

Advanced Placement® (AP) Program Toolkit

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COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF EDUCATION

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Introduction

This toolkit is designed to provide guidance and direction to schools when implementing Advanced Placement® (AP) courses and programs. In these programs, students are taught a curriculum based on a standard set of expectations and earn college credit by achieving a qualifying score on an end-of-course assessment. Most colleges in the United States provide credit or advanced placement for qualifying scores.¹

Background

Advanced Placement® (AP) is a program created by the College Board and offers college-level curricula and examinations to high school students. Colleges and universities may grant course placement, course credit or both to students who obtain high scores on the AP exams. Each college or university determines its criteria for awarding credit for AP exam scores.

A panel of experts and college-level educators in that field of study creates the AP curriculum for each of the various subjects for the College Board. For a high school course to have the AP designation, the course must be audited by the College Board to ascertain that it satisfies the AP curriculum. If the course is AP approved, the school may use the AP designation.²

Each AP exam corresponds to an AP course. AP exams provide a standardized measurement of what the student has learned in the classroom. AP exams are administered to high school students each May; exam scores are then reported in July to colleges, students, and their high schools. Students are not required to take an AP course before taking the AP exam; conversely, a student does not need to take the AP exam to receive high school credit for taking the AP course. Schools strongly encourage students to take the exam upon completion of the course.

AP offers more than 30 courses in a wide variety of subject areas (see Appendix A for a complete course list and descriptions). AP exams help students stand out in the college admission process, experience college-level academics while still in high school, and potentially can save time and money once enrolled in college.

The Pennsylvania School Performance Profile (SPP) formula includes points for “Advanced Placement, International Baccalaureate or College Course” offerings and enrollment. AP courses and enrollments are reported annually in the Pennsylvania Information Management System (PIMS).

¹ [College Board AP Policies](#)

² [Advanced Placement](#)-Wikipedia, the free encyclopedia. (n.d.)

The College Board reports that, in 2015, Pennsylvania students in public and private schools took 121,013 AP exams, with 67 percent of exams with scores of three or higher.³ Seventeen percent of AP exams had scores of five, the highest score in the 5-point scoring scale. The largest number of tests were taken in the courses listed below:

- US History (12,835)⁴
- English Literature and Composition (11,523)
- English Language and Composition (11,185)
- Calculus AB (10,369)
- Psychology (8,660)
- United States Government and Politics (8,184)
- Biology (7,172)

The College Board does not report the number of students enrolled in AP courses but who elected not to take the AP exam.

Research

Researchers found that students who take AP courses in high school are more likely to graduate from college within four years and have higher grade point averages in college than similar students who did not take AP courses. Students who successfully participated in one or more AP exams and courses significantly out-performed their non-AP peers. These comparisons were made among peers with similar levels of academic ability and family economic status. Students who took one or more AP courses and exams had higher college GPAs, earned more credit hours, and were more likely to graduate in four years or less (Hargrove, Godin, & Dodd, 2008).⁵

African-Americans who score a three or higher on the AP exam as opposed to the non-AP student are 21 percent more likely to graduate from college; Hispanics are 27 percent more likely, Whites are 19 percent more likely, and low-income students are 32 percent more likely (Dougherty, Mellor, & Jian, 2005).

Research examining the raw scores for 4.5 million students found the students who earned higher scores positively impacted college completion and subsequent exam taking. Students who gain a credit-granting score increased the probability that the student will receive a bachelor's degree within four years by one or two percentage points per exam (Smith, Hurwitz, & Avery, 2015).

Using statewide data from 90,044 students graduating over two years, the authors examined the impact of the AP program on students' academic achievement as measured by ACT scores. Just enrolling in AP courses provided little benefit for students. Students who took and passed the test, however, obtained higher ACT scores even after controlling for academic, socioeconomic, and demographic variables (Warne, Larsen, Anderson, & Odasso, 2015).

³ [Data for 2015 AP exam participation published by the College Board](#)

⁴ Numbers of AP exams taken in 2015 are identified in the parenthesis

⁵ [AP and College Readiness](#) | Center for College Readiness. (n.d.)

