2021-22 ANALYSIS OF INSTITUTIONAL LEARNING OUTCOMES

Section One: Overview

This report touches on results of the current year assessment and comparative analysis to the year in which the ILO was last assessed. In addition, the report covers process and assessment methodology and efficiency. The comparative analysis, a key component of the report can be found in section 5B.

A. Academic Year:

2021-22

B. Institutional Learning Outcome (ILO) Assessed:

#2 Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (*Critical thinking and Problem-Solving*).

C. Level at which the competency is assessed:

The courses chosen were at the 200-level to reflect assessment of work students would be completing towards the end of their degree.

As recommended by the ILO Assessment Committee when this ILO was last assessed in 2016-17, the expectation is that students should achieve the level of Developing (2) by the time that they graduate from CGCC with a 2-year degree. (Report 2016-17 ILO#2 Critical Thinking and Problem-Solving, Section C.1)

Section Two: Recommendations, Action, and Analysis from Previous Assessment of ILO.

A. Previous year ILO was assessed

2016-17

B. List recommendations from previous reviews:

2016-17 had one recommendation related to the assessment of the Critical Thinking and Problem-Solving ILO:

It is recommended by the ILO Assessment Committee that actions be taken by all faculty in their classes, since accountability for student achievement of Institutional Learning Outcomes is the responsibility of all faculty as indicated by their CCOGs when courses have a major or minor designation for the ILO, Critical Thinking and Problem-Solving, or list some kind of critical thinking or problem-solving course outcome.

As stated in Section C.1 (Report 2016-17 ILO#2 Critical Thinking and Problem-Solving), the committee recommends that faculty at CGCC focus on 2 objectives for the next year and a half: "Student's Position" (Critical Thinking) and "Evaluate Potential Solutions" (Problem Solving). Faculty will continue the process that they started during Spring In-service 2016, and work together to develop strategies that they can integrate into their instruction and assessment that help students to develop a position when working on critical thinking, and evaluate potential solutions when working on problem solving. A list of resources to support faculty instruction in these two areas has been compiled and posted to the Institutional Learning Outcomes website. Faculty will be reminded of their commitment to increase instruction or integrate an assessment for these two areas when they complete Part A of course outcomes assessment, and will then describe what they did to support students in achieving this ILO at a higher level when completing

Part B. The academic assessment coordinator (AAC) will track these interventions on a spreadsheet and ILO#2 will be assessed again in 2021-22 to determine the impact of these interventions.

C. Summarize actions taken in response to recommendations:

Results and an overview of the analysis were reported out to faculty during the fall 2017 in-service. Faculty worked together to provide a list of ideas and resources that could support student improvement in the recommended areas "Student's Position" (Critical Thinking) and "Evaluate Potential Solutions" (Problem Solving). The list of Ideas & Resources for Teaching to ILO #2: Critical Thinking and Problem-Solving was posted on the web. Faculty reported out on the implementation of support strategies that they added or practiced in their courses in the Part B of Course Outcomes Assessment (COA). The strategies were organized into a spreadsheet (see Appendix 1) Faculty were reminded of their commitment to focus on these areas during each in-service and as well when they completed their Part A of COA.

Comparison of the results between 2016-17 and 2021-22 show an increase of 22% for students achieving accomplished or better when scored for "Student's Position" (Critical Thinking) and 29% for "Evaluate Potential Solutions" (Problem Solving), indicating that faculty efforts over the last 5 years have been effective.

D. Please describe other actions taken that were not based on previous review recommendations. What assessment, evidence, or need prompted these actions?

1. Instructional Council voted to change the name of Core Learning Outcomes (CLO) to Institutional Learning Outcomes (ILO). Core Learning Outcomes was too close in name to Core Themes and often confused faculty. The name "Institutional Learning Outcomes" is also more intuitive as the name reflects what these outcomes really are. The hope is that this name change will help with some of the confusion regarding the three levels of academic outcomes.

2. Per 2015-16 Recommendation #1, to provide training opportunities "*so that instructors in all courses could add intrinsic teaching and assessment for the 2 objectives*", Jim Pytel (EM-Tech), Diane Uto (Communication), Kristen Kane (Psychology) and Susan Lewis (Director of Curriculum & Academic Assessment) presented a workshop in November titled "Building Assignments and Assessments to Measure Critical Thinking/Problem-Solving Outcomes".

3. Numerous faculty discussions and workshops related to this ILO also occurred during 2021:

   Diana Bailey (Nursing), began a conversation related to critical thinking and problem-solving with the AAC and department chairs in late fall. This conversation eventually included more faculty during a Faculty Coffee Hour in February. Nursing faculty had scored nursing student work with the Critical Thinking Rubric and the results indicated that there were some common issues that many of their students struggled with related to critical thinking, problem-solving, application of knowledge, evidence-based research and APA style formatting. Using this data, faculty discussed whether pre-requisite courses could implement strategies that would help support students in these areas, so that they have a better chance to be successful once they enter into the program.

A faculty training led by Writing, Literature, & Foreign Language instructors Leigh Hancock and Jessie Herrada Nance in April of 2022 focused on a "A Critical Look at Critical Thinking." This training was an interactive workshop that looked at some of the latest research about critical thinking. It also provided faculty with an opportunity to examine recent examples and strategies of how to increase critical thinking in students, across courses and departments.

Section Three: Overview of Process (es) used to Evaluate Competency:

A. Overview of methodology used for assessment:

During the 2021-22 academic year, faculty assessed students in achievement of ILO #2 "*Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information.* (Critical thinking and Problem-Solving)" for the second time. Faculty initially assessed student achievement of this ILO in 2016-17. Instructors used either the Critical Thinking Rubric or the Problem-Solving Rubric to score student work, depending on the type of assignment used to assess the ILO. Both rubrics were adapted by the ILO Assessment committee from the AAC&U's (Association of American Colleges and Universities) LEAP (Liberal Education and America's Promise) Value (Valid Assessment of Learning in Undergraduate Education) rubrics (http://www.AAC&U.org/). The rubrics were the same rubrics used to assess students on the critical thinking and problem-solving ILO that were used in 2016-17, with the exception of three changes made over the span of the last 5 years:

