

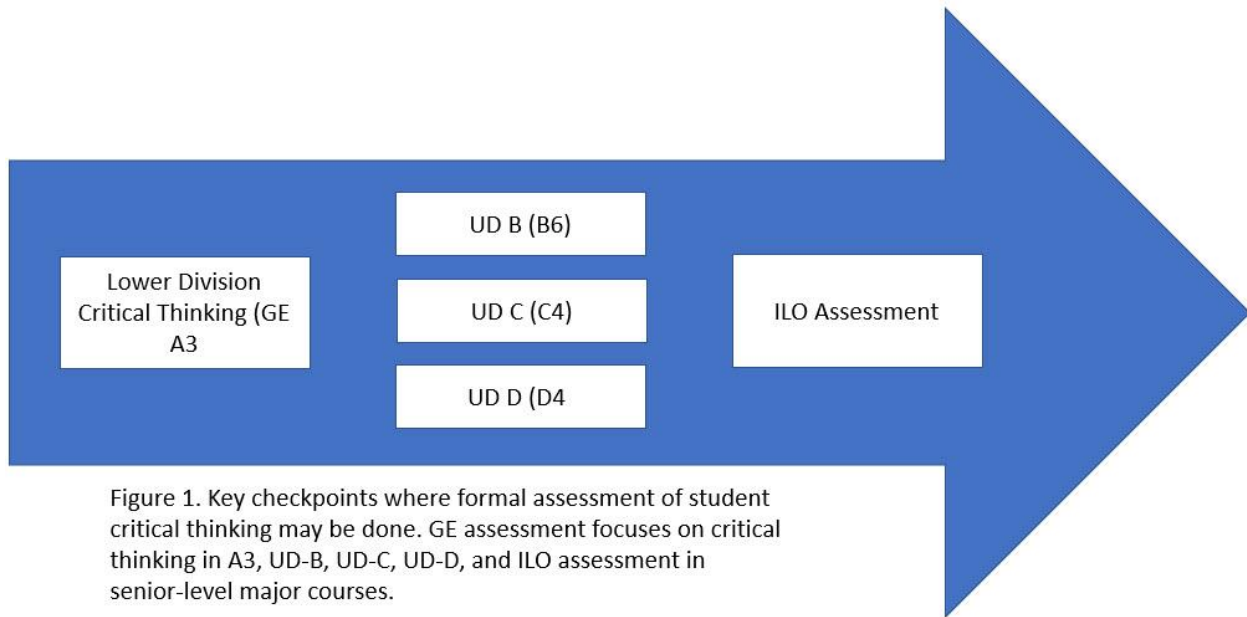
General Education Assessment of Student Learning: GE Area A3 Critical Thinking

Purpose and Background

The overarching purpose of assessment in General Education (GE) is to enhance and improve undergraduate student learning experiences afforded by the GE program at Cal State East Bay. Looking beyond the CSU Chancellor's Office and WASC accreditation requirements which necessitate GE assessment ([EO 1100](#), Section 6.2.5), the true value of GE assessment extends from how we collaboratively make meaning of assessment results to inform improvements in GE.

GE learning outcomes are aligned to the [Institutional Learning Outcomes \(ILOs\)](#), [WASC Core Competencies](#), and [AAC&U's LEAP Essential Learning Outcomes](#), all of which express the knowledge, skills, and values CSUEB graduates are expected to attain. Collectively, CSUEB's GE learning outcomes and ILOs distinguish who we are, what we value, and how we expect students to demonstrate their learning. Thus, the assessment of GE outcomes enables our campus community to gauge how effective we are in helping our students attain these outcomes. The General Education Long-term Assessment Plan for 2018-2026 ([18-19 CAPR 2](#)) details a consistent, rigorous assessment process and necessitates the development of new assessment tools for each GE area.

