AP® Higher Education

AP®: A Foundation for Academic Success

CollegeBoard

Faculty perspectives on AP®

"Students who have had AP typically can take more advanced courses earlier … This enables them to participate in interesting internships earlier or do research in their senior year. They bring that information back to Duke and inform our curriculum based on what they learn."

Owen Astrachan
Professor of the Practice of Computer Science
Director of Undergraduate Studies
Duke University

"AP not only immerses students more deeply in a subject, but it marks an experiential change, explicitly pointing them toward college and raising academics to a new level of seriousness too often absent from their social lives. AP courses accustom them to college-level labor, and admission offices favor AP as a sign that an applicant seeks a school's best resources. Given the high remediation and dropout rates among first-year students at American colleges, along with disappointing scores on 12th-grade exams across disciplines given by the National Assessment of Educational Progress, we should encourage more AP enrollment."

Mark Bauerlein
Professor, Department of English
Emory University

"The AP Comparative Government and Politics course not only requires students to learn a great deal about the six core countries — China, Great Britain, Iran, Mexico, Nigeria and Russia — it also obliges them to master the analytic skills and the core concepts that are central to political science. I have been impressed by the rigorous nature of the AP Exams and the high level of thinking that they require. AP courses surpass many college courses in terms of the demands that they make on the students, and they do a terrific job of preparing students for success in college."

Raul L. Madrid
Associate Professor, Department of Government
University of Texas at Austin

Research findings: AP student success at the college level

Strong AP programs in high schools, coupled with strong AP policies at colleges, support many positive outcomes for students. Multiple research studies have confirmed that **AP students who earn credit and advanced placement for the corresponding introductory college course:**

1. **Perform well in subsequent college courses in the discipline.**
2. **Are more likely to major in their AP subject or a related discipline.**
3. **Take more — not less — college course work in the discipline.**
4. **Are more likely to graduate within five years.**
5. **Can develop an interest in STEM subjects that leads to a STEM major in college.**

