

Crafton Hills College - Outcomes Assessment Report

General Education Outcome: Quantitative Reasoning

Assessed: 2025-2026

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 2025 or Spring 2026 semesters. Assessments occurred in 193 sections and resulted in a total of 3,832 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.	3,117	81.34%

List of courses where outcomes were mapped to the GEO (31 Unique Courses).

ACCT-208	CIS-091	LIBR-107	MATH-160	MATH-903
BUSAD-053	CSCI-200	MATH-102	MATH-200	STAT-C1000
BUSAD-108	CSCI-230	MATH-103	MATH-250	STAT-C1000H
CHEM-101	ENGL-C1000	MATH-106	MATH-251	
CHEM-102	FIRET-100	MATH-107	MATH-252	
CHEM-150	HIST-101	MATH-115	MATH-266	
CHEM-151	KIN-200	MATH-141	MATH-902	

Use of Results/Proposed Actions – Individual Submissions

1	100% of students achieved the outcome. Small class size allowed for individualized instruction; use of real-world examples and activities improved understanding. Low first exam scores led to additional instruction on foundational concepts and an exam retake opportunity.
2	16 week semester was new and the pace seemed to work. Will add problems to problem sessions to help with math. Work on pacing of laboratory experiments.
3	About the same as previous year. Most students did well because of the option to submit exam corrections. Most students who were not rated a 4 just did not bother with exam corrections because they were already happy with their grades (which is ok).
4	Add more engaging content
5	Adding more applications. Changing grading and assessments
6	Although the overall success rate was 63%, indicating that the goals were somewhat met, continued efforts will be made to strengthen student understanding and performance. Proposed actions include increasing targeted review activities, incorporating additional practice opportunities, and reinforcing key concepts through active learning strategies. Student feedback and assessment results will be used to identify areas of difficulty and guide instructional adjustments for future semesters.
7	Based on the analysis of student performance data, the class successfully met and exceeded the established SLO target. Instructional strategies, consistent formative assessment practices, and targeted student support contributed to strong overall achievement and engagement. Moving forward, effective instructional practices will be maintained and refined to continue promoting high levels of student success. Additional opportunities for enrichment, critical thinking, and differentiated instruction will be incorporated to further challenge students and sustain academic growth.
8	Changing assessment style
9	Changing my textbook to one that is more application based.
10	Consistent communication, flexible due dates, and consistent follow-up with inactive students. This semester I reduced exams from four to three and gave consistent reminders of proctor ZOOM dates starting from day 1.
11	Do more activities if possible. More boardwork
12	Finding a better book. I piece together an OER but would like to find a more centralized place students can go.
13	First time teaching a 5.5 hour class in a short time span. The students who stayed with the class did quite well on the final and in the course. Those that missed multiple days did not finish the course. It was asking a lot of the students, recommend the tutoring services and office hours.
14	First time teaching the class, so no comparison. In the future, I will be more proactive in reaching out to struggling students.
15	huge learning gap due to weakness in math. more support is needed outside the classroom. student motivation activities should be included, very few students took advantage of extra credit opportunities.
16	I did try some new techniques for student engagement with the small, portable whiteboards for the students to work on. However, that never took off well, and students preferred to work out problems on their own papers. Overall, I would say the student success rate was not much changed this semester.