GE Area A3 Critical Thinking is part of the essential skills or core competencies (previously called the "Golden Four") that form the foundation for GE and major programs. Although assessment of core competencies at the foundational level is not explicitly required by WASC, robust and meaningful assessment of GE at key "checkpoints" (also known as guidepost assessment) is extremely valuable in informing improvements, which help move GE into a more coherent, intentional, and scaffolded program. Performing guidepost assessment of student work allows us to gauge how well students develop autonomy and sophistication in critical thinking as they progress through their academic pathways. Such assessment checkpoints include lower division A3, UD-B (B4), UD-C (C4), UD-D (D4), and Institutional Learning Outcome (ILO) assessment in senior-level major courses (see Fig. 1).



The A3 course must be passed with a C- (CR) or better satisfy GE Subarea A3. Any approved A3 course with an In Progress Grade (i.e., I, RP, or RD) will not be counted in Subarea A3 until a passing final course grade is posted. The CSUEB course currently certified for GE Area A3 is PHIL 100 (Workshop in Critical Thinking).

A3 Learning Outcomes

GE Area A3 courses emphasize the development of clarity and rigor in reasoning and its presentation, and the ability to understand, represent, and evaluate the presentations of reasoning made by others.

Upon completion of the GE Area A3 requirement, students will be able to:

1. understand logic and its relation to language, elementary inductive and deductive reasoning, and formal and informal fallacies;
2. demonstrate the ability to distinguish among different sorts of claims, such as statements of opinion, reasoned judgments, proofs, and articles of faith;
3. develop the ability to identify, analyze, evaluate, and present arguments, and construct arguments both to support and refute claims; and
4. develop the ability to reason inductively and deductively.

The Process

The A3 rubric was developed in November 2019 by faculty members in the Department of Philosophy in collaboration with the Office of General Education. The pilot project of collection and evaluation occurred in Spring 2021. The assessment object was an extra credit assignment. An assessment summary was completed in Fall 2021.

The Rubric

CSUEB GENERAL EDUCATION AREA A3 CRITICAL THINKING RUBRIC

Description: The primary purpose of a GE Area A3 course is to build a specific toolset that allows students to rigorously explore reasoning and its presentation. Proficiency in critical thinking at the A3 level is demonstrated by the identification, analysis, evaluation, and presentation of arguments (deductive and inductive). Emphasis is on the understanding of fallacies and the role of language in argumentation.

Framing Language: This rubric is used to assess signature (comprehensive) assignments that are aligned to the A3 Critical Thinking rubric. Each dimension, listed in order of importance, must be covered and should be assessed independently even though they are linked and may not stand alone. A single question might cover multiple dimensions. While the dimensions are specific, the performance descriptors allow for a variety of assignment forms. Levels are a product of complexity and/or consistency of the student's work.

Development: This A3 rubric was developed in November 2019 by faculty members in the Department of Philosophy in collaboration with the Office of GE and was used for a pilot assessment of A3 in Spring 2021.

