**General Education Assessment: Quantitative Literacy Results 2022-23**

# What do we mean by Quantitative Literacy?

Virginia Western describes Quantitative Literacy as the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions

A person who is quantitatively literate possesses the skills and knowledge necessary to apply the use of logic, numbers, and mathematics to deal effectively with common problems and issues. A person who is quantitatively literate can:

* perform accurate calculations
* interpret quantitative information
* analyze relevant numerical data
* use results to support conclusion

# How do we assess Quantitative Literacy?

Quantitative Literacy was assessed by 1 direct method of assessment and 2 indirect methods of assessment.

## Direct Assessment Method

Quantitative Literacy was assessed by faculty using a [rubric](#Rubric) on selected artifacts; this rubric can be found in Appendix A. The threshold of acceptability was that 75% of students would earn an average rating of 2.00. The target was that students would have an average score of 3.00 or above.

### Population for Direct Assessment Method

716 artifacts were assessed for 616 unique students for the Quantitative Literacy General Education Assessment. This represents 13.9% of the target population, program placed students (n=4,446). The table below provides the respondent populations gender, race/ethnicity, age range, degree type, and course modality.

Table 1 Respondent Population Demographics

|  |  |  |
| --- | --- | --- |
| **Category** | **n** | **Percentage** |
| **Gender** |  |  |
| Female | 387 | 62.82% |
| Male | 219 | 35.55% |
| Not specified | 10 | 1.62% |
| **Race/ Ethnicity** |  |  |
| Asian | 34 | 5.52% |
| Black | 53 | 8.60% |
| Hispanic | 46 | 7.47% |
| Not Specified | 10 | 1.62% |
| Two or More | 37 | 6.01% |
| White | 436 | 70.78% |
| **Age Range** |  |  |
| 19 or younger | 252 | 40.91% |
| 20-24 | 199 | 32.31% |
| 25 or older | 165 | 26.79% |
| **Degree Type** |  |  |
| AA | 27 | 4.38% |
| AAS | 124 | 20.13% |
| AS | 395 | 64.12% |
| CERT | \* | 0.49% |
| CSC | 67 | 10.88% |
| **Modality\*\*** |  |  |
| Face-to-Face | 329 | 45.95% |
| Hybrid | 35 | 4.89% |
| Online Asynchronous | 261 | 36.45% |
| Online Synchronous | 91 | 12.71% |
| *Notes: \* n is less than 5; \*\* students in multiple modalities* | | |

## Indirect Assessment Method 1

To assess quantitative literacy for graduates, a [graduation survey](#Grad) was conducted which asked graduates to rate their satisfaction with the quantitative literacy education they received while at Virginia Western; this survey question can be found in Appendix B. The threshold of acceptability was that 85% of respondents would rate their satisfaction with their quantitative literacy education as a 3 or better. The target for this method was that 75% of respondents will rate their satisfaction with their quantitative literacy education as a 4 or better.

### Population for Indirect Assessment Method 1

The sample population was 672 with 121 graduates responding. This is a response rate of 18.0%.

Table 2 Respondent Population Demographics

|  |  |  |
| --- | --- | --- |
| **Category** | **n** | **Percentage** |
| **Gender** |  |  |
| Female | 79 | 65.29% |
| Male | 39 | 32.23% |
| Not specified | \* | 2.48% |
| **Race/ Ethnicity** |  |  |
| Asian | 5 | 4.13% |
| Black | 8 | 6.61% |
| Hispanic | 12 | 9.92% |
| Not Specified | 5 | 4.13% |
| Other | \* | 1.65% |
| Two or More | 8 | 6.61% |
| White | 81 | 66.94% |
| **Age Range** |  |  |
| 19 or younger | 15 | 12.40% |
| 20-24 | 60 | 49.59% |
| 25 or older | 46 | 38.02% |
| **Degree Type** |  |  |
| AA | 0 | 0.00% |
| AAS | 26 | 21.49% |
| AS | 66 | 54.55% |
| CERT | \* | 2.48% |
| CSC | 26 | 21.49% |
| *Notes: \* n is less than 5* | | |