17	<i>I had decided to go through the entire lesson first then allow the students to try various problems instead of breaking the lesson up into parts and having them do problems pertaining to the section. they actually performed better this time than the last class I taught. I still think some sections were a little long but the students enjoyed the group work and I noticed marked improvement.</i>
18	<i>I had extra practice for the students and gave them time at the end of some classes to work on it and ask questions as needed, but students opted to leave instead since it was not a graded activity. I think I will add "class participation points" to make sure students have incentive to practice topics in class. I also think online homework and quizzes kept the students lax on getting it done since there was nothing physical to turn in. I am definitely done with online homework platforms moving forward.</i>
19	<i>I like the way the course is running now. Might need to change the structure for next semester.</i>
20	<i>I need to figure out a way to boost attendance. Always trying to mix in new content to make it relevant.</i>
21	<i>I need to make time for class practice to see how the students are doing in real time. I think also having the online homework wasn't helpful in seeing students progress. A lot of students also skipped doing the homework as there was no penalty for late work. I will have stricter (but still flexible) late assignment policies in the future and written homework assignments along with time in class to work on problems together.</i>
22	<i>I need to stress the importance of attendance more.</i>
23	<i>I tried new strategies, always trying to tweak things. Biggest struggle was dealing with absences and trying to get students to come to class consistently.</i>
24	<i>I tried taking it back to a more traditional structure for this semester. In the future I will try to blend projects with tests as the student population changes.</i>
25	<i>I tried to give more take home assessment this semester and the grades were better compared to last semester. Will give more projects in the future.</i>
26	<i>I will continue to write the Student Learning Outcomes on the white board and review them before each class. I could try to have a classroom discussion about the SLO's to generate more interest/excitement about the day's learning objective.</i>
27	<i>I'm always trying new strategies in class via examples and activities. The biggest struggle with this semester was inconsistent attendance by the students. Dual Enrollment needs some type of accountability for high school students to attend class consistently.</i>
28	<i>In accordance with my department guidelines, I issued a portfolio assignment. I believe that this significantly improved expected grades, and I will absolutely continue with such summative assessments in the future.</i>
29	<i>In the future I will try more activities in class.</i>
30	<i>It meets the 65% target. No actions at this time.</i>
31	<i>I've been trying to change up my late work policy and I'm still not happy with it. I will make some more changes to try to hold students more accountable. I am happy with my current course delivery and assesments. I do want to make some changes to my discussion topics in my DE classes as well.</i>
32	<i>Keep students active! Huge improvement over previous semesters.</i>
33	<i>Low attendance at lecture for a significant portion of the class, low completion of online homework. Not sure why this particular section scored so much lower on everything.</i>
34	<i>Low completion rate for online homework and low attendance rates for a few students but otherwise this section was very successful.</i>

35	<i>Many students depended too much on outside tools when completing homework, which made it harder for them to build the independent problem-solving skills needed to fully understand the material.</i>
36	<i>Met target. No proposed actions at this time.</i>
37	<i>Modified teaching strategy for writing double displacement reactions with ion tiles, saw improvement in test scores on those questions. Next semester will adjust points distribution so more students will choose to do mastering chemistry online homework.</i>
38	<i>New strategies</i>
39	<i>Only had 3 students remaining at final exam. All others just stopped showing up.</i>
40	<i>Overall, class performance was strong, with SLO achievement at 96.4%. I think one thing that worked well was consistently reaching out to students who stopped communicating or participating in the course instead of just letting them disappear. I also continued adjusting and improving course content and support resources throughout the term. Moving forward, I plan to continue the early outreach and support while continuing to look for ways to improve student engagement and persistence.</i>
41	<i>Overall, the class was a great success. Students showed notable improvement in their practical skills, especially when working on hands-on business projects. Strategies & Content: Introducing real-world business scenarios and modern workplace tools kept the material relevant and engaging. By the end of the term, students who started with very basic tech literacy were confidently building functional data models and spreadsheets. Learning Gaps: The main challenge was navigating the wide mix of baseline skills in the room, which highlighted a need for a bit more focus on foundational file management early on. Future Adjustments. Strategies: In the future, I plan to incorporate short video walkthroughs for the basic software mechanics to free up more in-class time for interactive troubleshooting. Recommendations: I recommend updating the course content and SLOs to place a stronger emphasis on modern digital literacy and data interpretation, ensuring the curriculum continues to align perfectly with current workplace demands.</i>
42	<i>Performance variation across the course SLOs, (SLO #1, 53% with a rubric score of 3 or higher; SLO #2, 20% with a rubric score of 3 or higher; SLO #3, 55% with a rubric score of 3 or higher) suggests a likely equity gap in content such as probability, which often disproportionately impacts first-generation students, multilingual learners, and students with weaker algebra backgrounds. Lower scores in SLO #2, where students struggled to translate contextual situations into appropriate probability models and interpret results, may reflect differences in prior preparation, math anxiety, and comfort with symbolic notation rather than effort or ability. Future instruction will continue to emphasize inclusive strategies such as scaffolded problem solving, frequent low-stakes practice, contextualized examples, collaborative learning, and explicit mindset messaging to reduce disproportionate impact and support student persistence.</i>
43	<i>Performance variation across the course SLOs, (SLO #1, 56% with a rubric score of 3 or higher; SLO #2, 29% with a rubric score of 3 or higher; SLO #3, 73% with a rubric score of 3 or higher) suggests a likely equity gap in content such as probability, which often disproportionately impacts first-generation students, multilingual learners, and students with weaker algebra backgrounds. Lower scores in SLO #2, where students struggled to translate contextual situations into appropriate probability models and interpret results, may reflect differences in prior preparation, math anxiety, and comfort with symbolic notation rather than effort or ability. Future instruction will continue to emphasize inclusive strategies such as scaffolded problem solving, frequent low-stakes practice, contextualized examples, collaborative learning, and explicit mindset messaging to reduce disproportionate impact and support student persistence.</i>