From the viewpoint of AP program expansion or implementation, a recent report published by the American Enterprise Institute examined nationwide data on school implementation of AP from a policy perspective. The author provides insight into decisions facing public school leaders. “Data suggest that the percentage of schools offering AP may have hit a high point and that a number of schools are cutting programs. Moving forward, it is vital that school leaders consider efforts to improve AP access in the context of its demand. On its face, expanding AP sounds great, but care is needed when school leaders face tough choices about how to allocate their limited resources...In schools that do not have sufficient numbers of students prepared for AP courses, leaders would be wise to focus their limited resources on improving student proficiency in the years leading up to high school...Focusing on preparing students for advanced coursework is the best long-run means to not only expand AP access but also AP success for all students (Malkus, 2016).”⁶

Definitions and Terms

AP was launched in 1955 by the College Board as a program to offer gifted high school students the opportunity to complete entry-level college coursework. AP has since expanded to encourage a broader array of students to tackle challenging content. Students may sit for an AP exam whether or not they have taken the related year-long course. Though policies vary from institution to institution, many colleges and universities will award entry-level, discipline-specific college course credit for an AP exam score of three or higher (out of five).⁷

All schools wishing to label a course AP must submit the subject-specific AP Course Audit form and the course syllabus for each teacher of that AP course. The AP Course Audit was created at the request of both secondary school and college members of the College Board who sought a means for the College Board to:

- Provide AP teachers and administrators with clear guidelines on curricular and resource requirements that must be in place for AP courses.
- Give colleges and universities confidence that AP courses are designed to meet the same clearly articulated college-level criteria across high schools.⁸

Policy

Pennsylvania does not mandate schools to provide AP courses nor does it provide financial incentives for offering AP, but it does assist to offset the costs of taking exams for low income students. The state does not provide programs or funding for teacher training. There are no scholarship incentives for achieving certain scores. Postsecondary institutions are not required to award credit for minimum scores. Additionally, students do not have to enroll in an AP course before taking the AP exam. A student can receive secondary credit for taking the AP course without taking the AP exam.

⁶ (Malkus, 2016) page 13

⁷ [Policy Focus in:](#) Study up on ANALYSIS. (n.d.)

⁸ [AP Course Audit](#)-Home Page-The College Board. (n.d.)

Pennsylvania school entities submit AP courses, course data, and enrollment in PIMS. (Refer to PIMS User Manual⁹ for course codes and submission process.) In addition, the School Performance Profile for each high school in Pennsylvania contains the following:

- The number of AP courses offered.¹⁰
- The number of students who achieve a score of three or higher on any AP exam.
- Whether the school has enrollment in AP courses in English Language and Literature, Life and Physical Sciences, Mathematics, or Social Sciences and History.
- Extra credit for advanced achievement for the percentage of grade 12 students scoring three or higher on at least one AP exam.
- A School Academic Indicator, which represents rigor evidenced by student enrollment in AP, provides a performance measure based on offering AP (or IB or college credit coursework) in each of the four core academic areas: (English Language and Literature, Mathematics, Life and Physical Sciences, Social Sciences and History).¹¹

Program Guidance, School-Level Implementation

Structuring Advanced Placement Programs/Courses

The most successful AP programs establish course sequences of scaffolded courses that prepare students for the rigors of an AP college-level course¹². This structured series builds both the necessary knowledge for students to be successful and provides a marketing tool for recruitment of students into the AP course. “When students arrive at their junior or senior year of high school far behind in the skills and knowledge needed to succeed in AP courses, it’s often too late to catch up. Pre-AP courses and training align course expectations from grades six through 12 so that students are ready to succeed in AP courses in high school.”¹³ This approach is particularly critical for smaller schools with a limited pool of potential pool of AP students unless a pathway of classes prepares the student for the AP college-level course.