## Indirect Assessment Method 2

To assess quantitative literacy with the alumni population, Virginia Western conducted an [alumni survey](#Alumni) which asked alumni to rate their satisfaction with the quantitative literacy education they received while at Virginia Western; this survey question can be found in Appendix B. The threshold of acceptability was that 85% of respondents would rate their satisfaction with their quantitative literacy education as a 3 or better. The target for this method was that 75% of respondents will rate their satisfaction with their quantitative literacy education as a 4 or better.

### Population for Indirect Assessment Method 2

The 2442 individuals who either graduated during the 2020-2021 academic year or who attended during the 2020-2021 academic year and did not return for the 2021-2022 academic year were sent the survey. There was a response rate of 5.4% with 133 individuals responding to the survey.

Table 3 Respondent Population Demographics

|  |  |  |
| --- | --- | --- |
| **Category** | **n** | **Percentage** |
| **Gender** |  |  |
| Female | 83 | 62.41% |
| Male | 48 | 36.09% |
| Not specified | \* | 1.50% |
| **Race/ Ethnicity** |  |  |
| Asian | \* | 3.01% |
| Black | 15 | 11.28% |
| Hispanic | 8 | 6.02% |
| Not Specified | \* | 2.26% |
| Two or More | \* | 1.50% |
| White | 101 | 75.94% |
| **Age Range** |  |  |
| 19 or younger | 8 | 6.02% |
| 20-24 | 52 | 39.10% |
| 25 or older | 73 | 54.89% |
| **Degree Type** |  |  |
| AA | \* | 3.01% |
| AAS | 35 | 26.32% |
| AS | 34 | 25.56% |
| CERT | 5 | 3.76% |
| CSC | 55 | 41.35% |
| **Graduation Status** |  |  |
| Did Not Graduate | 39 | 29.32% |
| Graduated | 94 | 70.68% |
| *Notes: \* n is less than 5* | | |
|  | | |

# What were our results?

## Direct Assessment:

Method 1: Artifacts-based Assessments

**Overall96.7**

716 artifacts were assessed across 616 students. Artifacts measured one or more of the quantitative literacy learning objectives below and are counted for each one that was assessed. As depicted in Table 1 below, 92.1% of the artifacts met the threshold score of 2.00 for quantitative literacy; this exceeds the 75% threshold of acceptability. Additionally, with an average artifact score of 3.02, the target artifact score of 3.00 was achieved.

Table 1. Quantitative Literacy by Individual Student Learning Outcomes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed\* (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Quantitative Literacy** | **2764** | **3.02** | **2546** | **92.1%** |
| Analysis | 698 | 3.05 | 635 | 91.0% |
| Interpretation | 697 | 3.05 | 639 | 91.7% |
| Problem Solving | 671 | 3.03 | 632 | 94.2% |
| Translate Information | 698 | 2.97 | 640 | 91.7% |

\* Artifact counted for each learning outcome that it assesses/it is assessed for.

Below, artifact results are disaggregated by modality, gender, race/ethnicity, age range, and award type. Artifact scores were calculated by averaging the student learning outcome scores assessed, which is why the average score and/or percent that met the threshold may be different than that shown in Table 1.

**Modality**

Quantitative Literacy was assessed across four modalities – face-to-face, hybrid, online asynchronous, and online synchronous sections. As depicted in Table 2 below, all modalities met the 75% threshold of acceptability for percentage of students that met the threshold score of 2.00 – 89.7% of students in face-to-face sections met the threshold (N=329), 88.6% of students enrolled in hybrid sections met the threshold (N=35), 90.8% of students enrolled in online asynchronous sections met the threshold (N=261), and 90.1% of students in online synchronous sections met the threshold (N=91). The average score met the target score of 3.00 in all modalities (3.00, 3.29, 3.04, and 3.03, respectively).

