

астрономический

Students who took Advanced Placement (AP) examinations

The Advanced Placement (AP) program is associated with a demanding academic curriculum and illustrates the desire of high schools to offer college-level courses to high school students. By participating in the AP program, high school students may acquire college credit for their knowledge of college-level subjects. The number of students per 1,000 12th-graders who participated in AP examinations each year shows the level of importance that students, schools, and colleges place on the AP program and how that importance has changed over time.

- Between 1984 and 1997, the number of students who took AP examinations increased dramatically, rising from 50 to 131 students per 1,000 12th-graders. The number of examinees increased for both sexes and all racial-ethnic groups during this period.
- In 1984, equal proportions of male and female students took AP examinations. Between 1984 and 1997, the number of females who took the examinations rose at a faster rate than did the number of males who took the examinations. In 1997, 145 females compared with 117 males per 1,000 12th-graders took AP examinations.
- In 1997, whites were more likely than blacks or Hispanics to take AP examinations in all subject areas, with the exception of foreign languages. Hispanics were at least three times as likely to take a foreign language AP examination as whites.

Number of U.S. students¹ who took AP examinations (per 1,000 12th-graders), by sex and race-ethnicity: 1984-97

Sex and race-ethnicity	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total²	50	59	64	66	81	88	100	103	109	117	115	125	131	131
Sex														
Male	50	61	65	68	76	86	101	96	102	108	101	111	117	117
Female	50	58	63	65	85	90	98	111	117	127	129	140	144	145
Race-ethnicity														
White	48	60	62	63	82	92	103	107	112	115	116	125	133	132
Black	8	11	12	13	21	20	26	25	26	31	32	37	32	37
Hispanic	24	21	27	30	48	54	54	67	68	80	63	75	74	85

Number of AP examinations¹ taken in the United States and the number of examinations with scores of 3 or higher (per 1,000 12th-graders), by subject area, sex, and race-ethnicity: 1997

Sex and race-ethnicity	Number of AP examinations taken						Number of examinations with scores of 3 or higher					
	Social studies	English	Foreign language	Calculus	Computer science	Science	Social studies	English	Foreign language	Calculus	Computer science	Science
Total²	59	55	17	33	3	35	35	38	12	20	1	23
Sex³												
Male	62	42	13	36	5	41	40	28	9	24	3	28
Female	70	70	23	30	1	34	40	48	17	17	0	20
Race-ethnicity												
White	61	58	12	33	2	34	38	41	7	21	1	22
Black	15	17	3	7	1	8	5	6	1	2	0	2
Hispanic	26	27	41	12	1	12	11	12	36	6	0	5

¹ Includes all participation by 11th- and 12th-graders. See the supplemental note to this indicator for further discussion.

² Included in the total but not shown separately are students from other racial-ethnic groups.

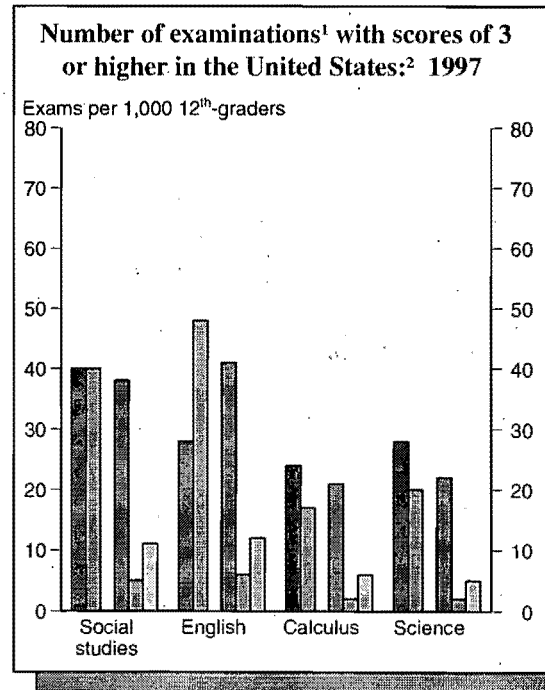
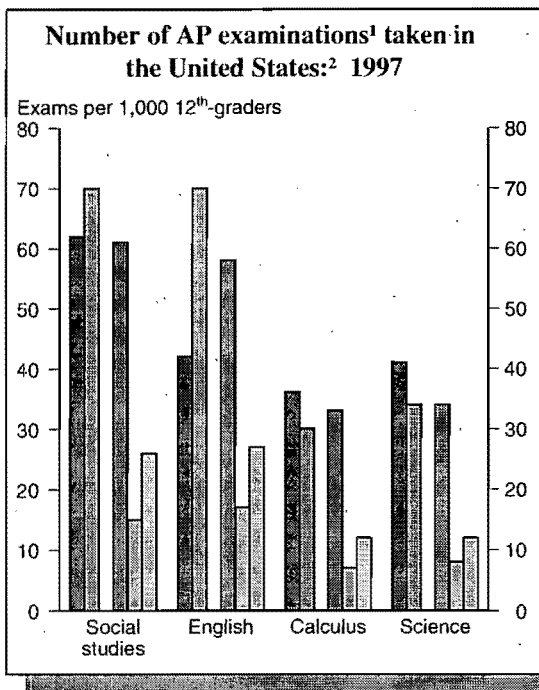
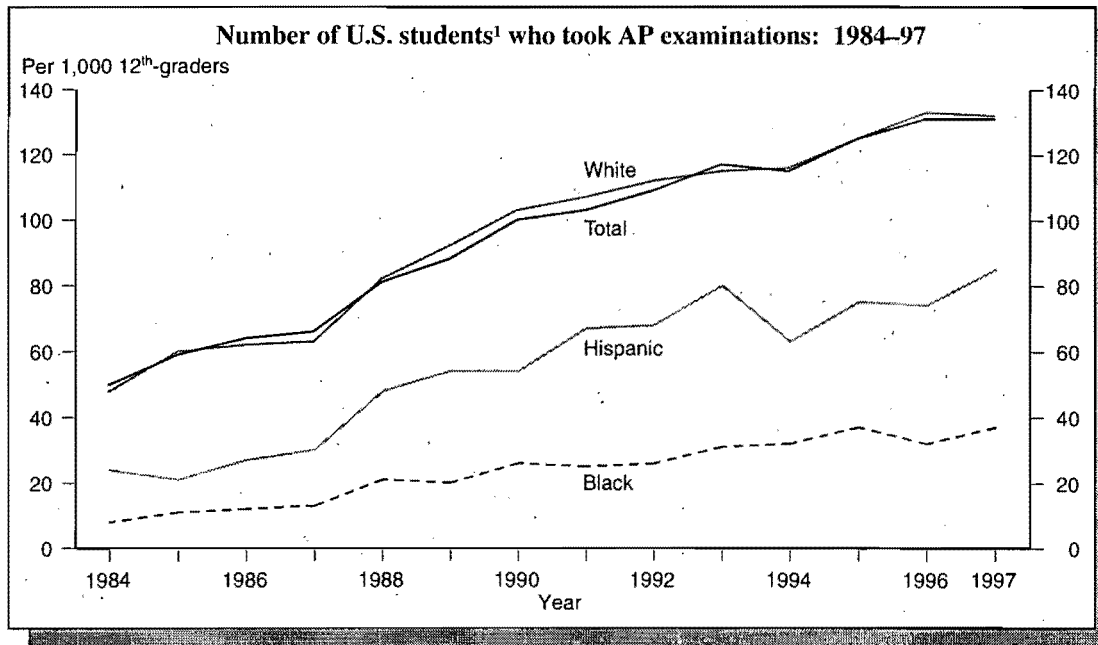
³ The number of examinations taken by males and females includes a small number of examinations taken by 9th-graders, 10th-graders, college students, and others (9 percent of all students who took AP examinations in 1997).