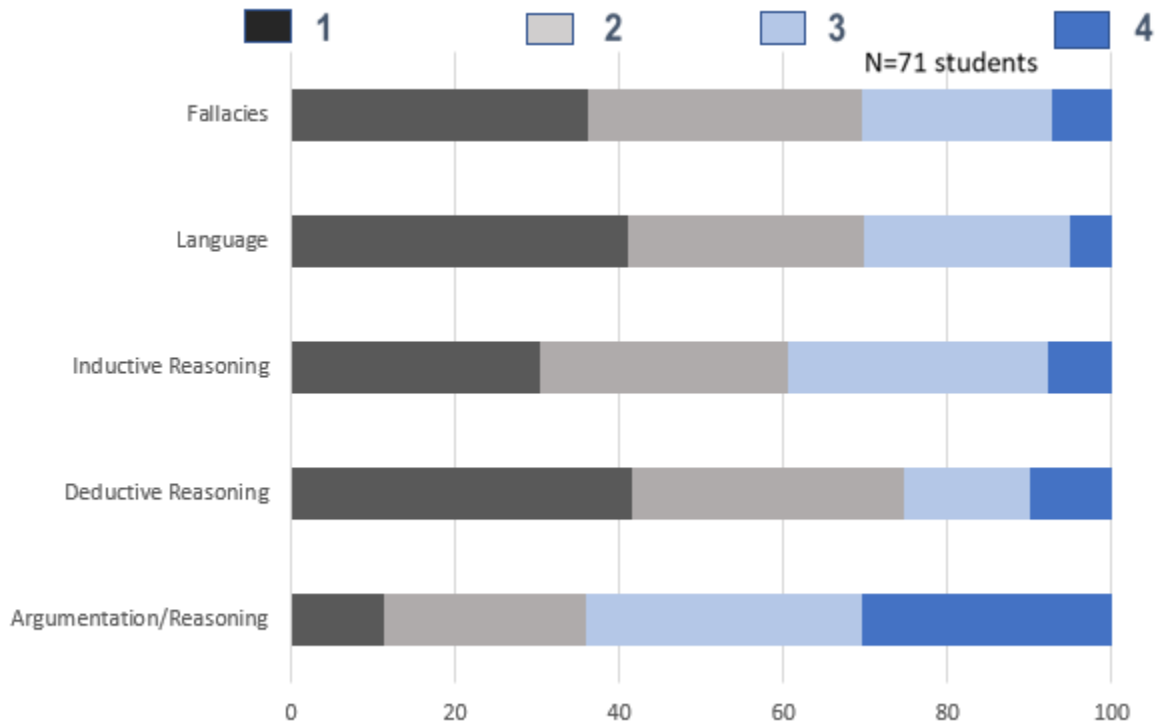
| PERFORMANCE DESCRIPTORS BY LEVEL | | | | |
|--|---|--|--|---|
| DIMENSION | 4 | 3 | 2 | 1 |
| Argumentation/Reasoning <i>Understands the structure and purpose of an argument, the logical relationships between the parts (explicit and implicit) and evaluates the argument.</i> | Demonstrates a thorough understanding of arguments. | Demonstrates an adequate understanding of arguments. | Demonstrates some understanding of arguments but with major gaps/errors. | Demonstrates little to no understanding of arguments. |
| Deductive Reasoning <i>Understands arguments intended to reason with certainty or necessity and evaluates them in terms of validity and soundness.</i> <i>This includes the use of formal systems (e.g., propositional logic, predicate logic, syllogistic logic) and/or informal systems (e.g., mathematical reasoning, argument by definition).</i> | Demonstrates a thorough understanding of deductive reasoning. | Demonstrates an adequate understanding of deductive reasoning. | Demonstrates some understanding of deductive reasoning but with major gaps/errors. | Demonstrates little to no understanding of deductive reasoning. |
| Inductive Reasoning <i>Understands arguments intended to reason without necessity or certainty and evaluates them in terms of strength and cogency.</i> <i>This includes reasoning such as causal analyses, arguments from analogy, generalizations, appeals to authority, predictions, and/or abductive reasoning.</i> | Demonstrates a thorough understanding of inductive reasoning. | Demonstrates an adequate understanding of inductive reasoning. | Demonstrates some understanding of inductive reasoning but with major gaps/errors. | Demonstrates little to no understanding of inductive reasoning. |
| Language <i>Understands the role of language in argumentation (e.g., factual and value claims, vagueness and ambiguity; cognitive and emotive meaning; definitions; implicit and explicit communication).</i> | Demonstrates a thorough understanding of the role of language in argumentation. | Demonstrates an adequate understanding of the role of language in argumentation. | Demonstrates some understanding of the role of language in argumentation but with major gaps/errors. | Demonstrates little to no understanding of the role of language in argumentation. |
| Fallacies <i>Understands common errors in reasoning (e.g., ad hominem, slippery slope, bias, strawman, equivocation, no true Scotsman, false cause).</i> | Demonstrates a thorough understanding of fallacies. | Demonstrates an adequate understanding of fallacies. | Demonstrates some understanding of fallacies but with major gaps/errors. | Demonstrates little to no understanding of fallacies. |

Here is a [direct link to the A3 Critical Thinking Rubric](#).