Sample:
70,000 students at 27 institutions, followed for five years

Characteristics analyzed:
Intermediate course GPA, college majors

Control variables:
SAT® scores

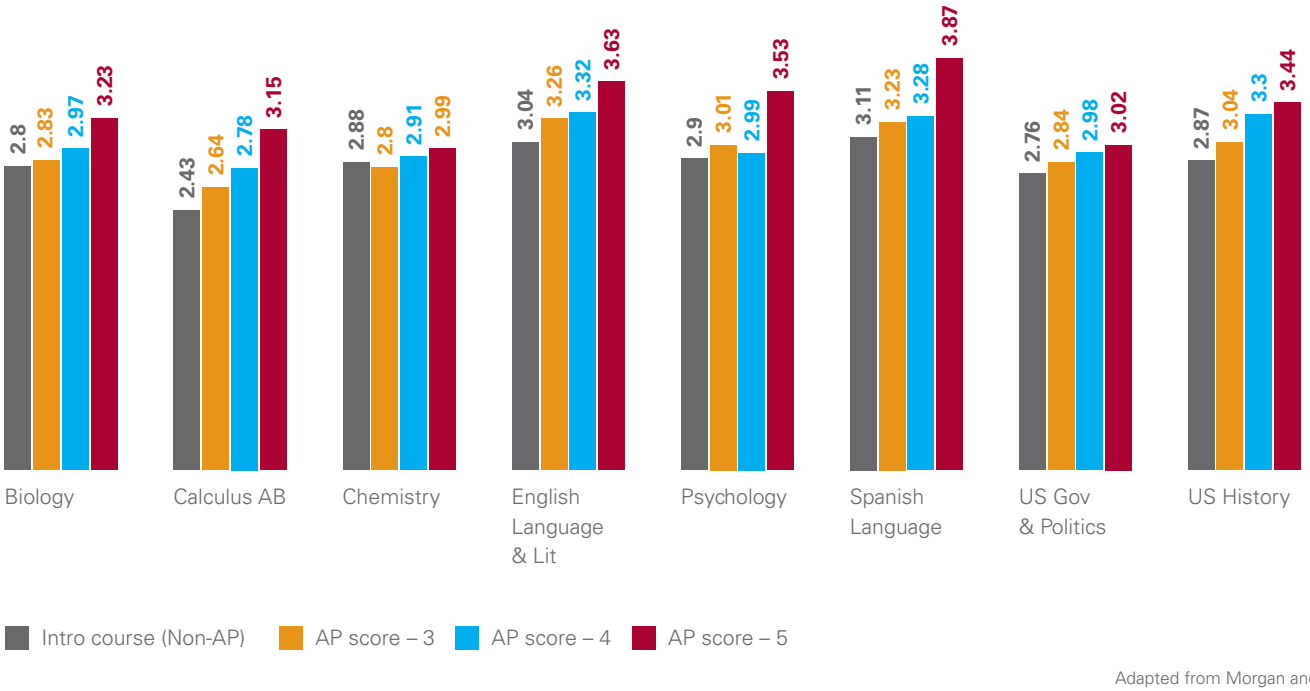
Full report:
http://bit.ly/WnOQBn

1 AP students perform well in subsequent college courses in the discipline.

Key finding

A 2007 study[1] revealed a number of benefits for students earning a score of 3 or higher on an AP Exam. In most AP subjects, they performed the same as, or better than, non-AP students in the intermediate-level college course related to their AP Exam — even after controlling for prior achievement. They also earned degrees in less time than did the non-AP cohort.

Figure 1: GPA in the subsequent college course, by performance



Adapted from Morgan and Klaric, 2007

1. Rick Morgan and John Klaric, *AP Students in College: An Analysis of Five-Year Academic Careers* (New York: The College Board, 2007).

Sample:
40,000 students at 39 colleges

Characteristics analyzed:
College major

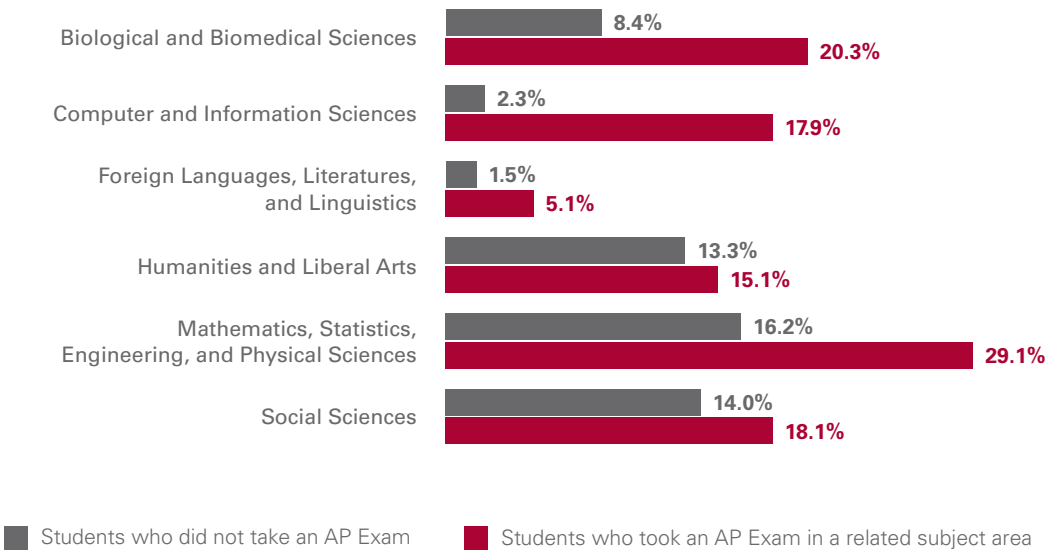
Full report:
http://bit.ly/YWbtTg

2 AP students are more likely to major in their AP subject or a related discipline.

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. 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: College majors, by AP participation



Adapted from Mattern, Shaw, and Ewing, 2011

2. Krista Mattern, Emily J. Shaw, and Maureen Ewing, *Is AP Exam Participation and Performance Related to Choice of College Major?* (New York: The College Board, 2011).

