at the beginning of the semester to minimize drop rates.
30	More preparatory help is needed. (2)

31	My class had a pretty successful semester. We were able to get through all of the coursework and they had pretty good performance on the later sections. I was particularly happy with the second SLO since that is usually my lowest. I had more activities having them work with physical cards and run probability simulations which held their interest. There were some who stopped showing up part way through the class which usual happens. I would like to be better with following up when students miss a couple of classes just to check in. For the third SLO I used by exam three scores which cover hypothesis testing and confidence intervals. I have another Exam that covers linear regression and ANOVA etc. A fourth SLO might not be needed but I'm unsure how to include that data. Also I am not super informed on what I should be for the Program level/Outcomes mapping/institutional. I hope they are relevant.
32	Need to try various lab formats.
33	One of these test was a take home and the problem on the other was an easy problem so next time I will look and the SLO's and give much harder problems.
34	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.
35	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.
36	Perhaps removing some content from Math 102 if possible and add more basic skills needed to complete this course successfully.
37	Perhaps removing some content if possible could help.
38	Possibly remove content from Math 102 if possible and add time to include more basic skills to help students be successful in Math 102. Even with this lab course, its seems like many students need more time to gain the skills necessary to complete Math 102.
39	Remove some College Algebra content if at all possible and add some more time for basic skills.
40	Saw improvement with daily concept checks.
41	Spend more time of identities
42	Students all achieved SLO's, some required re-evaluation and coaching but effectively accomplished evaluation requirements and met the standards for performance. No need for change in the future, these evaluation criteria are specific and appropriate to course outcomes.
43	Students coming in are severely under prepared for this course.
44	Students excelled.
45	Students may need more practice on interpreting descriptive statistics, applying methods of discrete and continuous probabilities to real-world situations, and apply inferential statistical methods such as confidence intervals and hypothesis testing. IMPORTANT UPDATE: I accidentally inputted the SLO results from another class when I

	submitted this report originally on June 6, 2022. I am updating the SLO results for this class today as I realized my mistake. Thank you!
46	Students may need more practice with understanding the meaning of and writing mathematical notation.
47	Students met the standards.
48	Students strongest work was in SLO 3. This is often the weakest material for students. Seeing this result is great, because it means students understood the most difficult material in the course. Students struggled with SLO 2. This is medium difficulty material that takes place at the half-way point in the semester. A take-home homework or quiz on this assignment near the end of the semester will help students in the future.
49	Supply a proctoring center to support outcome-based grading and no due dates/late penalties. Also, this method of SLO evaluation may not work for outcome-based grading. The math department should request a testing/proctoring center to support equity-minded grading practices in their PPR.
50	Target me for those students who passed the class. Those students who got a 1 for outcome statement (1) were students who no longer showed up to class and didn't drop the class or it was too late to drop the class. So, even thought the percentage is low, the target was met by those those students who stuck it out = 9 out of 9 and not 9 out of 14. Same goes for outcome statement 2.
51	The class size is too small to definitively identify any learning gap. More computer hardware may be needed.
52	The course should be offered as a full-term instead of 12-week long.
53	The SLO Rubric showing here is incorrect. The mathematics department's rubric score of 4 should represent students who score 80-100%, followed by a 3: 70-79%, 2:60-69%, and 1: below 60% on any SLO being assessed. This is the rubric used for these students. The department's met target is 65%. To help alleviate students feeling as if they have to read and learn course content on ""their own"" this semester I utilized PlayPosit. Incorporating my lecture videos into this program allowed me to deliver course content differently for my online classes. Lectures were assigned and completed through the use of PlayPosit. This is a low-stakes assessment where students are able to check their own understanding of course content as they watch, take notes, and follow along the video by completing the video's embedded questions. When comparing the scores from students who completed both the PlayPosit Lecture Video and the Lecture Checkpoint (Quiz) scores that covered this SLO, students who scored above 60% for the PlayPosit Lecture Video scored a 3 or 4 on the SLO rubric. Students who dropped the course prior to the checkpoint were not assessed on a given SLO. A major concern for me is the vast amount of students who drop the course, stop trying, or disappear throughout the semester despite my efforts to communicate to all students that my ultimate goal is their success in order to obtain their educational goals. Within my online courses, students continue to drop, stop trying, or disappear despite them receiving communications in CANVAS/PRONTO/email throughout the semester about the help/resources available to them within the course and through Crafton Hills College. Other than making myself available to students in these online classes both virtually and in-person,

