Quantitative Reasoning and Literacy Value Rubric
Student Learning Outcome Assessment

<table>
<thead>
<tr>
<th>Highly Developed 4</th>
<th>Developed 3</th>
<th>Emerging 2</th>
<th>Initial 1</th>
<th>Score</th>
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</thead>
</table>
| **Interpretation**
Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words) | 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. | Provides somewhat accurate explanations of information presented in mathematical forms. For example, accurately explains the trend data shown in a graph. | 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**
Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words) | Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. | Completes conversion of relevant information into an appropriate and desired mathematical portrayal. | Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate. |       |
| **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**
Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis | Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work. | Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work. | Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work. |       |
| **Assumptions**
Ability to make and evaluate important assumptions in estimation, modeling, and data analysis | 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. | Attempts to describe assumptions. |       |
| **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) | 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 explanation may be unseen. | Uses quantitative information, with explicit numerical support, but does not effectively connect it to the argument or purpose of the work. |       |

Quantitative reasoning is a “habit of mind,” competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet Initial level performance.

*Rubric obtained from AAC&U and modified by Assessment Committee, November 13, 2012*