QUANTITATIVE REASONING RUBRIC

A score of "zero" can be used to denote "unable to score"

Skill level achieved:	Mastery (Level 4)	Developing (Level 3)	Developing (Level 2)	Introductory (Level 1)
LO1: Identification *Recognize and select quantitative information that is relevant to an argument*	Correctly or accurately select data that is needed to best support the argument. Student is able to identify data that is not relevant or data that is redundant.	Most of the relevant data is selected but the argument could be strengthened by inclusion of further data, or some data selected is not necessary for the strongest argument.	Selection of appropriate data is attempted but is missing substantive data.	Selection of data is not relevant or specific (i.e., student uses all data provided rather than selecting the most relevant data) and thus student has not recognized which data are required in support of a strong argument.
LO2a: Calculation *Perform calculations (e..g., converting units, standardizing rates, applying formulas, solving equations)*	Calculations attempted are correct and sufficiently comprehensive to solve the problem.	Calculations attempted are mostly correct and 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.
LO2b: Organization *Put data into comparable forms (e.g., graphs, diagrams, tables, words are some common mathematical portrayals)*	Data and results are skillfully organized into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Data and results are organized into an appropriate and desired mathematical portrayal.	A clear attempt to organize the data and results was made but resulting mathematical portrayal contains some inaccurate or inappropriate information, or an essential component is missing.	Resulting mathematical portrayal is overall inappropriate or inaccurate, and/or missing multiple essential components.
LO3: Interpretation *Interpret and explain data (e.g., graphs, diagrams, tables, words) in mathematical forms (e.g., analyzing trends in graphs, making reasonable predictions*	Provides accurate, appropriate and reasonable 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 correct explanations of information presented in mathematical forms but further explanation may be needed to further enhance insights portrayed 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 misinterprets 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.*
LO4: Evaluate Assumptions and Recognize Limitations *Make and evaluate important assumptions in estimation, modeling, and analysis of quantitative data, and recognize their limitations*	Assumptions are clearly and comprehensively stated. Provide compelling rationale for why each assumption is appropriate. Explains in detail that confidence in final conclusions is limited by the accuracy of the assumptions and analyses performed in the quantitative analysis.	Assumptions are stated but further clarity may be needed or they are not listed comprehensively. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions and analyses performed in the quantitative analysis.	Generally describes some of the assumptions but may not recognize their importance. Attempts to describe the limitations of the quantitative analysis but cannot effectively connect them to the argument.	Assumptions are flawed or estimations and models of quantitative information is lacking. Does not know that limitations in the quantitative analysis exist.
LO5: Justification *Communicate carefully qualified conclusions and express quantitative evidence to support arguments.*	Expresses insightful, carefully qualified conclusions using appropriate and sufficient quantitative evidence to back up claims. The supporting evidence is provided in depth with rich detail.	Expresses carefully qualified conclusions using appropriate and sufficient quantitative evidence to back up claims.	Expresses qualified conclusions where in places the evidence is incomplete and/or inappropriate.	Attempts – but has difficulty reaching – a reasonable conclusion. Chooses evidence that is inappropriate and insufficient.

Modified from the Quantitative Literacy Value Rubric of the American Association of Colleges and Universities; contains refinements from the Fall 2019 CQUR project. Last updated March 26, 2021. Approved by Core Curriculum Committee (9/23/21).