

Student Learning Outcome (SLO) #2A: Apply scientific and quantitative reasoning to solve problems and increase knowledge.

C1 Analytic Rubric for Scientific Inquiry

Definition: Scientific inquiry involves students in the process of observing natural phenomena, organizing, and interpreting their observations, constructing explanatory models, and using those models to make predictions and evaluate their accuracy. Through this iterative process of refining and testing their models, students attempt to gain a deeper understanding of the physical and natural world around them.

This SLO is met by courses falling under *Category C1: Understanding Science and Technology – Scientific Inquiry* of the General Education Program at Kutztown University.

Performance Rating Levels

Skill	4 (Excellent)	3 (Good)	2 (Fair)	1 (Poor)
Demonstrate an understanding of how scientific principles can be used to answer a question, solve a problem, or test a hypothesis	Demonstrates a full understanding of scientific principles	Demonstrates a basic understanding of scientific principles	Demonstrates a partial understanding of scientific principles	Demonstrates a minimal understanding of scientific principles
Properly organize and evaluate data from a scientific investigation, case study, observations, and/or experimentation	Data is organized clearly and efficiently. Data Analysis and calculations, logic, and/or statistics are applied correctly to effectively evaluate data	Data is organized somewhat efficiently. Data analysis and calculations, logic, and/or statistics are mostly applied correctly leading to a reasonable evaluation of data	Data is disorganized. Data analysis and calculations, logic, and/or statistics include several errors hampering the evaluation of data	Data is unclear and haphazardly organized. Data analysis and calculations, logic, and/or statistics are applied incorrectly leading to incorrect evaluation of data

Skill	4 (Excellent)	3 (Good)	2 (Fair)	1 (Poor)
Critically interpret results from a scientific investigation, case study, observations and/or experimentation to draw conclusions	Conclusions follow logically from the evaluation of data	Conclusions follow somewhat logically from the evaluation of data	Conclusions follow partially from the evaluation of data	Conclusions are unrelated or opposite from what the evaluation of data suggests
Communicate findings	Findings are communicated effectively with appropriate context	Findings are communicated somewhat effectively with limited context	Findings are partially communicated with little context	Findings are poorly communicated with no context

***Revised:** Spring 2023

****Updated:** Summer 2025