

Liberal Education Assessment Rubric

Knowledge Outcome 1: Describe and evaluate models of the natural and physical world through collection and scientific analysis of data, and through the use of mathematical and computational methods.

Element	Benchmark not met (0 Points)	Benchmark met (1 Point)	Benchmark exceeded (2 Points)
<i>A. Student describes models of the natural and physical world, recognizing strengths, weaknesses and limits.</i>	Description of model is incorrect, incomplete or unclear. Concepts of model strengths, weaknesses or limits are missing or incorrect.	Description of the model is mostly correct. Most model strengths, weaknesses and limits are identified.	Description of the model is complete and correct. The strengths, weaknesses and limits of the model are described clearly.
<i>B. Student uses methods appropriate for a particular model to analyze data.</i>	Data are analyzed incorrectly, incompletely or inappropriately for the particular model.	Data analysis is mostly correct, complete and appropriate for the particular model.	Data analysis is consistently correct, complete and appropriate for the particular model.
<i>C. Student evaluates whether the analyzed data supports the model.</i>	Does not correctly and completely state whether the analyzed data supports model. Does not explain how the analyzed data supports the model.	Statement of whether the analyzed data supports the model is mostly correct and complete. Explains, with only minor flaws, how the analyzed data supports the model.	Statement of whether the analyzed data supports the model is correct and complete. Fully explains how the analyzed data supports the model.
<i>(Lab Experience Only)</i> <i>D. Student accurately and correctly collects data.</i>	Data are inaccurate or incorrectly collected.	Most of the data are accurate and correctly collected.	Data are accurate and correctly collected.
<i>(Lab Experience Only)</i> <i>E. Student designs* procedures to collect data appropriate for evaluation of the model.</i>	Procedures do not produce data appropriate for evaluation of the model.	Procedures have some flaws but produce data that is mostly appropriate for evaluation of the model.	Procedures produce data that is appropriate for evaluation of the model.

* Instructor provides a question and a general set of procedures that can be used to answer it. The students then produce an explanation or answer that is based on the evidence that they collect from appropriate resource materials or experimental processes that are mostly of the student's own proposal or design. (American Association for the Advancement of Science, 2014).