UNIVERSITY OF GEORGIA

General Education Assessment Report – *Critical Thinking*

A Comprehensive Review of Four Assessment Cycles (Spring 2020 - Spring 2023)

July 2023 | Office of Instruction

KEY POINTS

- Student work (N = 487) demonstrating critical thinking skills was collected and assessed by trained instructors every spring between 2020 and 2023.
- In general, UGA students score at or above milestone level (2) across all rubric dimensions.
- Students in upper-level courses scored higher than those in lower-level courses across all rubric dimensions.
- Students do particularly well in providing a logical explanation of the issue of interest as well as critically evaluating and using evidence from various sources.
- Instructors can help students improve their critical thinking skills by working more on analyzing and evaluating underlying assumptions of an argument and logically proposing conclusions and implications.

ASSESSMENT OVERVIEW

General Education Competencies

Definition

Through completion of general education at the University of Georgia, students are expected to demonstrate a set of competencies. The current general education competencies are: written communication, oral communication, critical thinking, quantitative reasoning, and moral reasoning. According to the Association of American Colleges and Universities (AAC&U), critical thinking is defined as "a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion."

Assessment of General Education Competencies

UGA tracks student attainment of general education competencies through direct assessment every semester. The assessment results not only ensure students are gaining the skills as the general education curriculum is designed, but also provide instructional feedback to promote student learning.

Assessment Cycle

The assessment for Critical Thinking was conducted on a rotating cycle (see **Table 1**). The annual assessments alternate lower-level (1000-2000) and upper-level (3000-4000) courses to enable comparison between students at earlier and later stages of their educational experience.

Table 1. Critical Thinking Assessment Cycle

Semester	Assessment Round (Course Level)	Number of Courses	Number of Artifacts
Spring 2020	Round 1 (Lower)	10	250
Spring 2021	Round 2 (Upper)	6	89
Spring 2022	Round 3 (Upper)	3	48
Spring 2023	Round 4 (Lower)	5	100
TOTAL	-	24	487

Assessment Procedure

Data Collection

- Artifacts that students produce as part of course completion are direct evidence of students' attainment of competency, particularly when the course and key artifacts require demonstration of the competency subject to assessment.
- For each assessment cycle, course section(s) tied to the measured competency were identified.
- Key assignments were solicited from the courses.

Rubric and Scoring

- Scorers received a 1-hour rubric calibration training.
- Collected artifacts were anonymized and distributed to a set of scorers consisting of faculty members, instructors, and graduate teaching assistants affiliated with the Center for Teaching and Learning.
- The scorers virtually evaluate artifacts using the Critical Thinking VALUE rubric of AAC&U (see **Table 2**). All artifacts were evaluated by two scorers, allowing for interrater reliability.

Understanding the Data (from AAC&U VALUE)

- The data are **descriptive** in nature.
- The data are categorical – meaning that scores put work into categories that are labeled both **numerically** (4, 3, 2, 1) **and linguistically** (Capstone, Milestone, and Benchmark).
- Scores from two scorers were averaged to determine final scores. In cases where the average resulted in a "half score" (e.g., 2.5), **the scores were rounded up** to reflect VALUE rubric's assumption and underlying philosophy of respecting students' likelihood of demonstrating the highest performance.
- The categories are purposefully arranged in a **developmental order**; in other words, there is an intentional progression from Benchmark (1) to Milestone (2), Milestone (3), and Capstone (4).
- However, while the data generated using a VALUE rubric are ordinal (i.e., there is a logical, progressive order to the categories presented on the rubric), the data are not reflective of a true scale with equal intervals between each score. Thus, mean scores might not fully represent students' general performance and need to be supplemented by score distributions.

Assessment Rubric

Table 2. VALUE Rubric for Critical Thinking

Dimensions	Capstone (4)	Milestone (3, 2)		Benchmark (1)
Explanation of Issues	Issue/ problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding	Issue/ problem be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/ problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/ or backgrounds unknown.	Issue/ problem to be considered critically is stated without clarification or description.
Evidence *Selecting and using information to investigate a point of view or conclusion*	Information is taken from source(s) with enough interpretation/ evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/ evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/ evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/ evaluation. Viewpoints of experts are taken as fact, without question.
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Students' position (perspective, thesis/hypothesis)	Specific position (perspective, thesis/ hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/ hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, theses/ hypothesis).	Specific position (perspective, thesis/ hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/ hypothesis).	Specific position (perspective, thesis/ hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.
Conclusion and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

