AP Student Success at the College Level

KEY RESEARCH
AP Courses and Exams

ARTS
Art History
Music Theory
Studio Art: 2-D Design
Studio Art: 3-D Design
Studio Art: Drawing

AP CAPSTONE™
Research
Seminar

ENGLISH
English Language and Composition
English Literature and Composition

HISTORY AND SOCIAL SCIENCE
Comparative Government and Politics
European History
Human Geography
Macroeconomics
Microeconomics
Psychology
United States Government and Politics
United States History
World History

STEM
Biology
Calculus AB
Calculus BC
Computer Science A
Computer Science Principles
Chemistry
Environmental Science
Physics 1
Physics 2
Physics C: Electricity and Magnetism
Physics C: Mechanics
Statistics

WORLD LANGUAGES AND CULTURES
Chinese Language and Culture
French Language and Culture
German Language and Culture
Italian Language and Culture
Japanese Language and Culture
Latin
Spanish Language and Culture
Spanish Literature and Culture
AP® programs in high schools, coupled with evidence-based AP policies at colleges and universities, support positive outcomes for students.

Multiple studies confirm that students who earn a 3 or higher on an AP Exam:

1. Perform well in subsequent college courses in the discipline
2. Are more likely to major in their AP subject or a related discipline, particularly in STEM subjects
3. Take more—not less—college coursework in the discipline
4. Are more likely to graduate within four years
5. Find opportunities that lead to success (especially true of underrepresented students)
Students who took an AP Exam perform well in subsequent college courses in the discipline.

**KEY FINDING**
A 2007 study revealed AP participation is related to positive outcomes for students earning a score of 3 or higher on an AP Exam. In most AP subjects, they performed the same as or better in the intermediate-level college course than students who took the college’s introductory course, controlling for prior achievement.

**SAMPLE**
70,000 students at 27 institutions, followed for five years

**OUTCOMES ANALYZED**
Intermediate course GPA, college majors

**CONTROL VARIABLES**
SAT* scores

**FULL REPORT**
bit.ly/WnOQBn

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**FIGURE 1**
GPA in the subsequent college course, by performance

Students who took an AP Exam are more likely to major in their AP subject or a related discipline, particularly in STEM subjects.

**KEY FINDING**
A 2011 study\(^2\) revealed that the likelihood of majoring in a particular discipline increased with AP Exam taking in that discipline, the number of AP Exams taken in the discipline, and AP performance in the discipline. The effect was strongest for STEM majors. Also, students who took AP Exams were more likely to have declared a major than non-AP students. AP is a strong indicator of interest in a discipline, providing an opportunity for colleges to identify potential majors.

**FIGURE 2**
Percentage of students majoring in a specific domain by AP participation

- Biological and Biomedical Sciences
  - Students who did not take an AP Exam: 6.1%
  - Students who took an AP Exam in a related subject area: 20.3%

- Computer and Information Sciences
  - Students who did not take an AP Exam: 1.9%
  - Students who took an AP Exam in a related subject area: 17.9%

- Foreign Languages, Literatures, and Linguistics
  - Students who did not take an AP Exam: 1.1%
  - Students who took an AP Exam in a related subject area: 5.1%

- Humanities and Liberal Arts
  - Students who did not take an AP Exam: 13.0%
  - Students who took an AP Exam in a related subject area: 15.1%

- Mathematics, Statistics, Engineering, and Physical Sciences
  - Students who did not take an AP Exam: 9.6%
  - Students who took an AP Exam in a related subject area: 29.1%

- Social Sciences
  - Students who did not take an AP Exam: 12.1%
  - Students who took an AP Exam in a related subject area: 18.1%

Examined major at beginning of third year in college, not major upon graduation. Does not account for prior interest or motivation. Adapted from Mattern, Shaw, and Ewing, 2011

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Students who took an AP Exam take more—not less—college coursework in the discipline.

**KEY FINDING**
A 2009 study found that AP students who took an AP Exam in one of 10 subjects studied generally took more credit hours in that subject area and in college overall than did non-AP students. In addition, AP students who earned college course credit based upon their AP Exam scores had statistically significantly higher subject-area GPAs than students without AP credit, controlling for prior academic achievement.

**SAMPLE**
25,000 students in four cohorts enrolled at the University of Texas at Austin

**OUTCOMES ANALYZED**
College GPA, number of college credit hours

**CONTROL VARIABLES**
High school rank, SAT scores

**FULL REPORT**
bit.ly/13MGkl1

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**FIGURE 3**
Mean subject credit hours taken in college, by AP participation

<table>
<thead>
<tr>
<th>Subject</th>
<th>Non-AP students</th>
<th>AP students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>11.25</td>
<td>17.21</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>10.89</td>
<td>13.12</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>10.92</td>
<td>14.7</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9.64</td>
<td>16.91</td>
</tr>
<tr>
<td>English Language and Comp</td>
<td>7.41</td>
<td>8.29</td>
</tr>
<tr>
<td>English Lit and Comp</td>
<td>7.69</td>
<td>8.74</td>
</tr>
<tr>
<td>Macroeconomics</td>
<td>5.54</td>
<td>8.73</td>
</tr>
<tr>
<td>U.S. History</td>
<td>7.06</td>
<td>9.71</td>
</tr>
<tr>
<td>U.S. Government and Politics</td>
<td>7.3</td>
<td>8.46</td>
</tr>
<tr>
<td>Spanish Language</td>
<td>7.69</td>
<td>9.94</td>
</tr>
</tbody>
</table>

Adapted from Murphy and Dodd, 2009
Students who took an AP Exam are more likely to graduate within four years.