NOTE: Included in this analysis are students who participated in the United States only. Students scoring 3 or higher on an AP examination

usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and a discussion of the calculations for this analysis.

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports* (Copyright © 1984-97 by the College Entrance Examination Board. All rights reserved.). U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Students who took Advanced Placement (AP) examinations



■ Male ■ Female ■ White ■ Black ■ Hispanic

¹ Includes all participation by 11th- and 12th-graders. See the supplemental note to this indicator for further explanation.

² The number of examinations taken by males and females includes a small number of examinations taken by 9th-graders, 10th-graders, college students, and others (9 percent of all students who took AP examinations in 1997).

NOTE: Included in this analysis are students who participated in the United States only. Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates

take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and an explanation of the calculations for this analysis.

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participating schools - 40%

AP schools - ave. # of exams per school:

54% offer @ least 1 per school
if more, ave. = 6

→ makes the fact that there is uneven
distribution

California - promoting access to AP

- Dec. 1

John

Terry Peterson

John Johnson

Students taking Advanced Placement (AP) examinations

Participation in the Advanced Placement (AP) program is associated with a demanding academic curriculum and illustrates the desire of schools, colleges, and universities to offer college-level courses in high school. By participating in the AP program, high school students may acquire college credit for their knowledge of college-level subjects. Measuring the number of students who participated in AP examinations per 1,000 11th- and 12th-grade students each year suggests the level of importance students, schools, and colleges place on the AP program and how that importance has changed over time.

- Between 1984 and 1995, the number of students taking AP examinations increased dramatically, rising from 24 students per 1,000 11th- and 12th-grade students to 66 students per 1,000. The number of examinees increased for both sexes and all racial/ethnic groups during this period.
- In 1984, similar numbers of males and females (per 1,000 11th- and 12th-grade students) took AP examinations. Between 1984 and 1995, the number of females who took the exams (per 1,000 11th- and 12th-grade students) rose at a faster rate than did the number of males who took AP examinations. In 1995, 74 females per 1,000 11th- and 12th-grade female students took the exams, compared to 58 males per 1,000 11th- and 12th-grade male students.
- In 1995, females were more likely to take AP examinations in social studies subjects, English, and foreign language than were their male counterparts, who were slightly more likely to take examinations in calculus and science subjects.
- Whites were both more likely to take exams and to score 3 or higher on a social studies subject, English, calculus, and science subject AP examinations than were blacks or Hispanics.

Number of students who took AP examinations (per 1,000 11th- and 12th-grade students), by sex and race/ethnicity: 1984-95

Sex and race/ethnicity	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total	24	29	33	36	39	44	48	53	57	62	60	66
Sex												
Male	24	29	33	35	38	42	46	51	53	56	53	58
Female	25	29	33	37	40	47	51	56	62	68	68	74
Race/ethnicity												
White	23	29	32	34	40	45	48	54	58	61	60	65
Black	4	5	6	8	9	11	13	15	14	16	14	18
Hispanic	10	14	14	17	22	31	32	32	37	40	34	42

Number of AP examinations taken and the number of examinations with scores of 3 or higher (per 1,000 11th- and 12th-grade students), by subject area, sex, and race/ethnicity: 1995

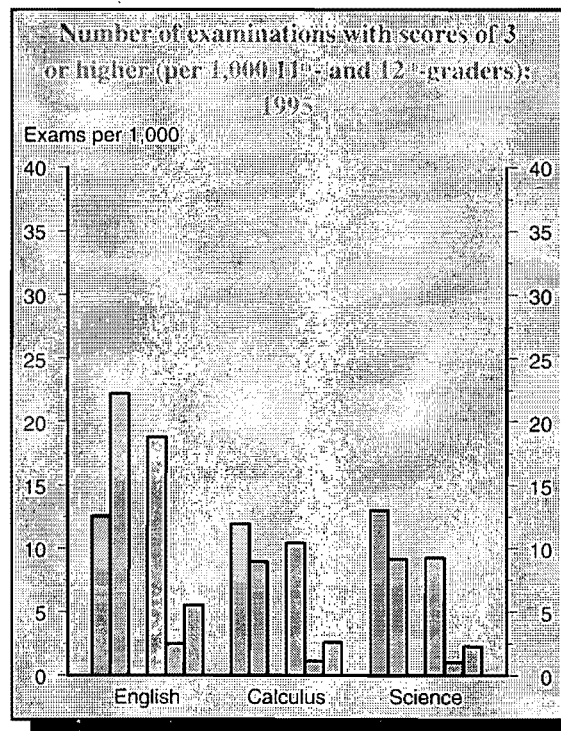
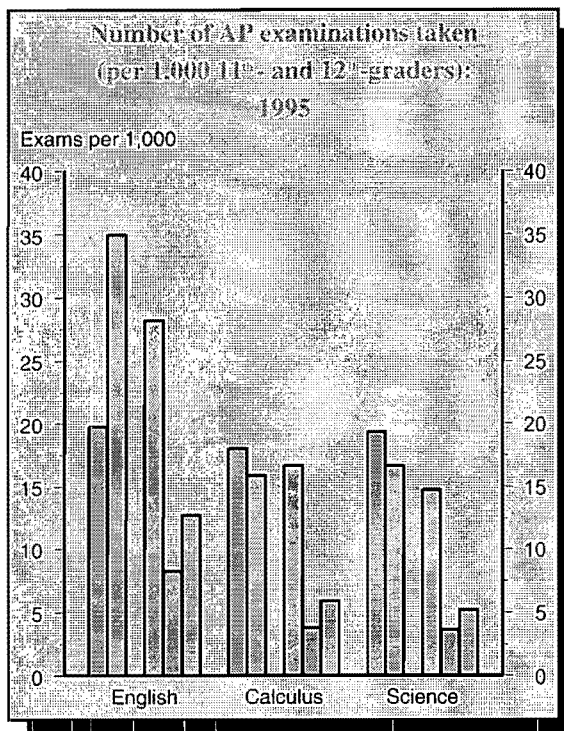
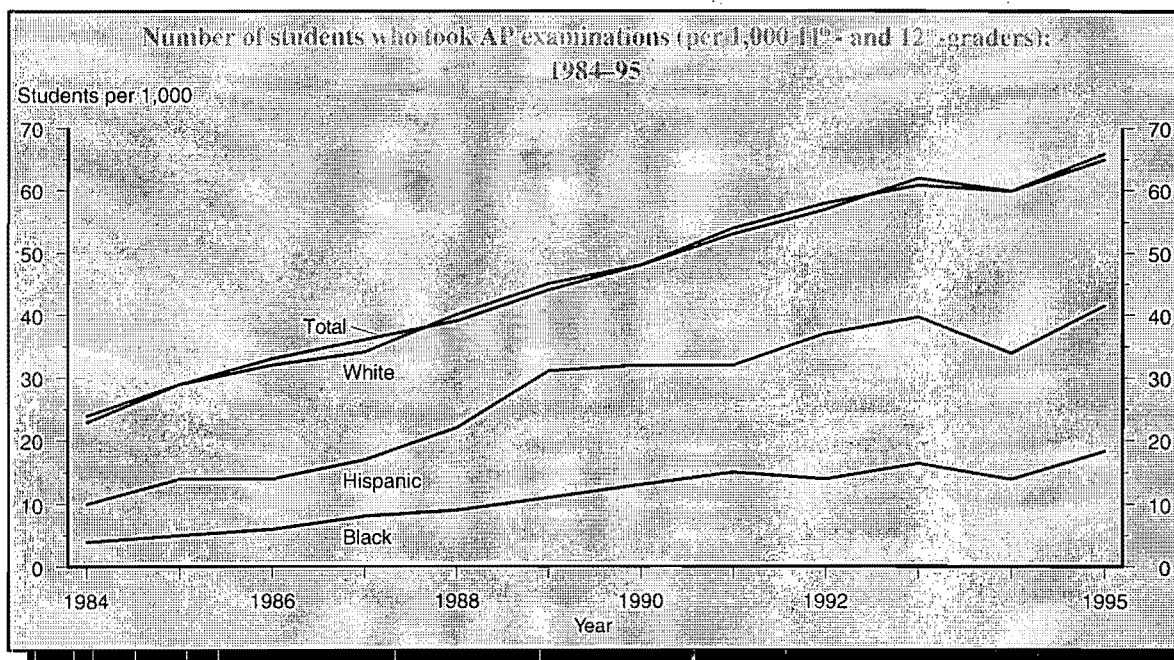
Sex and race/ethnicity	Number of AP examinations taken						Number of examinations with scores of 3 or higher					
	Social studies	English	Foreign language	Calculus	Computer science	Science	Social studies	English	Foreign language	Calculus	Computer science	Science
Total	32	27	9	17	2	18	18	17	6	10	1	11
Sex												
Male	29	20	6	18	1	19	18	13	4	12	1	13
Female	34	35	11	16	0	17	18	22	8	9	0	9
Race/ethnicity												
White	32	28	6	17	1	15	19	19	4	10	1	9
Black	8	8	1	4	0	4	3	3	1	1	0	1
Hispanic	14	13	23	6	1	5	6	6	21	3	0	2