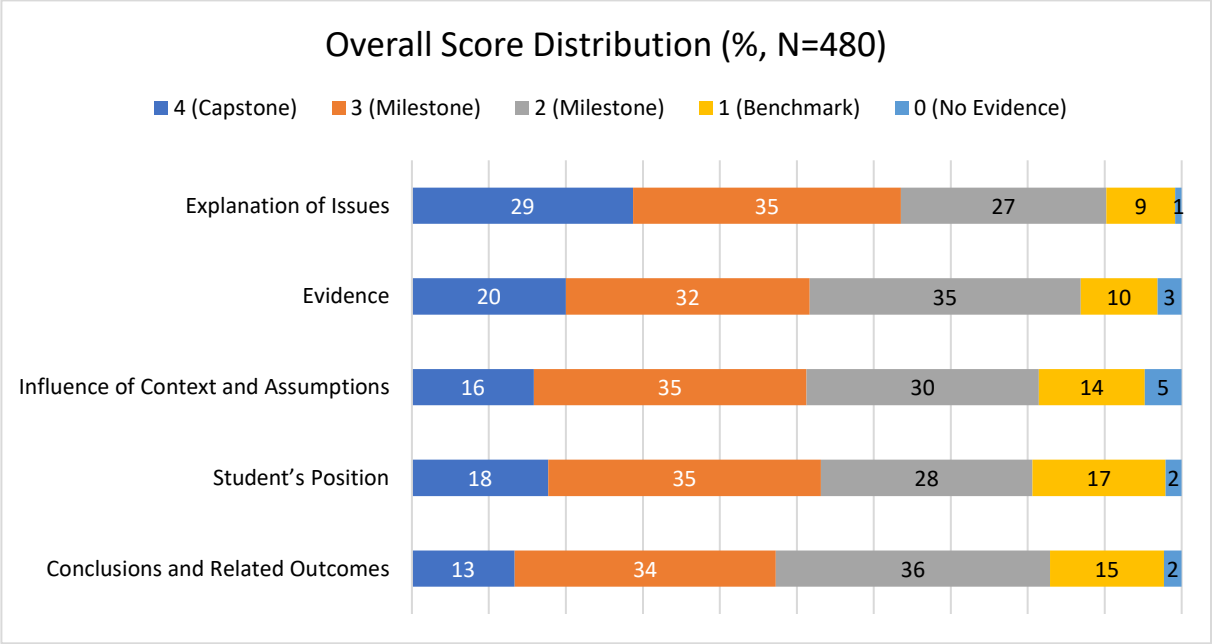
RESULTS

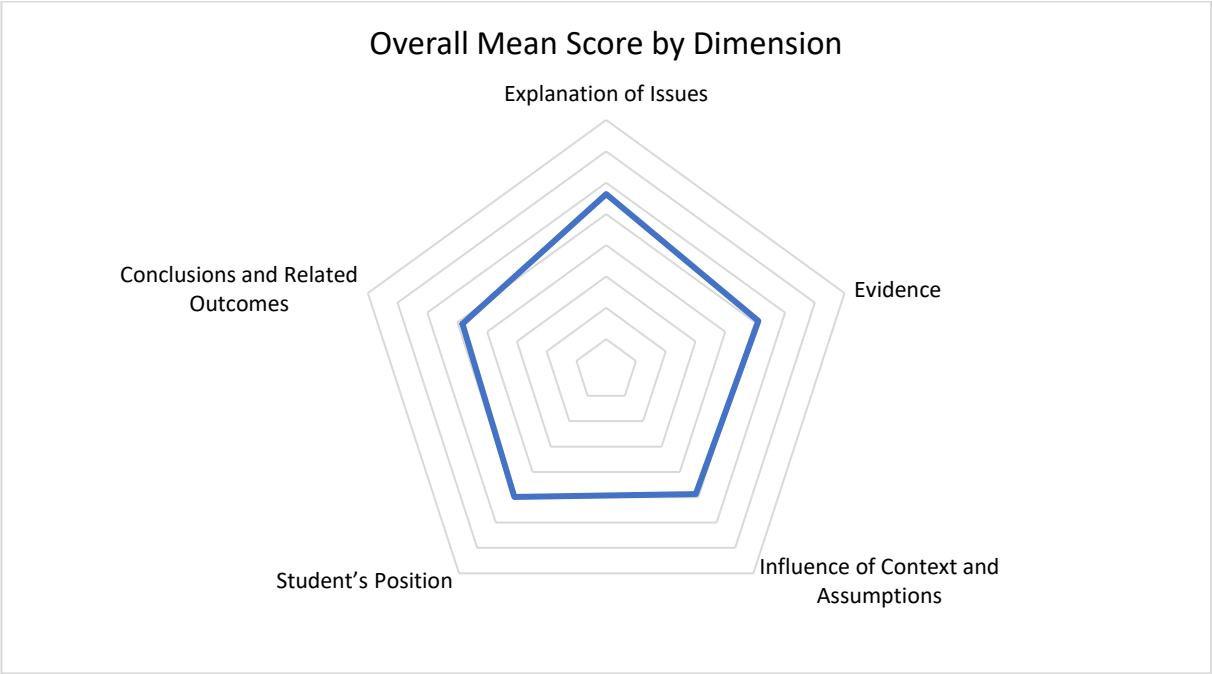
The rubric in **Table 2** lists five dimensions used to assess students' critical thinking competency.

