TCC – GENERAL EDUCATION ASSESSMENT REPORT
Critical Thinking & Quantitative Literacy

2020-2021

The purpose of this report is to fulfill the State Council of Higher Education for Virginia's (SCHEV) Policy on Student Learning Assessment and Quality in Undergraduate Education and the required public communication of assessment reports.

General Education Assessment (GEA) Plan

Each course offering at Tidewater Community College (TCC) develops students in one or more of the following core competencies: Critical Thinking, Written Communication, Quantitative Literacy, Civic Engagement, Professional Readiness, and Scientific Literacy.

For each course at TCC, faculty identify the competencies students should develop and document those on the Official Course Outlines. Then all faculty members must incorporate course activities and assignments to facilitate student development for the applicable competency learning outcomes identified on the TCC-adapted Association of American Colleges and Universities (AAC&U) VALUE Rubrics. (https://www.tcc.edu/about-tcc/academics/general-education-assessment-resource-system/)

Evidence of Student Learning
Critical Thinking

A random sample of students was selected to assess critical thinking (n=281). Of the students selected, faculty submitted student work products for 62% (n=174). Student withdrawals and non-submittals accounted for 38%. A breakdown of scores by course, faculty participation, score expectations, and assignment support are reviewed by discipline faculty to identify strengths and areas of concern. A breakdown of results by course offers faculty the opportunity for 1) focused analysis of their disciplines' contribution to student learning; 2) targeted professional development in instructional methodology; and 3) establishing benchmark thresholds within the discipline that support and improve student development in core learning outcomes.

Fall 2020 Yield by Discipline
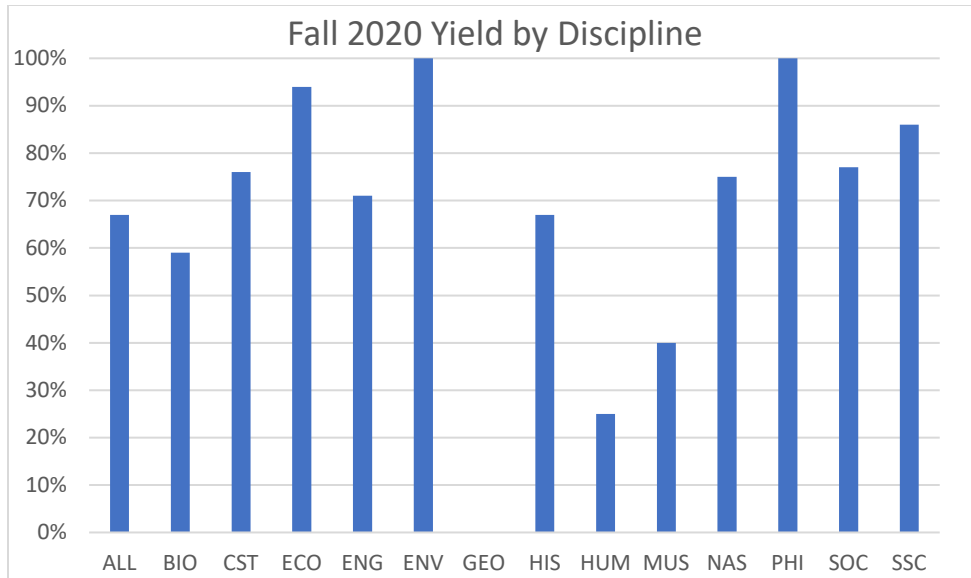
Critical Thinking Learning Outcomes