Table 2. Quantitative Literacy by Modality

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **716** | **3.02** | **645** | **90.1%** |
| Face-to-Face | 329 | 3.00 | 295 | 89.7% |
| Hybrid | 35 | 3.29 | 31 | 88.6% |
| Online Asynchronous | 261 | 3.04 | 237 | 90.8% |
| Online Synchronous | 91 | 3.03 | 82 | 90.1% |

**Gender**

As depicted in Table 3 below, all genders met the 75% threshold of acceptability for percentage of students who met the threshold score of 2.00 – 91.1% of female students met the threshold (N=437), 88.1% of male students met the threshold (N=268), and 100.0% students with unspecified gender met the threshold (N=11). Table 3 also establishes the average score met the target score of 3.00 for females, males, and unspecified students (3.01, 3.04, and 3.57, respectively).

Table 3. Quantitative Literacy by Gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **716** | **3.02** | **645** | **90.1%** |
| Female | 437 | 3.01 | 398 | 91.1% |
| Male | 268 | 3.04 | 236 | 88.1% |
| Not Specified | 11 | 3.57 | 11 | 100.0% |

**Race/Ethnicity**

As depicted in Table 4 below, all races met the 75% threshold of acceptability for percentage of students who met the threshold score of 2.00 – 87.5% of Asian students met the threshold (N=40), 85.5% of Black students met the threshold (N=55), 94.4% of Hispanic students met the threshold (N=54), 76.9% of students with an unspecified race/ethnicity met the threshold (N=13), 88.4% of students who identify as two or more races met the threshold (N=43), and 90.8% of White students met the threshold (N=511).

As shown in Table 4, the average score met the target score of 3.00 for Asian and White students (3.10 and 3.08, respectively). Black, Hispanic, non-specified race, and two or more race students met the threshold score of acceptability (2.00) with an average score of 2.77, 2.92, 2.81, and 2.92, respectively.

Table 4. Quantitative Literacy by Race/Ethnicity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **716** | **3.02** | **645** | **90.1%** |
| Asian | 40 | 3.10 | 35 | 87.5% |
| Black | 55 | 2.77 | 47 | 85.5% |
| Hispanic | 54 | 2.92 | 51 | 94.4% |
| Not Specified | 13 | 2.81 | 10 | 76.9% |
| Two or More | 43 | 2.92 | 38 | 88.4% |
| White | 511 | 3.08 | 464 | 90.8% |

\* Sample size is less than ten students

**Age Range**

As depicted in Table 5 below, all age ranges met the 75% threshold of acceptability for percentage of students who met the threshold score of 2.00 – 86.6% of students 19 or younger met the threshold (N=290), 91.9% of students aged 20-24 met the threshold (N=235), 93.2% of students 25 or older met the threshold (N=191). The average score met the target score of 3.00 for students aged 20-24 and 25 or older (3.05 and 3.18, respectively). With an average score of 2.92, students aged 19 or younger met the threshold of acceptability of 2.00.

Table 5. Quantitative Literacy by Age Range

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **716** | **3.02** | **645** | **90.1%** |
| 19 or younger | 290 | 2.92 | 251 | 86.6% |
| 20-24 | 235 | 3.05 | 216 | 91.9% |
| 25 or older | 191 | 3.18 | 178 | 93.2% |

**Award/Degree Type**

As depicted in Table 6 below, all award types met the 75% threshold of acceptability for percentage of students who met the threshold score of 2.00 – 82.1% of students seeking an Associate of Arts (AA) degree met the threshold (N=28), 98.7% of students seeking an Associate of Applied Science (AAS) degree met the threshold (N=149), 88.0% of students seeking an Associate of Science (AS) degree met the threshold (N=465), 100.0% of students seeking a Certification (CERT) met the threshold (N<10), and 88.7% of students seeking a Career Studies Certificate (CSC) met the threshold (N=71).