Assessment results

Data:

| Spring 2021 | % Students by Performance Level | | | | % | |
|-------------------------|---------------------------------|------|------|------|-------------|-------------------------|
| DIMENSION | 1 | 2 | 3 | 4 | Proficiency | Inter-rater Reliability |
| Fallacies | 36.2 | 33.3 | 23.4 | 7.1 | 30.5 | 76 |
| Language | 41 | 28.8 | 25.2 | 5 | 30.2 | 62 |
| Inductive Reasoning | 30.3 | 30.3 | 31.7 | 7.7 | 39.4 | 69 |
| Deductive Reasoning | 41.5 | 33.1 | 15.5 | 9.9 | 25.4 | 79 |
| Argumentation/Reasoning | 11.3 | 24.6 | 33.8 | 30.3 | 64.1 | 76 |



DFW Rates:

| PHIL 100 | | | | | | |
|--|------------|-------------------|----------------------------|---------|--------|------|
| | TOT ENROLL | % PASS (A,B,C,CR) | % NOT PASS (D,F,W,WU,I,NC) | % Fresh | % Soph | % Jr |
| Fall 2019 | 807 | 80 | 20 | 59.6 | 25.8 | 9.3 |
| Spring 2020 | 864 | 80.2 | 19.8 | 65.4 | 21.5 | 8.2 |
| Fall 2020 | 679 | 73.2 | 26.8 | 54.5 | 29.5 | 10.2 |
| Spring 2021 | 698 | 80 | 20 | 66.5 | 21.5 | 6.7 |
| N = 71 students assessed in Spring 2021 = 10.2% of total enrollment | | | | | | |

Competency occurs when the scoring is a 3 (75%) or above. The A3 Critical Thinking Pilot Assessment results from Spring 2021 show that most students were not at a level of competence across the five rubric criteria, including fallacies (30.5%), language (30.2%), inductive reasoning (39.4%), deductive reasoning (25.4%), and argumentation/reasoning (64.1%).

Argumentation/reasoning was the area that students scored highest (64.1%) and deductive reasoning was the lowest (25.4%). The results of the assessment are not in alignment with the 80% pass rate shown in the student metrics from Spring 2021.

Ideally, inter-rater reliability should be 90% or higher, but for the pilot the levels were between 62% and 64.1% with Language being the lowest criteria in terms of inter-rater reliability. The calibration process involves individually scoring samples of student work and discussing different faculty perspectives and insights, and is a good way to find common ground among faculty evaluators. Additional calibration and discussion could improve inter-rater reliability during the next assessment (see Closing the Loop below).

Assessment Comments by Faculty

Faculty Comments on the Rubric

One faculty member commented that the GE A3 Critical Thinking Rubric developed by Philosophy faculty was based on time tested, accepted rules of the field, and that faculty could consider changing the rubric to incorporate a more innovative approach. One question posed by faculty is how much we stay within the traditional framework, and how much to innovate (incorporating adversarial systems, emotional intelligence, etc.). A careful evaluation of the most vital criteria to include in the rubric is needed. The performance levels on the rubric should capture the fact that mastery is not needed for each criterion (for example fallacies).

Faculty Comments on the Assessment Results

Department faculty felt that the assessment results were not unexpected and reflect what is happening in the classroom – where students are more proficient in argumentation and reasoning, and less in deductive reasoning.

The cohort of students who participated in the extra credit assignment in PHIL 100 in Spring 2021 were not a representative sample. Students who did well in the course did not need to complete the extra credit assignment. The extra credit assignment was completed only by students who were struggling in the course and needed the additional points.