44	<i>Refine how the material is presented.</i>
45	<i>Regular check-ins and canvas pages with additional content resources seemed to help. Need to find a better way for students to understand that using aides/AI for homework assignments does not prepare them for exams.</i>
46	<i>Same as MATH-200</i>
47	<i>Since many students were not adequately prepared for this course, I would spend more time working on problems involving operations with fractions, decimals, and exponents in the beginning of the semester.</i>
48	<i>SLO 1= 28%. SLO 2= 47.1%. SLO 3 (demonstrated the highest success rate) = 64.3%. The results suggest that students continue to experience the greatest challenges with foundational statistical concepts presented earlier in the course, particularly descriptive statistics and probability applications. Students appeared to demonstrate stronger performance in inferential statistics concepts, potentially due to increased exposure and incorporation of technology particularly Excel, structured procedures, and cumulative practice throughout the semester. Throughout the semester, efforts were made to incorporate real-world applications, guided practice, and technology-based instruction to support student understanding. While improvement was observed in the inferential statistics SLO 3, learning gaps remain evident in SLO 1 and SLO 2. In future semesters, additional instructional strategies may be implemented to strengthen conceptual understanding in descriptive statistics and probability. These strategies may include more scaffolded activities, increased use of visual representations or simulations, collaborative learning opportunities, and additional real-world application exercises.</i>
49	<i>SLO 1= 40%. SLO 2= 46.7%. SLO 3 (demonstrated the highest success rate)= 75%. The results suggest that students continue to experience the greatest challenges with foundational statistical concepts presented earlier in the course, particularly descriptive statistics and probability applications. Similar to the morning class and previous semesters, probability concepts continue to present a learning gap for many students. Students appeared to demonstrate stronger performance in inferential statistics concepts, potentially due to increased exposure and incorporation of technology particularly Excel, structured procedures, and cumulative practice throughout the semester. Throughout the semester, efforts were made to incorporate real-world applications, guided practice, and technology-based instruction to support student understanding. While improvement was observed in the inferential statistics SLO 3, learning gaps remain evident in SLO 1 and SLO 2. In future semesters, additional instructional strategies may be implemented to strengthen conceptual understanding in descriptive statistics, sampling methods, and probability. These strategies may include scaffolded activities, increased use of visual representations or simulations, collaborative learning opportunities, and additional real-world application exercises.</i>
50	<i>SLOs 1, 2, and 4 are closely connected through the need for a strong algebra foundation. I will continue to identify and review math deficiencies through pre-assessments and recognize the importance of incorporating targeted math reviews throughout the course. Mathematical proficiency is a strong predictor of student success in chemistry, as many core chemistry concepts rely heavily on algebraic reasoning and problem-solving skills.</i>
51	<i>SLOs were met</i>
52	<i>Spend more time at the beginning topics.</i>
53	<i>Statement 1: First exam to have the students buy into the class. Statement 2: Second Exam: More mathematical remedial review was applied. Students are able to make test corrections plus extra examples to move up an exam score, however they must pass the next exam for the grade to be</i>