Additionally, the average score met the target score of 3.00 for AAS, AS, and CERT students (3.19, 3.02, and 3.00, respectively). AA and CSC students met the threshold of acceptability score of 2.00 (2.89 and 2.84).

Table 6. Quantitative Literacy by Award/Degree

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **716** | **3.02** | **645** | **90.1%** |
| Associate of Arts (AA) | 28 | 2.89 | 23 | 82.1% |
| Associate of Applied Science (AAS) | 149 | 3.19 | 147 | 98.7% |
| Associate of Science (AS) | 465 | 3.02 | 409 | 88.0% |
| Certification (CERT) | \* | 3.00 | \* | 100.0% |
| Career Studies Certificate (CSC) | 71 | 2.84 | 63 | 88.7% |

\* Sample size is less than ten students

## Indirect Assessment:

Method 1: Graduation Survey

**Overall**

As depicted in Table 7 below, 96.7% of graduates answered “Neutral,” “Satisfied,” or “Very Satisfied” regarding their satisfaction with their quantitative literacy education – this met the threshold of acceptability of 85%. Additionally, with an average satisfaction score of 4.45, the target satisfaction score of 4.00 was achieved.

Table 7. Overall Quantitative Literacy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **121** | **4.45** | **117** | **96.7%** |

**Gender**

As depicted in Table 8 below, all genders met the 85% threshold of acceptability for percentage of graduates who met the threshold satisfaction score of 3.00 – 94.9% of scores from female graduates met the threshold (N=79), 100.0% of scores obtained from male graduates met the threshold (N=39), and 100.0% of the scores from graduates with an unspecified gender met the threshold (N < 10). As shown in Table 8, the average satisfaction score met the target score of 4.00 for females, males, and unspecified genders (4.42, 4.54, and 4.33, respectively).

Table 8. Quantitative Literacy by Gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **121** | **4.45** | **117** | **96.7%** |
| Female | 79 | 4.42 | 75 | 94.9% |
| Male | 39 | 4.54 | 39 | 100.0% |
| Not Specified | \* | 4.33 | \* | 100.0% |

\* Sample size is less than ten graduates

**Race/Ethnicity**

As depicted in Table 9 below, all races met the 85% threshold of acceptability for percentage of graduates who met the threshold satisfaction score of 3.00. The average satisfaction score met the target score of 4.00 for all groups – Asian (4.80), Black (4.38), Hispanic (4.50), Not Specified (4.40), Other (4.00), Two or More races (4.38) and White (4.46) graduates.

Table 9. Quantitative Literacy by Race/Ethnicity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **121** | **4.45** | **117** | **96.7%** |
| Asian | \* | 4.80 | \* | 100.0% |
| Black | \* | 4.38 | \* | 100.0% |
| Hispanic | 12 | 4.50 | 11 | 91.7% |
| Not Specified | \* | 4.40 | \* | 100.0% |
| Other | \* | 4.00 | \* | 100.0% |
| Two or More | \* | 4.38 | \* | 100.0% |
| White | 81 | 4.46 | 78 | 96.3% |

\* Sample size is less than ten graduates

**Age Range**

As depicted in Table 10 below, all age ranges met the 85% threshold of acceptability for percentage of graduates who met the threshold satisfaction score of 3.00 – 100.0% of scores from graduates 19 or younger met the threshold (N=15), 93.3% of scores obtained from graduates 20-24 met the threshold (N=60), and 100.0% of the scores from graduates 25 or older met the threshold (N=46). As shown in Table 10, the average satisfaction score met the target score of 4.00 for graduates 19 or younger, aged 20-24, and 25 or older (4.53, 4.33, and 4.59, respectively).

