

Special Analysis





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High School Coursetaking

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INTRODUCTION

Using the national data from high school transcript studies conducted from 1982 to 2005, this special analysis addresses the following questions related to students' coursetaking patterns and trends during this period:

- What do states require and what do schools offer for coursework?
- How many course credits do students earn by high school graduation, on average, and how has the number of credits changed, overall and by subject, since the 1980s?
- What percentage of high school graduates complete advanced courses in science, in mathematics, in English, and in foreign languages?
- Do these percentages vary across student characteristics, including sex, race/ethnicity, and school control?
- What is the coursetaking pattern in 9th and 10th grades for students who drop out compared with students who graduate?
- What percentage of high school students take Advanced Placement (AP) examinations, and how well do they do?

The first section of this special analysis describes state-level standards related to coursework and high school exit examinations in all 50 states and the District of Columbia, which is treated as a state in this analysis. This is followed by a discussion of the availability of advanced course offerings in public schools.¹ Both requirements and offerings provide a context for examining the patterns of student coursetaking as they relate to minimum standards and expectations. The second section describes the number and types of credits that public and private high school graduates earned. It then examines the percentages and characteristics

of public and private high school graduates who took advanced courses in science, mathematics, English, and foreign languages. The special analysis concludes with a summary of key findings.

REQUIREMENTS AND OFFERINGS

State Standards for Coursetaking

Many states have enacted minimum requirements for graduation that focus on the number and types of courses that students take in high school and the passing of standardized state tests of proficiency or competency in specific subjects. Starting in the early 1980s, many states adopted or added requirements patterned after the *New Basics* coursetaking standards recommended by the National Commission on Excellence in Education (NCEE) for high school graduation (Alexander and Pallas 1984; Chaney, Burgdorf, and Atash 1997). First articulated in *A Nation at Risk* (NCEE 1983), the New Basics recommendations called for all high school students to complete 4 years of English; 3 years each of mathematics, science, and social studies; and a half-year of computer science. For college-bound students, the New Basics also called for the completion of 2 years of a foreign language.

Currently, 37 states now require public high school students to take at least 20 credits (in Carnegie units²) of coursework; 8 states require fewer than 20 credits; and other states' course graduation requirements are determined locally (see table 1).³ Of those states with coursetaking requirements, 37 require 4 or more years of English, 31 require 3 or more years of social studies, 27 require 3 or more years of mathematics, and 23 require 3 or more years of science.

State Standards for Exit Exams

Along with course requirements, in 2006, some 22 states required public school students (and, in a few states, private school students⁴) to pass

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Table 1. State coursework requirements for high school graduation in Carnegie units: 2005

State	All courses	English/ language arts	Social studies	Math- ematics	Science	Health/ physical education	Arts/ vocation	Foreign language
Alabama	24	4	4	4	4	1.5	0.5	0
Alaska	21	4	3	2	2	1	0	0
Arizona	20	4	2.5	2	2	0	1	0
Arkansas	21	4	3	3	3	1	0.5	0
California	13	3	3	2	2	2	1	1 ²
Colorado	(1)	†	†	†	†	†	†	†
Connecticut	20	4	3	3	2	1	1	0
Delaware	22	4	3	3	3	1.5	0	0
District of Columbia	23.5	4	3.5	3	3	1.5	1	2
Florida	24	4	3	3	3	1	1	0
Georgia	22	4	3	4	3	1	0	2
Hawaii	22	4	4	3	3	1.5	0	0
Idaho	21	4.5	2.5	2	2	0.5	1	1 ²
Illinois	16	3	2	2	1	0.5	1	1 ²
Indiana	20	4	2	2	2	1	0	0
Iowa	(1)	†	1.5	†	†	†	†	†
Kansas	21	4	3	2	2	1	0	0
Kentucky	22	4	3	3	3	1	1	0
Louisiana	23	4	3	3	3	2	0	0
Maine	16	4	2	2	2	1.5	1	0
Maryland	21	4	3	3	3	1	1	2
Massachusetts	(1)	†	†	†	†	†	†	†
Michigan	(1)	†	0.5	†	†	†	†	†
Minnesota	21.5 ³	†	†	†	†	0	†	0
Mississippi	20	4	3	3	3	0.5	1	0
Missouri	22	3	2	2	2	1	1	0
Montana	20	4	2	2	2	1	1	0
Nebraska	(1)	†	†	†	†	†	†	†
Nevada	22.5	4	2	3	2	2.5	1	0
New Hampshire	19.75	4	2.5	2	2	1.25	0.5	0
New Jersey	22	4	3	3	3	3	2	0
New Mexico	23	4	3	3	2	1	0	0
New York	22	4	4	3	3	2.5	1	1
North Carolina	20	4	3	4	3	1	0	2
North Dakota	21	†	†	†	†	†	†	†
Ohio	20	4	3	3	3	1	0	0
Oklahoma	23	4	3	3	3	0	2	0
Oregon	22	3	3	2	2	2	1	1
Pennsylvania ⁴	†	†	†	†	†	†	†	†

See notes at end of table.