NOTE: Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and a discussion of the calculations for this analysis. Analysis includes a small number of college students

who took the exams (2 percent of all candidates in 1995).

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports*, various years (Copyright © 1996 by the College Entrance Examination Board. All rights reserved.). U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Student participation in AP examinations



■ Male ■ Female ■ White ■ Black ■ Hispanic

NOTE: Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and a discussion of the calculations for this analysis. Analysis includes a small number of college students who took the exams (2 percent of all candidates in 1995).

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Note to Indicator 25: Advanced Placement examinations

The Advanced Placement (AP) examinations are offered to high school students annually to give them an opportunity to demonstrate college-level achievement. Although students who have not studied extensively beyond the normal secondary school level are not advised to take these examinations, the AP program is open to all students. Most high school students take the examinations voluntarily; however, several states have legislation that supports and encourages participation in the AP program.

In this analysis, the number of students who took AP examinations and the number of examinations taken by these students were compared to 1,000 11th- and 12th-grade students, as defined by the October Supplement to the Current Population Survey (CPS). Data from the CPS include both public and private schools. This methodology differs somewhat from the methodology shown in *The National Education Goals Report, 1995*, which calculated enrollment figures based on the Common Core of Data (CCD). The CCD does not include data from private schools. Consequently, to produce private school enrollment data, the public school figures in the *Goals Report* were multiplied by a private school enrollment adjustment factor. As a result, data shown in this analysis are not directly comparable to data found in the *Goals Report*.

Subject definitions

The following are the specific subjects that comprise the AP examination subject areas presented in this analysis:

Social studies	U.S. History, European History, U.S. Government and Politics, Comparative Government and Politics, and Psychology;
English	English Language and Composition, and English Literature and Composition;
Foreign language	French Language, French Literature, German Language, Latin/Virgil, Latin Literature, Spanish Language, and Spanish Literature;
Calculus	Calculus AB and Calculus BC;
Computer science	Computer Science A and Computer Science AB; and

Science

Biology, Chemistry, Physics A, Physics B (mechanical), and Physics C (electricity and magnetism).

Examinations

Most of the AP examinations contain multiple choice and free-response sections. The examinations are graded based on scores from both types of responses. The program's examinations are criterion-referenced not normed-referenced, with cut scores established at five different points along these scales to designate a grade of 5, 4, 3, 2, or 1 (grade of 5: extremely well qualified; grade of 4: well qualified; grade of 3: qualified; grade of 2: possibly qualified; and grade of 1: no recommendation). The grades are determined by the chief readers who rely on their subject matter expertise, statistical equating data, and data from comparability studies. Cut scores frequently vary from year to year for each examination, reflecting changes in the level of exam difficulty. Therefore, the College Board does not recommend the use of grade data for trend analysis. Grades of 3 and above are usually accepted for college credit and advanced placement at participating colleges and universities, although credit varies among institutions. Descriptions of the AP examinations for these various subject areas are provided below.

Biology: A 3-hour examination on a college full-year introduction to biology: 90 minutes of multiple-choice questions, 90 minutes of selected problems, short essays, and chemical reactions.

Chemistry: A 3-hour examination on a college full-year introduction to chemistry: 90 minutes of multiple-choice questions and 90 minutes of selected problems, short essays, and chemical reactions.

Computer Science: Two examinations: Computer Science A (75 minutes of multiple-choice questions, 105 minutes of free-response questions), a college first-semester introduction to Computer Science (programming, methodology, programming in Pascal including recursion, data structures not including pointers, applications), and Computer Science AB (75 minutes of multiple-choice questions, 105 minutes of free-response questions), a college full-year introduction to Computer Science (programming methodology, programming in Pascal, algorithms, data structures). The Computer Science AB examinations no longer include a separa-

rate grade report for the Computer Science A examination.

English: Two 180-minute examinations: English Language and Composition, and English Literature and Composition. Each examination covers a college full-year introductory English course. Both are 60 minutes of multiple-choice questions and 120 minutes of free-response questions. Candidates may take either or both examinations.

French: Two examinations, one on each of two college third-year courses: French Language (80–95 minutes of multiple-choice questions on listening and reading and 55–70 minutes of free-response writing and speaking); and French Literature (80–95 minutes of multiple-choice questions on literary passages, 35–50 minutes on one or more required works, and a 35–50 minute analysis of a presented text from the required reading list). Candidates may take either or both examinations.

German: A 3-hour examination on a college third-year German Language course: 110 minutes of multiple-choice questions on listening and reading and 70 minutes of free-response writing and speaking.

Government and Politics: Two 120-minute examinations (45 minutes of multiple-choice questions and 75 minutes of free-response questions) on each of two single-semester introductory college courses on government and politics: comparative and United States. Candidates may take either or both examinations.

History, European: A 3-hour examination on a college full-year introduction to European history in its global context from c. 1450 through 1970: 60–90 minutes of multiple-choice questions, a 15-minute reading period, a 30–50 minute exercise on the use of historical evidence, and one 40–60 minute essay chosen from several offered.

History, United States: A 3-hour examination on a college full-year introduction to United States history from colonial times to the present: 60–90 minutes of multiple-choice questions, a 15-minute reading period, a 30–50 minute exercise on the use of historical evidence, and a 40–60 minute selected essay.

Latin: Two 2-hour examinations on college middle-level Latin courses (Virgil and Catullus–Horace): each has 40–55 minutes of multiple-choice questions on Latin sight reading (common to both examinations) and 65–80 minutes of brief essays on required reading. Candidates may take either or both examinations.

Mathematics: Two 3-hour examinations, one on each of two college full-year mathematics courses: Calculus AB (introductory differential and integral calculus) and Calculus BC (extending one semester beyond AB and including advanced topics in integral calculus and sequences and series). Each examination has a 90-minute multiple-choice section and a 90 minute free-response section. A scientific, nonprogrammable, nongraphing calculator is required for each examination. Candidates may take only one examination.