1. The terms "Beginning", "Developing", "Accomplished" and "Mastery" were removed from the adapted rubrics following a recommendation from the ILO Committee Meeting fall 2017. The levels were replaced with the numbers 1-4, so that faculty may be less likely to inflate their scoring (Limitation 2; Report 2016-17 ILO#2 Critical Thinking and Problem-Solving).
2. The web form was updated to include a comments area for the level "Not Applicable", enabling faculty to explain why a particular criteria was "not applicable" to the assessment. (Recommendation 2 Report 2016-17 ILO#2 Critical Thinking and Problem-Solving)
3. A better explanation of the difference between "not demonstrated" and "not applicable" was included on the 2021-22 Critical Thinking and Problem-Solving rubrics. This change was made as a result of the ILO Assessment Committee's concerns of inflated scoring and lack of norming during their 2018 meeting. (Recommendation 2; Report 2017-18 ILO#4 Cultural Awareness)

Instructors who taught courses that students would be taking towards the end of their degree (sophomore or 200-level courses) were asked to assess student achievement of the ILO Critical Thinking and Problem-Solving. These upper-level courses were chosen with the understanding that students, in theory, would have had a few freshmen level courses that included critical thinking and problem-solving as a course outcome, allowing CGCC to assess students who were closer to graduation and who had received more instruction and practice in building critical thinking and problem-solving skills.

Each term, instructors who were teaching courses that address critical thinking or problem-solving as a major or minor, as indicated in the CCOGs, were contacted to determine if they had a suitable assignment to be scored using one of the adapted Critical Thinking or Problem-Solving rubrics. Instructors were then responsible for scoring the student artifacts using the rubrics, and submitting the results to a web form. Instructors also had the option to include a rationale or analysis to help explain student scores.

In looking at the methodology, it is important to remember that assessment of Institutional Learning Outcomes is different than Course Outcomes Assessment or Instructor Evaluations: CGCC is compiling information on student achievement of ILOs in order to be analyzed by the Institutional Learning Outcomes Assessment Committee and shared with CGCC faculty to determine where adjustments and improvements need to be made. Assessment of Institutional Learning Outcomes is not about an individual instructor or an individual course: the purpose is to obtain a snap-shot on a more global perspective of student ability in formal college-level critical thinking and problem-solving, and as well, the institution's ability to effect change and improvement through the implementation of focused teaching strategies.

B. Summary of timeline and steps in assessment process:

1) One month prior to start of term: The academic assessment coordinator (AAC) looked at the CCOGs of courses and selected those courses that either had critical thinking or problem-solving as a course outcome or indicated that ILO #2 was addressed as a major or minor. A list of suggested courses was sent by the curriculum and assessment administrative assistant (CAAA) to each department chair (DC) for consideration. DCs responded either confirming the selection or recommending revisions.

2) One to two weeks prior to start of term: Once a course was confirmed by the DC, instructors were contacted via email by the CAAA informing them that their course had been selected for assessment of the ILO#2. Information about the process of assessing ILOs was provided, as were directions and the rubrics.

3) 2nd – 3rd week of term: the AAC contacted the instructor to determine whether they had an appropriate assignment that could be scored with either the Critical Thinking or Problem-Solving rubric. If it was determined that instructors did not have an appropriate assignment for this purpose, the course was removed from the list of courses used to assess ILO#2 for the term.

4) 6th week of term: a check-in/reminder email that included the instructions and scoring rubrics was emailed to all participating instructors

5) End of term - week after end of term: Instructors scored student assignments using the rubric and input the totals for each category of the rubric in the web form. Adjunct faculty submitted time cards for up to 3 hours to be paid at the Special Project Rate. The AAC compiled the results at the end of each term into a spreadsheet.

6) Beginning of summer term: the AAC compiled the results for all terms.

7) 3 weeks before fall term 2022: the ILO Assessment Committee met to review and analyze results, including a comparative analysis of the results from the previous assessment of ILO#2 (2016-17). The committee made recommendations based on the results to improve student achievement of ILO#2, compared the assessment results between 2016-17 and 2021-22, analyzed of the effectiveness of faculty interventions over the past 5 years, reviewed the ILO assessment process and made recommendations for improvement to the process.

8) Fall In-service: Results were shared with faculty, as well as the committee's recommendations to help improve student achievement of critical thinking and problem-solving.

9) Faculty will be reminded of their commitment to implement strategies to support students in achievement of ILO#1, #2, # 3, #4 and #5 when they complete Part A of Course Outcomes Assessment.

10) Faculty will list the strategies they implemented to support student achievement of ILO#1, #2, #3, #4 and #5 when they complete Part B of Course Outcomes Assessment.

C. Sampling information:

366 students were enrolled in 25 courses from 15 disciplines. A total of 321 student artifacts were scored using either the Critical Thinking or Problem-Solving rubrics by the instructors of those courses. 303 of those students were enrolled in courses that scored work using the Critical Thinking rubric, with 260 of those students completing the assignments. 63 students were enrolled in courses that scored using the Problem-Solving rubric, with 61 students completing those assignments.

The sampling size from the first assessment of ILO #2 in 2016-17 was more than 15% larger, with 438 students enrolled in 29 courses from 19 disciplines with a total of 385 student artifacts scored. 298 of those students were enrolled in courses that scored work using the Critical Thinking rubric, with 262 of those students completing the assignments. 140 students were enrolled in courses that scored using the Problem-Solving rubric, with 123 students completing those assignments.

D. Assessment Instrument(s):

The Critical Thinking and Problem-Solving rubrics were adapted from LEAP Value Rubrics (http://www.AAC&U.org/). The original VALUE initiative in 2007-09 involved teams of faculty and other educational professionals from over 100 higher education institutions engaged over many months to develop 16 VALUE rubrics for the LEAP Essential Learning Outcomes. Each rubric was developed from the most frequently identified characteristics or criteria of learning for each of the 16 learning outcomes. Drafts of each rubric were then tested by faculty with their own students' work on over 100 college campuses.

Per Recommendation 2 from the Report 2016-17 ILO#2 Critical Thinking and Problem-Solving, the ILO Assessment Committee replaced the names of each level from the rubrics anticipating that the adapted numbered student achievement levels would be less influential on instructor decisions, and encouraging instructors to instead, focus on the performance indicators for guidance.