Overall Score Distribution

Figure 1 displays the overall assessment result of written communication, first by dimension and in a radar chart. **Figure 1** answers the question, "how are student scores distributed in the pooled sample across four cycles?"

Figure 1. Overall Score Distribution

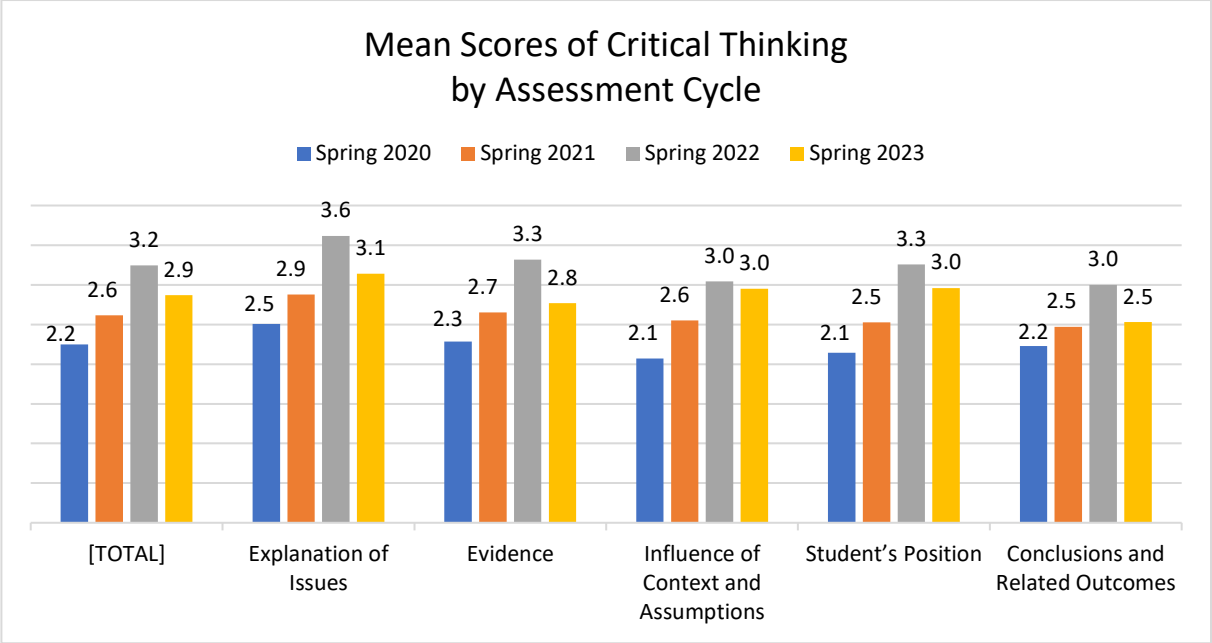




Score Distribution by Assessment Cycle

Figure 2 provides student scores across dimensions by assessment cycle. It provides an answer to the question, "how did students score on average by assessment cycle?" **Figure 3** answers the question, "how are student scores distributed in each assessment cycle?"