Sample:
25,000 students in four cohorts enrolled at the University of Texas at Austin

Characteristics analyzed:
College GPA, number of college credit hours

Control variables:
High school rank, SAT scores

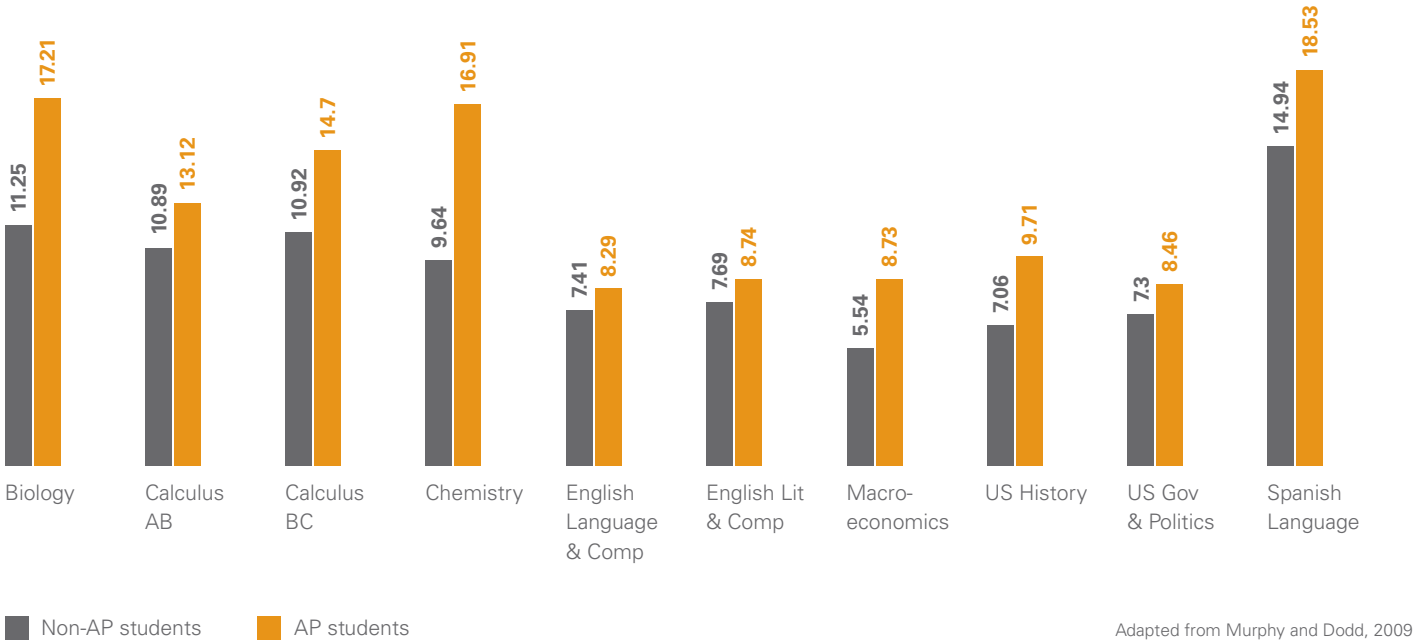
Full report:
http://bit.ly/13MGkl1

3 AP students take more — not less — college course work in the discipline.

Key finding

A 2009 study[3] found that AP students who took at least one AP Exam generally took more credit hours in that subject area and in college overall than did non-AP students. Additionally, AP students who earned course credit based upon their AP Exam scores had statistically significantly higher GPAs than students without AP credit, even after controlling for prior academic achievement.

Figure 3: Mean subject credit hours, by AP participation



Adapted from Murphy and Dodd, 2009

3. Daniel Murphy and Barbara Dodd, *A Comparison of College Performance of Matched AP and Non-AP Student Groups* (New York: The College Board, 2009).

Sample:
67,000 students at Texas public colleges and universities

Characteristics analyzed:
College graduation rate

Control variables:
Eighth-grade math test scores, school-level characteristics

Full report:
http://bit.ly/VRyzFK

4 AP students are more likely to graduate within five years.

Key finding

A 2006 study[4] found that, even after controlling for prior academic achievement, student-level variables and school-level variables, 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.