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Table 1. State coursework requirements for high school graduation in Carnegie units: 2005—Continued

State	All courses	English/ language arts	Social studies	Math- ematics	Science	Health/ physical education	Arts/ vocation	Foreign language
Rhode Island	18	4	2	3	2	1.5	0.5	2
South Carolina	24	4	3	4	3	1	0	1
South Dakota	22	4	3	2	2	0	1	0
Tennessee	20	4	3	3	3	1	1	2
Texas	24	4	4	3	3	2	1	2
Utah	15	3	2.5	2	2	2	1.5	0
Vermont	20	4	3	3	3	1.5	1	0
Virginia	22	4	3	3	3	2	1	0
Washington	19	3	2.5	2	2	2	0	0
West Virginia	24	4	3	3	3	2	1	0
Wisconsin	21.5	4	3	2	2	2	0	0
Wyoming	13	4	3	3	3	0	0	0

† Not applicable.

¹ Graduation requirements are determined locally.

² 1.0 credit required in Foreign language or Arts, not both.

³ Effective class of 2008.

⁴ State minimum credit requirements have been phased out in Pennsylvania. Each school district (including charter schools) shall specify requirements for graduation in a strategic plan requiring state approval. To graduate, students must demonstrate proficiency in reading, writing, and mathematics on either state or local assessments aligned with state guidelines.

NOTE: Local school districts frequently have other graduation requirements in addition to state requirements. English/language arts can include English, reading, literature, creative writing, etc. Mathematics can include basic math, algebra I and II, geometry, precalculus, calculus, statistics, etc. Social studies can include world history, U.S. history, geography, economics, government, etc. Science can include biology, chemistry, physics, anatomy, earth science, etc. Arts/vocation can include fine arts, practical arts, vocational, or career preparatory credits. Technology can include computer literacy, computer technology, technology competency, etc. The Carnegie unit is a standard of measurement that represents 1.0 credit for the completion of a 1-year course.

SOURCE: Education Commission of the States (ECS). (2006). *Standard High School Graduation Requirements (50-state)*.

high school exit examinations to receive a high school diploma (see figure 1) (Center on Education Policy [CEP] 2006). Three more states will adopt such “exit exams” between 2008 and 2012: Washington in 2008, Maryland in 2009,⁵ and Oklahoma in 2012. Most of these 25 states’ exit exams are aligned with 10th-grade proficiency standards or higher, but some are aligned with 8th- and 9th-grade proficiency standards.

In 2006, some 65 percent of the nation’s public high school students were enrolled in a school with an exit exam requirement (CEP 2006). High school exit exam requirements are most prevalent in the southern and western states. The few exceptions are in Indiana, Massachusetts, Minnesota, New Jersey, New York, and Ohio.

Given this geographic distribution, minority public school students are the group most affected by state exit exam requirements: 76 percent of minority public high school students were required to pass an exit exam for graduation in 2006, compared with 58 percent of all White public high school students (CEP 2006, table 2).

The number of examinations required for graduation and the subjects in which they are required vary by state (see supplemental table SA-1). In the 22 states with exit exams in effect and in the 3 states with exit exams that will go into effect between 2008 and 2012, students must pass both an English/language arts and a mathematics exit exam. In addition, 19 of

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sample of public high schools (Waits, Setzer, and Lewis 2005).

Overall, in 2002–03, some 71 percent of public high schools offered at least one dual-credit course, 67 percent offered AP courses, and 2 percent offered IB courses (see supplemental table SA-2). The larger the enrollment of a school, the more likely that school was to offer AP and/or dual-credit courses: 40 percent of small schools (those with an enrollment of less than 500) offered AP courses, compared with 82 percent of medium-sized schools (those with an enrollment of 500 to 1,199) and 97 percent of large schools (those with an enrollment of 1,200 or more) (see figure 2). Similarly, 63 percent of small schools offered courses for dual credit, compared with 75 percent of medium-sized schools and 82 percent of large schools.

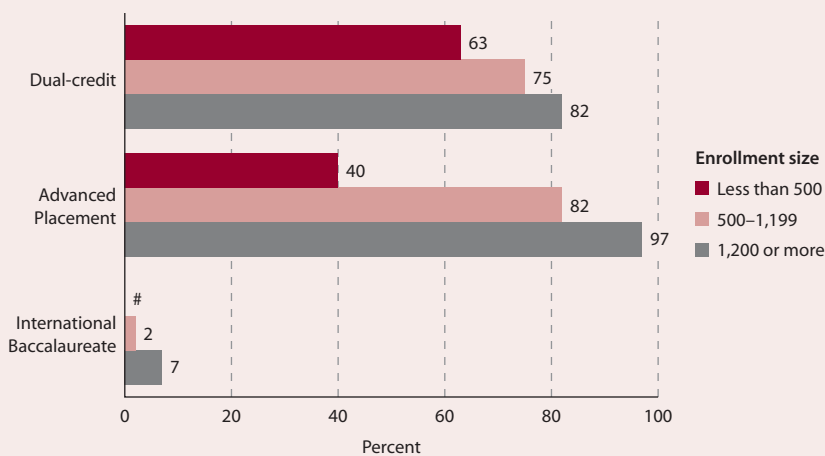
Public schools located in rural areas were less likely to report offering AP courses (50 percent) than

public schools in cities (77 percent), urban fringe areas (87 percent), and towns (72 percent) (see supplemental table SA-2). Dual-credit courses, in contrast, were less likely to be offered in public schools located in cities than in public schools located in towns or urban fringe areas (65 vs. 79 and 74 percent, respectively). Seventy percent of rural schools offered courses for dual credit.