Figure 2. Mean Scores of Critical Thinking by Assessment Cycle



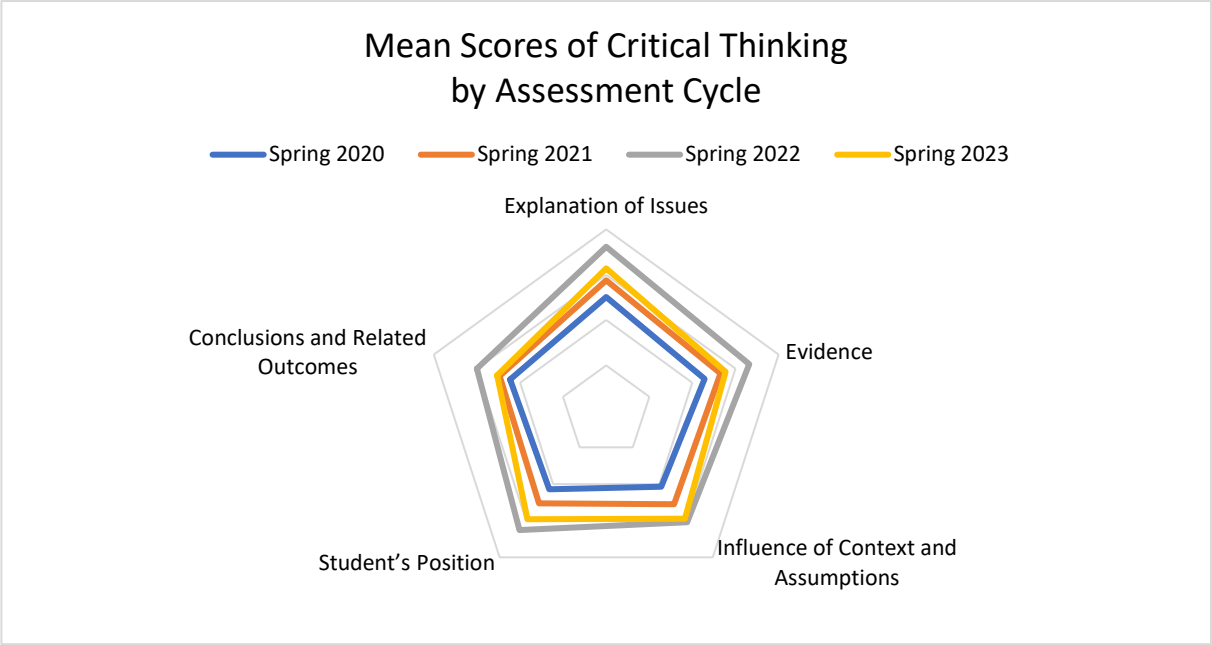
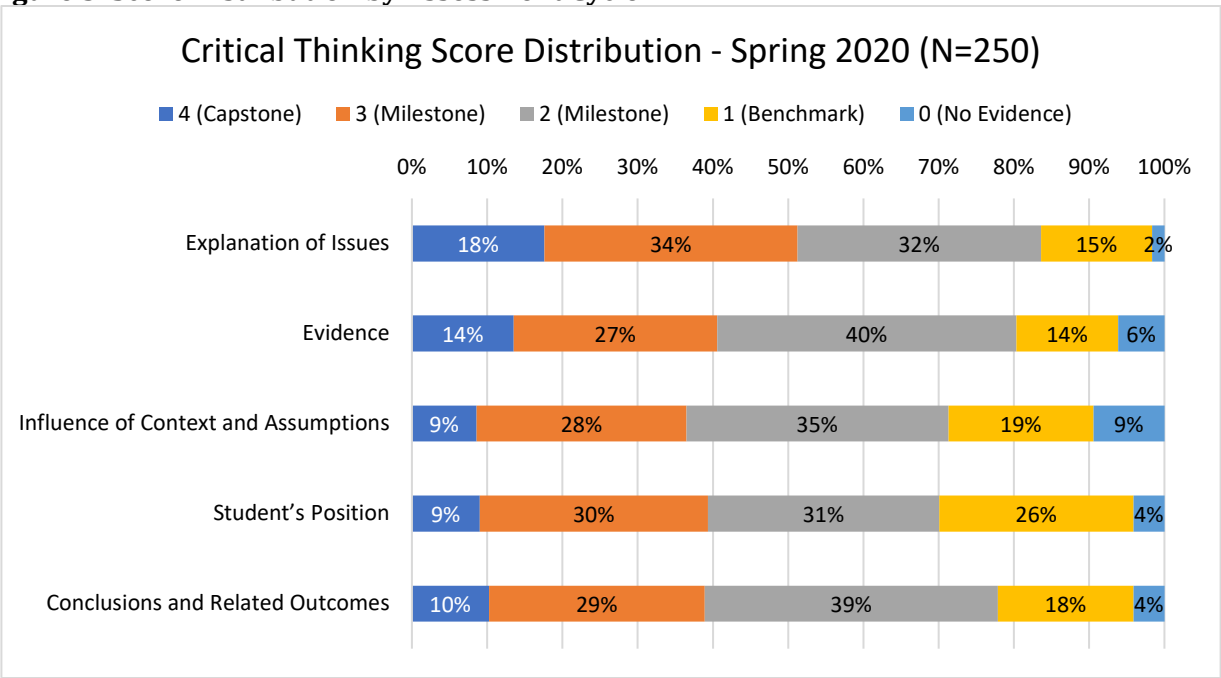
