

Crafton Hills College - Outcomes Assessment Report

General Education Outcome: Quantitative Reasoning

Assessed: 2023-2024

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 2023 or Spring 2024 semesters. Assessments occurred in 159 sections and resulted in a total of 2,920 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.	2,131	72.98%

List of courses where outcomes were mapped to the GEO (25 Unique Courses).

ACCT-105	CHEM-150	HIST-171	MATH-141	MATH-265
ACCT-208	CHEM-151	MATH-102	MATH-160	MATH-902
ACCT-209	CIS-130	MATH-103	MATH-250	MATH-903
BUSAD-053	CIS-140	MATH-110	MATH-251	MULTI-173
CHEM-101	ENGL-102	MATH-115	MATH-252	PSYCH-120

Use of Results/Proposed Actions – Individual Submissions

1	Although most students passed the class, students still struggled when individually asked to graph functions. I hope to do more examples, more practice in the future, and more practice on the prerequisite math material so students can excel in the attached College Algebra class.
2	Change format of class to project based
3	Changing the format. Doing away with quizzes.
4	Changing the structure to project based
5	Class may need a prerequisite (Multi 100)
6	Confidence Intervals were a struggle this semester. Need to have options for intentional interventions, encourage more students to use tutoring center as a resource. Also, incentivize students to use office hours more. Hoping to work with colleagues over break to figure out new strategies to teach some of the harder concepts; i.e. Confidence Intervals, hypothesis tests, etc.
7	Continue to have open dialogue and interact with the students during the class. Find ways to increase the interaction with activities that create an environment that encourages correspondence between the students.
8	Continue to introduce new examples. Monitor drops more carefully and intervene as appropriate.
9	Continue to refer students to the Tutoring Center for remedial basic math skills.
10	Continue to refer to Tutoring Center for basic math skills.
11	Course may need a prerequisite, students with previous knowledge in technology can implement the theoretical content better
12	Doing ratio analysis is fundamental part of managerial accounting. Students were not only able to do the analysis but successfully compare different companies within the same industry. Target is above satisfactory.
13	First time I have ever taught this course, so it was a learning experience. I noticed a lack of basic skills in mathematics, so I allowed group activities to assist in this problem.
14	Giving points for taking notes during class. That will encourage those who miss class to copy the notes from other students.
15	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.
16	I do see gaps and thought so next time I will use the Socratic method with my students.
17	I maybe spent too much time on groupwork. Needed more time for students to review for final because of many low scores on final.
18	I tried to use prior data (and the struggles students had) to help improve the areas of confidence intervals and hypothesis testing. I thought with some new resources and meaningful examples, students improved in these topics compared to past semesters. The biggest struggle I had this semester was attendance and students not coming to class regularly. I actually gave five F's this semester but didn't include 3 of them on the SLO report because they hadn't been to class in 6-8 weeks.

	I will continue to try new strategies and try to make content meaningful and engaging for students. Using real world scenarios is sometimes easier to do in the world of statistics than in other math classes. This fall there is a big presidential election, so maybe include some real time data to analyze as a class for this upcoming semester.
19	I used many videos, applets, and outside sources, in addition to my own videos. I used the Pearson program for homework which provides additional support through the assignments that helped students better understand the material. Overall the students excelled in this course.
20	I will try new strategies to fill any learning gaps for making decisions about data.
21	I would like to see the type of questions other instructors are using to assess the SLOs.
22	Identify learning gaps.
23	In this Stat class for technology I mostly used excel. In my Spring class I am going to use a StatCrunch. Hopefully it make calculations easier.
24	Incorporate more group work and individual practice.
25	It was my first time teaching this class, and it went very well. I used a program called Stat Crunch for this class, but I will try to use Excel and calculator to do the calculation for teaching this class in the future.
26	Lab information is not being retained. Weekly quizzes may be required. (2)
27	More focus on making measurements in the lab
28	Most students understand how to interpret descriptive statistics and identify the correct sampling technique used in a problem situation, but fewer understand how to use discrete and continuous probability distributions to answer real-world questions and fewer understand how to apply confidence intervals and regression. This might mean that more time needs to be dedicated on the topics of confidence intervals, regression, and hypothesis testing.
29	Need time and help with basic skills.
30	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.
31	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.
32	Perhaps increase the units for this class to aid in covering and comprehending the overwhelming amount of course material.
33	Perhaps the biggest learning gap was not critical thinking but the writing element. The way the course is set up is that they do historical journals for each chapter. Here, to discuss why, how, where who when and how this creates cause and effect. The students are given points for reading and doing the journal. Because this was only an 8-week class they did not do journals. The exams were multiple choice and essay. Towards the end of the 8 weeks, they were grasping the why and how this is critical thinking. Indeed, the idea being that critical thinking leads to preemptive thinking and how mistakes or misjudgments happen in history because of this. In addition we discussed how propaganda functioned in the past and how social media functions now. We looked at portraits of Napoleon, George Washington and significant figures to evaluate the symbols and the symbols revealed monarchic power, democracy and fascism. This was highly effective, and the students enjoyed it.