Students met or exceeded learning outcomes of Topic, Information, Rationale, and Conclusion (Benchmark 2.0).
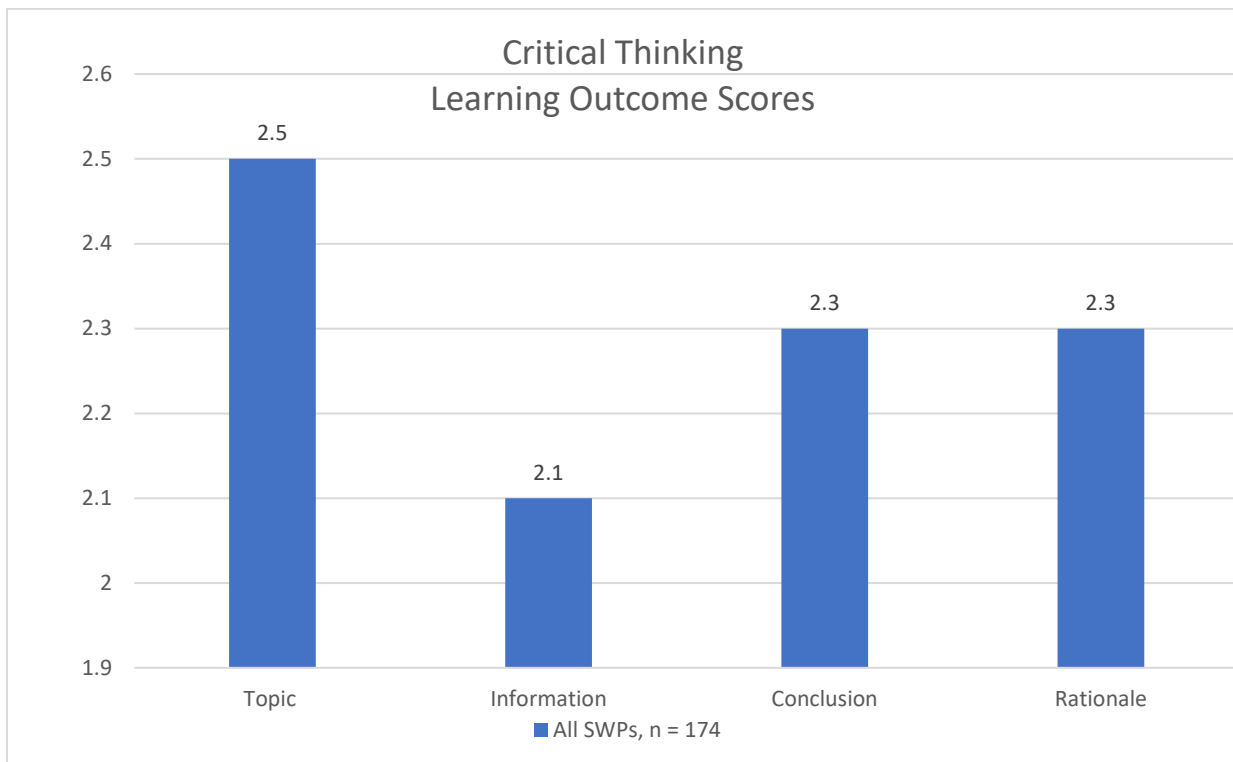
- ❖ Strongest Learning Outcome – Topic
- ❖ Weakest Learning Outcome – Information

Comparison of Transfer and Career/Technical Results in Critical Thinking

As a community college, TCC is home to students looking for immediate job placement in a career field or the freedom to transfer to a four-year university for continued education. A comparison of student learning between those enrolled in a transfer associate degree versus a career/technical associate degree shows a slight but statistically insignificant difference. Both groups exceeded the established benchmark of 2.0 for all outcomes.

Underrepresented Students

Of the students assessed for Critical Thinking, 74% are considered underrepresented, defined as being a minority, age 25 or older, or receiving a Pell Grant. TCC considers these results within an acceptable range as there are no significant differences between these subgroups.