Figure 4: Increase in probability of college graduation within five years or less compared with students not participating in AP, by ethnicity and socioeconomic status

Adapted from Dougherty, Mellor, and Jian, 2006

4. Chrys Dougherty, Lynn Mellor, and Shuling Jian, *The Relationship Between Advanced Placement and College Graduation* (National Center for Education Accountability, 2006).

Sample:
70,000 students at 27 institutions, followed for five years

Characteristics analyzed:
Intermediate course GPA, college majors

Full report:
http://bit.ly/WnOQBn

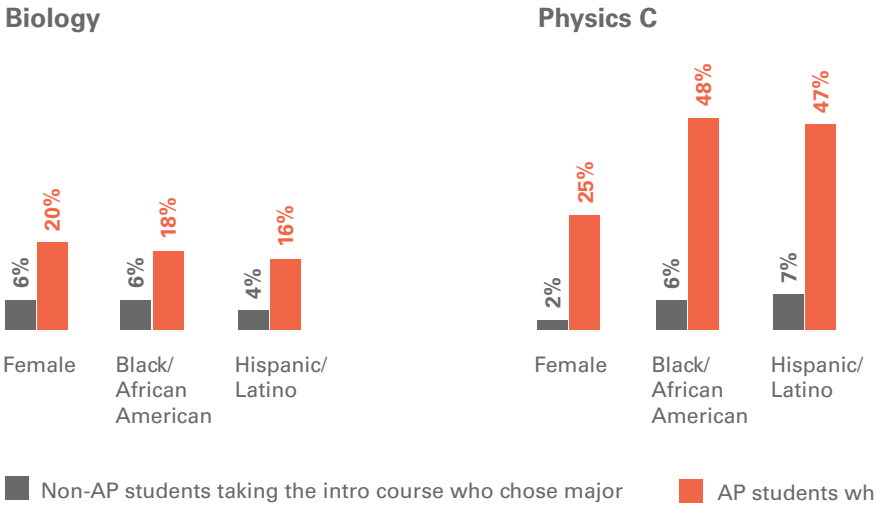
5 AP can help students develop an interest in STEM subjects that leads to a STEM major in college.

Key finding

A 2007 study[5] highlighted the connection between participating in AP STEM subjects and majoring in STEM disciplines for underrepresented and female students. For example, the study showed that Hispanic/Latino students who took AP Biology were four times more likely to major in biology than Hispanic/Latino students who took the introductory biology course in college instead. Female students who took Physics C were about 12 times more likely to major in physics.

In 2007, the National Academies released a report[6] focused on "energizing and employing America for a brighter economic future." The report included among its top recommendations a call for national investment in the training of many more AP math and science teachers. This recommendation is supported by research highlighting the strong benefits of expanding the reach of AP math, science and technology courses.

Figure 5: Choice of major by AP participation



Adapted from Morgan and Klaric, 2007

5. Rick Morgan and John Klaric, *AP Students in College: An Analysis of Five-Year Academic Careers* (New York: The College Board, 2007).
6. National Academies, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* (Washington, DC: The National Academies Press, 2007).

AP is evolving: The course and exam redesign

As part of our commitment to continually enhance alignment with current best practices in college-level learning, AP is evaluating and redesigning courses and exams, beginning with world languages, history and science subjects. The redesign process, built upon the current strengths of the program, is the result of a collaboration among college faculty, AP teachers, and learning and assessment specialists. Redesigned courses and exams support the development of the knowledge and skills students need to succeed in subsequent courses in the discipline at the college level.

AP is evaluating and redesigning courses and exams, beginning with world languages, history and science subjects.

"The process for creating the [redesigned AP Chemistry] course involved many iterations, with input from hundreds of educators at both the high school and college levels. The committee membership was sufficiently fluid to allow broad input and sufficiently stable to retain a coherent vision. The result is a consensus design that is informed by the current state of AP and college classrooms and takes a significant, yet manageable, step toward moving all AP classrooms toward the best of current practice."