Physics: Three examinations: Physics B, a 3-hour examination (half multiple-choice questions, half free-response questions) covering a college full-year, non-calculus course on general physics; Physics C (Mechanics); and Physics C (Electricity and Magnetism): two 90-minute examinations (half multiple-choice questions, half free-response questions) on each of two college semesters of introductory physics with calculus. Candidates may take either Physics B or C, not both.

Psychology: A 2-hour examination on a college one-semester introduction to psychology: a 75 minute free-response section consisting of two mandatory questions.

Spanish: Two examinations, one on each of two college third-year Spanish courses: Spanish Language (90 minutes of multiple-choice questions on listening comprehension, vocabulary, structure, and reading comprehension and 75–85 minutes of free-response writing and speaking); and Spanish literature (80 minutes of multiple-choice questions on listening comprehension, reading comprehension, and literary analysis, and 100 minutes of free-response essays on required authors and poetry analysis). Candidates may take either or both examinations.

SOURCE: The College Board, *A Guide to the Advanced Placement Program*, 1992.

Table 25-1 Number of participants in the AP program, by schools, candidates, examinations, colleges, candidates per school, examinations per candidate, and candidates per college: 1956-96

Year	Secondary schools	Candidates	Examinations	Colleges	Candidates per secondary school	Exams per candidate	Candidates per college
1956	104	1,229	2,199	130	11.8	1.8	9.5
1957	212	2,068	3,772	201	9.8	1.8	10.3
1958	355	3,715	6,800	279	10.5	1.8	13.3
1959	560	5,862	8,265	391	10.5	1.4	15.0
1960	890	10,531	14,158	567	11.8	1.3	18.6
1961	1,126	13,283	17,603	617	11.8	1.3	21.5
1962	1,358	16,255	21,451	683	12.0	1.3	23.8
1963	1,681	21,769	28,762	765	13.0	1.3	28.5
1964	2,086	28,874	37,829	888	13.8	1.3	32.5
1965	2,369	34,278	45,110	994	14.5	1.3	34.5
1966	2,518	38,178	50,104	1,076	15.2	1.3	35.5
1967	2,746	42,383	54,812	1,133	15.4	1.3	37.4
1968	2,863	46,917	60,674	1,193	16.4	1.3	39.3
1969	3,095	53,363	69,418	1,288	17.2	1.3	41.4
1970	3,186	55,442	71,495	1,368	17.4	1.3	40.5
1971	3,342	57,850	74,409	1,382	17.3	1.3	41.9
1972	3,397	58,828	75,199	1,483	17.3	1.3	39.7
1973	3,240	54,778	70,651	1,437	16.9	1.3	38.1
1974	3,357	60,863	79,036	1,507	18.1	1.3	40.4
1975	3,498	65,635	85,786	1,517	18.8	1.3	43.3
1976	3,937	75,651	98,898	1,580	19.2	1.3	47.9
1977	4,079	82,728	108,870	1,672	20.3	1.3	49.5
1978	4,323	93,313	122,561	1,735	21.6	1.3	53.8
1979	4,585	106,052	139,544	1,795	23.1	1.3	59.1
1980	4,950	119,918	160,214	1,868	24.2	1.3	64.2
1981	5,253	133,702	178,159	1,955	25.5	1.3	68.4
1982	5,525	141,626	188,933	1,976	25.6	1.3	71.7
1983	5,827	157,973	211,160	2,130	27.1	1.3	74.2
1984	6,273	177,406	239,666	2,153	28.3	1.4	82.4
1985	6,720	205,650	280,972	2,170	30.6	1.4	94.8
1986	7,201	231,378	319,224	2,125	32.1	1.4	108.9
1987	7,776	262,081	369,207	2,197	33.7	1.4	119.3
1988	8,247	292,164	424,844	2,184	35.4	1.5	133.8
1989	8,768	314,686	463,664	2,256	35.9	1.5	139.5
1990	9,292	330,080	490,299	2,537	35.5	1.5	130.1
1991	9,786	359,122	535,191	2,587	36.7	1.5	138.8
1992	10,191	378,692	566,036	2,722	37.2	1.5	139.1
1993	10,594	413,939	623,933	2,825	39.1	1.5	146.5
1994	10,863	447,972	684,449	2,823	41.2	1.5	158.7
1995	11,274	493,263	767,881	2,875	43.8	1.6	171.6
1996	11,712	525,072	824,329	2,895	44.8	1.6	181.4

SOURCE: The College Board, Advanced Placement Program, *Statistical Tables 1995-96* and *National Summary Reports*, various years (Copyright © 1996 by the College Entrance Examination Board. All rights reserved.).

**Number of students who took AP examinations (per 1,000 11th- and 12th-grade students),
by sex and race/ethnicity: 1984-95**

Sex and race/ethnicity	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total	24	29	33	36	39	44	48	53	57	62	60	66
Sex												
Male	24	29	33	35	38	42	46	51	53	56	53	58
Female	25	29	33	37	40	47	51	56	62	68	68	74
Race/ethnicity												
White	23	29	32	34	40	45	48	54	58	61	60	65
Black	4	5	6	8	9	11	13	15	14	16	14	18
Hispanic	10	14	14	17	22	31	32	32	37	40	34	42

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports*, various years (Copyright © 1996 by the College Entrance Examination Board. All rights reserved.). U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Number of AP examinations taken and the number of examinations with scores of 3 or higher (per 1,000 11th- and 12th-grade students), by subject area, sex, and race/ethnicity: 1995

Sex and race/ethnicity	Number of AP examinations taken						Number of examinations with scores of 3 or higher					
	Social studies	English	Foreign language	Calculus	Computer science	Science	Social studies	English	Foreign language	Calculus	Computer science	Science
Total	32	27	9	17	2	18	18	17	6	10	1	11
Sex												
Male	29	20	6	18	1	19	18	13	4	12	1	13
Female	34	35	11	16	0	17	18	22	8	9	0	9
Race/ethnicity												
White	32	28	6	17	1	15	19	19	4	10	1	9
Black	8	8	1	4	0	4	3	3	1	1	0	1
Hispanic	14	13	23	6	1	5	6	6	21	3	0	2

NOTE: Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and a discussion of the calculations for this analysis. Analysis includes a small number college students who took the exams (2 percent of all candidates in 1995).

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**Advanced
Placement
Program®**



Introduction to the Advanced Placement Program

The Advanced Placement (AP®) Program consists of 32 college-level courses and exams in 19 disciplines for highly motivated students in secondary schools. Its exceptional reputation is made possible by the close cooperation of secondary schools, colleges, and the College Board. Students report that they enjoy the challenge of the Program, high school faculty find that AP courses greatly enhance students' confidence and academic interest, and college faculty find that these students are far better prepared for serious academic work.

AP courses are offered in more than 11,700 high schools in every state in the United States, every province and territory in Canada, and 63 other countries. They are recognized by nearly 2,900 universities throughout the world which grant credit, advanced placement, or both, to students who have performed satisfactorily on AP Exams. Approximately 1,400 institutions will grant sophomore standing to students who have demonstrated their competence in three or more of these exams.

The AP Program provides course descriptions and teaching materials as well as exams based on those descriptions. It does not, however, dictate the textbook, schedule of lessons, or teaching techniques. Students' exam grades are sent to the colleges of their choice, which then grant credit, advanced placement, or both, depending on institutional policies. Further information about the AP Program can be obtained from any regional office of the College Board or from the national office in New York.