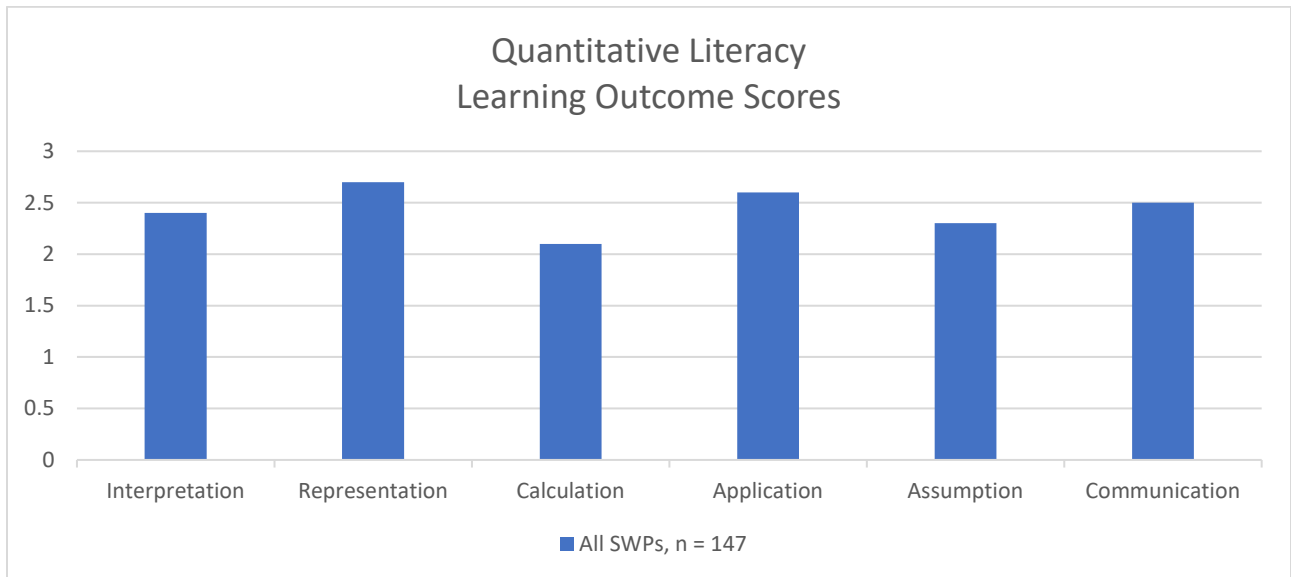## Evidence of Student Learning
Quantitative Literacy

A random sample of students was selected to assess quantitative literacy (n=280). Of the students selected, faculty submitted student work products for 53% (n=147). Student withdrawals and non-submittals accounted for 47%. A breakdown of scores by course, faculty participation and score expectations, and assignment support are reviewed by discipline faculty to identify strengths and areas of concern. A breakdown of results by course offers faculty the opportunity for 1) focused analysis of their disciplines' contribution to student learning; 2) targeted professional development in instructional methodology; and 3) establishing benchmark thresholds within the discipline that support and improve student development in core learning outcomes.

Yield by Discipline

Discipline	Yield
All	53%
CHEM	63%
ECO	0%
MTH	52%
PHY	78%
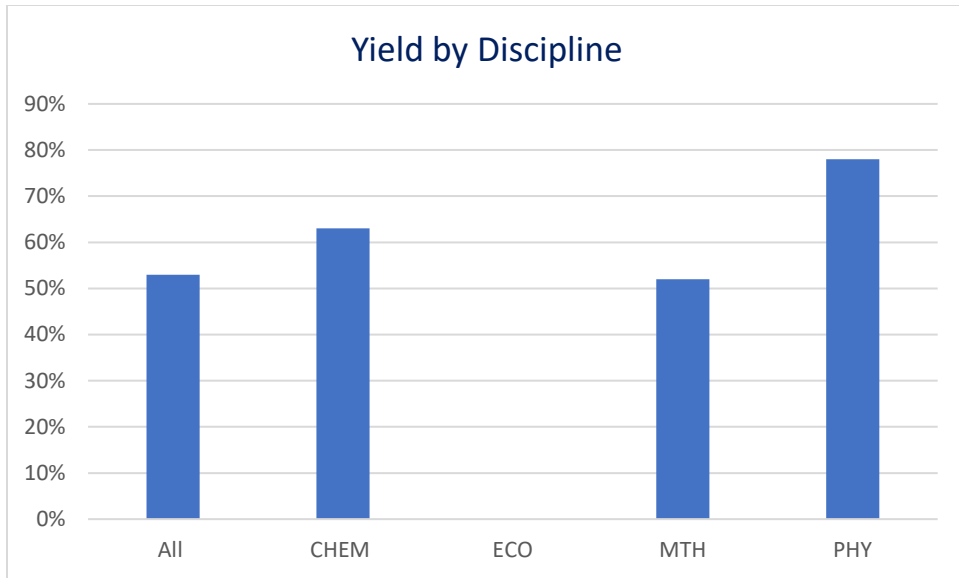
Quantitative Literacy Learning Outcomes

Students met or exceeded learning outcomes of Interpretation, Representation, Calculation, Application, Assumption, and Communication (Benchmark 2.0).