Table 10. Quantitative Literacy by Age Range

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **121** | **4.45** | **117** | **96.7%** |
| 19 or younger | 15 | 4.53 | 15 | 100.0% |
| 20-24 | 60 | 4.33 | 56 | 93.3% |
| 25 or older | 46 | 4.59 | 46 | 100.0% |

\* Sample size is less than ten graduates

**Award/Degree**

As depicted in Table 11 below, all award types met the 85% threshold of acceptability for percentage of graduates who met the threshold satisfaction score of 3.00 – 96.2% of AAS graduates, 95.5% of AS graduates, 100.0% of CERT graduates, and 100.0% of CSC graduates indicated satisfaction levels of “Very Satisfied,” Satisfied,” or “Neutral” for quantitative literacy. Additionally, the average satisfaction score met the target score of 4.00 all represented award types – AAS (4.42), AS (4.48), CERT (4.67), and CSC (4.38).

Table 11. Quantitative Literacy by Award/Degree Type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **121** | **4.45** | **117** | **96.7%** |
| Associate of Applied Science (AAS) | 26 | 4.42 | 25 | 96.2% |
| Associate of Science (AS) | 66 | 4.48 | 63 | 95.5% |
| Certification (CERT) | \* | 4.67 | \* | 100.0% |
| Career Studies Certificate (CSC) | 26 | 4.38 | 26 | 100.0% |

\* Sample size is less than ten graduates

Method 2: Alumni Survey

**Overall**

As depicted in Table 12 below, 98.5% of the alumni answered “Neutral,” “Satisfied,” or “Very Satisfied” regarding their satisfaction with their quantitative literacy education – this met the threshold of acceptability of 85%. Additionally, with an average satisfaction score of 4.27, the target satisfaction score of 4.00 was achieved.

Table 12. Overall Quantitative Literacy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |

**Gender**

As depicted in Table 13 below, females and males met the 85% threshold of acceptability for percentage of alumni who met the threshold satisfaction score of 3.00 – 98.8% of scores from female alumna met the threshold (N=83) and 100.0% of scores obtained from male alumnus met the threshold (N=48). 50.0% of alum with unspecified gender met the threshold satisfaction score of 3.00. This does not meet the threshold of acceptability; however, note that the sample size for this group is less than ten.

As shown in Table 13, the average satisfaction score met the target score of 4.00 for female and male alum (4.30 and 4.25, respectively). Alum with unspecified gender met the threshold score of 3.00 with an average satisfaction of 3.50.

Table 13. Quantitative Literacy by Gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |
| Female | 83 | 4.30 | 82 | 98.8% |
| Male | 48 | 4.25 | 48 | 100.0% |
| Not Specified | \* | 3.50 | \* | 50.0% |

\* Sample size is less than ten alumni

**Race/Ethnicity**

As depicted in Table 14 below, all races met the 85% threshold of acceptability for percentage of alumni who met the threshold satisfaction score of 3.00 – 100.0% of scores from Asian alumni met the threshold (N < 10), 100.0% of scores obtained from Black alumni met the threshold (N=15), 100.0% of the scores from Hispanic alumni met the threshold (N < 10), 100.0% of the scores from alumni who did not specify their gender met the threshold (N < 10), 100.0% of the scores from alumni who identify as two or more races met the threshold (N < 10), and 98.0% of the scores from White alumni met the threshold (N=101).

As shown in Table 14, the average satisfaction score met the target score of 4.00 for Asian, Black, Hispanic, Two or More, and White alumni (4.50, 4.40, 4.50, 4.00, and 4.29, respectively). Alumni who did not specify race had a satisfaction score of 3.67; this meets the threshold score of acceptability (3.00).

Table 14. Quantitative Literacy by Race/Ethnicity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |
| Asian | \* | 4.50 | \* | 100.0% |
| Black | 15 | 4.27 | 15 | 100.0% |
| Hispanic | \* | 4.25 | \* | 100.0% |
| Not Specified | \* | 3.67 | \* | 100.0% |
| Two or More | \* | 4.50 | \* | 100.0% |
| White | 101 | 4.28 | 99 | 98.0% |

\* Sample size is less than ten alumni

**Age Range**

As depicted in Table 15 below, all age ranges met the 85% threshold of acceptability for percentage of alumni who met the threshold satisfaction score of 3.00 – 100.0% of scores from alumni aged 19 or younger met the threshold (N < 10), 98.1% of scores obtained from alumni aged 20-24 met the threshold (N=52), and 98.6% of scores from alumni aged 25 or older met the threshold (N=73).

