Grading in my course may be not be conventional and need some explanation. First, I care more about how much you learned than what raw score you get. You would think they are correlated but not quite.

There are two ways to evaluate your performances: One is absolute measure and the other is relative measure. I take relative measure to see how you’re doing because absolute measure (the one you used in high school) doesn’t give me a fair evaluation for college upper-level classes like ours. I prefer relative measure because it gives me a stable and reliable evaluation regardless of how hard the test is or how wide spread the score distribution is. Let us take an example to see how these two measures differ from each other.

Let’s say I have three students, Liz, Kenneth and Jack and their level of comprehension does not change for illustrative purposes. In the first exam, their score was $100/100$, $90/100$, and $80/100$ each. In the second exam, their score was $50/100$, $30/100$, and $10/100$ each. Let’s say that absolute measure sets the thresholds as follows.

- $> 90$: A
- $> 80$: B
- $> 70$: C
- F otherwise

In the first exam, Liz, Kenneth and Jack received an A, B and C each and they all failed the second exam.

When you look closer, they failed the second exam not because they were lazy but because the exam was harder than before. It is unfair that they are penalized because of the level of the difficulty but not because of their level of comprehension.

Relative measure prevents you from receiving an unfair grade just because the exam happens to be tough. There are a couple of statistic to measure your relative performances. The one I use is what we call standard score or $t$-statistic in statistics. To repeat the description I left in the syllabus, standard score is computed as follows:

$$\frac{x - \bar{x}}{s},$$

where $x$ is your raw score, $\bar{x}$ is the average score and $s$ is a standard deviation, which measures the spread of the distribution.

There are three advantages in using standard score. First, it puts an average student at the standard score of zero no matter how hard or easy the exam is. Thus, we can bypass the drawbacks of absolute measure as seen above. Liz, Kenneth and Jack’s standard score will be 1, 0 and -1 in both exams. Kenneth is likely to receive a letter grade B or better in both exams regardless of the fact that he only scored 30 in the second exam.

Second, it also adjusts for how widespread the scores are. If you just take the difference between Jack’s score and the average, in the first exam, Jack was 10 points behind the average, whereas in the second exam, Jack was as many as 20 points behind the average. But then again, we are talking about the same Jack. It is not fair to put him 20 points behind. The second exam happens to have a larger variance, which has little to do with his achievement and he should not be penalized for it. Standard score would not take just the difference between $x$ and $\bar{x}$. It discounts the difference with the standard deviation $s$ so that the gap between your score and the average will shrink when the exam has a large variation to begin with. In the example quoted above, standard variation $s$ is 10 for the first exam and 20 for the second exam and this is why Jack scored the same -1 in both exams.

Third, it makes inter-exam comparison consistent. The standard score is not affected by the total score. As you will see, the total score varies from problem set to problem set, but your standard score doesn’t change because of the to-
tal score. As stated in the syllabus, problem sets are equally weighted regardless of the total score.

I do not use raw scores and by extension, absolute measure because they don’t serve my purpose. They don’t do you justice. The absolute measure might have worked for high school classes, where we had a set menu of rather homogeneous things to learn. In upper-level classes, we deal with lots of things from real life and not everything in reality comes with the same level of difficulties. Sometimes, things are straightforward and sometimes, we need to sit back and think it through. Just because you didn’t do well with hard questions do not mean that you didn’t learn anything. If you learned any additional (not whole) information then that’ll make my day. You don’t have to know everything. Nobody does in reality. That’s not what this class is meant for. If you become wiser than you yourself in January, then my job here is done. Absolute measure doesn’t pick up your improvement.

For your reference, I attached the test scores from previous semester in Figure 1. It depends

Figure 1.

on the overall performance of the class but the average student (a student with $x = 0$) usually falls in the B range.