34	Perhaps try different formats in the lab to improve success in Math 102.
35	Provide varied resources and activities that cater to different learning styles and levels of understanding. Encourage students to take advantage of office hours, embedded tutor hours, class activity time to ask questions. Encourage students to reflect on their performance and develop action plans for improvement.
36	Remote teaching has been the practice in the recent environment and I used the canvas model. I put video lectures on canvas, therefore allowing students to review lectures over and over at their own pace. I also had the students upload their assigned lecture handouts to canvas. The handouts verified the students viewed the lectures. The students had two tries for each online exam. Each online exam question has it's own test bank, therefore each test is similar but not exactly the same. Many students took the exam only once since they liked their score. However, this semester many students time management skills did not align with the week window to take the exam twice. Sometimes life happens and school is put aside, the student reaches out to me. I extended the test window for the requests made so they can try their (first) second attempt. This students centered focus kept the students trying.
37	Spent a lot of time focusing on study techniques with this group. I used daily quizzes but there were still students who didn't bother to study for them. Kinetics is always a difficult issue in this course as it more mathematical than anything else we do. Unfortunately a lot of the math classes they are taking have moved to projects and the students lack the math skills. I may try adding a math worksheet for them.
38	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.
39	Students are weak in Math and knowledge of the pre-requisite for this course.
40	Students need better basic skills. (2)
41	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
42	Successes: Over the course of the semester, many students improved in their ability to graph functions. Students seemed to appreciate working in groups on application problems Challenges: Many students needed improvement in algebraic skills, such as simplifying expressions and factoring binomials and trinomials. The desk arrangement in the classroom (CNTL-136) made it difficult for students to work in groups, mingle, and write on the whiteboards. In the future: I plan to integrate more algebraic skills practice into the group activities More time (per class meeting) is needed to cover the lessons and allow students to work individually and in groups.
43	Successes: Over the course of the semester, many students improved in their ability to use technology (Excel and Desmos) to perform statistical analysis. Students were engaged and supportive of each other in the discussion board assignments. Challenges: Several students were unable to complete the course due to personal circumstances. I hosted (and recorded) live class meetings on Zoom twice a week.

	Attendance was optional. Nevertheless, very few students attended these optional class meetings, and very few students watched the recordings of my class meetings. In the future: I plan to create more assignments and opportunities that allow for live (or recorded) student-to-student and student-to-teacher interaction on Zoom.
44	The lab is great if utilized to reduce work outside of class (2)
45	The students are well disciplined in mathematics at this level of mathematics. This level of mathematics was rich with a mix vocabulary and concepts where the rigor of the examples had to be correct to minute detail. Therefore I used the strategies of previous classes to make sure students were not overwhelmed. This was a face-to-face class and I used the canvas model for resources. I put video lectures on canvas, therefore allowing students to review lectures mostly after the face-to-face lectures. The video lectures allowed students the opportunity to keep up with the class even though injuries or illness may have prevented them from coming to class. I also supplied handouts for the lectures to keep the students focused and filling-in missing important details for understanding. The students turn-in their lecture handouts to canvas. Most of the students knew how to upload their work to canvas. This class is new to me, so all the strategies I used was from strategies I use in other classes.
46	The students were amazing in this course. They were disciplined and dedicated to critical thinking and writing. The course was a success and inspired students to become a voice in society. Their writing was very high and class performance was inspiring. They also worked well as a group motivating others and inspiring each other in their work. My new strategies is to reteach the important handouts at least 2-3 times. The students seem to be very forgetful. The students enjoyed the work and the ability to become a voice in the class and have an opinion.
47	The target for this SLO was met. In this particular SLO students are given the steps to follow. Therefore, if the student has specific instructions there is a bigger chance of doing proper entry. They don't need to know accounting rules, just reason and calculate to enter the transactions as instructed.
48	This course's daily contact hours could be lengthened so the students have more time to work on the computer lab activities.
49	This is a transferable course. It is very intricate. Even though the percentage assessed of 3 or higher is 56.40. The percentage students achieving the assessments according to transfer standards is 84%.
50	This semester I tried new strategies. I will keep tweaking it.
51	This semester, in this class, I have never met with so much student apathy. I will keep trying to encourage students to keep trying.
52	This was a small class with successful results. % Assessed was all higher than 70% and all the targets were met.
53	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.
54	This was my first time ever teaching statistics. Overall, although the targets were not met, I think the class went well, as many students passed, and I got close to meeting the targets. The lowest was on the third SLO. I believe this occurred because students did not understand how to do hypothesis testing on the difference between means in their final project. Next time I teach this class, I will put more emphasis on teaching and explaining that part of the final project, so that students know what they are expected to do. Also, next time, I might try a project for SLO 2, so students will be more engaged in understanding how to apply probability distributions to real world situations.

55	This was my first time teaching college algebra. I used a lot of new teaching methods in this course: A take-home midterm, a group midterm, group quizzes, a project for the final, and lots of creative group activities like creating posters applying topics learned in class. This is the best retention I have had in a class at Crafton Hills College, with very few dropouts and great engagement in the material. My only qualm is how well these assignments assessed what students actually understood. In future courses, I would still like to use a final project, but I will use a more rigorous rubric to assess these projects, and give them to students in advance so they know what to expect for the grading.
56	Try different strategies.
57	Try hybrid versions of the course.
58	We could increase more students meeting B or above grade by offering the course as a full-semester long course.
59	will continue to introduce new examples. ill monitor drops or potential drops more closely and intervene as appropriate.
60	Will need to try new strategies. maybe new courses.
61	Would spend more time reviewing necessary skills students should have mastered in their algebra classes
62	Although most students passed the class, students still struggled when individually asked to graph functions. I hope to do more examples, more practice in the future, and more practice on the prerequisite math material so students can excel in the attached College Algebra class.