	they also have embedded tutors virtually available to them throughout the week and on weekends. It is important to note that students who successfully complete the course have said the course was set up as if they were in an in-person course. They have indicated the lecture resources, support material, and videos within the modules helped in their understanding and ability to complete weekly assignments and resources available were necessary and helped them succeed in the course.
54	This course was a 15-week late-start online course. Other than the information stated below, this class tended to perform significantly lower in all assessments than the 17-week online courses. The SLO Rubric showing here is incorrect. The mathematics department's rubric score of 4 should represent students who score 80-100%, followed by a 3: 70-79%, 2:60-69%, and 1: below 60% on any SLO being assessed. This is the rubric used for these students. The department's met target is 65%. To help alleviate students feeling as if they have to read and learn course content on "their own" this semester I utilized PlayPosit. Incorporating my lecture videos into this program allowed me to deliver course content differently for my online classes. Lectures were assigned and completed through the use of PlayPosit. This is a low stakes assessment where students are able to check their own understanding of course content as they watch, take notes, and follow along the video by completing the video's embedded questions. When comparing the scores from students who completed both the PlayPosit Lecture Video and the Lecture Checkpoint (Quiz) scores that covered this SLO, students who scored above 60% for the PlayPosit Lecture Video scored a 3 or 4 on the SLO rubric. Students who dropped the course prior to the checkpoint were not assessed on a given SLO. A major concern for me is the vast amount of students who drop the course, stop trying, or disappear throughout the semester despite my efforts to communicate to all students that my ultimate goal is their success in order to obtain their educational goals. Within my online courses, students continue to drop, stop trying, or disappear despite them receiving communications in CANVAS/PRONTO/email throughout the semester about the help/resources available to them within the course and through Crafton Hills College. Other than making myself available to students in these online classes both virtually and in-person, they also have embedded tutors virtually available to them throughout the week and weekends. It is important to note that students who successfully complete the course have said the course was set up as if they were in an in-person course. They have indicated the lecture resources, support material, and videos within the modules helped in their understanding and ability to complete weekly assignments and resources available were necessary and helped them be succeed in the course.
55	This semester I provide multiple low-stakes assessments so that students have more opportunities to review and master the materials as well as push up their grades.

56	This time around I focused on redoing some of the later sections and expanding it to use more technology. This seems to work great as the third SLO was reflected as the strongest by the class. I ending up having more time for review available later in the class and I want to use this extra time to really spend more time on the probability section of the class. I always feel like I don't have enough time for it but I end up being able to finish up the class comfortably. This next semester I'm going to try to devote entire days just to working on the probability concepts without having to introduce anything new.
57	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.
58	This was an eight week a face-to-face class. I supplied a skeletal handout packets that outlined the lectures so the students focused their time writing down calculations, important processes and solutions to content discussion questions instead of trying to down background perspectives that led to the content discussions. I also filled the canvas shell with the video lectures used for a non face-to-face class and many students voiced that they where viewing the lectures before class and also after class to reinforce their understanding. I also used the canvas shell when students turned in their work, this made grading late work easier to manage. I had a process for students to make test corrections and possibly move up old low test scores. The test correction policy was a way to demonstrate good study skills to do before taking a test. I would look at the students test corrections only if they passed the next test, thus demonstrating they were able to apply their new study skills process. The eight week summer pace is challenging for the students and I believe some of the strategies above kept them on task with optimism and understanding that the focus was always on the students trying to find a way through the course that worked for them.
59	This was my first time teaching a class with an attached support lab. A reason so many people failed my class is 7 people stopped attending after the second midterm. It would be nice to have some support on retention strategies for students. I also would like to try more activities on college algebra review in the support lab. I feel that now I have taught trigonometry once, I can better structure what to focus on in class so that I have time for more review activities.
60	This was my first time teaching this lab section and I had a blast. I feel that overall most of the students got a good peek into some more advanced ideas and also learned tools that helped them excel in the main class. My grading scheme was 80% weekly labs and 20% was an optional article write up or final project. I got some great final projects although I would like to have more structure if I get to teach this again. I would also like to switch up some of the labs and make them more involved. Overall it went well for my first lab!
61	This was my first time teaching trigonometry at any college/university. For graphical literacy, now that I am more familiar with teaching the material, I will include more hands-on interactive lessons on graphing equations using Desmos to improve performance. As for trigonometric equations, because I was behind schedule, I only touched on them for one day, and did not have time to cover it before the final midterm. Thus my students ended up ignoring this content, and mostly skipped the corresponding question on the final. I will devote more time in class on this topic next time I teach trigonometry.

62	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.
63	With the class being long, I would often have student's burnout. I often had to try new strategies to keep students attention and interest. For the new semester I will try to create more active learning strategies to keep students engaged and challenged.