Public schools with the lowest minority enrollment (those in which minority students made up less than 6 percent of the enrollment) were the least likely to offer AP courses when compared with schools with higher minority enrollments. Among public schools that offered dual credits, however, schools with the highest minority enrollment were the least likely to offer these courses when compared with schools with lower minority enrollments.

State standards and advanced course offerings provide a context for understanding student

Figure 2. Percentage of public high schools that offered dual-credit courses, Advanced Placement (AP), and International Baccalaureate (IB), by school enrollment: 2002–03



Rounds to zero.

NOTE: Dual-credit courses allow students to earn both high school and postsecondary credits for a single course. AP courses and their end-of-course examinations are developed and administered by The College Board and allow students to earn postsecondary credit. IB courses are defined as courses that make up a 2-year liberal arts curriculum that leads to an IB diploma.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), “Dual Credit and Exam-based Courses,” FRSS 85, 2003.

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coursetaking patterns. The next section presents trends in the coursetaking patterns of high school graduates over more than two decades, from 1982 to 2004.

COURSE TAKING PATTERNS

National data on public and private high school student coursetaking and educational attainment come from two sets of surveys sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES): the high school longitudinal transcript studies—including the High School and Beyond Longitudinal Study of 1980 Sophomores, "First Follow-up" (HS&B-So:80/82); the National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, High School Transcript Survey, 1992"; and the Education Longitudinal Study of 2002 (ELS:2002/04), "High School Transcript Study"—and the National Assessment of Educational Progress (NAEP) High School Transcript Studies (HSTS), selected years, 1987–2005.

The high school longitudinal transcript studies provide information on graduates of public and private high schools in 1982, 1992, and 2004. The NAEP High School Transcript Studies (HSTS) cover the experiences of public and private high school graduates in 1987, 1990, 1994, 1998, 2000, and 2005. The HSTS gathers information from the transcripts of students in public and private schools nationwide. Both survey systems are part of larger studies that track students' performance in high school.

Credits on a student's transcript quantify the amount of coursework that a student has completed. Credits can be organized by subject and placed in taxonomies, each of which includes courses either of similar academic challenge and difficulty or at the same stage in the progression of learning in a subject.⁸ However, because credits cannot measure the breadth or depth of the course content, they cannot be used to measure how the curriculum may have changed

over time or how much high school courses with similar transcript titles vary across classes and schools. Even courses with the same titles may vary considerably in terms of their content and what they demand of students.

Transcript data recording the number of credits that students earned in all their high school classes were collected from nationally representative samples of high school students beginning with the longitudinal study in 1982. Drawing upon these data, the next section of this analysis presents trends in the coursetaking patterns of public and private high school graduates between 1982 and 2004.⁹

Credits Earned

From the early 1980s, when states began to increase the number of courses required to receive a high school diploma, the average number of credits earned by high school graduates increased from 21.7 credits in 1982 to 25.8 credits in 2004 (see supplemental table SA-3). When looking at the number of credits earned by subject in 2004 versus 1982, graduates earned an average of 4.3 versus 4.0 credits in English, 3.6 versus 2.7 credits in mathematics, and 3.2 versus 2.2 credits in science. The amount of college-preparatory coursetaking in mathematics and science also increased markedly between 1982 and 2004. For example, the average number of credits that graduates earned in algebra and more advanced mathematics courses increased from 1.9 to 3.1; in chemistry, it increased from 0.4 to 0.7; and in physics, it increased from 0.2 to 0.4.

These increases in credits earned in mathematics, English, and science have not coincided with a decline in other coursework. In fact, credits earned in other subjects have increased. For example, comparing 1982 and 2004, graduates earned an average of 3.2 versus 3.9 credits in history/social studies, 1.4 versus 2.1 in arts, and 1.1 versus 2.0 credits in foreign languages