E. Data Analysis Procedures.

Include a description of faculty involvement in the assessment and analysis process.

Once instructors scored the student artifacts using the adapted LEAP Value Rubrics for Critical Thinking and Problem-Solving, results were gathered by the AAC and presented to the ILO Assessment Committee. The ILO Assessment Committee compared and analyzed the results and reviewed the process. Notes were taken of the analysis during the meeting and captured in this analysis template

19 faculty from 15 disciplines were involved in the assessment of the ILO:

Fall Term: Elizabeth Anderson (ART 286), Diana Bailey (NRS 221), John Copp (HST 201), Kristen Kane (PSY 202A), Zip Krummel (PSY 201A), Tom Lieurance (EET 221), Tina Ontiveros (ENG 237), Dave Wagenblast (EC 202)

Winter Term: Annette Byers (MTH 212), Robert Clark (MFG 156), Kathy Goe (NRS 230), Leigh Hancock (ENG 253), Kristen Kane (PSY 201A and PSY 215), Ray Kempf (PHL 201), Zip Krummel (PSY 201A), Todd Meislahn (BA 212), Jessie Nance (WR 227), Diane Uto (COMM 237), Dave Wagenblast (EC 201), Mandy Webster (WGS 201).

Spring Term: Diana Bailey (NRS 224), John Evans (MTH 253), Bill Hughitt (OS 245), Kristen Kane (PSY 215).

5 faculty and the director of curriculum and academic assessment (DCAA) were involved in the analysis process: Kristen Booth, Gretchen Gebhardt, Katy Jablonski, Kristen Kane, Zip Krummel, and Susan Lewis.

Section Four: Results

A. Describe results of assessment work related to competency:

Provide detailed results of assessment, including charts, graphs or other visuals

Overall Critical Thinking and Problem-Solving Results:

A total of 366 students were enrolled in the courses that participated in the assessment of the ILO Critical Thinking and Problem-Solving. Of those students, 321 students completed the assignments and were scored using the Critical Thinking or Problem-Solving Rubric. A total of 89% of those students scored as accomplished or better* when the scores of the Critical Thinking and Problem-Solving Rubrics were combined. 9% were scored into the Developing category and 1% were scored into Beginning.

Table 1

Results of 2021-22 Assessment of Student Achievement of ILO #2 (Critical Thinking and Problem-Solving scores combined)

Institutional Learning Outcome #2:	**Through their respective disciplines, CGCC students who earn a degree can: Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (Critical thinking and Problem-Solving)**					
Total Number of students enrolled in assessed courses: 366 Total # of students who completed scored assignment: 321	**Mastery**	**Accomplished**	**Developing**	**Beginning**	**Not Demonstrated**	**Not Applicable**
Totals (Combined Scored Critical Thinking and Problem-Solving Rubrics)	59%	30%	9%	1%	1%	2%
Total Percentage of Students Scored as Accomplished or Better for Critical Thinking and Problem-Solving:	89%					

*Per Section 1.C, the ILO Assessment Committee decided that the level of competency for CGCC students for ILO#2 should be "Developing". The percentage of students who were scored as developing or better for Critical Thinking and Problem-Solving was 98%. See Section 5.A for an explanation of the committee's decision to increase the level of competency for Critical Thinking and Problem-Solving to "Accomplished or better"

Critical Thinking Results:

303 students were enrolled in the courses that participated in the assessment of the ILO Critical Thinking. Of those students, 260 students completed the assignments and were scored using the Critical Thinking Rubric. A total of 88% of students achieved a score of accomplished or better*, with 10% of students scored into developing, 2% scored into beginning and 1% scored into not demonstrated. 88% of students scored as accomplished or better into the individual categories of Explanation of Issues, Student's Position, and Conclusions and Related Outcomes. 89% of students scored into accomplished or better for the category of Evidence and 85% of students scored into accomplished or better in the category of Influence of Context and Assumption.

Table 2

Results of 2021-22 Assessment of Student Achievement of Critical Thinking

Institutional Learning Outcome #2:	**Through their respective disciplines, CGCC students who earn a degree can: Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (Critical thinking and Problem-Solving)**						
Critical Thinking: Total Number of students enrolled 303 Total # of students who completed scored assignment: 260	Mastery	Accomplished	Developing	Beginning	Not Demonstrated	Not Applicable	Total Percentage for Accomplished or better
Critical Thinking Rubric: Explanation of Issues: TOTALS	157	70	29	2	0	2	88%
Critical Thinking Rubric: Evidence: TOTALS	156	69	21	5	3	6	89%
Critical Thinking Rubric: Influence of Context and Assumptions: TOTALS	146	68	31	6	2	7	85%
Critical Thinking Rubric: Student's Position: TOTALS	160	60	22	7	0	11	88%
Critical Thinking Rubric: Conclusions and Related Outcomes: TOTALS	168	60	24	4	2	2	88%
Total percentage of students scored into category using Critical Thinking Rubric	62%	26%	10%	2%	1%	2%	
Total Percentage of Students who Scored Accomplished or Better with Critical Thinking Rubric	88%						

*Per Section 1.C, the ILO Assessment Committee decided that the level of competency for CGCC students for ILO#2 should be "developing". The percentage of students who were scored as developing or better for each category was: Explanation of Issues = 99%; Evidence = 97%; Influence of Context and Assumption = 97%; Student's Position = 97%; Conclusions and Related Outcomes = 98%; and 98% of students scoring into developing or better for Critical Thinking overall. See Section 5.A. for an explanation of the committee's decision to increase the level of competency for Critical Thinking and Problem-Solving to "accomplished or better"

Problem-Solving Results:

63 students were enrolled in the courses that participated in the assessment of the ILO Problem-Solving. Of those students, 61 students completed the assignments and were scored using the Problem-Solving rubric. A total of 94% of those students scored as accomplished or better* in Problem-Solving overall. 5% were scored into the developing category and 0% were scored into beginning and 1% scored into not demonstrated..

More than 92% of students scored as accomplished or better in all the categories, with the exception of 89% scored into accomplished or better for the category of Identify Strategies.