The school entity pays no fee for participating in AP. However, a school must obtain a College Board school code and complete the AP Participation Form. If the school has never offered AP before, it must complete the steps listed in Appendix B. A seven step simple guide to starting an AP course is available from the College Board website.¹⁴

Financial Considerations

College Board provides estimated costs to start each of its 30 courses for a class of 25.¹⁵ These estimates include professional development, textbooks, supplemental reading materials, and materials and equipment. Costs may vary based on resources already available at the secondary entity. These estimates exclude travel expenses for professional development.

⁹ [PIMS User Manual](#)

¹⁰ Defined as “Advanced Placement courses offer college level work in a given discipline in a secondary school setting.”

¹¹ [Glossary of Terms-PA School Performance Profile](#). (n.d.)

¹² [High School: Advanced Placement](#). (n.d.)

¹³ [High School: Advanced Placement](#). (n.d.)

¹⁴ [Seven step simple guide for starting an AP course](#)

¹⁵ [Cost estimates for starting AP courses](#)

Professional Development for Staff

The College Board and other providers make available professional development for AP teachers, pre-AP teachers and program administrators. To find the most current listing of available professional development opportunities by state and topic, visit the College Board website.¹⁶ The College Board recommends that AP teachers have undertaken some form of professional development before teaching AP for the first time, but it is not required.¹⁷

Professional development opportunities for new and experienced AP teachers include AP workshops, AP summer institutes, AP readings, and the AP annual conference. Some of these are offered by the College Board and other opportunities are endorsed by the College Board but managed by partnering organizations. Also, the College Board provides online communities and discussion groups for teachers.

Materials

AP classes can require materials not previously used in existing courses at the secondary entity. Per the estimated costs provided by the College Board,¹⁸ science classes require the most specialized materials and equipment, followed by calculator costs for mathematics, and student materials for the studio art classes. Several of the courses, such as social science courses or English, require no special materials except textbooks.

Exam Fees

The AP Exam fees are set annually by the College Board. For current exam fees¹⁹, visit the [Exam Fee](#) webpage.

Student Admissions, Access, Supports

There are various ways schools can help prepare students for the end-of-course AP exam. High schools can implement summer programs to ease the transition to AP courses or provide before-or after-school tutoring.

Fulfilling Equity Goals

Before embarking on a program to address equity goals, best practice encourages the examination of school collected data to inform the decision-making process on the root causes of AP participation inequities.

Rural and small schools: Rural and small schools often struggle to gain sufficient enrollment in any single AP course to warrant offering an AP class. Several strategies can be successful in securing sufficient enrollment to justify offering AP courses.

- Develop a curriculum pathway that includes AP preparation content to increase the number of students qualified to enroll.
- Have teachers participate in Pre-AP professional development²⁰ and integrate the content and strategies into the curriculum pathway leading to AP courses.
- Encourage teachers to apply for an AP Rural Fellows Scholarship.²¹

¹⁶ [Current professional development offerings by state and topic](#)

¹⁷ [Training AP Teachers: Building Your AP Program](#) (n.d.)

¹⁸ [Cost estimates for starting AP courses](#)

¹⁹ [Exam fees](#)

²⁰ [Pre-AP program and professional development](#)

- Enroll students in AP courses through an online/distance learning provider.²² When an AP course audit administrator selects a vendor through the AP Course Audit Website, providers that have completed the AP Course Audit are listed. This process ensures that the provider is an authorized AP course distance learning provider.

Students of color: Many of same strategies that assist rural and small schools in building their AP enrollments also have been proven to assist students of color in enrolling and succeeding in AP courses and on the AP exams.²³

- Develop a curriculum pathway that includes AP preparation content to increase the number of students qualified to register.
- Have teachers participate in pre-AP professional development²⁴ and integrate the content and strategies into the curriculum pathway leading to AP courses, starting as early as middle school.
- Offer summer courses to encourage first-time AP students to learn the mindset and skills they will need to be successful in AP classes. These courses should not be a gateway or required pre-requisite courses for enrollment but rather should assist students in academic foundations necessary for enhancing success in AP courses and easing the transition into AP classes.
- Engage teachers and school counselors to work with individual students to give them an accurate understanding of each AP course's requirements and encourage them to consider these challenging courses whenever possible to help the student explore interests and prepare for the rigors of college.