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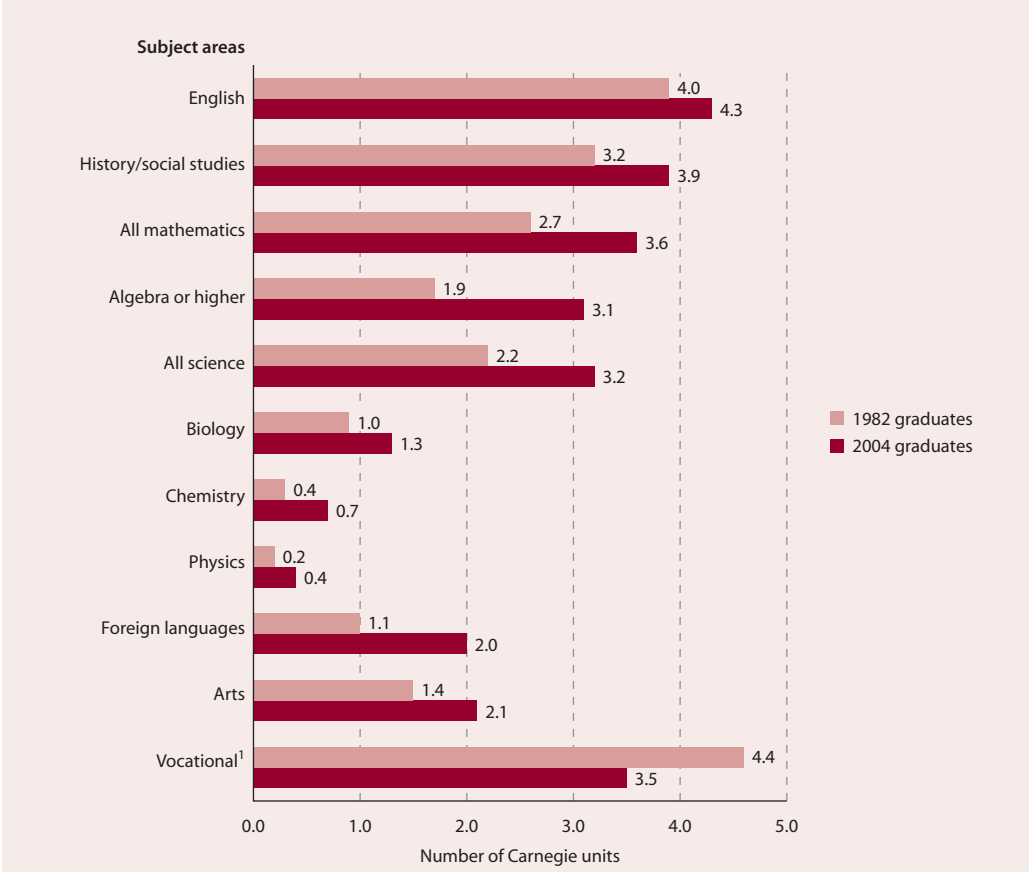
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(see figure 3). The only subject area in which the number of credits earned has decreased over this time period is vocational coursetaking. Vocational coursetaking decreased, from an average of 4.4 credits earned in 1982 to 3.5 credits earned in 2004. Vocational courses are organized educational programs, services, and activities that are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career

that requires certification or training other than a bachelor's or an advanced degree.

These general increases in credits earned since 1982 are, in large part, a product of more graduates taking more advanced courses. In mathematics, for example, between 1982 and 2004, the percentage of graduates who completed a year of geometry increased from 47 to 76 percent, the percentage who completed

Figure 3. Average number of Carnegie units earned by high school graduates in various subject areas: 1982 and 2004



¹ Includes nonoccupational vocational education, vocational general introduction, agriculture, business, marketing, health, occupational home economics, trade and industry, and technical courses.

NOTE: The Carnegie unit is a standard of measurement that represents 1.0 credit for the completion of a 1-year course. Data differ slightly from figures appearing in other NCES reports because of differences in taxonomies and case exclusion criteria.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, "First Follow-up" (HS&B-So:80/82); and Education Longitudinal Study of 2002 (ELS:2002/04), "High School Transcript Study."

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a semester or more of algebra II increased from 40 to 67 percent, and the percentage who completed a semester or more of analysis/precalculus increased from 6 to 28 percent (see supplemental table SA-4).¹⁰ Similarly, in science, the same trends are evident: during these years, the percentage of graduates who completed a year of chemistry increased from 32 to 64 percent, the percentage who completed a year of physics increased from 15 to 33 percent, and the percentage who completed a year each of biology, chemistry, and physics increased from 11 to 26 percent.

Coursetaking varied by students' sex and race/ethnicity over time and within each year. In 1982, on average, females earned 0.35 more total credits than males (see supplemental table SA-3). However, by 2004, no measurable differences were detected. In 1982, males earned 0.14 more credits in both mathematics and science than did females, but by 2004, no measurable differences were detected.

In 1982, on average, Asian/Pacific Islander graduates earned more total credits than graduates of any other race/ethnicity. By 2004, these differences were no longer evident. However, in both 1982 and 2004, Asian/Pacific Islander graduates earned more credits in both mathematics and science than did graduates of any other race/ethnicity.

Trends in Advanced Coursetaking

Science and Mathematics

This section shows trends between 1982 and 2004 in the highest level of science and mathematics coursework that high school graduates completed. In 1982, some 35 percent of high school graduates had completed advanced science coursework (i.e., at least one course classified as more challenging than general biology); this percentage increased to 68 percent

by 2004 (see figure 4 and supplemental table SA-5). Most of this increase is attributable to increases in completion of chemistry I and/or physics I. The percentage of graduates who had completed at least one course of either chemistry II, physics II, and/or advanced biology fluctuated from year to year and ultimately increased just 3 percentage points, from 15 to 18 percent between 1982 and 2004.¹¹

The percentage of high school graduates who had completed courses in advanced mathematics (i.e., completed at least one course classified as more challenging than algebra II) increased from 26 percent in 1982 to 50 percent in 2004 (see figure 5 and supplemental table SA-6). Moreover, the percentage of graduates who had completed a calculus-level course more than doubled over this period (from 6 to 14 percent).¹²

As was the case in 1998 and 2000 (data not shown), in 2004, female graduates were more likely than male graduates to have completed some advanced science coursework (71 vs. 65 percent) (see supplemental table SA-7). This difference, however, is mostly attributable to the larger percentage of female than male graduates who completed a course in chemistry I or physics I. There were no measurable differences between the percentage of female and male graduates who completed coursework in chemistry I *and* physics I or in the percentage who completed a course in chemistry II, physics II, and/or advanced biology. Unlike in 1998 and 2000 (data not shown), in 2004, female graduates were more likely than male graduates to have completed some advanced mathematics courses (e.g., trigonometry, precalculus, or calculus); however, as in 1998 and 2000, there was no measurable difference between the percentage of female and male graduates who completed calculus-level coursework (see supplemental table SA-8).

