Using Local Student Reports to Set Grading Criteria

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We identified the five basic criteria that are the minimum requirements on student lab reports reflect the five fundamental errors that we saw our students make the most often.

We recommend adjusting these criteria by sampling previously graded local reports.

1. Select ~50 reports that earned a score of <70% (D range), and another 50 that earned a score of 70-80% (C range). Do not use reports that earned an A or B. The goal is to establish binary benchmark criteria that cleanly separate C level and D level work.

2. Compare 2 reports, one from the D range, one from C range. What is missing from the D range report that is present in the C range report? **Look for traits that can be scored as binaries (yes/no, present/absent.)**

3. Record the binary differences that distinguish this first pair.

4. Repeat the process for up to 40 pairs, or until no new binary traits are showing up. Hold back the last 20 reports (10 each with grade C or D) for testing the final criteria.

5. After completing the 40 initial comparisons, group similar features into 5-7 **discrete binary criteria** that can differentiate reports earning a C from a D.

6. To evaluate the inter-rater reliability of the selected C vs. D grading criteria, have two independent readers use them to score the remaining 20 reports. The independent readers should assign the same score of C or D on 80% (16/20) reports or more.

7. If the two readers assign scores that are different **from each other** for more than 20% of reports, review the criteria with them to determine whether the explanation of one or more criteria needs to be refined, or if the criteria are not sufficient to discriminate between a C and D level report.

8. Repeat as needed until you have established 5-7 criteria that distinguish C vs. D reports with at least 80% inter-rater reliability.

9. Local criteria for technical, writing, and logical flaws are identified the same way, by comparing past reports that earned an A vs. B vs. C.

Notes

This process is time-consuming but does not need to be repeated very often. As long as writing expectations remain the same, the grading criteria should be usable for several years.