As shown in Table 15, the average satisfaction score met the target score of 4.00 for alumni 19 or younger, 20-24, and 25 or older (4.38, 4.21, and 4.30, respectively).

Table 15. Quantitative Literacy by Gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |
| 19 or younger | \* | 4.38 | \* | 100.0% |
| 20-24 | 52 | 4.21 | 51 | 98.1% |
| 25 or older | 73 | 4.30 | 72 | 98.6% |

\* Sample size is less than ten alumni

**Award/Degree**

As depicted in Table 16 below, all awards/degrees met the 85% threshold of acceptability for percentage of alumni who met the threshold satisfaction score of 3.00 – 100.0% of scores from alumni seeking an Associate of Arts (AA) degree met the threshold (N < 10), 97.1% of scores obtained alumni seeking an Associate of Applied Science (AAS) degree met the threshold (N=35), 97.1% of the scores from alumni seeking an Associate of Science (AS) degree met the threshold (N=34), 100.0% of the scores from alumni seeking a Certification (CERT) met the threshold (N < 10), and 100.0% of the scores from alumni seeking to earn a Career Studies Certificate (CSC) met the threshold (N=55).

The average satisfaction score met the target score of 4.00 for alumni seeking an AS degree, AAS degree, CERT, or CSC (4.26, 4.29, 4.20, and 4.33, respectively). The average satisfaction score for alumni seeking an AA degree met the threshold of acceptability of 3.00 with a score of 3.50.

Table 16. Quantitative Literacy by Award/Degree Type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |
| Associate of Arts (AA) | \* | 3.50 | \* | 100.0% |
| Associate of Applied Science (AAS) | 35 | 4.26 | 34 | 97.1% |
| Associate of Science (AS) | 34 | 4.29 | 33 | 97.1% |
| Certification (CERT) | \* | 4.20 | \* | 100.0% |
| Career Studies Certificate (CSC) | 55 | 4.33 | 55 | 100.0% |

\* Sample size is less than ten alumni

**Graduation Status**

As depicted in Table 17 below, both graduation statuses met the 85% threshold of acceptability for percentage of students who met the threshold satisfaction score of 3.00 – 94.9% of scores from non-graduate alumnus met the threshold (N=39) and 100.0% of scores from students who graduated met the threshold (N=94). As shown in Table 17, the average satisfaction score met the target score of 4.00 for alumni who graduated (4.44). Alumni who did not graduate had satisfaction scores met the threshold score of acceptability (3.87).

Table 17. Quantitative Literacy by Graduation Status

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total number of artifacts assessed (N)** | **Average Score** | **Number that met threshold (n)** | **Percent that met threshold (%)** |
| **Overall** | **133** | **4.27** | **131** | **98.5%** |
| Non-Graduates | 39 | 3.87 | 37 | 94.9% |
| Graduates | 94 | 4.44 | 94 | 100.0% |

\* Sample size is less than ten alumni

# Comparison of Results from Last Assessment

**Have results changed since the last time this competency was assessed?**

Quantitative Literacy was last assessed during the 2019-20 academic year. During that assessment cycle, 83.0% of direct assessment artifacts met the threshold of acceptability of scoring a 2.00 or better (N=150). During this assessment cycle, 90.1% of artifacts met the threshold of acceptability (N=716). Compared to 2019-20, quantitative literacy scores improved by 7.1% and the sample size increased over 400%.

In 2019-20, results were not disaggregated by gender, race, age range, or award type. Therefore, these comparisons will not be able to be made until the next assessment cycle. Additionally, no indirect assessments were conducted for Quantitative Literacy in 2019-20.