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A Special Look: Dropouts and Course Credit Accrual

This special analysis so far has focused on course-taking for high school graduates, or more precisely, students who graduate high school within 4 years of starting. Although some students are still enrolled in high school after their classmates have graduated, others have dropped out. It is important to understand how the coursetaking patterns of students who eventually drop out compare with those of students who receive a high school diploma. A lack of credit accrual—credits earned per year—early in high school has been shown to be one of the better predictors for subsequent dropping out (Allensworth and Easton 2005). Students may not accrue the expected number of credits because they earn a failing grade or attempt too few credits.

This special look considers the extent to which there are differences by 10th grade in the credit accrual for students who eventually drop out compared with students who graduate on time.¹³ Table 2 shows the credit accrual (in Carnegie units) by 2002, their sophomore year, for dropouts and “on-time graduates” (Hampden-

Thompson et al. 2007). Some students drop out before 10th grade; their counts are not reflected here, nor are those of students who attain an alternative credential (e.g., GED), or who are still in school after 2004.

Students who eventually dropped out were behind their peers who graduated on time in the total number of credits they accrued in the 2000–01 and 2001–02 academic years (9th and 10th grades, respectively, for on-time graduates) as well as the amount they accrued in their English, mathematics, and science courses in both academic years. In the 2000–01 academic year, students who would eventually drop out after the 10th grade earned an average of 5.1 credits, while those who graduated on time in 2004 earned an average of 6.6 credits. Year-to-year change shows that credit accrual declined for dropouts, putting them further behind. While on-time graduates accrued 6.6 and 6.7 credits in the 2000–01 and 2001–02 academic years, dropouts earned even fewer credits in 2001–02 (4.6) than they did in the previous academic year (5.1).

Table 2. Average course credit accrual of spring 2002 10th-graders, by academic year, subject, and high school status: 2004

Status in 2004	Academic year (AY)			Subject (AY 2000–02)		
	2000–01	2001–02	Total	English	Mathematics	Science
Dropouts	5.1	4.6	9.7	1.7	1.3	1.2
On-time graduates ¹	6.6	6.7	13.3	2.1	2.0	1.8

¹“On-time graduates” are students who graduated high school within 4 years between the fall of 2003 and the summer of 2004.

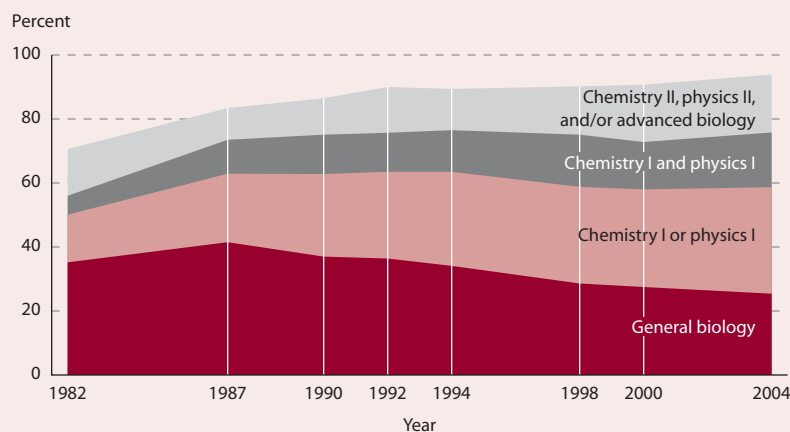
NOTE: The basic unit of coursework measurement is the course credit. Course credits refer to standardized Carnegie units.

SOURCE: Hampden-Thompson, G., Kienzl, G., Daniel, B., and Kinukawa, A. (2007). *Course Credit Accrual and Dropping Out of High School* (NCES 2007-018), tables 1 and 2.

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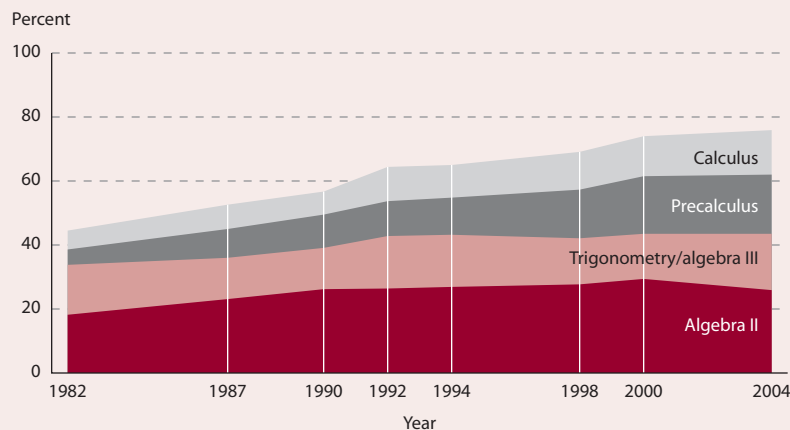
Figure 4. Percentage of high school graduates who completed middle and advanced levels of science courses, by highest level of coursework completed: Selected years, 1982–2004



NOTE: Not displayed are the percentages of graduates who completed lower academic science courses. The distribution of graduates in the various levels of science courses was determined by the level of the most academically advanced course they had completed. Graduates may have completed advanced levels of courses without having taken courses at lower levels. See *supplemental note 12* for more details on these levels. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, “First Follow-up” (HS&B-So:80/82); National Education Longitudinal Study of 1988 (NELS:88/92), “Second Follow-up, High School Transcript Survey, 1992”; Education Longitudinal Study of 2002 (ELS:2002/04), “High School Transcript Study”; and National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998, and 2000 High School Transcript Studies (HSTS).