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Classrooms Without Walls More students are taking college courses online

Pamela Burdman, Chronicle Staff Writer



When the University of Colorado at Denver put courses online to boost its adult education program last year, almost 80 percent of those who enrolled turned out to be on-campus undergraduates who preferred the convenience of logging on at midnight to waking up for an 8 a.m. lecture.

It wasn't what officials expected, but it may have been a glimpse of their future. All across the country, going to college is acquiring a whole new meaning as higher education undergoes a virtual transformation, one that some predict will make traditional campuses the dinosaurs of the digital age.

Unrestricted by physical location or summer breaks, the cyber classes have captured the imagination of college leaders and public officials seeking to educate more students for less money. Even corporate executives are eyeing a piece of the higher-education market, worth several hundred billion dollars a year.

But critics are questioning the very premise that more high-tech is better when it comes to education. They worry that colleges are forgetting the merits of a traditional college education in favor of simply dispensing information and churning out degrees. How, they ask, will virtual colleges help students learn how to interact with others and become good citizens?

"This step in the electronic direction is . . . a depersonalizing of education," said Ed Condren, a Chaucer scholar at UCLA. "It suggests that facts or degrees make one an educated person -- instead of considered thought."

Distance learning has been around for years,

Monday, July 20, 98

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[Tales from "The Pearly](#)

Distance learning has been around for years, through correspondence courses, satellite television and CD-ROMs. Many, perhaps most, college classes already use e-mail communication and Web sites with multimedia teaching tools.

But virtual classrooms go a big step further, completely replacing face-to-face sessions with online lectures, reading assignments and discussion groups. Some of them are self-paced, but often groups of students proceed through assignments on roughly the same schedule. That allows for continuous, though asynchronous, classroom discussion.

One of the pioneers of this approach to learning is the for-profit University of Phoenix, with online headquarters in San Francisco and nearly 4,000 students in virtual classes. Students are also taking entire courses online at many of the nation's traditional institutions of higher learning.

California schools are among those moving most aggressively into the new domain, through alliances with high-tech corporations. And they are proceeding so quickly that experts can only speculate about how many students are taking courses online.

-- At UC Berkeley Extension, about 1,300 students are taking courses via America Online, and Dean Mary Metz says the school hopes to have enrolled a total of 5,000 by the end of next year.

-- At UCLA, about 750 students were enrolled in about 220 extension courses this spring through the Home Education Network, which was recently renamed OnlineLearning.Net. According to President John Kobara, the company has the rights to put all 4,500 UCLA Extension courses on the Internet, though some faculty members dispute that.

-- At Golden Gate University in San Francisco, 600 students are taking 30 summer courses through the school's CyberCampus. Golden Gate has used the services of two Bay Area companies -- Convene and Well-Engaged -- to deliver the courses. Before long, speculates Provost Chris Lefferts, half of the university's students could be in cyberspace.

ACCREDITED PROGRAMS

Tales from "The Pearly Gates of Cyberspace"

online learning
"...a cyber class will not provide me an education similar as the one I get when I enter a classroom. The interaction among students and teachers create a synergy that cannot happen over the net."

--join the discussion in:
the Changes in
Education & Adult
learning topic

"Do we have any
more notepads?"
"These staples
are too small."
"Can you order
more paper?"

The Western Association of Schools and Colleges has already accredited 30 virtual degree programs on the West Coast, including a doctoral program in Transformative Learning and Change at the California Institute of Integral Studies and a master's program in nursing leadership at Sonoma State University.

Most of those courses are available via the California Virtual University, an electronic catalog of online courses at 89 accredited schools throughout the state. CVU was started by Governor Pete Wilson to promote virtual education by bringing the state's world-class universities together with leading high-tech and entertainment companies.

CVU was designed to compete for students with the Western Governors' University; an institution formed by 17 other states and Guam. But there is one big difference: WGU will grant degrees, while the California program works as an information bank to help students locate courses and degree programs in the state that are offered online.

Both CVU and WGU were touted as ways to teach more students with less money. But so far the cost savings are theoretical at best.

Colleges typically don't even know how much money they are spending on information technology, said Christopher Oberg of the Claremont Graduate University, a former college administrator. "We are loath to find out what it costs, because we fear the answer will make us look silly," he said.

A study by the Rand Corporation concluded that colleges could trim costs by replacing faculty with technology, but author David McArthur said most schools are reluctant to do that because they're trying to prove the online medium works through more teacher contact, not less. Designing courses on the Web is also more expensive -- anywhere from \$20,000 to \$3 million per course.

"Distance learning is a wildfire," said Michael Lambert of the Distance Education and Training Council. "It's going to cost three times as much if you continue along this current track."

TEACHER-STUDENT INTERACTION

Most experts on the new techniques insist that,

done right, online learning involves more, not less, teacher-student interaction than traditional classes -- the very reason why it's not necessarily cheaper.

"It's much more work," said Golden Gate University Associate Dean Mary Canning, who teaches a course in taxation online. "My students have to e-mail their assignments to me on a weekly basis, then I mail back comments on their assignments. In the classroom, I can tell by their faces when I'm losing somebody."

Linda Harisim, a professor at Simon Fraser University in Vancouver and director of a study of distance learning methods throughout Canada, reports that students actually participate more online.

That's because in traditional classrooms, the professor uses 80 percent of the allotted time and a handful of students dominate the rest, said Harisim. Online courses, on the other hand, allow more participation by students who are shy, speak a foreign language or are slow to formulate their ideas.

Harisim worked with a group of graduate students who actually preferred the virtual classroom to the real thing. "They said they got to know one another better," she recalled. "They said it was a meeting of minds: They got to know what everyone was thinking."

While traditionalists insist that the best learning can only happen in a classroom, Harisim said even poor online classes may be no worse than large lecture courses in which students never so much as look a professor in the eye.

Whether particular programs are up to snuff ultimately will be decided by accreditors. But Steven Crow of the North Central Association of Colleges and Schools, an accrediting association in Chicago, said accreditors generally accept the premise of online education.

"I'm not particularly concerned about the quality of learning that can be delivered through the Internet any more than I'm concerned about the quality delivered through sending out CD-ROMs or videotapes, and those things have been going on for a long time," he said.

Research to date suggests that Crow has good reason to be optimistic. "In study after study," said Langdon Winner of Rensselaer Polytechnic

Institute in New York. "What is found is that some students do a little better, some students do a little worse, and for the rest there is no significant difference."

EXPANDING ACCESS

Most experts say the real virtue of the virtual classroom lies not in cutting costs, but in expanding access to a college-age population that over the next decade will increase by 3 million students nationwide, including nearly half a million in California.

Joe Rodota, Wilson's deputy chief of staff, said it is still unclear how many of those "Tidal Wave II" students the state can realistically educate online. "A significant portion of those enrollments will be addressed through distance education," he said, "but the definition of significant is yet to be known."

Despite the uncertainties, many governors seem confident that the public's money is better spent creating virtual colleges than building campuses.

In a recent survey by the Education Commission of the States, a majority of governors said they place a high value on technologies that let students take classes any time, anywhere. Few stressed the need for students to have a traditional on-campus experience.

Of 35 governors who responded to the survey, 34 said technology is their first-choice strategy for improving access to a college education.

This thinking is already beginning to play out:

CSU's newest campus, on the old Fort Ord site in Monterey Bay, has plans to enroll a majority of its projected 25,000 students online. And though UC is planning a 10th campus, in Merced, that campus is being designed with cyber-age technologies in mind.