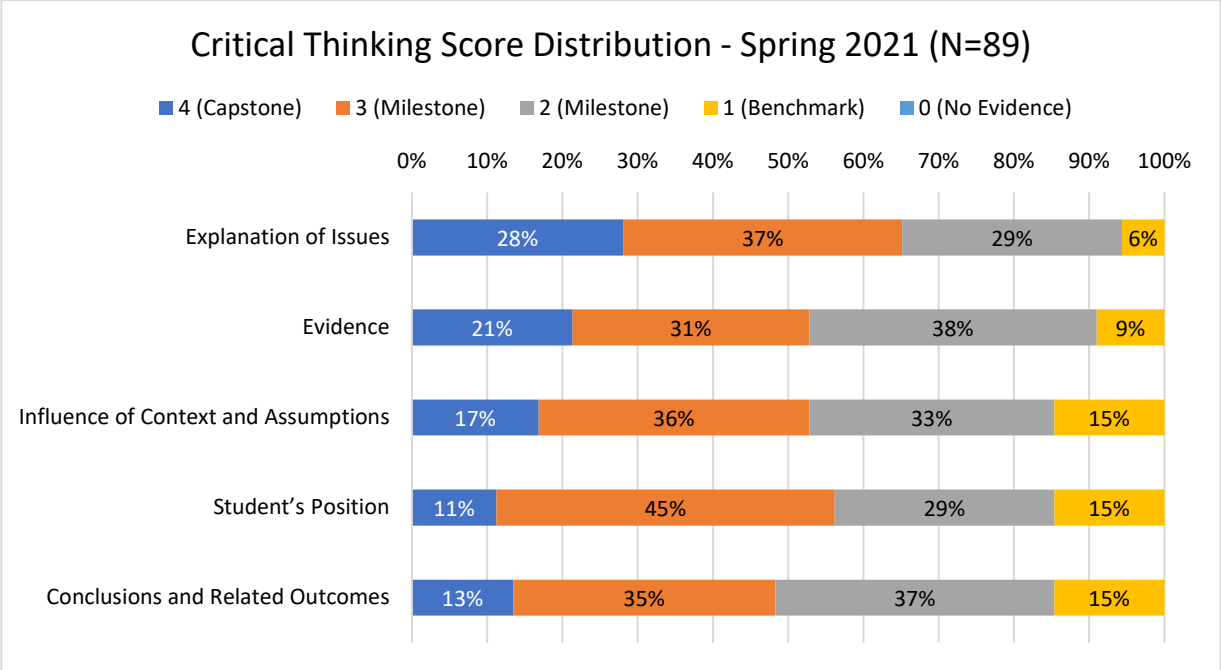
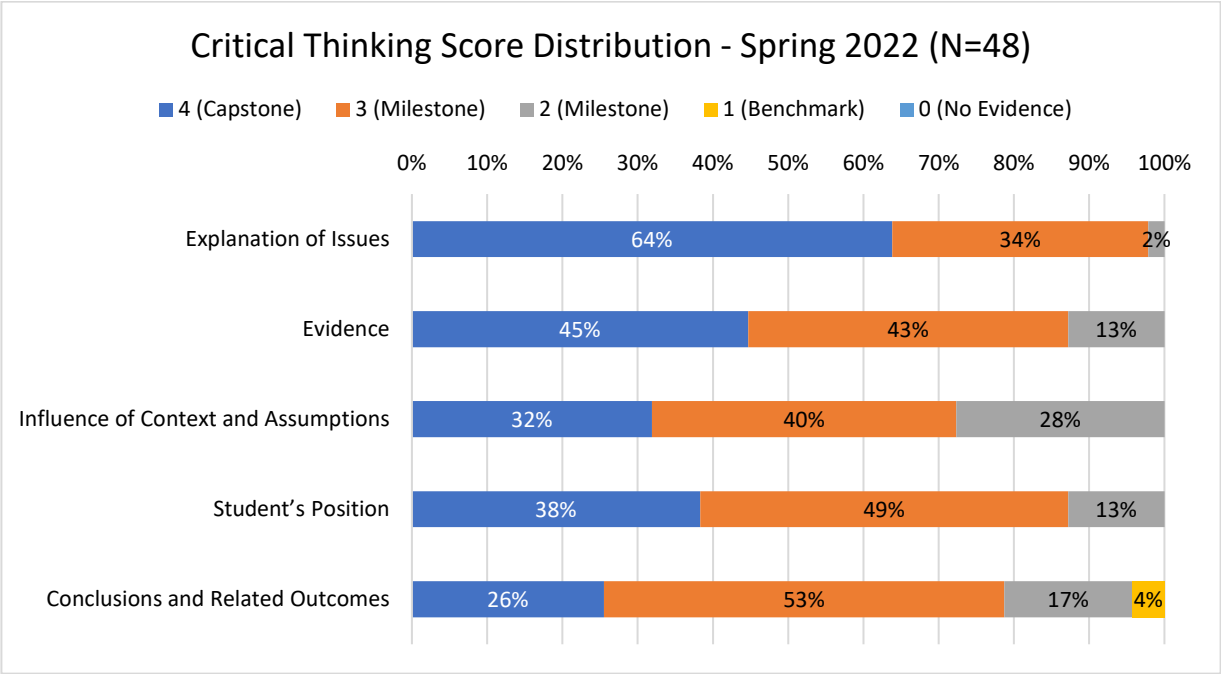
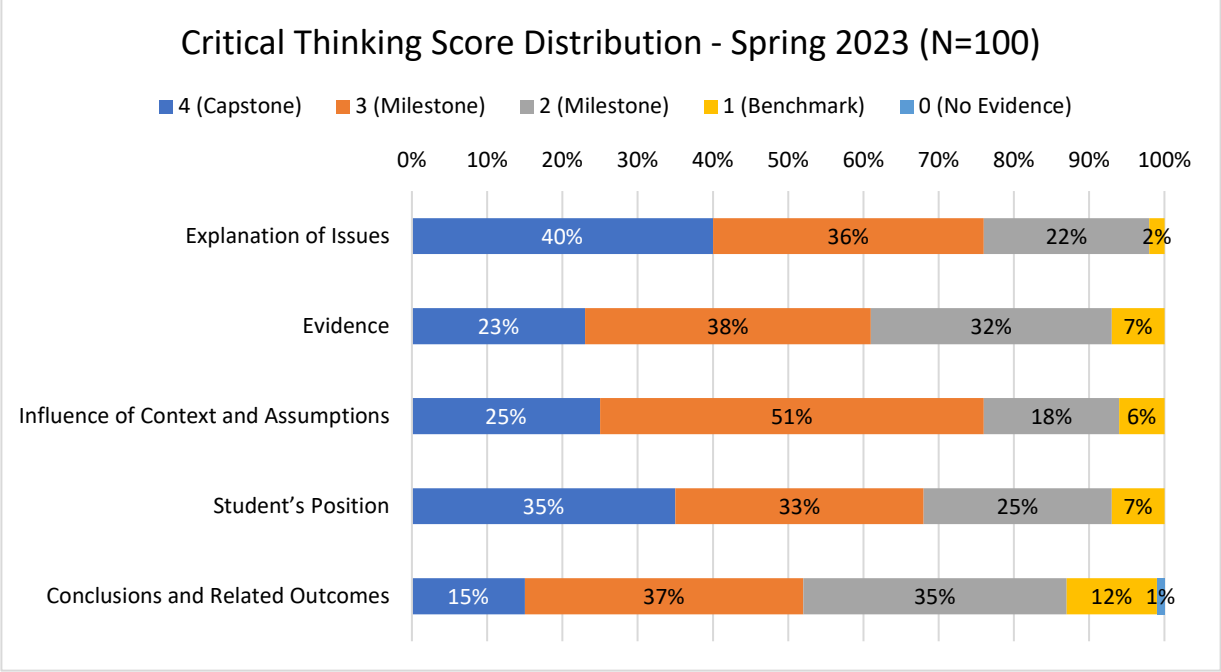