Figure 5. Percentage of high school graduates who completed middle and advanced levels of mathematics courses, by highest level of coursework completed: Selected years, 1982–2004



NOTE: Not displayed are the percentages of graduates who completed lower academic mathematics courses. The distribution of graduates in the various levels of mathematics courses was determined by the level of the most academically advanced course they had completed. Graduates may have completed advanced levels of courses without having taken courses at lower levels. See *supplemental note 12* for more details on these levels. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, “First Follow-up” (HS&B-So:80/82); National Education Longitudinal Study of 1988 (NELS:88/92), “Second Follow-up, High School Transcript Survey, 1992”; Education Longitudinal Study of 2002 (ELS:2002/04), “High School Transcript Study”; and National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998, and 2000 High School Transcript Studies (HSTS).

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Asian/Pacific Islander graduates were more likely than graduates of any other race/ethnicity in 1998, 2000, and 2004 to have completed advanced science and mathematics courses (1998 and 2000 data not shown) (see supplemental tables SA-7 and SA-8). For example, 33 percent of Asians/Pacific Islanders completed a calculus-level course, compared with 16 percent of Whites, 7 percent of Hispanics, 6 percent of American Indians, and 5 percent of Blacks. Following Asians/Pacific Islanders, Whites were more likely than Blacks, Hispanics, and American Indians to have completed advanced science and mathematics courses in each of these 3 years.

In 1998, 2000, and 2004, private school graduates were also more likely than public school graduates to have completed advanced courses in science and mathematics. For example, in 2004, a greater percentage of private school graduates than public school graduates completed at least one advanced course in science (85 vs. 67 percent) and a calculus-level course (25 vs. 13 percent).

English and Foreign Language

Since the early 1980s, the percentage of high school graduates completing honors English and advanced foreign language courses has also increased (see figures 6 and 7 and supplemental tables SA-9 and SA-10). In 1982, about 13 percent of high school graduates had completed some advanced English coursework classified as “honors”; by 2004, this percentage had risen to 33 percent. Moreover, during this period, the percentage who had completed 75–100 percent of their English courses at the honors level increased from 4 to 16 percent.

The percentage of high school graduates who had completed advanced foreign language study (i.e., year 3 or higher of a foreign language) was greater in 2004 than in 1982. In 1982, about 15 percent of graduates had completed some advanced foreign language study; by 2004, this percentage had more than doubled to 35 percent. In addition, over this period, the percentage of graduates who had not completed any foreign language study decreased markedly (from 46 to 15 percent).

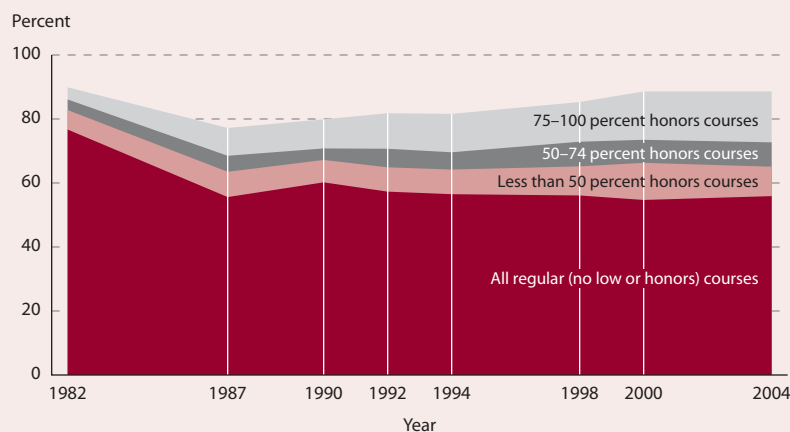
As was the case in 1998 and 2000 (data not shown), in 2004, female graduates were more likely than male graduates to have completed advanced English and foreign language study (see supplemental tables SA-11 and SA-12). In 1998 and 2000 (data not shown), no racial/ethnic group of graduates completed advanced courses in English or foreign language study at higher rates than those for all other racial/ethnic groups. However, in 2004, Asian/Pacific Islanders completed advanced courses in English and in advanced foreign language study at higher rates than those for all other racial/ethnic groups. In all 3 years, Black graduates were less likely than Asian/Pacific Islander, Hispanic, and White graduates to have completed advanced foreign language courses.

In 1998, 2000, and 2004, private school graduates were also more likely than public school graduates to have completed advanced courses in foreign language study; however, apparent differences in the rates at which they completed advanced English courses were not significant (1998 and 2000 data not shown).