Such stories leave some professors suspicious that the move toward electronic learning is a thinly veiled way to automate education, turn courses into widgets and lay off faculty members. At the very least, they say, these plans for undergraduates seem inconsistent with the oft-stated purpose of virtual classrooms: to reach those adults who can't spare the time from work or family to visit a college campus.

TRADITIONALISTS' ARGUMENT

In interview after interview, students, teachers and parents said that going to college with live professors is an option that shouldn't go away.

"We don't like edutainment or Socrates with a soundtrack," said Maria Quintero, who just finished her junior year at Pomona College. "We want flesh-and-blood professors -- people to inspire us, to infuriate us, to motivate us."

Though fewer of today's college students are 18- to 24-year-olds, the idea of those students going to school online gives pause even to fans of the virtual campus.

Cathy Frey, 40, of Gualala, a student at Golden Gate's CyberCampus, is a case in point. Because she lives two hours from the nearest college campus, the Internet made it possible for her to pursue a master's degree -- and made her a devotee of virtual learning.

But she didn't even consider that option when her 18-year-old daughter was looking into colleges.

"An 18-year-old needs that feeling of campus life and what it's like to go to college," said Frey. "If everything is online, they don't have a chance to broaden their horizons."

Even cyber enthusiasts say the medium has its limits. "I wouldn't want to teach an acting class over the Web," said Lefferts of Golden Gate University. "I would not want to teach crisis-intervention skills over the Web."

Added Michael Lambert of the Distance Education and Training Council: "The adult learner loves it, but I have three sons, and I would not want them to be distance learners."

Few believe that campuses will be discarded altogether, and most experts think the college education of the future will include some combination of online and on-campus instruction.

"As a parent, I think we'll always have campuses," said Sally Johnstone of the Western Interstate Commission for Higher Education in Colorado. "We have to send these children away. There's more that goes on at a campus than listening to a faculty member."

"But I would question whether 10, 15 years

from now it will be the norm that a kid goes to a campus for four or five years. What's so magical about that?"

HOW ONLINE COURSES WORK

1. SELECT A SCHOOL

CHOICES: California schools

are among those moving most aggressively into the online domain

-- there are 63 California community colleges offering courses

online.

For a breakdown by course subjects, schools and

degrees offered in California, visit California Virtual University

online at <http://www.california.edu/>

BUYER BEWARE: To avoid

"diploma mills" operating under false pretenses in the United

States, prospective students should seek out schools that are

accredited by a regional accrediting agency recognized by the

Department of Education. The Web site <http://www.degree.net>

offers guidelines for selecting a quality school.

Also note that some online schools have names similar to those of

prestigious universities but have no affiliation whatsoever.

2. APPLY, ENROLL, PAY TUITION

PAYMENT: Usually classes

can be paid for by phone, mail, in person at the campus cashier's

office or by credit card online. In some courses, financial

aid is available.

COMPUTER REQUIREMENTS: Many online courses

have specific computer system, modem speed and software requirements.

RESIDENCY: Nonresidents of California pay more for tuition

at traditional state universities. If online classes are part

of that education, they pay more for those classes. Some schools,

however, such as Golden Gate University, don't have residency

requirements.

3. SELECT CLASSES

TYPE OF CLASSES: Typically,

"hands-on" classes (such as biology, which requires lab time)

are not offered online. Technology, business, science and math

classes are most common among state schools.

SIZE LIMITS:

At a traditional school, the number of students is limited by

the physical size of the classroom. Online classes are limited

by the number of students that an instructor can "attend to."

For example, Golden Gate University's CyberCampus classes are

sometimes broken into smaller groups.

4. LESSONS

TYPICAL LESSON SCREEN: At lower right is what students typically might

see when taking an online class. They can click

on folders and

files to read lectures and open assignments.
Teachers of traditional

classes may also put lessons online for students
who missed

class.

ONLINE LESSONS: Rather than taking notes
while a

lecturer speaks, students in online classes read
lectures at

their own pace. However, since there are no
structured classes

online, courses may require more self-discipline.
(CyberCampus

offers a demo course at
<http://cybercampus.ggu.edu>)

5. STUDY AIDS

BOOKS: Books

required for online courses can often be ordered
over the Internet.

LIBRARY: Some online universities have
online "libraries"

-- Internet links to campus libraries or to other
course-related

Web sites recommended by the teacher.

Some schools already

have curricula organized so students never have
to leave a school's

"site." They just click on existing icons.

6. INTERACTION WITH TEACHERS AND FELLOW STUDENTS

E-MAIL: Questions

or comments can be directed to specific people
or groups.

BULLETIN BOARDS: At CyberCampus, posting questions and answers

on an online bulletin board is often preferred over e-mail.

This may allow more time to craft specific questions, and it

allows all students to see the answers.

CHAT ROOMS: Students

can join other students and the teacher in a "real time" chat

room to discuss lectures and assignments. This may be less intimidating

for shy students than a traditional atmosphere. Some online

teachers make chats count for a certain percentage of the overall

grade.

7. COMPLETING ASSIGNMENTS AND TESTS

How can a university prove that it's you taking a test and

not a hired friend who's an expert on the subject? Most online

schools require some tests (or at least the final exam) to be

taken at an agreed-upon location under the supervision of a

campus-approved proctor. At CyberCampus, tests are supervised,

students must show identification, and the proctor sends the

finished exam back to the teacher via certified mail.

8. GRADUATION OR COURSE COMPLETION OR CERTIFICATION

VARIETY: Some traditional schools only offer

a few, select online

classes that are taken in conjunction with
traditional classes

on campus. Others offer only extension classes.
Still others

offer complete doctoral degree programs.

TRANSFERS: As

with traditional schools, some credits for online
classes may

not transfer to other institutions. Credits are
more likely

to transfer, however, among schools originating
in the same

state and having the same accreditation.

Sources: California

Virtual University, Golden Gate University,
Convencione Distance

Education and Training

Graphic and research by Joe Shoulak /The
Chronicle

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Chronicle Sections



GO

Golden Gate

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Support for federal AP fee assistance is bipartisan.

- Both Republicans and Democrats support federal AP fee assistance. Providing low-income students with the tools they need to succeed in college transcends political party affiliation. Among the program's most ardent supporters are Sen. Jeff Bingaman (D-NM), Rep. Duke Cunningham (R-CA), and Sen. Kay Bailey Hutchison (R-TX).

Federal assistance allows for outreach efforts to low-income students and schools.

- Once a State has reduced the AP exam fee to a level where no low-income student in that State is required to pay more than a nominal fee, the law allows States to use any remaining federal funds to undertake activities directly related to:
 - enrolling more low-income students in AP courses;
 - increasing the participation of low-income students who take AP exams; and
 - make AP courses more widely available in schools serving high-poverty areas.

Fee reductions result in greater participation.

- Texas provides an example of a State improving its educational system with a comparatively small portion of its education budget allocated for AP fee reductions and professional development. The Texas Incentive Program (TIP) was created in 1994 at a time when the State administered only about 34,000 AP exams. Over the next four years, however, the number of AP exams given in Texas increased to more than 74,500 -- a 120% increase.
- In 1997, about 9,300 low-income students in Texas took AP exams. This number is expected to grow dramatically in 1999 as a result of the \$300,000 grant Texas received through the AP Incentive Program in FY98. When added to the State's TIP program, this funding will allow low-income students in Texas to take AP exams free-of-charge this May.

The College Board already has its own fee reduction policy for low-income students, but federal assistance is needed to meet the high demand.