Figure 3. Score Distribution by Assessment Cycle





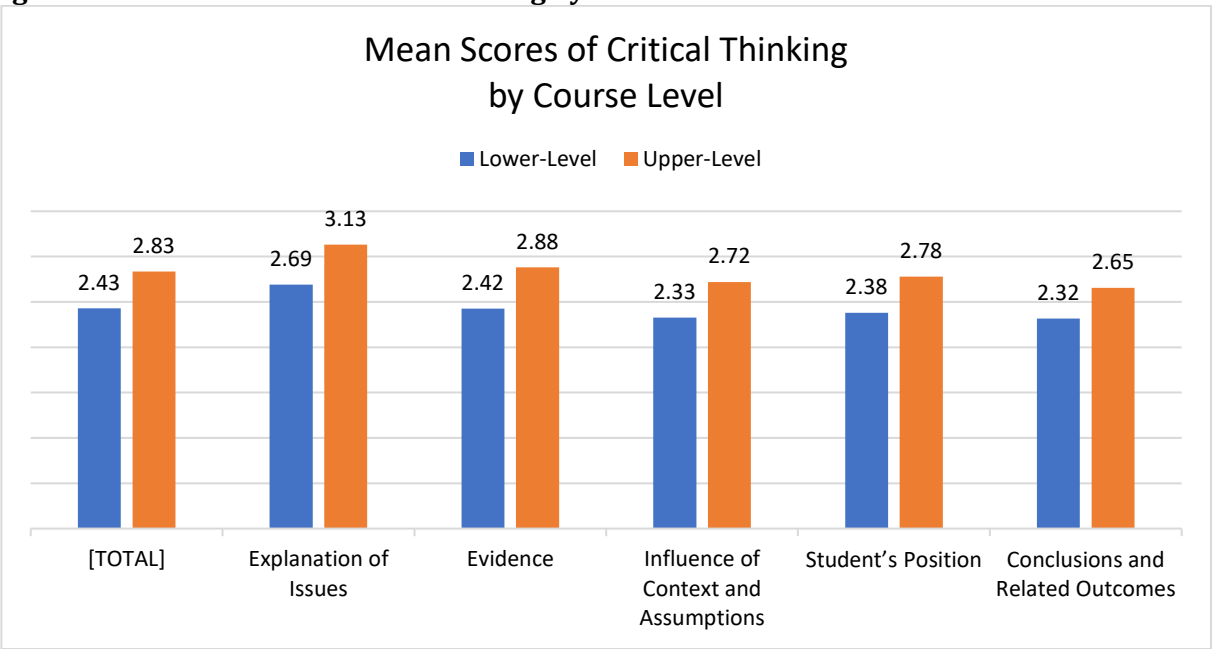

Critical Thinking Score Distribution - Spring 2022 (N=48)
4 (Capstone)
3 (Milestone)
2 (Milestone)
1 (Benchmark)
0 (No Evidence)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Explanation of Issues
64%
34%
2%
Evidence
45%
43%
13%
Influence of Context and Assumptions
32%
40%
28%
Student's Position
38%
49%
13%
Conclusions and Related Outcomes
26%
53%
17%
4%