Table 3

Results of 2021-22 Assessment of Student Achievement of Problem-Solving

Institutional Learning Outcome #2:	**Through their respective disciplines, CGCC students who earn a degree can: Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (Critical thinking and Problem-Solving)**						
Problem-Solving: Total Number of students enrolled 63 Total # of students who completed scored assignment: 61	Mastery	Accomplished	Developing	Beginning	Not Demonstrated	Not Applicable	Total Percentage for Accomplished or better
Problem Solving Rubric: Define Problem: TOTALS	38	19	3	0	1	0	93%
Problem Solving Rubric: Identify Strategies: TOTALS	30	24	6	0	1	0	89%
Problem Solving Rubric: Propose Solutions/Hypothesis: TOTALS	18	27	4	0	0	12	92%
Problem Solving Rubric: Evaluate Potential Solutions: TOTALS	21	37	2	0	1	0	95%
Problem Solving Rubric: Implement Solutions: TOTALS	30	29	1	0	1	0	97%
Problem Solving Rubric: Evaluate Outcomes: TOTALS	31	29	0	0	1	0	98%
Total percentage of students scored into category using Problem-Solving Rubric	47%	47%	5%	0%	1%	3%	
Total Percentage of Students who Scored Accomplished or Better with Problem-Solving Rubric	94%						

*Per Section 1.C, the ILO Assessment Committee decided that the level of competency for CGCC students for ILO#2 should be "developing". The percentage of students who were scored as developing or better for each category was: Define Problem = 98%; Identify Strategies =98%; Propose Solutions/Hypothesis = 100%; Evaluate Potential Solutions = 98%; Implement Solutions =98%; Evaluation Outcomes = 98% and 99% of students scored into developing or better for Problem-Solving overall. See Section 5. A. for an explanation of the committee's decision to increase the level of competency for Critical Thinking and Problem-Solving to "accomplished or better"

Section Five: Analysis of Results

Assessment at this level measures whether CGCC degree-seeking students can demonstrate the Institutional Learning Outcomes at a two-year lower-division competency level. Reflect on what was learned and what the impacts might be (not a repeat of findings). Reflection should include the implications of the findings to the General Education Program.

A. Analysis, discussion and implications of current year results

In 2016-17 the ILO Assessment Committee spent considerable time discussing the expectation for community college students with regards to the AAC&U rubrics used to assess Critical Thinking and Problem Solving and determined that perhaps, for CGCC students, mastery or even accomplished levels "are beyond what should be expected for students who are at sophomore level in their undergraduate

education. Developing may be a more appropriate expectation for our students when it comes to critical thinking and problem solving, skills that may require much more time, education and/or practice to mature beyond the developing level." (Report 2016-17 ILO#2 Critical Thinking and Problem-Solving, Section C.1.) Since that time, the committee has reconsidered its position on setting "developing" as an appropriate level, with the understanding that the majority of graduates with a 2-year career and technical degree, such as Electro-Mechanical Technology, Early Childhood Education or Aviation Maintenance may not go on to complete a 4-year degree, and may be required to use critical thinking and problem-solving skills at an accomplished level immediately in their post-graduation employment. With this thought, the committee decided that we may be doing a disservice to our students and the communities that they work in, by lowering expectations of achievement to "developing". Given this decision, the results have been reported out at the "accomplished or better" level. With the increase in expectations for student achievement of ILO #2, degree-graduating students are now expected to achieve accomplished or better for all 5 Institutional Learning Outcomes.

The committee was very satisfied with the results for critical thinking (88%), problem-solving (94%) and critical thinking and problem-solving overall (89%). These results surpass the Strategic Priority Measure for ILOs of 80%. The committee cautioned that results showing a higher percentage of achievement may be indicative of scoring inflation, a possibility that could happen when instructors score their own work. The committee agreed that maintaining this level of achievement for ILO#2 should be the goal until the ILO is assessed again in 2026-27.

Unlike previous years when the committee looked to the rubric and student scores to determine where students may be struggling, the results from each category of both rubrics were relatively similar with a range of 85% to 89% of student achievement in the categories for critical thinking and 89% to 98% of student achievement in the categories for problem-solving. Given faculty discussions (see Section 1.D – discussions started by nursing faculty and Section 6.A., Recommendation 5, Actions) triggered by concerns that students were struggling with evidence-based research, the committee decided that students could use more support in the area of "evidence" from the Critical Thinking Rubric. The committee felt that the job of a community college is to be sure that students can find, provide and understand evidence, tying information literacy to assumptions. The committee came up with examples of how evidence is used in day-to-day decisions whether our entrepreneur graduates are using evidence to justify business decisions or our construction graduates are making a choice about appropriate building materials.

The committee, upon analyzing the scores from the Problem-Solving Rubric, was surprised that more students scored into accomplished or better in "evaluating potential solutions" (95%), than in "identifying strategies" (89%), since identifying strategies should occur prior to proposing and evaluating solutions in the steps of problem-solving. The committee questioned how so many students could score into "accomplished or better" in proposing and evaluating solutions if they weren't able to think of a variety of strategies (category with the lowest percentage of students scoring into "accomplished or better"). As a result of this incongruity, the committee decided that students may benefit from further support in identifying strategies. Focusing on this area also supports the focus on "evidence" from the Critical Thinking Rubric, since when identifying strategies students must look for evidence to support those strategies.

As with the application of the Oral and Written Communication Rubrics used to assess student work in 2020-21, the committee recognized that there was an imbalance in the number of student artifacts scored with the Critical Thinking Rubric (260) and the Problem-Solving Rubric (61). With only 19% of student work being scored with the Problem-Solving Rubric, the committee discussed this discrepancy in assessing critical thinking versus problem-solving. The committee considered whether many faculty may perceive that their courses don't address problem-solving when they actually do. Further, when looking at assignments to score with the rubric, faculty may find it hard to separate the two since problem-solving requires critical thinking, whereas critical thinking does not necessarily require problem-solving.

In terms of the implications of ILO#2 achievement and the General Education program, it's interesting to compare the results of critical thinking and problem-solving using ILO assessment and the assessment used for General Education degrees (see Appendix 2) which focuses on using end of term grades to assess student achievement of outcomes, including outcomes related to critical thinking and problem-solving. For the first time, the results between the two assessment methods are almost identical with student achievement for the outcomes related to critical thinking and problem-solving for the General Education-related degrees ranging between 87%-93%.

