Dos Pueblos High School Academic Performance Analysis: Trends in Grade Distributions

Patrick Norton, Doug Steigerwald, Richard Startz

As part of an academic research initiative, we conducted a thorough analysis of grade distributions across several subjects at Dos Pueblos High School. This study aims to uncover patterns and offer insights into the evolving academic performance of students, highlighting potential underlying causes behind shifts in grade outcomes.

Figure 1 presents the grade distribution across key subjects such as Math, Computer Science, Chemistry, and Economics. One striking observation is that a significantly larger percentage of students in Math earned an "A" compared to other subjects. The share of A's in Math was notably higher, outpacing even Computer Science, which had the second-highest proportion of A's, with a roughly 5% difference. This trend suggests a strong performance in Math, but also raises questions about the academic rigor or external factors influencing these results. Interestingly, Math also had a much lower percentage of students receiving "B" grades—around 9% fewer than in other subjects, such as Computer Science, Chemistry, and Economics, which exhibited more balanced distributions of A's and B's. This may indicate a wider gap between top-performing students and those in lower brackets within Math courses.

Figure 2 focuses specifically on Computer Science, offering a year-by-year breakdown of grade trends from 2009 to 2022. Initially, in 2009, the performance in Computer Science was exceptionally high, with all students receiving A's—a rare and perhaps anomalous result. However, this perfect outcome was not sustained. In subsequent years, the number of A-earning students fluctuated, with a pronounced dip occurring shortly after 2009. However, in 2020, a notable resurgence occurred, with a sharp increase in the number of students receiving A's, reaching the highest levels seen since the start of the data period. The pattern stabilizes somewhat in 2022, with a convergence between students earning A's and B's. This sharp recovery could be attributed to changes in teaching methodologies, technological advancements, or the effects of the COVID-19 pandemic, which likely reshaped the learning environment.

In *Figure 3*, we examined the distribution of grades across all four subjects over the 2009-2022 period. One of the most striking observations from this figure is the sharp spike in Chemistry failures in

2017. This outlier suggests that something significant occurred during that year, perhaps a change in curriculum, teacher turnover, or a particularly challenging cohort of students. Thankfully, the failure rate normalized in subsequent years, but this anomaly warrants further investigation to understand the root cause and prevent future occurrences. In contrast, both Math and Computer Science exhibited relatively stable grade distributions, with Math continuing to lead in top performance.

Finally, *Figure 4* illustrates the remarkable rise in the number of A's earned in Computer Science starting in 2021. The number of students achieving A's surged from just 12 to over 100 within a single year, with no recorded failing students. This sharp increase aligns with the period following the COVID-19 pandemic, raising questions about the role of remote learning, hybrid teaching models, and other pandemic-related adjustments. It is possible that the shift to digital learning may have benefitted students in technology-oriented subjects like Computer Science, where digital tools are integral to both teaching and assessment. The absence of failing students during this period is particularly noteworthy and suggests a combination of factors ranging from grade leniency to improved student engagement with the subject.

In conclusion, the data reflects both promising trends and areas for concern in academic performance at Dos Pueblos High School. While certain subjects, particularly Math and Computer Science, show strong performance at the top end of the grade spectrum, other areas like Chemistry have experienced more volatility, with significant fluctuations in student outcomes. Further research should investigate the pedagogical shifts, resource allocations, and external factors, such as the COVID-19 pandemic, that may have contributed to these trends. This analysis serves as a foundation for deeper exploration into how these dynamics influence student success and what can be done to support more consistent academic achievement across all subjects.