**What changes are we making to improve student learning for Quantitative Literacy?**

One change that was made since the last assessment cycle was moving general education assessment to Canvas, VWCC’s learning management system. By having the rubric available to all instructors, this allows for artifacts to be collected from any course that assesses one or more quantitative literacy student learning outcomes. This helped increase the number of artifacts collected by over 400% – increasing from 150 in 2019-20 to 716 in 2022-23.

The governance Assessment Committee will be presented with and review the Quantitative Literacy results in Fall 2023. Recommendations will be established by the committee and presented to the Faculty Senate for approval.

# Summary

For the direct, artifact-based assessment (N=716), VWCC is meeting its threshold of acceptability of 75% of students earning a 2.00 or better (90.1%). With an average score of 3.02, this also meets the target score. This direct assessment shows that VWCC students are proficient across all aspects of the quantitative literacy rubric.

For the two indirect assessments, VWCC graduates and alumni met all targets. According to the 2023 Graduation Survey, 96.7% of VWCC graduates (N=121) rated their satisfaction with their quantitative literacy education as 3.00 or better, exceeding the target of 85%. The average satisfaction score for graduates was 4.45. Similarly, in the 2022 Alumni Survey, 98.5% of VWCC alumni (N=133) rated their satisfaction with their quantitative literacy education as 3.00 or better out of 5.00. This meets the target of 85%. The average satisfaction score for alumni was 4.27.

In conclusion, while examining overall assessment results, VWCC students are proficient in their quantitative literacy skills and meet all thresholds of acceptability. This report will be shared with the governance Assessment Committee for feedback and next steps.

# Appendix A – Quantitative Literacy Rubric

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| --- | --- | --- | --- | --- |
| **Quantitative Literacy Rubric** | | | | |
|  | **Excellent-4** | **Good-3** | **Acceptable-2** | **Needs Improvement-1** |
| **Interpretation.** Can the student answer questions directly related to the information provided? Example – Look at a chart and give the correct temperature for a charted date. | Demonstrates a thorough understanding of the given information. Can correctly answer questions directly related to the data. | Demonstrates an understanding of the given information. Can answer questions directly related to the data, but with minor errors. | Demonstrates a limited understanding of the given information. Can answer questions directly related to the data, but with substantial errors. | Demonstrates very little if any understanding of the given information. |
| **Analysis.** Can the student use the information provided to draw conclusions about a related topic? Example – Use a graph of past data to make predictions about the future. | Uses the given information to make conclusions, with no errors. | Uses the given information to make conclusions, with minor errors. | Uses the given information to make conclusions, with substantial errors. | Fails to present a conclusion, or does so in a completely invalid manner. |
| **Problem Solving.** Can the student set up the problem and solve it correctly? | Correctly organizes and calculates a mathematical strategy for a given situation | Organizes and calculates a mathematical strategy for a given situation, with mistakes in organization **OR** calculation. | Organizes and calculates a mathematical strategy for a given situation, with mistakes in organization **AND** calculation. | Did not organize or calculate a mathematical strategy for a given situation, or did so in a completely invalid manner. |
| **Translate Information**. Can the student correctly translate information from the problem/experiment into mathematical symbols, graphs, or tables? | Takes information from the problem/experiment and correctly translates it into mathematical symbols, graphs and/or tables. | Takes information from the problem/experiment and translates it into mathematical symbols, graphs and/or tables, with minor errors. | Takes information from the problem/experiment and translates it into mathematical symbols, graphs and/or tables, with substantial errors. | Did not translate the information, or translated it in a completely invalid manner. |