The critical connection between ILOs and General Education is apparent in the mission for the General Education program as outlined in the 2017-20 General Education Program Review "*General Education (Gen Ed) refers to the foundation of skills, knowledge, habits of mind, and values that transcend the boundaries of specialization and provide all students with a common language and skills. Gen Ed is intended to develop students as well-rounded critical thinkers and communicators, rather than trained specialists; the goal is to transmit a common cultural heritage. At Columbia Gorge Community College, this educational foundation is defined by CGCC's Institutional Learning Outcomes and is developed primarily through a set of general education course requirements that all students take, regardless of their major. Ultimately, the mission of the Gen Ed program at CGCC is to provide our students with a common experience and set of skills that prepare them for success in their majors, as citizens of the US and the world and in their personal and professional lives after graduation.."* Of note is the emphasis on a "common experience and set of skills" for CGCC students. With the vast majority of students (89%) achieving accomplished or better when assessed for critical thinking and problem-solving, as well as student achievement ranging between 85% and 98% in all categories of both rubrics, it may be assumed that, at least in the areas of critical thinking and problem-solving, the General Education program is fulfilling its mission in providing a "common experience and set of skills" related to developing students as "well-rounded critical thinkers". The results, however, indicate that a small percentage of students, those scoring into " not demonstrated", "beginning" and "developing", may still be struggling with critical thinking and problem-solving skills. Since the college cannot currently disaggregate ILO assessment data, it is difficult to identify which students may be struggling with these skills. Without this disaggregated data, while faculty may be able to focus their instruction in identified dimensions, they may not be able to provide the focused instruction that particular student populations require to be successful in achieving this learning outcome.

B. Comparative analysis of results from multiple years.

Address effectiveness of actions taken from previous assessment of ILO

All dimensions saw an increase in the percentage of students who were scored into Accomplished or better when compared to the results 2016-17. Overall, there was a 20% increase for students who

scored into Accomplished or better using the Critical Thinking rubric (Table 4), an increase of 28% of students scored into Accomplished or better using the Problem-Solving rubric (Table 5) and a 22% increase overall when scores from both rubrics were combined (Table 4).

Of note are the increases in the percentage of students scoring into Accomplished or better in the dimensions that faculty have been focusing on for the past 5 years: 22% for Student's Position (Critical Thinking) and 29% for Evaluation Potential Solutions (Problem-Solving).

Table 4

Comparison of 2016-17 and 2021-22 Results from Assessment of Student Achievement of Combined Critical Thinking and Problem-Solving scores followed by Critical Thinking Scores

Institutional Learning Outcome #2: Through their respective disciplines, CGCC students who earn a degree can: Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (Critical Thinking and Problem-Solving)			
Year of Assessment	**2016-17**	**2021-22**	**Comparative Difference**
Total Number of Students who completed scored assignments for Critical Thinking and Problem-Solving	**385**	**321**	**64**
Total Percentage of Students Scored as Accomplished or Better for Critical Thinking and Problem-Solving:	**67%**	**89%**	**22%**
Critical Thinking Rubric			
Critical Thinking Rubric: Total Number of Students who completed scored assignments for Critical Thinking	**262**	**260**	**-2**
Critical Thinking:	**2016-17 Total Percentage for Accomplished or better**	**2021-22 Total Percentage for Accomplished or better**	**Comparative Difference**
Critical Thinking Rubric: Explanation of Issues: TOTALS	**73%**	**88%**	**15%**
Critical Thinking Rubric: Evidence: TOTALS	**67%**	**89%**	**22%**
Critical Thinking Rubric: Influence of Context and Assumptions TOTALS	**64%**	**85%**	**21%**
Critical Thinking Rubric: Student's Position: TOTALS	**67%**	**88%**	**22%**
Critical Thinking Rubric: Conclusions and Related Outcomes: TOTALS	**68%**	**88%**	**20%**
Total Percentage of Students who Scored Accomplished or Better with Critical Thinking Rubric	**68%**	**88%**	**20%**

Table 5

Comparison of 2016-17 and 2021-22 Results from Assessment of Student Achievement of Problem-Solving Scores

Institutional Learning Outcome #2: Through their respective disciplines, CGCC students who earn a degree can: Creatively solve problems by using relevant methods of research, personal reflection, reasoning, and evaluation of information. (Critical Thinking and Problem-Solving)			
Year of Assessment	**2016-17**	**2021-22**	**Comparative Difference**
Problem-Solving Rubric: Total Number of Students who completed scored assignments for Critical Thinking	**123**	**61**	**-62**
Problem-Solving:	**Total Percentage for Accomplished or better**	**Total Percentage for Accomplished or better**	
Problem Solving Rubric: Define Problem: TOTALS	**67%**	93%	**26%**
Problem Solving Rubric: Identify Strategies: TOTALS	**65%**	89%	**23%**
Problem Solving Rubric: Propose Solutions/Hypothesis: TOTALS	**70%**	92%	**22%**
Problem Solving Rubric: Evaluate Potential Solutions: TOTALS	**66%**	**95%**	**29%**
Problem Solving Rubric: Implement Solutions: TOTALS	**65%**	**97%**	**31%**
Problem Solving Rubric: Evaluate Outcomes: TOTALS	**62%**	**98%**	**28%**
Total Percentage of Students who Scored Accomplished or Better with Problem-Solving Rubric	**66%**	**94%**	**28%**

With such a significant increase in student achievement between 2016-17 and 2021-22, the ILO Assessment Committee spent a significant amount of time discussing whether the results were real and valid. The committee noted a number of differences that could have affected the results between 2016-17 and 2021-22. In 2016-17, faculty were still new to the ILO assessment process. 2016-17 was only the second year of applying adapted AAC&U rubrics and completing the ILO assessment process. Many instructors did not have a project tailored to the rubric in 2016-17. Since then, instructors have had 5 more years of the ILO assessment process, applied various adapted AAC&U rubrics, aligned curriculum, activities and assignments for the ILOs identified in their Course Content Guides, and attended workshops related to designing activities and assignments specific to the various rubrics. As a result, many instructors may be more familiar with the rubrics and have projects tailored to the rubrics.

Further, some students may be somewhat familiar with the rubrics as well, since some instructors now share the rubrics with their students.