Figure 1: Share of Grade Bar Graph by Subject

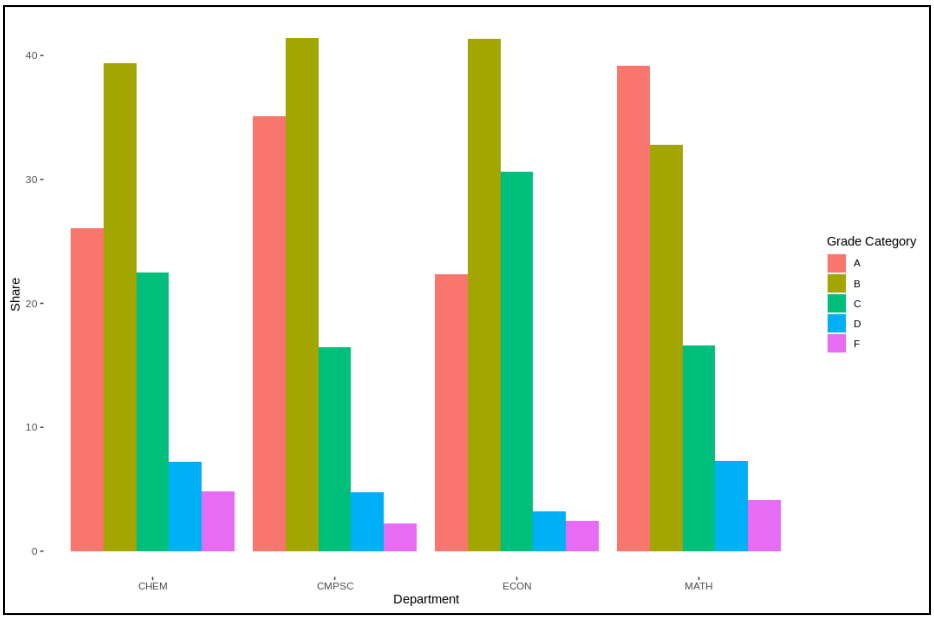

Figure 2: Computer Science Grades 2009-2022

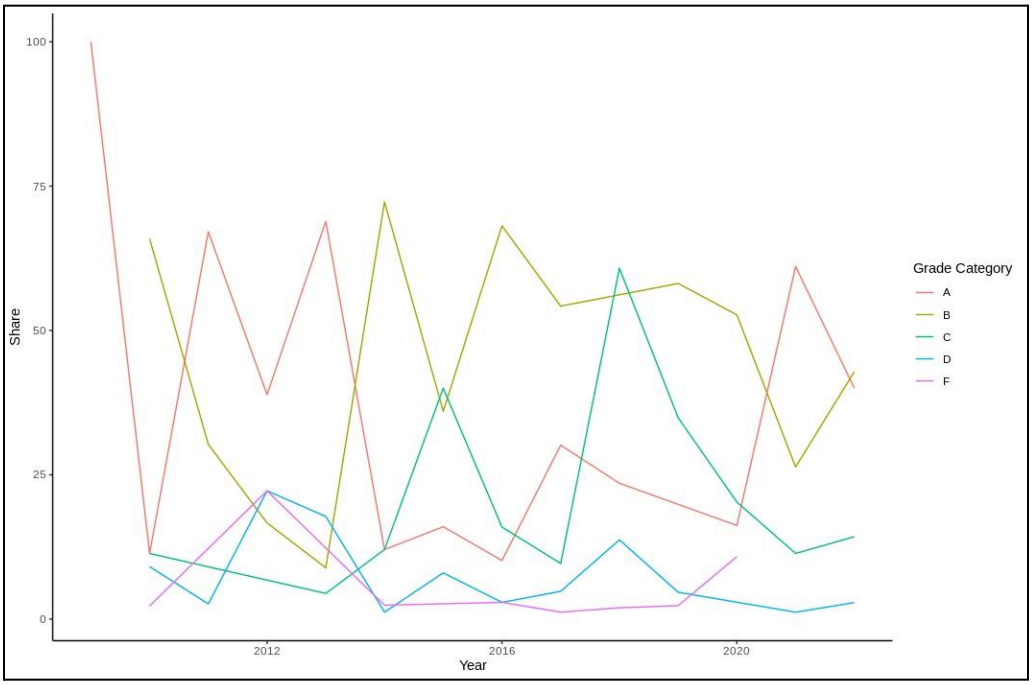

Figure 3: All Courses Grade Distribution 2009-2022

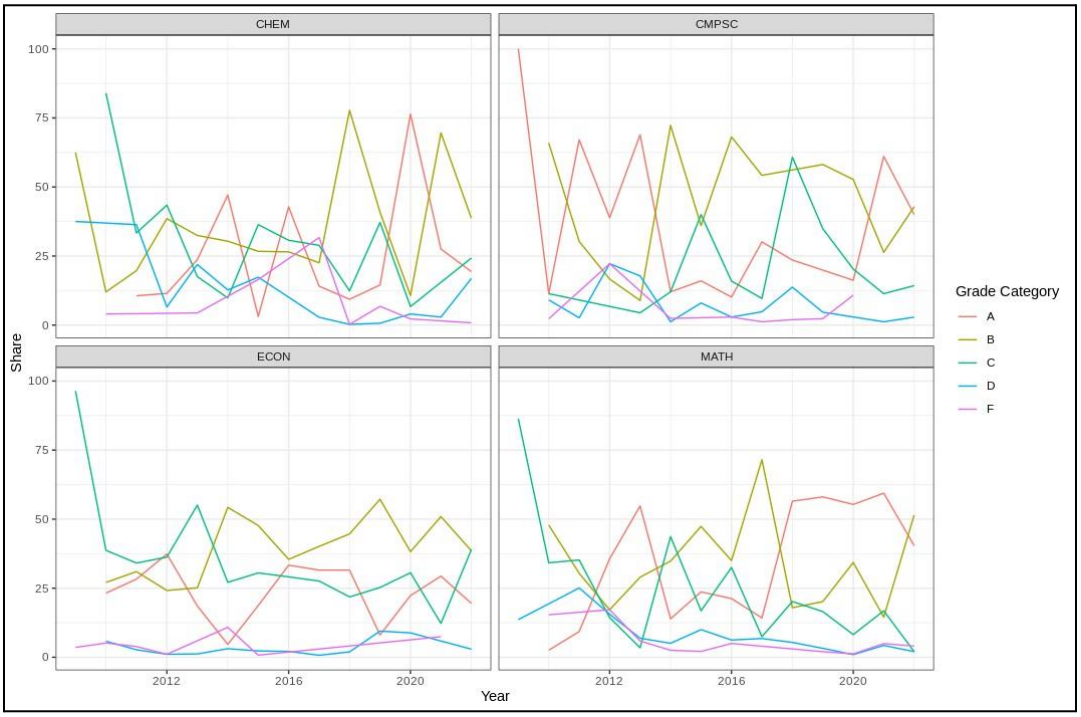

Figure 4: Computer Science Grades Based on Total People