Student Supports

Students with Disabilities:²⁵ The College Board permits students with disabilities to have accommodations for AP exams; however, exam accommodations for which a student is approved may differ from the accommodations approved by the school. Examples of typical accommodations are extended time, computer use for essays, extra and extended breaks, reading and seeing accommodations and four-function calculator.

Each student must receive approval from the College Board for accommodations, and the process may take up to seven weeks.

- The deadline for submission is generally in mid-February.
- The student must have a documented disability.
- AP exam participation must be impacted.
- A request must be made to the College Board.
- The College Board must approve the accommodation.

²¹ [AP Rural Fellows Program](#)

²² [Find Online Distance Learning Providers Offering AP Courses](#)

²³ [Experiences from Illinois for Latino students on AP exams](#)

²⁴ [Pre-AP program and professional development](#)

²⁵ [Complete instructions for requesting accommodations](#)

If the student tests with accommodations without College Board approval, test results will be invalidated.

Free Practice Exams: Practice exams in all subjects (except Chinese Language and Culture, Japanese Language and Culture and Studio Art courses) are available to AP teachers via the AP Course Audit website.²⁶ These versions of the exams are available for in-class use only and feature a multiple-choice answer key, free-response scoring guidelines, and a scoring worksheet. Sample questions are also available online to students.²⁷

Resources

Program Examples

- As part of a state-approved pilot grant in 2014, two Pennsylvania school entities developed strategies to improve their SPP indicator on Advanced Placement, International Baccalaureate, or college credit.
 1. Upper St. Clair School District developed a marketing strategy for AP courses targeted to students and parents through an online interactive Program of Studies.²⁸ This online program of study built upon a previous approach of using a teacher swap to market AP courses to currently enrolled honors or AP students. This new approach expanded the reach to a broader population of students and parents. Upper St. Clair School District reported the following outcomes: “By involving the teacher, students and parents in the AP course marketing strategy, Upper St. Clair High School (USCHS) has been able to realize not only a 48 percent increase in the number of AP students, but an ever greater gain (55 percent) in the number of AP exams taken while realizing a 30 percent increase in scores of three or higher on the AP exams.”²⁹
 2. Shenango Area School District, a small district with a high school enrollment of 543, undertook curricular redesign to strengthen participation and performance within its AP program.³⁰ Over a six-year period, adding multiple AP courses, restructuring curricular progression, and utilizing student learning data to find prospective students, resulted in 22 percent of the high school graduating class scoring three or higher on an AP exam.
- Summer Advanced Placement Academy: Pittsburgh Public Schools offers an Advanced Placement Summer Academy³¹ for students who are enrolled in AP classes the following fall. The Advanced Placement Summer Academy gives students a jump start on the rigorous coursework they will face in the fall. Students experience challenging classes and get a glimpse of campus life at Carnegie Mellon University. They learn test taking strategies for the AP exam, which could earn them numerous college credits. There is no cost for this program.

²⁶ [AP teacher access to AP Practice Exams](#)

²⁷ [Student access sample test questions](#)

²⁸ [Implementation Plan USCHS](#) (Angelo). (n.d.)

²⁹ Ibid. page 7

³⁰ [Shenango Area School District Curricular Redesign Overview](#)

³¹ [Pittsburgh Public Schools Advanced Placement Academy](#)

Helpful Links

- [2015-2016 AP Program Guide](#)
- [Education Commission of the States](#)
- [National Math and Science Initiative College Readiness Program](#)

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Appendix A: Excerpts—AP Courses and Course Descriptions³²

Full course descriptions and exam descriptions can be found online on the [College Board](#) website.