# Appendix B – Graduation and Alumni Survey Examples

Image 1. Graduation Survey Quantitative Literacy Satisfaction Question

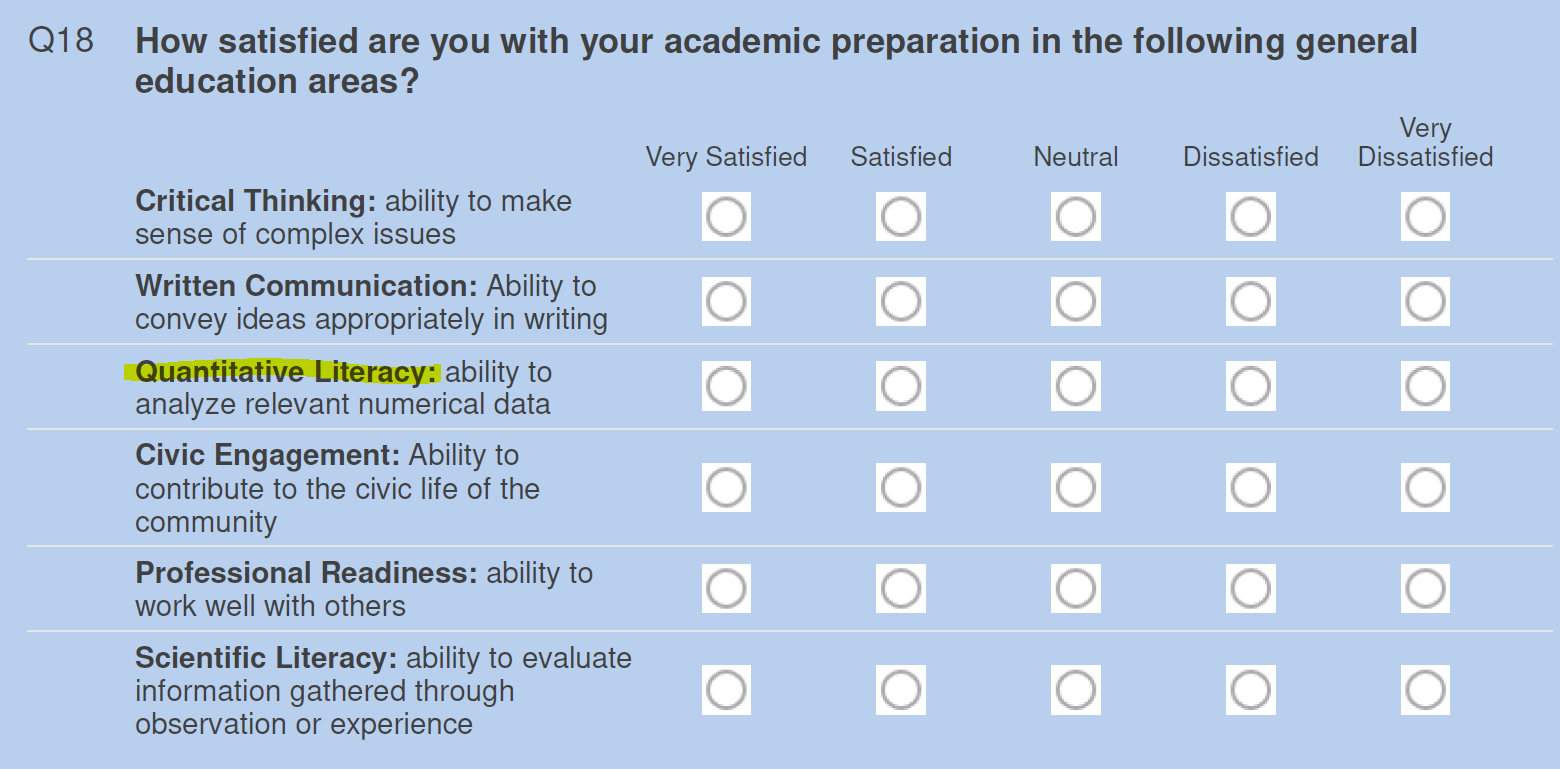


Image 2. Alumni Survey Quantitative Literacy Satisfaction Question