Quantitative Literacy Learning Outcome Scores

Learning Outcome	Score (All SWPs, n = 147)
Interpretation	2.4
Representation	2.7
Calculation	2.1
Application	2.6
Assumption	2.3
Communication	2.5

❖ Strongest Learning Outcome – Representation
❖ Weakest Learning Outcome – Calculation

Comparison of Transfer and Career/Technical Results in Quantitative Literacy
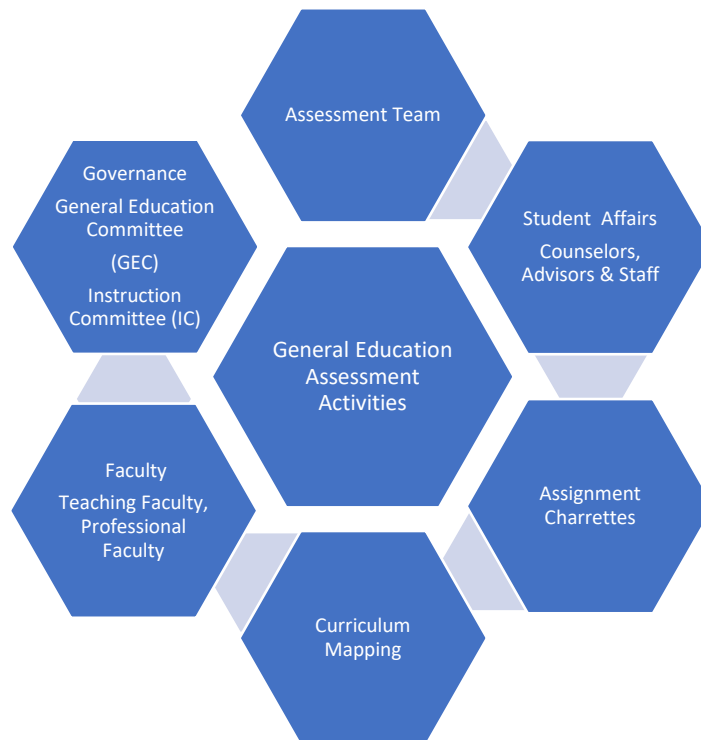
As a community college, TCC is home to students looking for immediate job placement in a career field or the freedom to transfer to a four-year university for continued education. A comparison of student learning between those enrolled in a transfer associate degree versus a career/technical associate degree shows a slight but statistically insignificant difference. Both groups exceeded the established benchmark of 2.0 for all outcomes.

Underrepresented Students

Of the students assessed for Quantitative Literacy, 65% are considered underrepresented, defined as being a minority, age 25 or older, or receiving a Pell Grant. TCC considers these results within an acceptable range as there are no significant differences between these subgroups.

Summary

Student learning in general education is influenced by a breadth of people, departments, and processes comprised of individuals from Academic Affairs, Student Affairs, Institutional Effectiveness, Governance, Libraries, teaching faculty, and students.

Assessment Team

Governance
General Education Committee
(GEC)
Instruction Committee (IC)

Student Affairs
Counselors, Advisors & Staff

General Education Assessment Activities

Faculty
Teaching Faculty, Professional Faculty

Assignment Charrettes

Curriculum Mapping

In the 2020-2021 academic year, TCC utilized assessment data to improve students' educational experience and enhance future achievement by implementing the following:

❖ **General Education Assessment (GEA)**

There are many strategies used during an assessment cycle to support general education assessment including:

Assignment design is an integral component of meeting defined bench marks. Much of the GEA work done at TCC includes one on one interaction with faculty to develop and approve assignments. Common assignments are encouraged within disciplines and courses to aid new faculty and adjuncts.

GEA is supported through assessor training offered each semester of the academic year and is a required training for new full-time faculty.

A dedicated assessment day each assessment cycle in addition to ongoing assessment throughout the academic semester.

A video introducing GEA was created and is posted on the General Education Assessment Resource System (GEARS)

https://vccs.instructuremedia.com/embed/a2c716b7-1dd0-4f7d-a382-a255d60ef6b6

❖ **Libraries**

Librarians facilitated student participation in a formative assessment activity in every Zoom session during the Spring 2021 semester. All library sessions addressed two learning outcomes and student responses to these questions informed libraries of both student achievement and guidance on how to further instruct on these concepts. The benchmark for success was set at seventy-percent (70%), meaning that at least 70% of students participating in the assessment would correctly answer each of three questions after receiving library instruction. Seventy-percent (70%) matches the percentage that TCC uses to determine success rate in a course. The assessment tool utilized was a LibWizard survey. Librarians were provided tips for implementing the assessment tool as well as facilitating participation in the activity.

