QUANTITATIVE LITERACY VALUE RUBRIC*

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- <mark>As adapted for use in the Quantitative Reasoning Project for Neumann University.</mark>

Definition

Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – 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 (using words, tables, graphs, mathematical equations, etc., as appropriate).

<mark>NOTE: When used for Neumann's Quantitative Reasoning in Core Math courses, the expected level of achievement for the majority of students is Milestone 2.</mark> 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	1	0
Interpretation *Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)* *CORE LO 1.2 Demonstrate quantitative reasoning*	Provides an explanation of the information presented and why the chosen formula(s) is appropriate to use with this data. Presents information in table or graph. Cites appropriate references for further explanations.	Provides an explanation of the information presented and why the chosen formula(s) is appropriate to use with this data. Presents information in table or graph.	Provides an explanation of the information presented and why the chosen formula is appropriate.	Attempts to explain the information presented and why chosen formula is appropriate.	Does not meet level 1 standards or is missing.
Representation *Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)* *CORE LO 1.2 Demonstrate quantitative reasoning*	Explains use of data and formula. No errors. Gives a full explanation of appropriateness of formula for the data used.	Explains use of data and formula. No errors.	Uses data in formula with no errors.	Uses data in a formula with some error.	Does not meet level 1 standards or is missing.

	Capstone 4	**Milestones** 3	 2	1	0
Calculation *CORE LO 1.2* *Demonstrate* *quantitative* *reasoning*	Calculations are present and complete. No error. Additional explanations on process or logic used are present.	Calculations are present and complete. No error. All work shown in detail.	Calculations are present but incomplete. No error. Some detail is missing.	Calculations are present but incomplete or with error.	Does not meet level 1 standards or is missing.
Application / **Analysis** *Ability to make* *judgments and draw* *appropriate* *conclusions based on* *the quantitative* *analysis of data,* *while recognizing the* *limits of this* *analysis* *CORE LO 1.1* *Analyze and solve* *complex problems*	Makes conclusions based on data. States why the conclusion is reasonable. Adds limitations on the conclusion.	Makes conclusions based on data. States why the conclusion is reasonable.	Makes conclusions based on data. Does not reflect on the reasonableness of the conclusion.	Makes no conclusions based on the data OR makes incorrect conclusions based on data.	Does not meet level 1 standards or is missing.
Project **Conclusion** *Ability to reflect on* *reliability and* *validity of the project* *data. Ability to use* *credentialed* *references to support* *arguments of* *reliability and* *validity.* *CORE LO 1.1* *Analyze and solve* *complex problems*	Includes a statement about the data's reliability and validity, and cites appropriate resource or references to do so. Makes a judgment on the parameters of the experiment.	Includes a statement about the data's reliability and validity. Makes a judgment on the parameters of the experiment.	Makes an attempt to judge data's reliability and/or validity.	No conclusion. Does not reference data reliability or validity.	Does not meet level 1 standards or is missing.

	Capstone 4	Milestones 3		1	0
			2		
Project Presentation *Ability to present work in readable format and to demonstrate facility with the mathematical formula and graphing properties of production software.* *CORE LO 5.1 Express ideas clearly and effectively in written form*	Work is computer generated. Excel is used for graphs and tables. Equation Editor is used for formula writing. No errors in spelling or grammar.	Work is computer generated. Excel is used for graphs and tables. Equation Editor is used for formula writing. Some errors in spelling or grammar.	Work is computer generated. Some included graphs or tables. Some use of Equation Editor for formula writing. Some errors in spelling or grammar.	Work is hand-written and not computer generated. No use of Equation Editor.	Does not meet level 1 standards or is missing.