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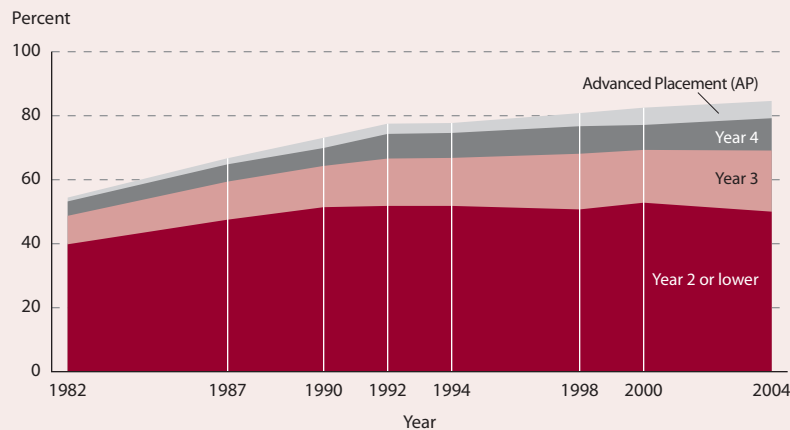
Figure 6. Percentage of high school graduates who completed regular and advanced levels of English, by highest course completed: Selected years, 1982–2004



NOTE: For each graduate, the percentages of completed English courses classified as “below level,” “at grade level,” and “honors” were calculated. Graduates may have completed advanced levels of courses without having taken courses at lower levels. See *supplemental note 12* for more details on these levels. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, “First Follow-up” (HS&B:80/82); National Education Longitudinal Study of 1988, “High School Transcript Study” (NELS:88/92); Education Longitudinal Study of 2002 (ELS:2002/04), “High School Transcript Study”; and National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998, and 2000 High School Transcript Studies (HSTS).

Figure 7. Percentage of high school graduates who completed low and advanced foreign language courses, by highest course completed: Selected years, 1982–2004



NOTE: The distribution of graduates among the various levels of foreign language courses was determined by the level of the most academically advanced course they completed. Graduates who had completed courses in different languages were counted according to the highest level course completed. Graduates may have completed advanced levels of courses without having taken courses at lower levels. See *supplemental note 12* for more details on these levels. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, “First Follow-up” (HS&B:80/82); National Education Longitudinal Study of 1988, “High School Transcript Study” (NELS:88/92); Education Longitudinal Study of 2002 (ELS:2002/04), “High School Transcript Study”; and National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998, and 2000 High School Transcript Studies (HSTS).

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A Special Look: Advanced Placement (AP) Examinations

Advanced Placement (AP) courses provide students with the opportunity to take college-level courses while in high school. The AP program offers 37 courses in 20 subjects that are developed by The College Board. A qualifying score of 3.0 or better (using a 5.0 point scale) on a course examination may enable a student to earn college credit or advanced standing in the subject area in which the course/exam was taken. Between 1997 and 2005, the number of students taking AP examinations increased 111 percent (from 566,720 to 1,197,439) (see table 3).¹⁴ Over this period, the participation of White students increased 105 percent, compared with 213 percent for Hispanic students, 177 percent for Black students, 124 percent for American Indian students, and 114 percent for Asian students. As a result, the participation of minority groups increased from 27 percent of all students taking AP examinations in 1997 to 33 percent in 2005. Conversely, the percentage of White students taking AP examinations declined from 66 percent in 1997 to 64 percent in 2005.

While the number of students and the percentage of minorities participating in AP examinations have increased each year, the annual average scores have remained about 3.0, out of a possible 5.0 (see supplemental table SA-13). The examination scores of White and Asian students have remained relatively constant across all subjects, averaging about 3.0 and 3.1, respectively, while the scores of students in other racial/ethnic groups have declined. For example, the average scores of Hispanic students declined across all examination subjects, from 3.1 in 1997 to 2.5 in 2005.

The percentage of examinations resulting in a qualifying score of 3.0 or better decreased from a high of 65 percent in 1997 to a low of 59 percent in 2005 (see supplemental table SA-14). At the same time, the number of examinations with a score of at least a 3.0 increased 111 percent (from 579,865 to 1,225,845) (see figure 8). However, the number of examinations with a score of 1.0 or 2.0 increased 163 percent (from 319,598 to 839,200).

Table 3. Number and percent change of students taking Advanced Placement (AP) examinations, by race/ethnicity: 1997–2005

Race/ethnicity	1997	1998	1999	2000	2001	2002	2003	2004	2005	Percent change 1997 to 2005
Total¹	566,720	618,257	685,981	747,922	820,880	913,251	998,329	1,081,102	1,197,439	111
White	371,606	403,553	445,880	504,600	549,065	607,816	660,225	702,489	762,548	105
Total minority ¹	154,046	170,054	194,557	225,825	250,230	280,276	315,046	350,425	398,243	159
Black	24,469	27,054	31,023	36,158	40,078	45,271	51,160	57,001	67,702	177
Hispanic	47,626	53,627	62,853	74,852	86,018	98,495	114,246	130,042	148,960	213
Asian/Asian American	63,528	68,109	75,875	85,756	92,762	102,653	111,704	121,038	135,815	114
American Indian/ Alaska Native	2,520	2,761	3,136	3,584	3,472	3,896	4,530	4,974	5,654	124
Missing	41,068	44,650	45,544	17,497	21,585	25,159	23,058	28,188	36,648	-11

¹ Total includes other race/ethnicity categories not separately shown.