Critical Thinking Score Distribution - Spring 2023 (N=100)
4 (Capstone)
3 (Milestone)
2 (Milestone)
1 (Benchmark)
0 (No Evidence)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Explanation of Issues
40%
36%
22%
2%
Evidence
23%
38%
32%
7%
Influence of Context and Assumptions
25%
51%
18%
6%
Student's Position
35%
33%
25%
7%
Conclusions and Related Outcomes
15%
37%
35%
12%
1%

Score Distribution by Course Level

The four cycles can be aggregated by course level. Cycles 1 and 4 collected student artifacts from lower-division courses, whereas Cycles 2 and 3 assessed Critical Thinking skills from upper-level course assignments. **Figure 4** answers the question, "how did students score on average by course level?" **Figure 5** answers the question, "how is student score distribution different by course level?"

Figure 4. Mean Scores of Critical Thinking by Course Level



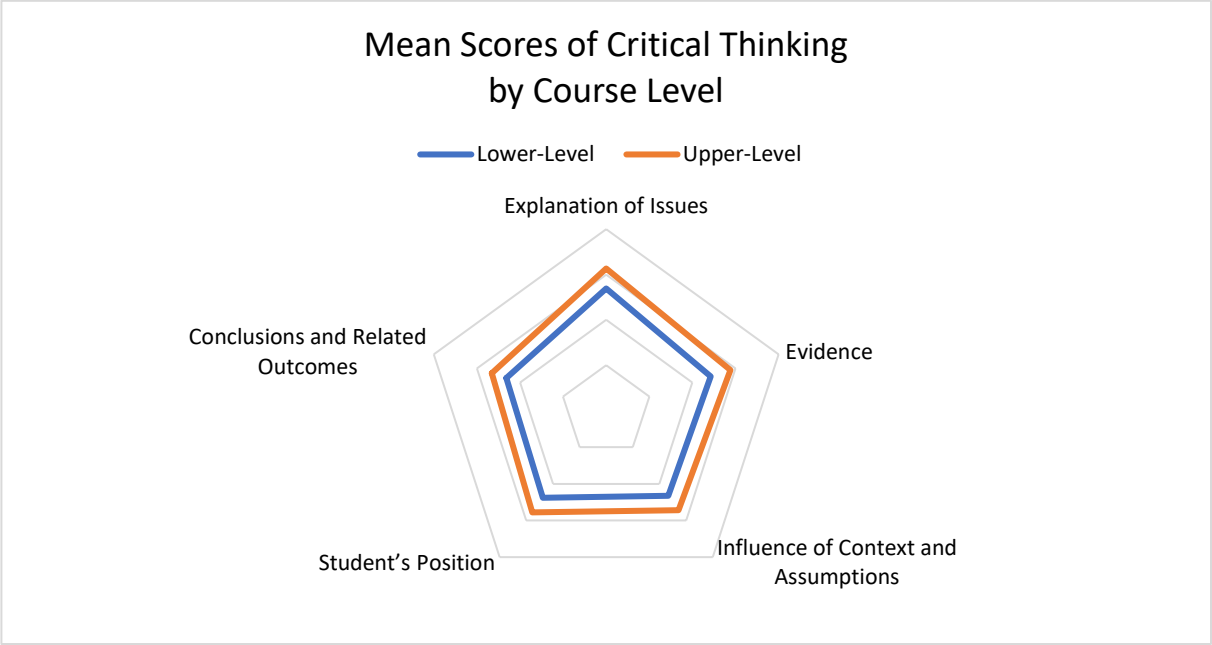
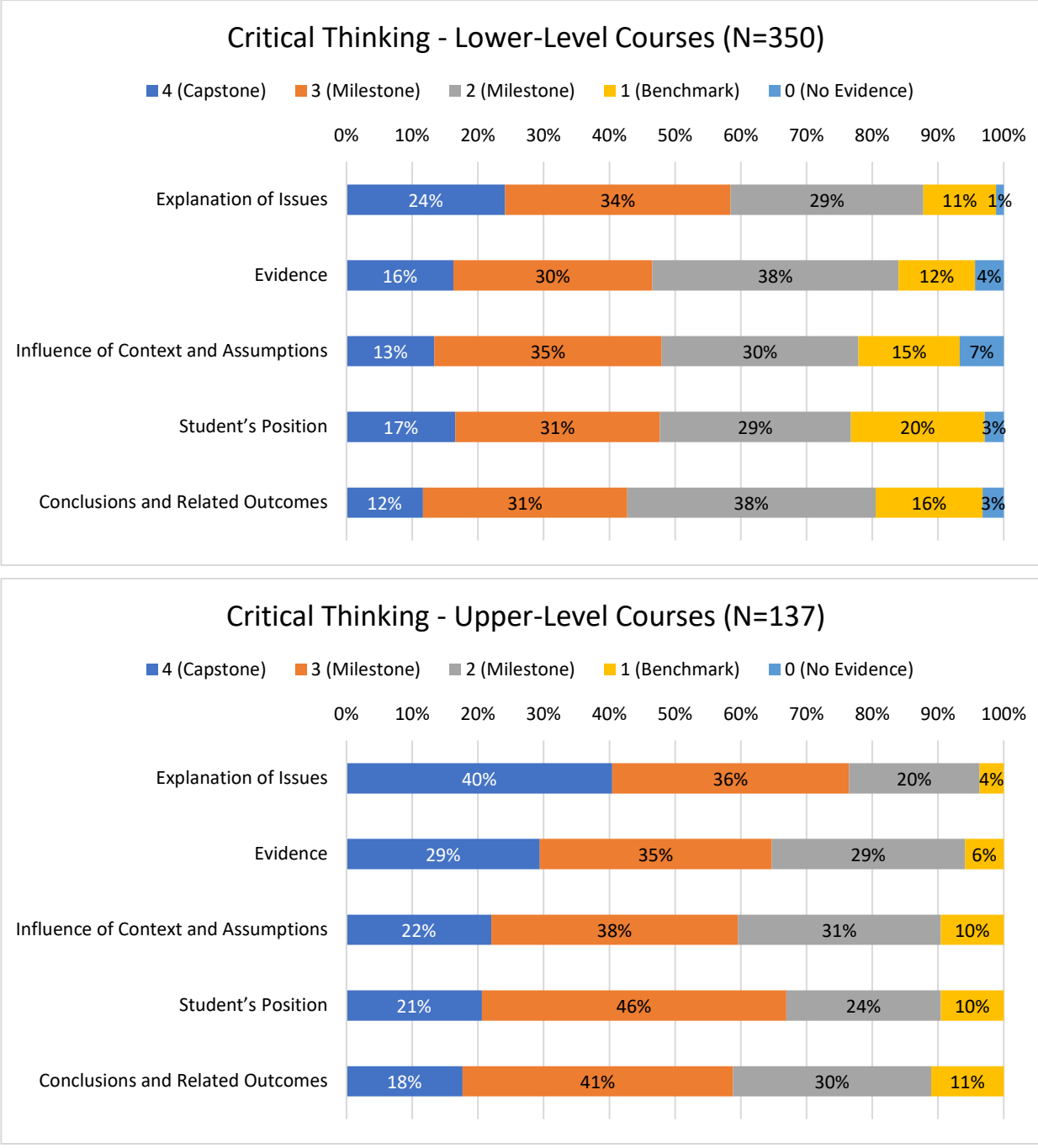


