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# **SPOTLIGHT ON OU**

## **How are OU Advanced Placement Students Doing?**

### *Overview and Summary*

There are several ways students can obtain college credit during high school. One of the more popular pathways that allow students to do this is for them to take an Advanced Placement (AP) course. At the end of these courses students can take an AP exam and their exam score can be used by colleges to grant them either college credit or exemptions from college courses.

However, a formal investigation regarding student performance and AP scores has not been conducted in several years. Do AP students have better outcomes than non-AP students? If so, is the difference large? This report briefly answers some of these questions by comparing student outcomes between students that enter OU with AP scores and students who had no such scores.

In general, this report finds that students who come to OU with AP scores have higher ACT scores, higher high school G.P.A. and higher first-term G.P.A.s than their non-AP counterparts. Furthermore, AP students seem to do just as well or better than non-AP students in sequential courses such as Math 155 and Writing 160.

### *Sample*

The sample consisted of every FTIAC student from fall 2007 and fall 2008 that attended OU. These students are broken down into three distinct categories: students that do not have any AP test scores, students that have AP test scores but did not receive OU credit or course exemptions, and students that have AP test scores and received OU credit or an OU course exemption. This document refers to these groups as the 'No AP', 'AP, No Credit', and the 'AP, Credit' groups, respectively.

The sample consists of approximately 4,600 students. About 1,000 of these students have recorded AP test scores, with slightly over 500 students receiving some type of OU credit or course exemption. It should be noted that there are a number of students who enroll in AP courses but opt not to take the AP exam. Additionally, not every student who takes the exam sends their score to OU.

### *Differences in ACT Scores and High School G.P.A.s*

Students who have AP test scores have higher High School (H.S.) G.P.A.s and ACT scores than students who come to OU not having taken an AP course. Table 1 illustrates the differences in ACT-composite scores and H.S. G.P.A. for each of the three groups. Notice that H.S. G.P.A.s and ACT scores are higher for both groups of AP students, even for the group that had AP scores, but did not receive any OU credit or course exemptions. Both AP groups are significantly different than the 'No AP' group for both H.S. G.P.A. and ACT scores ( $p < .001$  for all comparisons).

**Table 1: High School G.P.A. and ACT-Composite Scores by AP Category**

Measure	No AP	AP, No Credit	AP, Credit
H.S. G.P.A.	3.17	3.35	3.65
ACT Score	21.19	22.38	26.29

### *Differences in First Term and First Year G.P.A.*

Students who have AP test scores have higher G.P.A.s than students who do not have AP test scores. Table 2 illustrates the differences in both first term and first year G.P.A.s by student category. Notice the substantial increase in the G.P.A.s between the 'No AP' group and the 'AP, No Credit' group. This difference is even greater between the 'No AP' group and the 'AP, Credit group'. Each AP group has statistically significant differences relative to the 'No AP' group, for both first term G.P.A. and first year G.P.A. ( $p < 0.001$ ).<sup>1</sup>

**Table 2: First Term and First Year OU Grades by AP Category**

Measure	No AP	AP, No Credit	AP, Credit
First Term G.P.A. at OU	2.66	2.94	3.34
First Year G.P.A. at OU	2.64	2.89	3.31

### *Analyzing AP Student Performance in Sequential Courses*

In courses that define a sequence, such as WRT 150 and 160, MTH 154 and 155, or CHM 157 and 158, it is possible for students to place into the upper level course by receiving credit or an exemption due to a high AP test score. This makes it possible to analyze the performance of these students and compare them to students who take the entire sequence. There are several such sequences at OU, but only the

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<sup>1</sup> The differences in the G.P.A.s between the 'No AP' group and the 'AP, No Credit' group would traditionally be considered small to medium (Cohen's  $d \approx 0.3$ ) whereas the difference between the 'No AP' and the 'AP, Credit' group would probably be considered large (Cohen's  $d \approx 0.75$ ).

calculus sequence (MTH 154 and 155) and the first-year writing sequence (WRT 150 and 160) have a high enough sample size to warrant further analysis.

Table 3 lists G.P.A.s and pass rates for Math 155 and Writing 160 for two groups of students: AP students that had been exempted from the previous course, and students who started in and completed the lower-level course before taking the upper-level course<sup>2</sup>. In each case, grades were computed by using the first time each student received a grade in the respective course (repeated attempts at the same course are not included in this analysis).

**Table 3: Writing 160 and Math 155 Outcomes for AP-Students and Comparison Groups**

Measure	Math 155		Writing 160	
	Comparison	AP-Students	Comparison	AP-Students
G.P.A. (excludes Ws)	2.32	2.56	3.10	3.35
Pass Rate (2.0 or better)	63.0%	73.3%	89.6%	91.5%
N	92	45	1387	106

AP-math students have a higher G.P.A. and a higher pass rate than non-AP math students, though the results are not significant in a statistical sense. AP-writing students show the same pattern, with the difference between G.P.A.s reaching statistical significance<sup>3</sup>. It is worth noting that pass rates for WRT 160 are nearly identical between the two groups, but, despite this, there is still a noticeable difference in G.P.A.s.

### *Conclusions*

On nearly every measure, AP students are outperforming their non-AP counterparts. On average, AP students have higher incoming H.S. G.P.A. and ACT scores than non-AP students, even for students who have AP scores but receive no OU credit or course exemptions. It appears that these differences follow these students, at least through their first academic year, as AP students have higher first term and first year G.P.A.s relative to non-AP students. Furthermore, course sequence analyses add more evidence that AP students outperform their non-AP counterparts, at least in the first year writing sequence and calculus sequence.

<sup>2</sup> This means that students needed to place into either Math 154 or Writing 150, not come from lower level courses.

<sup>3</sup>  $t = 2.807$ ,  $df = 1441$ ,  $p < 0.01$ , the effect size would generally be considered small to medium (Cohen's  $d \approx 0.3$ ).