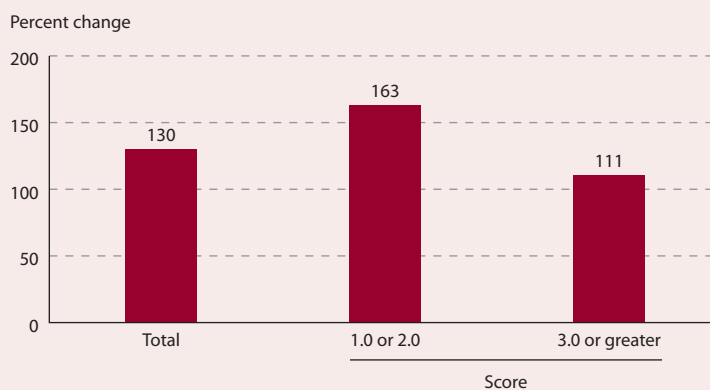
NOTE: Data reported are for all students who completed an AP exam. The College Board collects racial/ethnic information based on the categories American Indian/Alaska Native; Asian/Asian American; Black/Afro-American; Latino: Chicano/Mexican, Puerto Rican, Other Latino; White; and Other. Hispanic refers to the sum of all Latino subgroups. Race categories exclude persons of Hispanic ethnicity.

SOURCE: The College Board, Advanced Placement Program. (1997–2005). *National Summary Reports*.

High School Coursetaking

Continued

Figure 8. Percent change in student scores on Advanced Placement (AP) examinations, by test score categories: 1997 to 2005



SOURCE: The College Board, Advanced Placement Program. (1997–2005). *National Summary Reports*.

SUMMARY

With requirements for earning a high school diploma becoming more rigorous over the past 20 years, there have been increases in the rates at which students accrue course credits. For example, between 1982 and 2004, the average number of course credits accrued by high school graduates increased from 21.7 to 25.8 credits.

This growth in the number of credits earned has been accompanied by an increase in the advanced coursework completed by high school students. More students are now taking advanced courses in mathematics and science—in particular calculus, chemistry I, and physics I—and in English and foreign languages. Further evidence of the prevalence of advanced coursetaking is an increase in the percentage of students who take AP examinations: between 1997 and 2005, the total number of students taking AP examinations more than doubled. As the number of participants in AP courses

has increased, average scores have remained relatively stable; however, there has been a decrease in the percentage of examinations resulting in a qualifying score of 3.0 or more, from 65 to 59 percent. At the same time that academic coursetaking has been rising, there has not been an improvement in 12th-grade NAEP scores (Shettle et al. 2007).

Gaps in advanced coursetaking by sex and race/ethnicity are evident in mathematics, science, English, and foreign language study. Most notably, since 1998, females have been more likely than males to complete some advanced science coursework, though no differences by sex were detected in the proportions of students who took the highest levels of science or mathematics coursework. In addition, in 2004, Asian graduates were more likely than graduates of any other race/ethnicity to complete advanced courses in mathematics, science, English, and foreign language study.

High School Coursetaking

Continued

NOTES

¹The most recent data available for this special analysis did not collect data on advanced course offerings from private schools.

²The basic unit of coursework measurement is the course credit or standardized “Carnegie unit.” A Carnegie unit is a standard of measurement used for secondary education that is equivalent to the completion of a course that meets one period per day for one school year, where a period is typically at least 40 minutes.

³Many local school districts and schools impose their own standards for graduation that exceed these state requirements.

⁴In 2006, nine states had exit examination requirements for some private school students. In several states, these requirements applied to all students in state-accredited private schools; however, in other states, these requirements applied only to specific categories of private school students (e.g., students placed in private schools by school districts or other public agencies) (CEP 2006, table 22).

⁵Maryland’s exit examination process was revised in 2004.

⁶North Carolina also has a mandatory test in civics and economics and in computer skills.

⁷Information on the content of the dual-credit coursework, and the extent to which it qualifies as advanced, was not collected as part of the Fast Response Survey System (FRSS).

⁸All high school courses recorded in student transcripts are coded in accordance with the Classification Scheme of Secondary School Courses (CSSC). Courses in the CSSC taxonomy can then be grouped according to their academic level to classify a student’s highest level of coursetaking within a particular subject. The CSSC is designed to describe course offerings in secondary education and to provide a coherent means for classifying these courses in this way. Each CSSC code has six digits, with an associated course title, alternate titles, and a course description.

⁹The definition of a high school graduate and what was considered a complete transcript record differs slightly between survey collections and other NCES reports. See *supplemental note 12* for more detail.

¹⁰These data report only the percentage of students who earned credit in each course while in high school and do not include a count of those courses taken prior to entering high school. In 2004, approximately 95 percent of graduates had taken algebra I before or during high school.

¹¹Academic levels are labeled according to the most commonly known course at that level; courses with different names or on topics of different but similar academic difficulty may be included under these rubrics. See *supplemental note 12* for a complete listing of all the courses classified at each academic level.

¹²Calculus-level courses include AP calculus, calculus, and calculus/analytical geometry.

¹³“On-time” graduates are students who graduated between the fall of 2003 and the summer of 2004.

¹⁴The focus in the section is on students and examinations. Individuals may take multiple examinations. Furthermore, the data for this section’s analysis count all test takers and are not limited to high school graduates.

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