Learning outcomes:

1- Student will be able to identify the correct criteria to determine credibility of information.
2- Student will be able to select relevant terms to retrieve information on a specific topic.

Assessment Tool:

A LibWizard Survey addressed learning outcomes. Campus designation or course identifier was not collected as the assessment aims simply at providing data on student learning after receiving library instruction.

Question 1: All of these can be used to determine credibility of information EXCEPT:

A. Publication City (Correct Answer)

B. Citations/References
C. Publication Date
D. Author

This question addresses Learning Outcome 1. In addition to facilitation of this question in synchronous sessions, student responses will also be collected from the asynchronous library instructional module for SDV.

Question 2: If you were researching information on global warming, what would be the best alternative search term/keyword to consider?

A. Pollution
B. Climate Change (Correct Answer)
C. Virginia Weather
D. Environmental Science

This question addresses Learning Outcome 2. The third question further addresses student learning of keywords.

Question 3: Suppose your thesis focuses on answering the question: "Does playing violent video games such as Grand Theft Auto increase aggression in children". All of the following are search terms/keywords that can be used to locate information on this topic EXCEPT:

A. Video game violence
B. Increasing (Correct Answer)
C. Aggression in children
D. Grand Theft Auto (video game)

This question addresses Learning Outcome 2 and uses a different topic to learn more about how students process the idea of keywords.

❖ **Shared Governance** at TCC is an integral part of developing our students.

The General Education Committee's (GEC) goal is to improve the quality and relevance of the general education curriculum.

During the 20-201 academic year, the GEC reviewed 32 Natural Science and Mathematics courses for satisfying core competencies and transfer suitability. The GEC initiated intentional dialogue with discipline faculty in regards to assignment design, and course syllabi as part of the review in satisfying core competencies and transfer suitability.

The Instruction Committee (IC) makes recommendations on instructional matters that impact the college's mission.

The Instruction Committee revised and published the written communication rubric utilizing previous assessment cycle results to guide their efforts. Collaborating with Libraries, the Instruction Committee also launched a college-wide campaign through email, flyers and the library resource page in support of information literacy

https://libguides.tcc.edu/faculty/home

https://libguides.tcc.edu/forstudents

Information literacy is a learning outcome in the Critical Thinking, Scientific Literacy, and Written Communication general education rubrics and has historically been the lowest performing learning outcome across disciplines.

❖ **Assessment Team**

The Assessment Team promotes best practices in assessment and fosters communication pertaining to college-wide assessment activities including evaluation of general education. The team is comprised of representatives from Institutional Effectiveness and Academic Affairs and supports SACSCOC accreditation standards, SCHEV requirements, VCCS reporting, and specialized accreditation efforts through collaborative sessions with academic pathways and programs at TCC.

The Assessment Team continues to align assessment initiatives college-wide. In 20-21 a video was produced that provided an overview of assessment initiatives and how they intersect to inform faculty and administrators.

CRITICAL THINKING RUBRIC

DEFINITION

Critical thinking is the ability to use information, ideas and arguments from relevant perspectives to make sense of complex issues and solve problems. Degree graduates will create, evaluate, interpret, and combine information to reach well-reasoned conclusions or solutions.

FRAMING LANGUAGE

This rubric is designed to be transdisciplinary, reflecting the recognition that success in all disciplines requires habits of inquiry and analysis that share common attributes. Critical thinkers from all disciplines increasingly need to be able to apply those habits in various and changing situations encountered in all walks of life.

GLOSSARY

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- **Context:** Conditions in which something exists or occurs (Merriam-Webster); the circumstances that form the setting for an event, statement, idea and in terms of which it can be fully understood and assessed (Dictionary.com).

- **Degree of Credibility:** Acknowledgement that some sources are more accurate than others. Endure scrutiny through authority in the field (TCC Faculty).

- **Probative Value:** Sufficient and relative facts or data to prove/support the issue, establish the existence of other facts, and weighed against alternative points of view. Evaluates the strengths and relevance of arguments on a particular question or issue within a given context (adapted from the Stanford Encyclopedia of Philosophy).

