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Study hints AP classes overrated

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By Maria Sacchetti, Globe Staff | February 18, 2006

Advanced Placement courses typically are the toughest classes in high school, with the longest term papers, the thickest textbooks, and the highest stakes: Students who score high on the classes' nationally standardized exams can earn college credit, sometimes enough to save thousands of dollars in tuition costs.

But a new study, presented yesterday at a national conference, is generating debate on the merits of Advanced Placement courses, at least in the sciences. The classes are touted as college-level work for high school students to give them an edge in the fierce competition for college, but the study by a Harvard senior lecturer in astronomy and a University of Virginia assistant professor found that students who scored high on the exams in biology, chemistry, and physics didn't earn much better grades than students who never took the advanced classes.

The findings resonated at some area universities, such as Northeastern and MIT, where officials have been weighing whether to make it harder for students to skip freshman biology because they had high scores on the Advanced Placement exams.

Professors fear that the students haven't learned enough for college-level work. Tufts made it harder to skip physics. Boston University grants credit, but counselors work with students to see if they should take the introductory class anyway.

"They're certainly not as powerful as many people think they are," said coauthor Philip M. Sadler, senior lecturer in the Harvard Astronomy Department, who delivered the findings at an American Association for the Advancement of Science conference in St. Louis. "Kids who skip these courses could be missing out."

The criticism comes as Advanced Placement classes have been expanding and receiving ringing endorsements in recent weeks from President George W. Bush and Governor Mitt Romney, who proposed spending money to expand the classes, especially in math and science.

The College Board, which owns the Advanced Placement exams, rebuked the study's findings, criticizing the researchers for examining the Advanced Placement scores only of students who took the introductory science classes, not those who tested out of them and registered for higher-level classes. They also called the sample size -- of 10,000 students studied, 500 took the Advanced Placement exams -- "woefully small." The College Board said other research found that Advanced Placement exam scores are powerful predictors of college success.

Trevor Packer, head of the Advanced Placement program for the College Board, said that the board would review the study, but that the findings were shaky because they didn't examine a broader group of students.

"His study doesn't look at a single student that actually did place ahead, so how can his study show that placing ahead wasn't an appropriate decision for students?" he said. "His study doesn't support the claim that credit shouldn't be granted."

Yet the College Board, a New York-based nonprofit, has demonstrated its own concern about the classes, not the exam, and is launching a massive audit of the advanced classes nationwide and abroad to ensure that high school classes match its high standard.

Sadler said he examined students with a variety of scores and found that the advanced classes did not significantly boost their achievement in class. Students who scored a 5 on science exams, the highest on a scale of 1 to 5, averaged a college grade of 90 in the same classes. Students who scored 4 averaged 87. Students who did not take an Advanced Placement course averaged 82.

Professors said former Advanced Placement students could struggle for a variety of reasons: Some students might have been too young to absorb college-level material in high school, or their teachers weren't well-trained.

College admissions officers see taking the advanced classes as a sign of rigor on a student's transcript, but professors and academic advisers often discourage students from skipping introductory classes because they are the building blocks of academic majors. John Straub, a chemistry professor at Boston University, said he worried that today's advanced classes are too focused on learning a battery of facts to pass the Advanced Placement exam instead of tackling fewer subjects in-depth in a research paper.

"There's significantly less depth," he said.

Several students at Boston University yesterday said the advanced courses prepared them well for college work, and in some cases saved them as much as a year's tuition at a costly school. But they also acknowledged that courses varied in quality, depending on the school and teacher.

Devin Flanigan, 18, a BU freshman from New York, had a genetic researcher as her Advanced Placement science teacher. The class, and a good test-preparation booklet, helped her ace the test and avoid taking freshman biology.

"Some high schools are stringent, and some aren't," she said.

Faris Azar, 18, a graduate of Watertown High, received credit for a basic chemistry class at BU and now takes a more accelerated class in that subject. He said his high school advanced class prepared him well.

"It's what we had last year, but more in-depth," he said.

At MIT, professors have found that Advanced Placement students are well-prepared in calculus, but less so in chemistry, suggesting a problem with instruction in high school, said Kim Vandiver, dean for undergraduate research.

At Tufts University three years ago, the school raised the advanced test score students needed to test out of introductory physics from a 4 to a 5. Students who scored a 4 can try to skip the class by passing a Tufts placement exam, but students in this group score all over the map on the Tufts test, said William Oliver, chairman of the physics and astronomy department. He said the scores suggest that the Advanced Placement exam is too narrow.

"You can see that some of them have a good grounding in physics and some don't," Oliver said. "Just having the high AP scores doesn't necessarily mean that you know the material at the depth that you should know it."

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