Student Outcome (b): Graduates will demonstrate an ability to design and conduct experiments, as well as to analyze and interpret data.

		Rubric		
		Unsatisfactory	Developing	Meets expectations	Exceeds expectations
Performance Indicators	**1. Ability to design experiments**				
	Identify experiment goals and describe an experimental process and procedures to achieve the goals	Does not identify goals nor determine appropriate data to collect. Does not identify or describe applicable experimental processes and/or viable procedures.	Identifies some goals and/or data, but may be inadequate for the intended experiment. Describes some applicable experimental processes or partial procedures.	Identifies necessary and sufficient goals and appropriate data to be collected. Describes one set of applicable and sufficient experimental processes and procedures.	Identifies goals and relevant data that extend the original scope of the experiment. Generates multiple applicable experimental processes and procedures
	2. Ability to conduct experiments and gather and present data				
	Acquire and present data in a meaningful way	No data presented. -or- No evidence of thought given to a clear presentation of data to help the reader understand the data.	Some data presented, but presentation is incomplete or unconvincing. Reader can grasp general idea, but may have some difficulty understanding the presentation details.	Sufficient data acquired. Applies relevant data reduction and presentation techniques. Reader can understand the data presentation with little to no difficulty.	Invents new data reduction techniques or new data presentation and visualization techniques. Data presentation is exceptionally concise, yet clear and informative.
	3. Ability to analyze and interpret data				
	Summarize findings, compare actual to expected results, and extract conclusions from analysis	Findings neither summarized nor related to expected results. Can't reach meaningful conclusions from analysis of experimental data. -or- Analysis performed incorrectly. -or- Makes wrong conclusions.	Summarizes findings in an incomplete way. Can make some sense of the data, but results not compared to expected outcomes. Extracts some valid conclusions for the experiment, but may miss some valid conclusions.	Summarizes findings in a complete way and compares them to expected results. Extracts all relevant and valid conclusions from the experiment.	Derives unique insight or conclusions from the experimental data. Uses conclusions to propose new questions and experiments.