**KEY FINDING**
A 2013 study found that students who took one or more AP Exams, regardless of what score was earned, were more likely to graduate from college in four years compared to non-AP students, controlling for prior academic achievement, demographic variables, and school-level variables. In addition, students who earned higher scores on AP Exams had a higher likelihood of graduating in four years compared with students who earned lower scores, controlling for relevant variables.

**SAMPLE**
Sample 1: 112,000 students at 77 colleges and universities (2007 college freshmen)
Sample 2: 678,000 students (2008 college freshmen who had taken AP, PSAT/NMSQT, or SAT; matched to National Student Clearinghouse graduation data)

**OUTCOMES ANALYZED**
College graduation in four years

**CONTROL VARIABLES**
College selectivity, college control (public or private), PSAT/NMSQT scores, gender, underrepresented minority status, first-generation college-going status

**FULL REPORT**
bit.ly/1kT0JPu

**FIGURE 4**
Expected four-year graduation rate by AP participation and performance

<table>
<thead>
<tr>
<th>AP Performance</th>
<th>No AP</th>
<th>AP Score of 1</th>
<th>AP Score of 2</th>
<th>AP Score of 3</th>
<th>AP Score of 4</th>
<th>AP Score of 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36%</td>
<td>39%</td>
<td>45%</td>
<td>50%</td>
<td>56%</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>45%</td>
<td>47%</td>
<td>53%</td>
<td>59%</td>
<td>64%</td>
<td>69%</td>
</tr>
</tbody>
</table>

Note: Expected graduation rates were computed based on Sample 1 models. These values are associated with non-first generation status females with an average PSAT/NMSQT score attending a public institution of average selectivity. Please see research report for all results.

AP provides opportunities for underserved students to succeed.

**KEY FINDING**
A 2006 study⁵ found that, controlling for prior academic achievement, student-level variables, and school-level variables, traditionally underrepresented students who earned a score of 3 or higher on at least one AP Exam had a higher probability of graduating from college in five years or less than non-AP students of the same ethnicity/socioeconomic status.

**FIGURE 5**
Increase in probability of college graduation within five years or less compared with students not participating in AP, by ethnicity and socioeconomic status

- **SAMPLE**
  67,000 students at Texas public colleges and universities

- **OUTCOMES ANALYZED**
  College graduation in four years

- **CONTROL VARIABLES**
  Eighth-grade math test scores, school-level characteristics

- **FULL REPORT**
  bit.ly/VRyzFK

Adapted from Dougherty, Mellor, and Jian, 2006

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The following resources are available from the College Board and can be requested at collegeboard.org/aphighered.

1. **AP course and exam descriptions or curriculum frameworks**: These documents contain information important to developing a credit and placement policy, including the learning objectives for AP courses and exams; how AP Exams are scored; considerations on using and interpreting scores; and sample performance tasks, exams, and items.

2. **Released AP Exams**: Because they are considered to be secure material, these may be obtained only by contacting a College Board representative at ahighered@collegeboard.org.

3. **Current research on student outcomes**: Research includes both independent studies led by institutions across the country and College Board–sponsored research. Several of these research studies focus on placement validity, evaluating the success of AP students as they place into subsequent courses related to their AP Exam scores.

4. **Summary of AP Scores Reported for your college**: You can order this report, which includes participation and performance data for the AP students who sent scores to your college or university.

5. **National references**: American Council on Education issues credit and placement recommendations and the recommendations of national academic associations.

6. **Placement validity studies and data services**: The College Board offers a free service—the Admitted Class Evaluation Service™ (ACES™)—to help facilitate a review of AP performance in subsequent courses. Visit collegeboard.org/aces for more information. The College Board also regularly works with institutional researchers at colleges to develop and implement local, customized validity studies. To learn more, contact ahighered@collegeboard.org.
Additional Research on AP Outcomes

**College Subject Performance**

*Key finding:* AP students perform at least as well as similar non-AP students in introductory courses.

**Overall Performance**

*Key finding:* Students who received AP credit outperformed non-AP students on first-year GPA.


*Key finding:* AP Exam scores are among the very best predictors of college performance.

Mattern, Shaw, and Xiong, 2009

*Key finding:* The odds of returning for a second year of college are greater for AP Exam takers who scored a 3 or higher compared to non-AP students, controlling for high school GPA and SAT scores.
College Completion

**Key finding:** Students who earn a 3 or higher on one or more AP Exams are more likely to graduate from college in five years or less even when controlling for prior academic achievement, demographic variables, and school-level variables.


**Key finding:** AP participants are more likely to graduate from college than nonparticipants.

Hargrove, Godin, and Dodd, 2008

**Key finding:** AP Exam takers who scored a 3 or higher earned higher first- and fourth-year college GPAs than non-AP students and had higher four-year graduation rates, controlling for prior academic achievement.

Majors

**Key finding:** AP participants are more likely to major in a related discipline than nonparticipants, particularly in STEM subjects.


**Key finding:** AP participants are more likely to major in a related discipline than nonparticipants.
About AP

The College Board’s Advanced Placement Program® (AP®) enables willing and academically prepared students to pursue college-level studies—with the opportunity to earn college credit, advanced placement, or both—while still in high school.

For further information, visit collegeboard.org/aphighered or contact aphighered@collegeboard.org.

About the College Board

The College Board is a mission-driven not-for-profit organization thatconnects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 6,000 of the world’s leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

For further information, visit collegeboard.org.