Course Background

BIO 101 – Principles of Biology I

- This is a “gateway course” taken by >1000 students per year.
- Classes size: about 300 students
- Primary instructional method is lecture. There is an associated required lab component which is a separate class.
- The classes are generally a mix of biology related majors and other majors, such as kinesiology & pharmacy. Therefore some students will have more inherent interest in the material, while others will be fulfilling a requirement for their major. See the figure below for the class makeup, which changes over time:

![Class Makeup Chart]

Course Changes

Assigned “Class Preparation Assignments” for each class session in Fall 2016.

- In order to foster students coming to class prepared, I assigned short Class Preparation Assignments (CPAs) for each class. These consisted of about 5 questions on the reading for that day and were submitted on Sakai.
- A graduate student grader spot checked the assignments to make sure students were doing them, but no feedback or grades were given, unless the grader thought the student was doing a poor job.

Conclusions

- There may have been a slight improvement in exam performance due to the CPAs.
- Student perceptions of learning that semester were negatively affected, suggesting that the CPAs weren’t seen as effective (but there could be another cause.)
- IDEA ratings appear to be negatively correlated with the amount of homework (CPAs or online MasteringBiology assignments).
- In 2017, I replaced the written CPAs with MasteringBiology online assignments before each class. There was a slight dip in final exam scores, but this could have been due to a drop in the proportion of more typically high-performing majors (eg. Pharmacy)
- Better assessment of a particular teaching method would require a real controlled experiment.