David Yaron
Associate Professor, Department of Chemistry
Carnegie Mellon University

AP course launch schedule

Fall 2011
French Language and Culture
German Language and Culture

Fall 2012
Biology
Latin
Spanish Literature and Culture

Fall 2013
Chemistry
Spanish Language and Culture

Fall 2014
Physics 1: Algebra-Based
Physics 2: Algebra-Based
United States History

Fall 2015
Subjects will be announced in October 2013.

Hallmarks of the redesigned courses and exams

- A greater emphasis on 21st-century skills, including critical thinking, inquiry, reasoning and communication.

- Curricula, modeled upon introductory college courses, that strike a balance between breadth of content coverage and depth of understanding.

- Standards informed by:
  - Recommendations of national disciplinary organizations;
  - Results of curriculum studies conducted at four-year institutions; and
  - Leading pedagogical and measurement practices.

- Detailed curriculum frameworks, which tie the concepts, themes and skills relevant within each discipline to a set of key learning objectives.

- Validation of the revised curriculum frameworks by faculty at dozens of leading institutions.

- Exams that tie each question to the evidence required to demonstrate student achievement of each specific learning objective.

Establishing college-level curricula

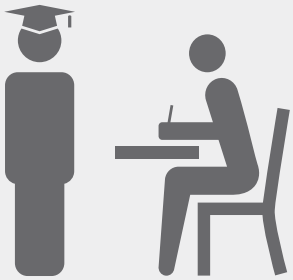
AP course and exam development: Modeling college courses

AP Development Committees, comprised of an equal number of college faculty and experienced secondary AP teachers from across the country, develop each AP course curriculum, determine the general content and ability level of each exam, determine requirements for course syllabi, and write and review exam questions.

As they draft AP curricula, committee members in each subject review the results of curriculum studies conducted at representative colleges. AP curriculum drafts are then reviewed by college faculty teaching the comparable course. These reviews help ensure that AP course content and skills are well aligned with parallel college courses.

College faculty help ensure that AP course content and skills are well aligned with parallel college courses.

College faculty establish standards and inform cut scores for AP Exams by administering portions of AP Exams to their own students.



Setting standards for AP

College comparability studies and standard settings: Defining "college level"

Definitions of the knowledge and skills required to earn scores of 1, 2, 3, 4 and 5 on an AP Exam are derived from standard settings and college comparability studies. These processes ensure that AP Exam outcomes align with college faculty expectations. Before the studies begin, committees of college faculty who teach the comparable college course develop detailed descriptions of the performance required to earn each score — these are called achievement level descriptors (ALDs).

1. **Standard-setting studies:** A panel of 15 faculty and teachers reviews the ALDs and takes the AP Exam. The panel determines how many questions a student would need to answer correctly at each ALD. These raw scores become the cut scores for each AP Exam score.

2. **College comparability studies:** College faculty at a range of institutions — public, private, liberal arts and research — administer portions of an AP Exam to students in the comparable college course; student AP scores are correlated to their final course grades.

The results of both studies establish the standards and inform the cut scores for the relevant AP Exam.

A list of colleges recently participating in validity studies like these appears at the end of this booklet.

Essential AP resources

Available on the AP higher ed website: www.collegeboard.org/aphighered

1. **AP course and exam descriptions or curriculum frameworks:** These documents, found on the page for each course and exam in the Courses & Exams section of the website, contain the learning objectives for AP courses and exams. Specific information is provided for redesigned courses and exams.

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

3. **Current research on student outcomes:** The Research & Reports section of the website 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, through a form in the Research & Reports section of the website.

5. **National references:** American Council on Education credit and placement recommendations and the recommendations of national academic associations (e.g., National Science Foundation, American Council on the Teaching of Foreign Languages).

6. **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 www.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 aphighered@collegeboard.org.