The committee also wondered whether class sizes are smaller as a results of post-pandemic enrollment and a strong labor market, and whether smaller class sizes may have impacted the results, as a consequence of a smaller student to instructor ratio. Fewer students tends to mean that students receive more attention from instructors.

The significance of the 5 years of combined efforts of faculty to integrate strategies into their classrooms to improve student achievement cannot be ignored. Instructors reported out on the various ways that they supported students in the areas not only identified in 2016-17 (Student's Position from Critical Thinking Rubric and Evaluate Potential Solutions from the Problem-Solving Rubric), but other areas from the rubrics as well (see Appendix 1). Faculty reported a total of 131 strategies integrated into their classrooms, as captured by COA assessment (COA does not capture all strategies in all classrooms – see https://www.cgcc.edu/course-outcomes-assessment for more detailed information on the COA process) Over the last 5 years, a total of 2150 students (may be duplicated) received some kind of focused instruction in critical thinking and problem-solving.

In reviewing the actions that faculty have implemented into their teaching and classrooms in the last 5 years, it should be noted that the actions were not just occurring in the classes where the ILO assessment was taking place, but also in the classes that lead up to the 200-level courses, such as ESOL and Pre-College (see Appendix 1). It was obvious to the ILO Assessment Committee that the actions taken have been college-wide and faculty should be congratulated for their efforts and the effectiveness as seen in the results.

The ILO Assessment Committee concluded that faculty have not only accomplished their goal of increasing the percentage of students who achieve the Institutional Learning Outcome of Critical Thinking and Problem-Solving, but faculty have worked together to build a "culture of assessment", measuring student achievement of an outcome by scoring student artifacts with rubrics, analyzing data to determine where efforts should be focused, documenting the implementation of strategies to produce positive change, then re-assessing students to determine whether faculty efforts have been effective.

Both the increase in students' achievement of the areas of focus, and the overall increase in percentage of students scoring into accomplished or better for ILO #2, support the effectiveness of the actions faculty have taken in their classrooms.

C. Recommendations and Action Items

Assessment of Institutional Learning Outcomes assesses whether students, regardless of which degree they earn at CGCC, achieve the skills and knowledge that are at the foundation of CGCC's General Education program. Recommendations and Action items should be related to recommendations made in the current General Education Program Review and can include a progress report or revisions on the Gen Ed Program Review recommendations.

1. **What actions will be taken as a result of the assessment?**

Recommendation 1: The committee recommends that faculty continue the process that they started during spring in-service 2016, developing and integrating strategies into their instruction and assessment that help move more students towards the level of accomplished or better in the areas of "evidence" (Critical Thinking) and "identify strategies" (Problem-Solving). Faculty will be reminded of their commitment to increase or integrate instruction for evidence and identifying strategies when they complete Part A of course outcomes assessment. They will also report out on what they did to support students in achieving this ILO at a higher level when completing Part B. The AAC will track these interventions on a spreadsheet and ILO#2 will be assessed again in 2026-27 to determine the impact of these interventions.

Recommendation 2: The committee recommends encouraging more faculty to utilize the Problem-Solving Rubric when assessing this ILO in 2026-27. The committee suggested that it may be helpful to have discussions with faculty related to the difference between critical thinking and problem-solving as well as developing better definitions of critical thinking and problem-solving. The definitions could be added to the glossaries on the rubrics. The committee also suggested that better examples of activities and assignments may also help faculty with this recommendation.

Recommendation 3: The committee determined that work on Recommendation 3 from 2020-21, related to re-working the rubrics to make them more student-friendly continue. The committee cautioned, however, that during the second round of ILO assessment, these improvements should not change the criteria for the dimensions, as it is essential that the students are scored on the same dimensions/criteria as were used in the baseline results. Prior to the third round of assessment, the committee may want to review the rubrics to ensure that rubrics address expectations from our own outcomes.

Recommendation 4: The committee continues the recommendation that the General Education department resolve the issue that students could potentially graduate with a CGCC degree without taking courses that address ILOs #4 (Cultural Awareness) and #5 (Community and Environmental Awareness). While all degrees incorporate courses that address Communication (ILO#1), Critical Thinking/Problem-Solving (ILO#2) and Quantitative Literacy (ILO#3), there is not yet a requirement that students complete classes addressing Cultural Awareness or Community and Environmental Awareness.

2. **Describe how these action items are related to recommendations from the current General Education Program Review? Include how will these changes affect the General Education program.**

The most current General Education Program Review (2017-2020) did not include any recommendations that had relevancy to ILOs. The 2016 General Education Program Review's 2nd recommendation, however, was to "*Revamp the program to align it more fully with its mission, especially its goals of providing a common experience and preparing students for the roles as citizens of the US and the world*." As described in the General Education Program's Mission, CGCC's common educational experience "*is defined by CGCC's Institutional Learning Outcomes and is developed primarily through a set of general education course requirements that all students take, regardless of their major. Ultimately, the mission of the General Education program at CGCC is to provide our students with a common experience and set*

of skills that prepare students for success in their majors, as citizens of the US and the world and in their personal and professional lives after graduation." The action of CGCC faculty intentionally providing resources and extra support for students to improve achievement in critical thinking and problem-solving implicitly supports the General Education program's Recommendation 2 by making changes to course curriculum and delivery to better prepare students for the roles of citizens of the US and the world.

Resolving the issue related to the lack of degree requirements for courses that address ILO #4 and #5 will further support the General Education program's goals of "providing a common experience and preparing students for the roles of citizens of the US and the world".

Section Six: Evaluate the Assessment Strategy

A. List assessment strategy recommendations from previous reviews, summarize actions taken in response to recommendations

The following recommendations are from the analysis of the assessment strategies related to the 2019-20 assessment of ILO #3 Quantitative Literacy:

Recommendation 3. The committee recommends that faculty embrace a more intentional approach to teaching the concepts addressed by the rubrics. This intentionality would include using the words and terminology from the rubrics with our students, as well as educating them about how the content of General Education courses are tied to their attainment of ILOs. One suggestion would be to include the assignments supporting student achievement of ILOs in the syllabi, as an addition to the requirement that all Gen Ed syllabi include the ILO major and minor designations. Workshops are planned to be offered during fall 2020 in-service to support faculty towards this goal.