“The Advanced Placement Program offers more than thirty (30) courses and exams. In this section, you can download a brief course overview or a full description of each course and exam. Course overviews provide an introduction to AP courses and exams and are available in print-ready formats for distribution to students, parents, and educators. For more detailed information about AP courses and exams, download the full course descriptions.”³³

Course Name	Course Description Excerpts
AP Capstone Courses	
AP Research	Students cultivate the skills and discipline necessary to conduct independent research to produce and defend a scholarly academic thesis.
AP Seminar	This foundational course engages students in cross-curricular conversations that explore the complexities of academic and real-world topics and issues by analyzing divergent perspectives. Ultimately the course aims to equip students with the power to analyze and evaluate information with accuracy and precision to craft and communicate evidence-based arguments.
Arts Courses	
AP Art History	Equivalent to a two-semester introductory college course that explores the nature of art, art making, and responses to art. Functions and effects of art are the focus of this course.
AP Music Theory	Corresponds to one or two semesters of a typical introductory college music theory course that covers topics such as musicianship, theory, musical materials and procedures.
AP Studio Art: 2-D Design	Students work with diverse media, styles, subjects, and content creating a portfolio consisting of three sections: breadth, concentration, and quality. A 2-D design portfolio is evaluated.
AP Studio Art: 3-D Design	Students work with diverse media, styles, subjects, and content creating a portfolio consisting of three sections: breadth, concentration, and quality. A 3-D design portfolio is evaluated.
AP Studio Art: Drawing	Students work with diverse media, styles, subjects, and content creating a portfolio consisting of three sections: breadth, concentration, and quality. A drawing portfolio is evaluated.
English Courses	

³² See the [College Board](#) website to download complete course overviews and descriptions

³³ *ibid*

Course Name	Course Description Excerpts
AP English Language and Composition	This course focuses on the development and revision of evidence-based analytic and argumentative writing and rhetorical analysis of non-fiction.
AP English Literature and Composition	This course focuses on reading, analyzing, and writing about imaginative literature (fiction, poetry, drama) from various periods.
History & Social Science Courses	
AP Comparative Government and Politics	Students compare and contrast political institutions and processes across six countries (Great Britain, Mexico, Russia, Iran, China and Nigeria) and analyze and interpret data to derive generalizations.
AP European History	This course focuses on developing students' understanding of European history from Approximately 1450 to the present. Course themes foster in-depth analysis by making connections and comparisons across different topics. Corresponds to two semesters of a typical college history course.
AP Human Geography	This course introduces students to the systematic study of patterns and processes that have shaped human understanding, use and alteration of the earth's surface.
AP Macroeconomics	This course provides in-depth knowledge of the principles of economics and how economists use those principles to examine aggregate economic behavior.
AP Microeconomics	This course provides an in-depth understanding of the principles of economics as they apply to individual decision-making units, including individual households and firms.
AP Psychology	This course introduces students to the systematic and scientific study of human behavior and mental processes.
AP United States Government and Politics	This course introduces students to fundamental political ideas, institutions, policies, interactions, roles and behaviors that characterize the political culture of the United States.
AP United States History	This course focuses on the development of historical thinking skills and the development of students' abilities to think conceptually about US history from approximately 1491 to the present. Course themes foster in-depth analysis by making connections and comparisons across different topics. Corresponds to two semesters of a typical college history course.
AP World History	This course focuses on developing students' understanding of world history from approximately 8000 BCE to the present. Course themes foster in-depth analysis by making connections and comparisons across different topics. Corresponds to two semesters of a typical college history course.
Math & Computer Science Courses	
AP Calculus AB	This course is roughly equivalent to a first-semester college calculus course devoted to topics in differential and integral calculus.
AP Calculus BC	This course is roughly equivalent to both the first and second-semester college calculus courses and extends the content learned in AB Calculus to different types of equations and introduces the topic of sequences and series.