- Between 1987 and 1998, the College Board increased the amount of money it spends on fee reductions for low-income students by more than 500% (for a total of \$1.6 million in 1998).
- Over that same time period, the number of low-income students using the fee reduction increased by more than 300%. The College Board plans to increase its allocation for fee reductions to \$1.9 million in 1999, but -- without federal assistance -- many low-income students will still not be able to pay the reduced fee.

AP is recognized as a proven program exposing students to academically rigorous coursework and challenging standards.

- In 1998, over 635,000 students took more than one million AP exams in 32 different subject areas. Of the nation's 21,000 high schools, almost 12,000 currently offer at least one AP course. The average high school offers six AP courses and administers about 80 exams annually (rising at a rate of five per year).
- More than 90% of US colleges and universities have an AP policy granting incoming students academic credit and/or placement for qualifying grades on AP exams.
- About 50% of American colleges and universities allow incoming students to enter as Sophomores based on a sufficient number of qualifying AP grades.

**CONGRESS SHOULD APPROPRIATE \$20 MILLION FOR THE AP INCENTIVE
PROGRAM TO MEET THE DEMAND OF LOW-INCOME STUDENTS!**



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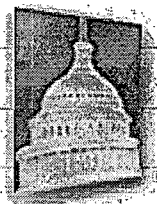


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Federal Support For The Advanced Placement Program® (AP®)

Incentive Program Helps Low-income Students!

Background: The College Board established the Advanced Placement Program in 1955 to challenge high school students with rigorous college-level academic courses. At the end of an AP course, students have the option of taking AP exams to earn college credit while they are still in high school. Students from low-income families often have difficulty in paying the exam fees without financial assistance.

Since FY98, Congress has addressed this need by providing funding to waive part or all of the cost of taking AP exams for low-income students through the "Advanced Placement Incentive Program." Low-income is defined as those students who are at 150% of the Census Bureau's poverty guidelines.

Congress appropriated \$4 million for the fee assistance program in FY99. Those funds will be awarded in May 1999. **The College Board urges Congress to increase funding for the AP Incentive Program to \$20 million in FY2000.** This is the amount requested by the President in his FY2000 budget request, and would ensure that low-income students have the same educational opportunity as other students. Further, the AP program's insistence upon high standards and academic rigor fits perfectly with Congressional demands for a results-oriented approach to its investment in education.

Fee reductions provide opportunity for low-income students.

- Data show that in 1998 about 78,000 fee-reduced AP exams were administered. This comprised about 8% of all AP exams taken. Fee-reduced exams are expected to increase to 10% of all exams administered in 1999 as a result of the \$3 million appropriated in FY98, and to 12% of all exams in 2000 as a result of the \$4 million appropriated in FY99. Continued and increased funding for the AP Incentive Program in FY2000 will allow this upward trend of low-income participation to continue.
- In both 1997 and 1998, over 50% of the fee reduced students scored 3.0 or better (out of a possible 5.0), which is high enough to earn college credit at many colleges and universities.
- The AP program is growing at a rate of 10%-15% each year with respect to low-income student participation.

Federal support has a major impact at the State level.

- As a result of the \$3 million appropriated to the 32 States that applied for assistance in FY98, 23 States will be able to offer AP exams to low-income students free-of-charge this May. The other nine States will offer the exams at drastically reduced rates. Of the 23 States that can now offer the exams for free, 19 of them had no pre-existing fee reduction policies at the State level -- the federal assistance alone made it possible.
- The law requires that federal AP fee assistance must "supplement not supplant" State efforts to assist low-income students. This allows States to offer even greater discounts for low-income students and/or fee reductions for more students.

1998 Amendments to Higher Education Act of 1965

P.L. 105-244

PART B--ADVANCED PLACEMENT INCENTIVE PROGRAM

SEC. 810. ADVANCED PLACEMENT INCENTIVE PROGRAM.

(a) **PROGRAM ESTABLISHED-** The Secretary of Education is authorized to make grants to States having applications approved under subsection (c) to enable the States to reimburse low-income individuals to cover part or all of the cost of advanced placement test fees, if the low-income individuals--

- (1) are enrolled in an advanced placement class; and
- (2) plan to take an advanced placement test.

(b) **INFORMATION DISSEMINATION-** The State educational agency shall disseminate information regarding the availability of test fee payments under this section to eligible individuals through secondary school teachers and guidance counselors.

(c) **REQUIREMENTS FOR APPROVAL OF APPLICATIONS-** In approving applications for grants the Secretary of Education shall--

- (1) require that each such application contain a description of the advanced placement test fees the State will pay on behalf of individual students;
- (2) require an assurance that any funds received under this section, other than funds used in accordance with subsection (d), shall be used only to pay advanced placement test fees;
- (3) contain such information as the Secretary may require to demonstrate that the State will ensure that a student is eligible for payments under this section, including the documentation required by chapter 1 of subpart 2 of part A of title IV of the Higher Education Act of 1965 (20 U.S.C. 1070a-11 et seq.); and
- (4) consider the number of children eligible to be counted under section 1124(c) of the Elementary and Secondary Education Act of 1965 in the State in relation to the number of such children in all the States in determining grant award amounts.

(d) FUNDING RULES-

(1) **USE OF FUNDS-** A State educational agency in a State in which no eligible low-income individual is required to pay more than a nominal fee to take advanced placement tests in core subjects may use any grant funds provided to that State educational agency, that remain after fees have been paid on behalf of all eligible low-income individuals, for activities directly related to increasing--

- (A) the enrollment of low-income individuals in advanced placement courses;
- (B) the participation of low-income individuals in advanced placement tests; and
- (C) the availability of advanced placement courses in schools serving high poverty areas.

(2) **SUPPLEMENT, NOT SUPPLANT, RULE-** Funds provided under this section shall supplement and not supplant other non-Federal funds that are available to assist low-income individuals in paying advanced placement test fees.

(e) REGULATIONS- The Secretary of Education shall prescribe such regulations as are necessary to carry out this section.

(f) REPORT- Each State annually shall report to the Secretary of Education regarding--

(1) the number of low-income individuals in the State who receive assistance under this section; and

(2) the activities described in subsection (d)(1), if applicable.

(g) DEFINITION- In this section:

(1) ADVANCED PLACEMENT TEST- The term 'advanced placement test' includes only an advanced placement test approved by the Secretary of Education for the purposes of this section.

(2) LOW-INCOME INDIVIDUAL- The term 'low-income individual' has the meaning given the term in section 402A(g)(2) of the Higher Education Act of 1965 (20 U.S.C. 1070a-11(g)(2)).

(h) AUTHORIZATION OF APPROPRIATIONS- There are authorized to be appropriated \$6,800,000 for fiscal year 1999 and such sums as may be necessary for each of the 4 succeeding fiscal years to carry out this section.

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[Sec. 806. Study of the Effectiveness of Cohort Default Rates for Institutions with Few Student Loan

Borrowers.]



[Sec. 811. Community Scholarship Mobilization.]

FOR RELEASE

July 21, 1999

Contact:

Melinda Kitchell Malico
(202) 401-1008

EDUCATION DEPARTMENT GRANTS TO PAY ADVANCED PLACEMENT TEST FEES FOR LOW-INCOME STUDENTS

Thousands of low-income students will have access to advanced placement (AP) tests under a second year of AP state grants, announced today by the U.S. Department of Education. Thirty-three states and the District of Columbia applied for the AP Incentive Program grants and will share in more than \$2.8 million to encourage low-income students to prepare for and take AP tests.

"Research clearly shows that students who take challenging coursework early excel in college and later on in life," said U.S. Secretary of Education Richard W. Riley. "These grants can help encourage students to take harder classes and then measure what they have learned as they prepare to move forward into college."

