

AP Credit and Student Success in Early University Science Courses

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Overview: This study examines the impact of current Advanced Placement (AP) credit policies on subsequent course success in Biology, Chemistry, and Physics at six large public research universities.

Audience: College administrators; High school administrators; High school students; Parents

Key Points

- Prior independent research on impact of AP credit on college course performance is limited.
- Study focused on Biology, Chemistry, and Physics course sequences at six U.S. public universities.
- Broad ranges in the proportion of eligibility and choosing to skip across institutions.
- Students who skip due to AP credit tend to perform better on subsequent courses.
- Policies related to AP exams and credit should be empirically evaluated and potentially reconsidered.

INTRODUCTION The Advanced Placement (AP) program created by the College Board provides rigorous, college-level coursework to high school students and is viewed as a college readiness indicator. However, departmental policies that allow students to replace introductory courses with AP credit greatly vary within and between universities, even across relatively similar universities. This study examines the impact of AP credit policies on subsequent course success in Biology, Chemistry, and Physics at six large public research universities using inverse-probability weights with regression adjustment. Student characteristics that are associated with having earned AP scores that qualify for skipping introductory science courses were also investigated.

FINDINGS Students who skipped performed similarly well or better in subsequent courses than students who did not skip, even in contexts where lower AP scores were accepted ($N = 48,230$ students). We found that performance in the second Biology gateway course was nearly identical between those who skipped and those who did not, and for Chemistry and Physics, students who skipped outperformed students who took the first course. Correlations between student performance on AP exams and demographic factors indicate that demographic predictors of skip eligible scores had limited effects, regardless of threshold. The strength of the correlations appeared to be unaffected by institutional cut-offs for accepting AP credit.

This suggests that the inequities found in access to AP in the U.S. more broadly is part of the process by which students are accepted into research public institutions and is no longer differentiated by demographics among those attending these institutions and enrolling in these courses. We also discovered wide variation in the percentage of students who chose to skip when meeting their local policies. This is potentially an inequity problem as the lack of consistent guidelines can allow biases in informal networks or individual advisors to have a strong effect on student decision-making processes.

TAKEAWAYS The main finding that using AP credit to skip the first course does not adversely affect student performance in subsequent courses has implications for educational stakeholders across the nation. We identified two main themes from our findings. Firstly, because of both the small effect sizes concerning the demographic predictors of skip eligible scores and the lack of effect of skipping on student performance, we suggest that departments update their eligibility policies and academic advisors should change their recommendations. If policies are not changed, there should be empirical evidence created to support that decision. Secondly, universities should support data analyses of the types we did, particularly at different kinds of institutions and for other AP courses. Together, these efforts will work to reduce unnecessary coursework that is burdensome for both students and universities.