Current AP Exams

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

English
English Language & Composition
English Literature & Composition

History & Social Science
Comparative Government & Politics
European History
Human Geography
Macroeconomics
Microeconomics
Psychology
United States Government & Politics
United States History

Math & Computer Science
Calculus AB
Calculus BC
Computer Science A
Statistics

Sciences
Biology
Chemistry
Environmental Science
Physics B
Physics C: Electricity & Magnetism
Physics C: Mechanics

World Languages & Cultures
Chinese Language & Culture
French Language & Culture
German Language & Culture
Italian Language & Culture
Japanese Language & Culture
Latin
Spanish Language
Spanish Literature and Culture

College faculty are involved in every aspect of AP

On an annual basis, more than 5,000 college faculty participate in all aspects of AP, from course and exam development to teacher professional development.

To learn more about how you can get involved in AP, visit www.collegeboard.org/aphighered.

A sample of institutions that participated in recent AP activities

American University
Amherst College
Arizona State University
Auburn University
Bard College
Barnard College
Baylor University
Boston College
Boston University
Bowdoin College
Brandeis University
Brigham Young University
Bucknell University
California Institute of Technology
California Polytechnic State University
California State University, Fresno
California State University, Long Beach
Carleton College
Carnegie Mellon University
Case Western Reserve University
Chapman University
Claremont McKenna College
Clemson University
Colby College
Colgate University
College of Charleston
College of New Jersey
College of the Holy Cross
College of William & Mary
Colorado College
Connecticut College
Cooper Union
Cornell University
Dartmouth College
Davidson College
Denison University
Dickinson College
Duke University
Emory University
Florida International University
Florida State University
Fordham University
Georgetown University
George Washington University
Georgia Institute of Technology
Gettysburg College
Grinnell College
Hamilton College
Harvey Mudd College
Haverford College
Indiana University
Iowa State University
James Madison University
Johns Hopkins University
Kalamazoo College
Kenyon College
Lehigh University
Lewis & Clark College
Louisiana State University
Loyola University Chicago
Marquette University
Massachusetts Institute of Technology
Miami University of Ohio
Michigan State University
Middlebury College
Mount Holyoke College
Muhlenberg College
New York University
Oberlin College
Ohio State University
Pennsylvania State University
Pepperdine University
Purdue University
Reed College
Rensselaer Polytechnic Institute
Rice University
Rochester Institute of Technology
Rutgers, the State University of New Jersey
Savannah College of Art and Design
Skidmore College
Smith College
St. Mary's College of Maryland
Stanford University
Stony Brook University
SUNY Geneseo
Swarthmore College
Syracuse University
Texas Christian University
Trinity College
Trinity University
Tufts University
Union College
University of Alabama
University of Arkansas Fayetteville
University of British Columbia
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, Riverside
University of California, San Diego
University of California, Santa Barbara
University of Chicago
University of Cincinnati
University of Colorado
University of Connecticut
University of Florida
University of Georgia
University of Illinois at Urbana-Champaign
University of Iowa
University of Kentucky
University of Mary Washington
University of Maryland
University of Massachusetts - Amherst
University of Miami
University of Michigan
University of Minnesota
University of Minnesota - Twin Cities
University of New Mexico
University of North Carolina, Chapel Hill
University of North Texas
University of Notre Dame
University of Oklahoma
University of Pennsylvania
University of Pittsburgh
University of Rochester
University of San Diego
University of South Carolina
University of South Florida
University of Southern California
University of Tennessee, Knoxville
University of Texas at Austin
University of Texas at Dallas
University of Tulsa
University of Vermont
University of Virginia
University of Wisconsin - Madison
U.S. Military Academy
U.S. Naval Academy
Utah State University
Vanderbilt University
Vassar College
Villanova University
Virginia Tech
Wake Forest University
Washington and Lee University
Washington State University
Washington University in St. Louis
Wellesley College
Wesleyan University
Westminster College
Wheaton College
Whitman College
Williams College
Worcester Polytechnic Institute
Yale University

CollegeBoard

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 www.collegeboard.org/aphighered or contact aphighered@collegeboard.org.

About the College Board

The College Board is a mission-driven not-for-profit organization that connects 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 over 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 www.collegeboard.org.

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