	<i>moved up. Statement 3: This is one of the last exams, less students took this exam then at the beginning of the term.</i>
54	<i>Stoichiometry calculations required significant practice. I believe that incorporating more in-class problem-solving activities, such as pair or small-group work, would help students practice and feel better prepared to solve problems in this area. In the future, I could flip the lecture by uploading notes and lecture recordings ahead of time and then use the lecture period for guided practice aligned with this SLO.</i>
55	<i>Student performance on this outcome was satisfactory, with 81% of assessed students meeting or exceeding expectations. Students demonstrated strong understanding of personal finance concepts and were able to apply quantitative reasoning and critical thinking skills to financial decision-making scenarios. Continued emphasis will be placed on practical applications, real-world examples, and financial planning activities to reinforce student learning. Future course offerings may incorporate additional practice opportunities for students who need further support with financial analysis and decision-making.</i>
56	<i>Student performance on this outcome was satisfactory, with the majority of assessed students demonstrating an understanding of contemporary business principles and personal finance practices. Students were able to apply concepts related to budgeting, financial planning, investing, and risk management to real-world situations. Future course offerings will continue to incorporate practical examples, case studies, and financial planning activities to reinforce learning and further improve student engagement and application of course concepts.</i>
57	<i>Students did generally very well in the class, except for those who dropped out. Next time I teach the course, I would like to implement more sessions on prerequisite skills and study skills and habits to improve performance and increase retention.</i>
58	<i>Students enjoyed the lab; in many cases more than the lecture. I did find some students hesitant to present their work on the whiteboard, but encouragement and support where appropriate helped them all reach a level of comfort in front of their peers which I believe will help them in their future classes. In the future, I would like to incorporate more problems from previous math classes for some integrated review. I would prefer to focus on exercises based around the topic at hand, but I can see quite a lot of benefit for students with gaps in their knowledge with the review.</i>
59	<i>Students tend to have the most trouble with graphing questions, especially with polynomial and rational functions. I tried to have the students work in groups when doing the examples in class for graphing polynomials. Perhaps a brief refresher on this topic prior to the final exam will help. Notational literacy was another topic the students had trouble with. Instead of briefly going over important definitions, I can spend more time testing students on those definitions to see if they really know and understand what they mean. Perhaps I can turn this into a group activity.</i>
60	<i>Students will have a group project in the future to compare contrast the history of physical activity over the years.</i>
61	<i>Successes: the scaffolded approach to answering guiding question prompts helped students develop the skills for turning the question prompts into bullet-pointed resumes. New strategy idea: panel discussion recorded via Zoom of industry professionals discussing what they look for when they look at resumes for hiring committees. How to gain more experience in the volunteer work or job they currently have to upskill.</i>
62	<i>Target exceeded. 100% of students achieved the outcome. Consistent communication, flexible due dates, and consistent follow-up with inactive students. This semester I reduced exams from four to three and gave consistent reminders of proctor ZOOM dates starting from day 1.</i>

63	<i>Target met. Students showed understanding of core concepts through in-class discussion and practice. Challenge remains keeping engagement during long class periods. Future plans to incorporate more interactive strategies or projects.</i>
64	<i>Target of 65% was met for all SLO's no proposed action at this moment.</i>
65	<i>The class is a face-to face class, however students had canvas access to video lectures I made for an online version of the class. Students also uploaded assignments on canvas, thus keeping the hard copy always with them. For all three exams the students were able to use 1/4 page cheat sheet. The cheat sheet focused the students on what they did not know and write it down for the exam. There was also an opportunity to move their past exam scores up. They correct all their errors on the exam with new sheet of paper and also make up a similar problem and do it correctly. They staple it to their old exam and turn it in when they take the next exam. If they pass the next exam, then I look at the test corrections from the previous exam. This forces the students to re-examine their mistakes and also remember they must pass the next exam. Mainly average and high grade students took advantage of test corrections, since they were more likely to [ass the next exam. There were also a few who tried it, but unfortunately did not [ass the next exam. Looks like the grades reflected either very high grades that stayed, or very low grades. I did do just in time remedial math and a few of the beginning very low turned around and passed the class. A few showed their appreciation of the canvas lecture videos, especially those who may have missed class frequently and mentioned job conflicts.</i>
66	<i>The flexibility for grading, building community, and historical context seemed to help.</i>
67	<i>The flexible grading and due dates and projects seem to support student success.</i>
68	<i>The Math Department will discuss the outcomes.</i>
69	<i>The most prominent challenge that plagued the class was underdeveloped skills in previous mathematical concepts; specifically algebra and trigonometry. More than half of the class had algebra skills below the intermediate algebra level (meaning they were unable to identify the concepts, or apply the skills, required to simplify expressions, combine terms, factor, etc.), and all but one or two students could work with trigonometric functions (most students admitted to having never taken a trigonometry class). To offset this, I added free resources for the students to review independently on Canvas; a precalculus text which I suggested students review specific sections on based on their individual needs. In the future, I might integrate more review problems, from previous math courses, to the calculus lab when I identify a need. I should also have videos available for the students to review with in future terms, which would help students catch up outside of lecture or lab.</i>
70	<i>The one honors student enrolled this semester dropped the course after the census date. Prior to dropping, the student demonstrated success on the first two SLOs but was not assessed on the third SLO. I am noting this program would not allow the submission of this honors section unless I selected a value of 1, 2, 3, or 4 for the 3rd SLO that this student was not assessed on. Throughout this semesterâ€™s courses, a continuing learning gap was identified in the second SLO: applying discrete and continuous probability concepts to real-world situations. This suggests students may need additional practice opportunities of real-world applications on related to probability concepts.</i>
71	<i>The success of the class is from the new content I implemented this semester. I designed the class around the theme of self-discovery. While this idea is important to the class and the content that garnered the studentsâ€™s attention, I did not follow the theme as I initially intended, which made the classâ€™s purpose blurry and abstract. With better planning and flow, I can have a class that will be more focused and purposeful.</i>
72	<i>The target of 65% has been reached. No Proposed actions at this time.</i>

