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A SIMPLE BACK-OF-THE-ENVELOPE ANALYSIS REGARDING THE PROPOSED GRADE SYSTEM CHANGE

After reading the wonderful report submitted by the APC, I noticed that there was a lot of rhetoric used in the comments regarding the potential impact if we change grading systems. In particular, is there potentially any significant negative change that could occur in regards to a student's GPA with the implementation of the proposed grading system? I decided that by doing an analysis of my past grades in all of my past General Education classes I might be able to bring some real numbers to the discussion.

My methods:

The data came from the grade spreadsheets for my three General Education classes (GEOG 104, GEOG 141 and GEOG 311) back through 2007. I have not changed my grading scheme in any significant way during the time period. I used the final course averages for the **1265** students in my sample population. I first assigned the students a grade under the old system and assigned them the appropriate GPA score (A=4.0, B=3.0, etc.) and then took the average for the entire population. I then re-assigned the same population of students' grades using the percentage cutoffs below and proposed new system's GPA assigned values as per the report from the APC and again calculated the average GPA for the population.

Old GPA system		New GPA system		New GPA weights	
A	90%	A	93%	A	4.0
B	80%	A-	90%	A-	3.7
C	70%	B+	87%	B+	3.3
D	60%	B	83%	B	3.0
F	<60%	B-	80%	B-	2.7
		C+	77%	C+	2.3
		C	73%	C	2.0
		C-	70%	C-	1.7
		D+	67%	D+	1.3
		D	63%	D	1.0
		D-	60%	D-	0.7
		F	<60%	F	0.0

The results were as follows:

OLD GPA	NEW GPA	DIFF	%DIFF
2.491	2.459	-0.032	-1.29%

If we assume that holds true for a student throughout their entire career at SU, then a student with a GPA of 3.2 would see their GPA decrease to 3.159.

However, upon further review with my colleagues, we realized that the decrease could be mostly explained by the fact that the “A” grade range has only two outcomes, stay the same or decrease. So I re-sorted my data. In one population, I only looked at the students who earned a grade of “B” or worse, while in the second population, I only looked at the “A” students. The results were as follows:

Number of A students = 196 (15.5%)

OLD GPA (A's only)	NEW GPA (A's only)	DIFF	%DIFF
4.000	3.780	-0.220	-5.51%

Number of Non-A students = 1069 (84.5%)

OLD GPA (no A's)	NEW GPA (no A's)	DIFF	%DIFF
2.214	2.216	0.002	0.09%

As I would have predicted, the change in GPA for the A students is larger, but only because there is no offsetting possibility of improving to an A+. More importantly, for the rest of the (non-A) students, there is a very small *increase* in GPA. If we assume that holds true for a student throughout their entire career at SU, then a student with a GPA of 3.2 would see their GPA increase to 3.208.

This analysis assumes no change in student behavior. Anecdotally, I observed that many of the students whose grade dropped to A-, B-, C- or D- commonly did poorly on the final exam because (likely) they knew that they couldn't improve their final course grade (A, B, C, D) by doing well on the final exam but likewise were unlikely to drop down to a lower grade bracket, even with a poor final exam grade. In *every* semester I analyzed, the final exam score average was *significantly* lower than the exam averages for the previous exams, further illustrating this point. It is fair and reasonable that given an incentive to improve their grades, most students would attempt to do so, and GPAs may rise an even higher percentage than this analysis suggests.

Although I favor a change to the new system, I suppose those who are against the proposed system could use this same data to argue against change. *But at least we have some real data to think about as we debate the change instead of rhetoric.*

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