Actions: While some faculty have stated that they have begun to include assignments supporting student achievement of ILOs in their syllabi, formal tracking has not taken place to determine how many faculty have implemented this recommendation.

Workshops that focus on developing assignments that could be assessed using the ILO #1 rubric (fall in-service 2020) and the ILO#2 rubric (fall 2021) in-service have been provided to faculty. Fall 2020's workshop was titled "Creating Assignments and Activities to Support Student Achievement of CLO#1: Communication", and was led by Gretchen Gebhardt, Kristen Kane and Susan Lewis. Fall 2021's workshop was titled "Building Assignments and Assessments to Measure Critical Thinking/Problem-Solving Outcomes" and led by Jim Pytel, Diane Uto, Kristen Kane and Susan Lewis. Both workshops were attended by a number of faculty.

Results: The results of this recommendation are difficult to track, as the AAC does not have access nor the time to review all faculty syllabi. Syllabi that follow the newest syllabus template should have the ILOs that the course addresses listed, as required by the template *"Gen Ed faculty should insert only the major/minor designated institutional learning outcome(s) for your course from https://www.cgcc.edu/ccogs. All other faculty should enter any/all ILOs that map to their specific course outcomes and are addressed intentionally as part of the course content"* **This recommendation should continue into 2022-23.**

Recommendation 4. To address the concerns of the lack of familiarity that faculty may have with the criteria of the rubric, future in-services will include workshops designed around creating assignments specific to the criteria of the rubric. These workshops will not only help faculty become more familiar with the criteria, but also ensure that courses are supporting student achievement in the appropriate ILOs as indicated in the CCOGs. It is recommended that the Instructional Council member of the committee remind the General Education department chairs about the major/minor designation of ILOs so that the department chairs can continue to educate faculty in their departments.

Actions: Two workshops were offered during Fall 2020 In-service: "Creating Engaging Assignments: Helping Students Achieve Outcomes" (Courtney Cunningham, Kristen Kane and Susan Lewis) and "Creating Assignments and Activities to Support Student Achievement of CLO#1: Communication" (Gretchen Gebhardt, Kristen Kane, Susan Lewis). The first workshop focused on creating multi-purpose assignments that would address outcomes of various levels (course, degree and ILO). The second workshop was focused specifically on creating assignments that addressed ILO #1-Communication. A workshop titled "Building Assignments and Assessments to Measure Critical Thinking/Problem-Solving Outcomes" (Jim Pytel, Diane Uto, Kristen Kane and Susan Lewis) was offered during fall of 2021.

Results: The workshops had fair attendance, and the increase in student achievement for ILO#2 may be, in part, the result of faculty having better activities and assignments to support and assess student learning of critical thinking and problem-solving. The committee decided that this recommendation should continue the next 3 years so that faculty experience the same opportunity for all ILOs and their rubrics. The committee did express some concern, however, that it may be difficult to continue with this recommendation, given that there will not be an opportunity for this kind of workshop in the Fall 2022 in-service.

Recommendation 5. In order to further support faculty in the above recommendation, the committee proposes that the college consider expanding the ILO workshops, to be offered each term. Doing so would require more faculty to be trained on applying the rubrics, something that could occur during the summer through the AAC&U VALUE Institute Calibration Trainings. Faculty would be trained on norming, as well as compensated (the rate in 2018 was $750) for their time in scoring student artifacts. These faculty could then lend their expertise to providing workshops for CGCC faculty each term.

Actions: Two workshops related to this recommendation have been offered: "*Creating Assignments and Activities to Support Student Achievement of CLO#1: Communication*" was held fall term 2020, and "Building Assignments and Assessments to Measure Critical Thinking/Problem-Solving Outcomes" was offered fall term 2021. Winter 2022 also saw a Faculty Coffee Hour which focused on how critical thinking and problem-solving skills specific to the nursing program could be enhanced by increasing instruction and assignments related to this outcome in pre-requisite courses. Data from the fall ILO#2 assessment was used to spark this conversation. A spring term faculty workshop titled "A Critical Look at Critical Thinking," was also offered, however this workshop was not specific to incorporating criteria from the ILO#2 rubrics.

Results: The workshops and faculty Coffee Hour had a number of faculty in attendance. Familiarity with the expectations of the rubric, and using assignment created specifically for use with the rubrics may have helped to contribute to an increase in student achievement for ILO#2.

The following recommendations are from the analysis of the assessment strategies related to the 2020-21 assessment of ILO #1 Communication:

Recommendation 3: The change from Core Learning Outcomes to Institutional Learning Outcomes reinforces the concept that these outcomes span what all degree-seeking students should attain by the time they graduate. The use of the rubrics to score student work helps lead to consistency. For the student, the rubrics offer an explanation of the standard that CGCC expects students to attain before they leave the college with their 2-year degree. The ILO Assessment Committee, however, expressed concern that students may struggle with understanding the expectations required to meet "Accomplished" or better. The committee recommends that the rubrics be re-worked over the next two years to make them more-student friendly, and that they should be shared more widely with students.

Actions: The committee began to re-work the Critical Thinking, Problem-Solving and Cultural Awareness rubrics during their fall 2022 ILO Committee meeting.

Results: The re-working of the rubrics could not be completed. This recommendation should continue for the 2023 meeting.

Recommendation 4: The committee recommends that the General Education department resolve the issue that students could potentially graduate with a CGCC degree without taking courses that address ILOs #4 (Cultural Awareness) and #5 (Community and Environmental Awareness). While all degrees incorporate courses that address Communication (ILO#1), Critical Thinking/Problem-Solving (ILO#2) and Quantitative Literacy (ILO#3), there is not yet a requirement that students complete classes addressing Cultural Awareness or Community and Environmental Awareness.

Actions: No actions were taken on this recommendation.

Results: The 2017-21 General Education Program Review did not address this recommendation and the issue has yet to be resolved.

B. Were the assessment methods accurate indicators of student achievement of the Institutional learning outcome? Why or why not? Recommendations for changes.

Given that the assessment methods and LEAP rubrics developed by the AAC&U, have been tested and widely adopted by post-secondary institutions across the US, it is probably safe to say that the assessment methods were accurate indicators of student achievement.