73	<i>There was a 7% decrease from the last time I taught the course. Many students left these questions blank on the final or partially completed them. I wonder if they ran out of time or forgot to return to the questions.</i>
74	<i>There were students who did not turn in work. Need to work on strategies to motivate them to turn in work.</i>
75	<i>This class is being redesigned to better accommodate screen readers. I will try to maintain the aspects that have made it successful including social justice themed projects, reworks for full credit, and late work.</i>
76	<i>This class was a little more challenging than the previous year. I had students that were more disruptive and I found it harder to keep the class on task. The overall class average was also a little lower. Hopefully next semester goes better but I am going to work on strategies to make sure that my class can stay on track and continue to thrive no matter the situation.</i>
77	<i>This is my second time teaching Calculus I with an attached support course at Crafton Hills College. This time, I spent less time at the beginning reviewing algebra and trigonometry concepts and jumped very quickly into calculus. Although that gave students more time to practice calculus concepts, which is reflected in the fact that all SLO's were met, next time I teach the class I would like to intersperse more class time for algebra and trigonometry review in order to increase retention in the course.</i>
78	<i>This was a difficult class only because there were issues throughout the course where students did not have access to the material through McGraw Hills Connect. For the most part they all hung in there and did very well in the class.</i>
79	<i>This was a very small class. I had a few strong students but many of them struggled. I can see that they did best on the first SLO of interpreting and not as well on the probabilities and application. Particularly the probabilities, I can see I may need to spend some more time on. I will take this into account for next semester.</i>
80	<i>This was my third time teaching statistics at Crafton Hills College, and my first time teaching it with dual enrollment. I tried teaching it the same way I had during Summer 2025, but this time I did not meet the third SLO target. This time, I let the students mostly direct themselves on the final project, and I should have been more proactive in helping them complete their projects. In the future, I will be more hands-on with my students.</i>
81	<i>This was the first fully face-to-face class I have taught in quite some time. The enrollment was low and a few students chose not to drop even though they were not participating and/or doing enough work to get a passing grade. This brought the whole class down to the point of not achieving its' SLO's. For future4, I feel I need to make the class more interactive and engaging. I blame myself for not "reading the room" correctly. I will utilize more in class graded work so that students do not procrastinate on doing their online work.</i>
82	<i>to many missed days from students that lead to non-completing assignments and not finishing the course. Will set up more graded activities during the classes that are due at the end of class. The student who finished the course and took the final did well, really satisfied with the results and grades.</i>
83	<i>Too many grades of F as many students stopped coming to class early in the semester. I need to somehow maintain student enthusiasm and interest in coming to class to be successful</i>
84	<i>Toward the beginning of the semester, I had the class take an anonymous survey to see what I can do better to help them succeed in assessments and in the classroom. The most common response was to provide in class review sessions. After doing so, I saw an increase in student performance and participation. This is something I will carry along to future courses. One major challenge was students missing class due to extracurricular activities. Since this class was a dual-</i>

	<i>enrollment class, many students had other commitments such as sports, AP exams, state exams, etc. Early in the semester I noticed this challenge and was able to provide daily lecture notes via Canvas for students to access. This was helpful to all students, especially those who missed class. Additionally, I would strongly encourage students to attend online office hours or ask questions during class.</i>
85	<i>Trying different assessments. Students lack skills to be successful.</i>
86	<i>Will try new assessments.</i>