The small sample size (71 students out of 698) and lack of a representative sample could be addressed in the future by incorporating a required assignment in PHIL 100 rather than offering the assignment as extra credit, and sampling from additional courses. The goal is to obtain a better cross-sectional sample of student work.

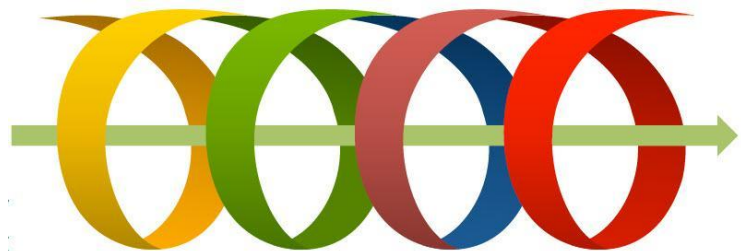
The low inter-rater reliability could be an artifact of the circumstances (COVID, remote classes) and can be addressed with additional calibration training with evaluators, to make sure the criteria is being assessed the same way by faculty.

The quantitative data will be used to start a conversation about how to improve the assignment, rubric, assessment process, and ultimately make changes to improve student learning.

Closing the Loop

After the assessment was finished, faculty were asked to give their feedback on the assessment results and process, and thoughts on how the results can impact future work. The faculty agreed with the rubric criteria and felt that the rubric reflects a disciplinary approach.

They stated that reviewing the rubric and assignment(s) prior to conducting another assessment would be beneficial to see if changes are needed. Involving other A3 faculty would enhance the discussion. Evaluating/revising the rubric criteria to increase the focus on criteria where mastery is needed should also be considered.



A3 faculty should have a conversation about goals and standards, what they are trying to achieve and how to get there. The type of assignment used for assessment should reflect what is typically done in the classroom. Perhaps incorporating a more iterative process for the assignment used to assess A3 courses, where students could practice the type of assignment, would improve the process and more closely align with typical classroom activities. One suggestion was to give a similar assignment at the beginning of the semester, and then again at the end to evaluate student learning.

Setting up an easy, repeatable process for a pre and post assessment every 4 years in PHIL 100 would allow time to analyze results and implement changes. In order to authentically reflect what happens in class on a regular basis, the pre and post assignment should be done every year, not just for assessment purposes.

Information gathered about the level of student proficiency at the end of the 1st year A3 course is valuable for determining how to move them to a more sophisticated level of understanding by 4th year. Adding an upper division GE course about critical thinking could be considered, to give students an opportunity to apply critical thinking concepts learned in PHIL 100.

AB928 will result in changes made to General Education in the CSU system. Although the extent of the changes will not be fully known until Spring 2023, it would be beneficial to move forward with our assessment efforts now. That includes department discussions, and faculty working with the General Education Director and liaison to make improvements to the rubric, assignment, and assessment process. Revisions could also be made to GE A3 student learning outcomes so they are more specific.

Next Steps

- Cross-department discussions with faculty about critical thinking.
- Review the A3 Critical Thinking Rubric and possible assignments for the next assessment.
- Revise GE A3 student learning outcomes and course characteristics.
- Additional calibration and discussion to improve inter-rater reliability during the next assessment.
- Explore pass rates and success of students in A3 courses.
- Create a signature assignment that can be used in assessment (and one that is not an extra credit assessment)



- Since the A3 assessment took place in Spring 2021, discussion about more closely aligning the GE and ILO rubrics has taken place. Continued discussions and since then there has been quite a bit of discussion on aligning (or more closely aligning) the GE rubrics with the ILO rubrics. Those discussions continue.
- Departments and faculty who teach GE courses need to engage in discussions and actively work to reduce DFW/Equity gap percentages. The goal of the Graduation Initiative 2025 is to have a 0% equity gap in all courses.
- Discussions are needed on a broader level about General Education to overhaul outcomes, criteria, and analyze what we really want to capture.