Before the report is due, lab time is taken to discuss an article from the primary scientific literature about the cl protein (Bushman et al., 1989). This discussion is ungraded, but it is an important part of the student’s experience since it provides an example of a cl mutagenesis experiment and of a well-written report (Kuldell, 2003).

In many cases, this is the first opportunity students have had to perform data-driven analysis of their own work, and while they often struggle with the analysis, they also learn a great deal. We find students are excited to draw conclusions from their data in the context of a “real” experiment. This is an experiment where there is no single expected outcome and students are encouraged to interpret their data as comprehensively as possible. Their goal is to compare their findings and observations to all predictable outcomes, rather than to evaluate how well their data reproduce an anticipated result. This empowers students to “think like scientists” and to make a sensible argument around the outcome of their own experience in lab.

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