The committee did discuss some concerns about the limitations of the assessment methods:

- Faculty may be more comfortable with the rubric in the second assessment of ILO#2 which may have contributed to a difference in how they scored student work
- Faculty are most likely not scoring the same students from 2015-16, so the increase in student achievement is seen using two different sampling sets. The committee agreed, however, that the changes and strategies implemented by faculty as the result of the previous assessment in 2016-17 (see Appendix 1) were improvements that supported all subsequent students. Any students taking the courses after the 2016-17 set of students would have benefitted from the new approaches and efforts of faculty interventions.

- Over the last 7 years of ILO assessment, the committee has been aware that faculty scoring of their own student artifacts leads to a certain amount of subjectivity in determining the results. In past meetings, the committee has agreed that CGCC should continue to have faculty score their own student work until either the General Education Program is able to address this issue in their program review, the use of capstone and e-portfolios has been assessed (Section G, 2019-20 Report of ILO #3 Quantitative Literacy) , or there is budget for outside scoring of CGCC student work.

Section Seven: Appendices

Include any assessment method (i.e., rubric), table of results, comments from instructors

1. Report on Evidence of Focused Instruction to Improve Student Achievement of ILO#2 2016-22
2. 5 Year Average of Student Achievement of the Critical Thinking and Problem-Solving Outcomes by General Education degree
3. 2016-17 Results for the Assessment of ILO#2
4. AAC&U LEAP VALUE Rubrics
5. AAC&U LEAP VALUE Rubric: Critical Thinking
6. AAC&U LEAP VALUE Rubric: Problem-Solving
7. CGCC Critical Thinking Scoring Rubric
8. CGCC Problem-Solving Scoring Rubric
9. Results for Assessment of CLO (ILO) #2 Critical Thinking and Problem-Solving 2016-17
10. Report 2016-17 ILO#2 Critical Thinking and Problem-Solving
11. Ideas & Resources for Teaching to ILO#2: Critical Thinking and Problem-Solving
12. Outcome Assessment Schedule
13. 2016 General Education Program Review
14. 2020 General Education Program Review

Appendix 2: 5 Year Average of Student Achievement of the Critical Thinking and Problem-Solving Outcomes by General Education degree

Degree/Certificate/Program	5 Year Average of Students who Achieve Outcomes 2017-2022
Associate of Arts Oregon Transfer	
AAOT Outcome 1B	88%
AAOT Outcome 3A	89%
AAOT Outcome 3B	89%
AAOT Outcome 4A	90%
AAOT Outcome 4B	88%
AAOT Outcome 4C	87%
AAOT Outcome 5A	93%
AAOT Outcome 7B	88%
AAOT Outcome 7C	88%
AAOT Outcome 8A	87%
AAOT Outcome 8B	87%
AAOT Outcome 8C	87%
AAOT Outcome 8D	88%
Associate of Science Oregon Transfer - Business	
ASOT - BUS Outcome 2	89%
Associate of Science	
AS Outcome 2	89%
Associate of General Studies	
AGS Outcome 2	89%

Appendix 3: 2016-17 Results for the Assessment of ILO#2

2016-17 Overall Critical Thinking and Problem-Solving Results:

Total Number of students enrolled in assessed courses: 438 Total # of students who completed scored assignment: 385	Mastery	Accomplished	Developing	Beginning	Not Demonstrated	Not Applicable
Totals (Combined Scored Critical Thinking and Problem-Solving Rubric)	**36%**	**31%**	**23%**	**7%**	**2%**	**4%**
Total Percentage of Students Scored as Accomplished or Better for Critical Thinking and Problem Solving:	**67%**					

2016-17 Critical Thinking Results:

Institutional Learning Outcome #2:	Through their respective disciplines, CGCC students who earn a degree can:							
Critical Thinking: **Total Number of students enrolled 298** **Total # of students who completed scored assignment: 262**	**Mastery**	**Accomplished**	**Developing**	**Beginning**	**Not Demonstrated**	**Not Applicable**	**Total numbers for Accomplished or better**	**Total Percentage for Accomplished or better**
Critical Thinking Rubric: Explanation of Issues: TOTALS	97	92	61	10	0	2	189	73%
Critical Thinking Rubric: Evidence: TOTALS	77	98	67	19	1	0	175	66%
Critical Thinking Rubric: Influence of Context and Assumptions TOTALS	61	94	67	19	3	18	155	64%
Critical Thinking Rubric: Student's Position: TOTALS	76	76	54	19	3	31	152	67%
Critical Thinking Rubric: Conclusions and Related Outcomes: TOTALS	87	89	67	14	1	4	176	68%
Total Percentage of Students Scoring with Critical Thinking Rubric	32%	36%	25%	6%	1%	4%		
Total Percentage of Students who Scored Accomplished or Better with Critical Thinking Rubric	68%							

2016-17 Problem-Solving Results:

Problem Solving: Total Number of students enrolled: 140 Total # of students who completed scored assignment: 123	Mastery	Accomplished	Developing	Beginning	Not Demonstrated	Not Applicable	Total numbers for Accomplished or better	Total Percentage for Accomplished or better
Problem Solving Rubric: Define Problem: TOTALS	58	25	26	11	3	0	83	67%
Problem Solving Rubric: Identify Strategies: TOTALS	58	22	30	7	6	0	80	65%
Problem Solving Rubric: Propose Solutions/Hypothesis: TOTALS	57	29	23	11	3	0	86	70%
Problem Solving Rubric: Evaluate Potential Solutions: TOTALS	52	29	19	17	6	0	81	66%
Problem Solving Rubric: Implement Solutions: TOTALS	42	32	21	9	9	10	74	65%
Problem Solving Rubric: Evaluate Outcomes: TOTALS	45	25	24	11	8	10	70	62%
Total Percentage of Students Scoring with Problem Solving Rubric	43%	23%	20%	9%	5%	3%		
Total Percentage of Students who Scored Accomplished or Better with Problem Solving Rubric	66%							

Assessment completed by:

Report on the analysis of ILO#2 completed by: Kristen Kane and the ILO Assessment Committee (Susan Lewis, Zip Krummel, Katy Jablonski, Gretchen Gebhardt and Kristen Booth)

Date: 09.21.2022

Analysis to be submitted by the Academic Assessment Coordinator (kkane@cgcc.edu) by October 15 the following academic year being assessed.