- **Rationale:** An explanation of controlling principles, opinion, belief, practice or phenomena; an underlying reason (Merriam-Webster).

- **Reasoning:** The process of thinking about something in a logical way to form a conclusion or judgement (Merriam-Webster).

*Note to assessor: Source(s) are determined by the assignment. Student may not be required to do research. Not all sources may be academic and/or popular sources may be appropriate. See assignment instructions.

CRITICAL THINKING VALUE RUBRIC

for more information contact value@aacu.org

Evaluators should assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Topic/issue identification	Topic/issue to be considered is clearly stated and the relevance of context is acknowledged and comprehensively explained. The descriptions are extensive, delivering all relevant information for full understanding.	Topic/issue to be considered is stated and the relevance of context is acknowledged and explained. The descriptions are clear, unambiguous and/or well defined terms, minor omissions.	Topic/issue to be considered is stated and the relevance of context is acknowledged. The descriptions are unclear, ambiguous and/or undefined terms, serious omissions.	Topic/issue to be considered is stated without any clarification, relevance of context, or descriptions.
Information use	Information is derived from source(s) to support the topic/issue completely, is accurately quoted and/or correctly paraphrased and conveys intended meaning.	Sufficient information is derived from source(s) to support the topic/issue, is accurately quoted and/or correctly paraphrased and conveys intended meaning.	Some information is derived from source(s) to support the topic/issue, is accurately quoted and/or correctly paraphrased and mostly conveys intended meaning.	Little to no information is derived from source(s) to support the topic/issue, is not accurately quoted and/or correctly paraphrased and/or does not convey intended meaning
Conclusion(s)	Conclusion(s) is well developed, strongly supported, based upon the probative value of evidence/ information, and reflects student's informed evaluation.	Conclusion(s) is well developed and supported, but value of evidence is not weighed to differentiate degrees of credibility when informing student's evaluation.	Conclusion(s) is based upon partial support or with weak evidence, data may be incorrectly interpreted, or does not support all claims, data reflects some informed evaluation but mostly superficial.	Conclusion(s) is based upon little to no support, evidence/information seems unconnected, and reflects little to no informed evaluation beyond restating topic/issue.
Rationale	Rationale demonstrates a well-reasoned justification for the conclusion(s), connecting it to the topic/issue being considered. The reasoning is coherent, comprehensively explained and consistent.	Rationale demonstrates a reasoned justification for the conclusion(s). The reasoning is coherent, explained clearly, and consistent.	Rationale demonstrates some coherency and consistency to justify the conclusion(s) but is not explained clearly or is disconnected from identified topic/issue being considered.	Rationale is incoherent and inconsistent. Conclusion(s) are not justified.

QUANTITATIVE LITERACY RUBRIC

DEFINITION

Quantitative Literacy (QL) is the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions.

Degree graduates will calculate, interpret and use numerical and quantitative information in a variety of settings.

FRAMING LANGUAGE

This rubric has been designed for the evaluation of work that addresses quantitative reasoning in a substantive way. QL is not just computation, not just the citing of someone else's data. QL is a habit of mind, a way of thinking about the world that relies on data and on the mathematical analysis of data to make connections and draw conclusions. Teaching QL requires us to design assignments that address authentic, data-based problems. Such assignments may call for the traditional written paper, but we can imagine other alternatives: a video of a PowerPoint presentation, perhaps, or a well-designed series of web pages. In any case, a successful demonstration of QL will place the mathematical work in the context of a full and robust discussion of the underlying issues addressed by the assignment.

GLOSSARY

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- **Interpretation:** Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, and words).

- **Representation:** Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

- **Application/Analysis:** Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.

- **Assumptions:** Ability to make and evaluate important assumptions in estimation, modeling, and data analysis.

- **Communication:** Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)

QUANTITATIVE LITERACY *VALUE* RUBRIC

for more information contact value@aacu.org

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestones 3	 2	Benchmark 1
Interpretation	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. *For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.*	Provides accurate explanations of information presented in mathematical forms. *For instance, accurately explains the trend data shown in a graph.*	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. *For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.*	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. *For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.*
Representation	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis	Uses the quantitative analysis of data as the basis for deep and thoughtful and logical judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for logical judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although hesitant or uncertain about drawing conclusions from this work.
Assumptions	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.
Communication	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)