Figure 5. Score Distribution by Course Level



IMPLICATIONS

Overall Student Performance

UGA's collective effort to improve students' general education competencies has successfully led to **a growing number of students scoring above Milestone (2) level in general.**

Difference by Course Level

While **some students from lower-level courses struggle** to demonstrate their critical thinking skills via course assignments, **all students taking upper-level courses showed degrees of evidence** of their critical thinking skills. This should be interpreted with caution, given that different assignments can require different levels of articulation of critical thinking competency. Still, the result is indicative of students' acquisition of critical thinking skills while they go through the general education curriculum.

Another encouraging finding worth noting is that student performance is **higher in recent cycles in both course levels**. In upper-division courses, students scored higher on average in the third cycle (Spring 2022) compared to the second (Spring 2021). Similarly, mean scores in lower-division courses in the fourth cycle (Spring 2023) were 0.3~0.9 higher than the first cycle in all dimensions. This indicates that **students' critical thinking skills are better articulated in recent cycles**.

Students from lower- and upper-level courses showed **a similar scoring pattern by dimension**. In both course levels, students can improve their critical thinking skills by working more on **analyzing and evaluating underlying assumptions of an argument** and **logically proposing conclusions and implications**.

Difference by Cycle

The breakdown result by assessment cycle shows that students continuously perform at a high level, **especially in recent assessment cycles**.

Difference by Dimension

Students do well in providing a logical explanation of the issue of interest as well as **critically evaluating and using evidence** from various sources, while fewer students score at Capstone (4) and Milestone (3) levels in **developing conclusions and implications** in relation to information and evidence they found.

The **Critical Thinking** competency assessment showed a similar pattern of score distribution across five sub-dimensions. More than 75% of students scored at least at Milestone (2) level, but a relatively small percentage of students scored at Capstone (4) level.