Course Name	Course Description Excerpts
AP Computer Science A	This course is equivalent to a first semester, college level course in computer science. The course introduces students to computer science with fundamental topics that include problem-solving, design strategies and methodologies, organization of data, approaches to processing data, analysis of potential solutions, and the ethical and social implications of computing.
AP Computer Science Principles	This course is equivalent to a first semester, college level course in computer science. Students will develop computational thinking vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. It fosters student creativity.
AP Statistics	This course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data.
Science Courses	
AP Biology	This course is an introductory college-level biology course. Students cultivate an understanding of biology through inquiry-based investigations as they explore evolution, cellular processes-energy and communications, genetics, information transfer, ecology and interactions. Hands-on laboratory work is 25 percent of instructional time.
AP Chemistry	This course provides a college-level foundation to support future advanced course work in chemistry. Inquiry-based investigations explore such topics as atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. Includes 16 hands-on labs with at least six being inquiry-based.
AP Environmental Science	This course is designed to be the equivalent of a one-semester, introductory college course in environmental science. Students engage with the scientific principles, concepts and methodologies required to understand the interrelationships of the natural world.
AP Physics C: Electricity and Magnetism	This course is a one-semester calculus-based, college-level physics course. Topics include electrostatics; conductors, capacitors and dielectrics; electric circuits; magnetic fields; and electromagnetism. Hands-on laboratory work is a minimum twenty percent of instructional time.
AP Physics C: Mechanics	This course is a one-semester calculus-based, college-level physics course. Topics include kinematics' Newton's laws of motion; work, energy and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Hands-on laboratory work is a minimum of twenty percent of instructional time.
AP Physics 1: Algebra-Based	This course is a one-semester algebra-based, college-level physics course. Topics include Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Hands-on laboratory work is a minimum of 25 percent of instructional time.
World Languages & Cultures Courses	

Course Name	Course Description Excerpts
AP Chinese Language and Culture	This course in Mandarin Chinese emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in Chinese.
AP French Language and Culture	This course emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in French.
AP German Language and Culture	This course emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in German.
AP Italian Language and Culture	This course emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in Italian.
AP Japanese Language and Culture	This course emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in Japanese.
AP Latin	This course focuses on the in-depth study of selections from two of the greatest works of Latin literature: Vergil's <i>Aeneid</i> and Caesar's <i>Gallic War</i> . Students prepare and translate the reading and place these texts in a meaningful context, which helps develop critical, historical, and literary sensitivities.
AP Spanish Language and Culture	This course emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. The course is taught mostly in Spanish.
AP Spanish Literature and Culture	This course uses a thematic approach to introduce students to representative texts (short stories, novels, poetry, and essays) from Peninsular Spanish, Latin American, and the United States Hispanic literature. This course includes a strong focus on cultural connections and comparisons, including exploration of various media.

Appendix B: How to Offer AP Courses at Your High School³⁴

Obtain a College Board School Code

To participate in AP, your school must have an active six-digit College Board school code. If your school offers AP®, PSAT/NMSQT®, or SAT®, you already have a school code. Use the high school code search³⁵ to look up your code. Schools that need to acquire a code may call (877) 274-6474 to obtain a High School Code Request Form.

Select an AP Coordinator

The AP coordinator assumes primary responsibility for organizing and administering the AP program at your school, and manages the ordering, storing, administering, returning, and purchasing of AP Exam materials. Therefore, choosing the correct person for the role is important.

Who can serve as an AP coordinator?

1. The AP coordinator may be a full- or part-time administrator or counselor, faculty member, or school staff member who is not teaching an AP course.
2. AP teachers cannot serve as AP coordinators.
3. An AP coordinator cannot be involved in the handling of any exam materials that an immediate family or household member may take.

Complete the AP Participation Materials

In September, each school receives AP participation materials sent to the attention of the school's principal. These materials include an *AP Program Guide*, an AP Participation Form, an AP Participation Survey and other information about AP for the upcoming school year. To order AP Exams, the principal and AP coordinator must submit these materials no later than November 15. If AP participation materials have not been received by October, contact AP Services.³⁶

Follow the Seven Step Guide to Implementing an AP Course.³⁷

The seven steps to adding specific AP courses to the school curriculum are:

1. Choose a course and add it to your catalog
2. Select a teacher
3. Recruit and register students
4. Obtain course materials
5. Complete AP course audit requirements
6. Attend AP professional development (teachers and coordinators)
7. Launch the course

³⁴ College Board. (2016). [Offering AP](#)

³⁵ [College Board K-12 School Code Search Engine](#)

³⁶ [AP Services Contacts](#)

³⁷ College Board. (2016). [How to Start an AP Course](#)