In order to be eligible for the grants, states were asked to describe:

- the fees the state will pay and how many students are expected to benefit;
- how low-income students will be identified and deemed eligible;
- how the availability of test fee payments will be promoted through high school teachers and counselors; and,
- how the effectiveness of the program will be gauged.

Factors that affect the amount states receive for the incentive grants include the number of eligible low-income students and the intensity of outreach efforts, particularly in urban areas.

Riley has urged schools to offer, and students to enroll in, more challenging coursework based on rigorous academic standards. Enrolling in AP courses gives many students a chance to take college-level work while in high school.

Most colleges and universities award college credit to students who pass advanced placement tests -- saving tuition costs and allowing such students to be accepted more readily by the college of their choice.

Some states also applied for and received additional discretionary funds to increase enrollment of low-income students in advanced placement courses through better outreach -- and expand the availability of advanced placement courses in schools serving high-poverty areas. A competition for \$1 million in new discretionary awards is now underway to fund additional state efforts in those areas. Applications for the additional funds are due by August 16, 1999, and grants will be announced in late summer.

The AP fee payment grants to states are authorized by the Higher Education Amendments of 1992, Title XV, Part G. Grant funds per state were made on the basis of Census Bureau counts of poor children ages 5-17 used under the Title I program for disadvantaged children.

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NOTE TO EDITORS: Following is a list of states and Fiscal Year 1999 advanced placement fee payment award amounts. A list of state contacts is available by calling the contact listed above.

ADVANCED PLACEMENT INCENTIVE PROGRAM AWARDS

<u>GRANTEE</u>	<u>GRANT AWARD</u>
* California Department of Education - Secondary Education	\$300,000
Colorado Department of Education Office of the Commissioner	19,000
Connecticut Department of Education	17,300
Delaware Department of Education	3,500
District of Columbia Public Schools	67,900
* Florida Department of Education-Office of the Commissioner	85,000
* Georgia State Department of Education	399,000
Hawaii State Department of Education	13,680
Illinois State Board of Education	167,730
Indiana Department of Education - Office of the Superintendent	32,000
Iowa Department of Education	13,500
Kentucky Department of Education - Professional Development	50,000
Louisiana Department of Education	32,300
Maine Department of Education	7,500
Maryland State Department of Education	22,700
Massachusetts Department of Education	32,730
Michigan Department of Education	75,000
Mississippi State Department of Education	36,450
Missouri Department of Elementary and Secondary Education	37,000
* Montana Office of Public Instruction	10,000
New Mexico State Department of - Public Education/Office of Superintendent	21,000
New York State Education Department - Summer Institute Office	300,000

North Carolina Department of - Public Instruction	84,700
* Oklahoma State Department of Education	84,300
Oregon Department of Education - Office of the Deputy Superintendent	16,230
Pennsylvania Department of Elementary and Secondary Education	300,000
Rhode Island Department of Elementary and Secondary Education	6,080
South Dakota Department of Elementary and Cultural Affairs	7,500
Tennessee Department of Education - Curriculum & Instruction Division	42,000
Texas Education Agency	300,000
Utah State Office of Education	27,700
Virginia Department of Education - Office of Instructional Services	51,682
Washington State Office of Public Instruction - Office of the Superintendent	27,700
West Virginia Department of Education	23,700

* Includes funds directly related to increasing (1) the enrollment of low-income individuals in advanced placement courses; (2) the participation of low-income individuals in advanced placement tests; and (3) the availability of advanced courses in schools serving high-poverty areas.



Students who took Advanced Placement (AP) examinations

The Advanced Placement (AP) program is associated with a demanding academic curriculum and illustrates the desire of high schools, colleges, and universities to offer college-level courses to high school students. By offering AP courses, schools give students the opportunity to participate in the AP program and acquire college credit for their knowledge of college-level subjects. Measuring the number of students per 1,000 12th-graders who participated in AP examinations each year shows the level of importance students, schools, and colleges place on the AP program and how that importance has changed over time.

- Between 1984 and 1996, the number of students who took AP exams increased dramatically, rising from 50 to 131 students per 1,000 12th-graders. The number of examinees increased for both males and females and for whites, blacks, and Hispanics during this period.
- In 1984, equal proportions of male and female students took AP examinations. Between 1984 and 1996, the number of females who took the examinations rose at a faster rate than did the number of males who took the examinations. In 1996, 144 females compared to 117 males per 1,000 12th-graders took AP examinations.
- In 1996, whites were more likely than blacks or Hispanics to take AP examinations in all subject areas, with the exception of foreign languages. Hispanics were almost three times as likely to take a foreign language AP examination as whites.

Chart 1: Number of students who took AP examinations: 1984-96

Chart 2: Students who took Advanced Placement (AP) examinations

Number of students¹ who took AP examinations (per 1,000 12th-graders), by sex and race/ethnicity: 1984-96

Sex and race/ethnicity	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Total²	50	59	64	66	81	88	100	103	109	117	115	125	131
Sex													
Male	50	61	65	68	76	86	101	96	102	108	101	111	117
Female	50	58	63	65	85	90	98	111	117	127	129	140	144
Race/ethnicity													
White	48	60	62	63	82	92	103	107	112	115	116	125	133
Black	8	11	12	13	21	20	26	25	26	31	32	37	32
Hispanic	24	21	27	30	48	54	54	67	68	80	63	75	74

¹ "Number of students" includes 11th- and 12th-graders. See the supplemental note to this indicator for further discussion.

² Included in the totals but not shown separately are students from other racial/ethnic groups.

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports*, various years (Copyright © 1996 by the College Entrance Examination Board. All rights reserved.). U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Number of AP examinations¹ taken and the number of examinations with scores of 3 or higher (per 1,000 12th-graders), by subject area, sex, and race/ethnicity: 1996

Sex and race/ethnicity	Number of AP examinations taken						Number of examinations with scores of 3 or higher					
	Social studies	English	Foreign language	Calculus	Computer science	Science	Social studies	English	Foreign language	Calculus	Computer science	Science
Total²	58	55	17	33	3	35	35	36	12	21	1	21
Sex ³												
Male	62	42	13	37	5	41	40	27	9	25	3	28
Female	89	70	23	30	1	34	39	46	17	18	0	19
Race/ethnicity												
White	60	59	12	33	3	34	37	40	7	21	1	21
Black	13	15	3	6	0	7	5	5	1	2	0	2
Hispanic	23	23	35	10	1	10	10	10	31	5	0	4

¹ "Number of AP examinations" includes all examinations taken by 11th- and 12th-graders. See the supplemental note to this indicator for further discussion.

² Included in the total but not shown separately are students from other racial/ethnic groups.

³ The number of exams taken by males and females includes a small number of exams taken by 9th-graders, 10th-graders, college students, and others (9 percent of all students who took AP examinations in 1996).

NOTE: Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations. See the supplemental note to this indicator for a description of AP course categories and a discussion of the calculations for this analysis.

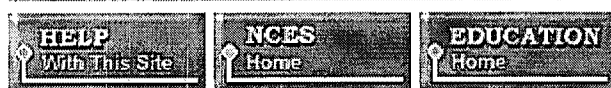
SOURCE: The College Board, Advanced Placement Program, *National Summary Reports*, various years (Copyright © 1996 by the College Entrance Examination Board. All rights reserved.). U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Table 27-1: Participation in the AP program, by number of schools, candidates, examinations, colleges, candidates per school, examinations per candidate, and candidates per college: 1956-97

Supplemental Note for Indicator 27



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