Nicholas Packauskas
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Teaching Reflection, Fall 2021

This was the fourth semester teaching in the midst of the global COVID-19 pandemic, but it has felt the closest to normal in over a year. All of my classes were fully in person and no longer socially distanced, though the students were masked and subject to a vaccine mandate. This allowed me to reinstate in-person office hours and group work in class. It was also the first semester that I was able to use my office in Moffett to meet with students, which although I don't have a board in my office (which I am told will be remedied soon), was far better than meeting with students visually through Webex.

I'll start by talking about my two sections of Precalculus. This is the third semester in a row that I have taught this course, and I had noticed sliding standards and falling grades — which I can assume is largely influenced by pandemic fatigue. I knew that I would have incoming freshman students that experienced remote learning in high school and expected them to have gaps in their knowledge. As such, I radically changed the way in which I taught this course. I implements a Standards Based Grading (SBG) system (sometimes called Mastery Grading, though that label is largely being replaced due to its negative connotations). The main tenants of this system is that students get to resubmit their work on essentially every assessment until they demonstrate proficiency in the course material. Rather than traditional homework and exams, I identified 28 topics (or grading standards) that I believed a top-level precalculus student should know upon completion of the course. I then gave quizzes over these standards. The grades one could get on the quizzes were

- Pass - every question is correct.
- Needs Revision - there are one or two minor errors, the student can correct these at home and turn in their revision to upgrade the quiz to a passing grade
- Not Yet - there is a major error, several minor errors, or the quiz is incomplete. The student can retake the quiz during office hours.

Using this system, I was able to eliminate partial credit in my grading entirely. There were no traditional exams, but rather "Quiz Days" which consisted of 5 quizzes at once (I quickly learned this was too many for one day and will reduce this number on the next implementation). The students found this system to be very fair and manageable, but it required a lot of work from me. The average student had to retake a majority of their quizzes, so I was be grading 100+ quizzes per week on average. This also required people to come to my office hours, so it was very common to have 6-10 office hours per week and a line of students waiting to ask a question about revisions or retake a quiz. Besides the quizzes, the students also had online homework each week. In the past I would only allow a limited number of attempts on each question, but in this system, the homework was merely practice for the quizzes so I allowed unlimited attempts on the homework. One thing I couldn't change was the final exam, which was more or less given as I had previously. Final grades were then assigned based on a "Bundle System" — see the syllabus for details.

Overall, this system worked extremely well. I think every class should be taught this way. The downside is that there is an exorbitant amount of work and organization required to keep it running smoothly. Properly implemented, I think this will reduce student stress and provide more equity in grading as well as increase learning. The students reacted very positively to this system; the average median CTE score in both of my sections was a 5. This means that more than half the students answered a 5 on every single question in both sections. I can't ask for better results than that. However, there are some things I would change the next time I run a class this way. For one, 28 quizzes is too many. I think a more reasonable number would be around 20-22. Next, I need to incentivize passing the quizzes the first time. By the end, I had students not preparing for the first quiz at all, and then using the first quiz to study for their retake. I think requiring a bit of extra work to retake a quiz, and not allowing a retake on a quiz with no effort displayed could alleviate this. Part of the reason this system worked was the level of the class being fairly low. I would like to implement similar ideas in upper level classes but some careful thought will be necessary.

Next, I'll discuss my Linear Algebra class. The last time I taught this class was Spring 2020, which was the semester the pandemic first interrupted in-person classes. I streamlined and updated the guided notes I had previously created for this class. In particular, I included practice problems at the end of each section and allocated time for group work in class on these problems.

I implemented Definition and Theorem vocabulary quizzes, and was pleased with the results. One of the things that frustrated me when I taught this course previously is that even the best students could solve the problems but still couldn't correctly use the terms associated with them. I believe these vocabulary quizzes helped to make them conversant in the terminology. I once again gave partially online, partially written homework assignments. These proved to be more overwhelming to the students than in previous semesters (though it was a nearly identical to the workload I had given previously). I believe pandemic fatigue and overall waning engagement with learning in a pandemic environment may have contributed to this. I also think the students didn't fully understand that the online portion, which they tend to score highly on, was weighted more heavily than the written portion. I am pleased to say that I did not find any evidence of plagiarism during this semester, which I have struggled with previously. I think in the future allowing resubmission and correction might work to lessen the students anxiety over their homework grades. The exam scores were fairly high this semester. Overall the CTEs were acceptable, with an average median of 3.89, with the lowest score addressing the complexity and length of the assignments.