

# Academic Pathways, Preparation, and Performance: A Descriptive Overview of the Transcripts from the High School Graduating Class of 2003-04

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## **Introduction**

The patterns of courses taken by high school students are a major policy concern in education. Courses are the building blocks of the high school curriculum. Although a variety of courses—including general skills, occupation-specific, and advanced college preparatory courses—are typically available to most students, not all students take courses that adequately prepare them for life after high school.

This report uses transcript data from the Education Longitudinal Study of 2002 (ELS:2002) to provide nationally representative information about the level of academic preparation the high school graduating class of 2003-04 had when leaving high school. The report supplies a brief examination of the course taking patterns of 2003-04 graduates, with a focus on their participation in mathematics, science, and Advanced Placement/International Baccalaureate courses. Additionally, the report links these course taking patterns with test achievement in mathematics, grade point average, and expectations for future educational attainment.

Major findings in the report are that: the high school graduating class of 2003-04 earned an average of 25.8 course credits (measured in Carnegie units), 19.0 in academic subjects. Overall, about 30 percent of the class earned at least a credit in Advanced Placement or International Baccalaureate courses. Among the graduates, 5 percent got no further than basic math or pre-algebra courses, 45 percent completed at least algebra I or II, 36 percent completed at least one trigonometry, statistics, or pre-calculus course, and 14 percent calculus, as their highest level mathematics in high school.

Ninety one percent of graduates who completed an academic curriculum and 46 percent of students who completed an occupational curriculum demonstrated mastery at proficiency level 3 on the ELS:2002 12<sup>th</sup> grade mathematics assessment, which is simple problem-solving, requiring low-level mathematical concepts.

## **About the Education Longitudinal Study of 2002 (ELS:2002)**

NCES is involved in research on the development and critical transitions experienced by students as they proceed through high school and into postsecondary education and the labor market. ELS:2002 is a longitudinal study, starting with a nationally representative sample of 10<sup>th</sup>-graders in public and private schools in the United States in 2002. The 2002 sophomore cohort was surveyed again in the spring of 2004 when most of the sample members were high school seniors. In the spring of 2005, transcripts were collected from all sample members. This analysis focuses on 11,560 students who received a diploma between September 1, 2003 and August 31, 2004 (i.e., the high school graduating class of 2003-04) and had at least 3 years of transcript information. Those who graduated before or after this time frame, as well as those not enrolled during this

time frame (e.g., dropouts and home schoolers), were excluded from the analysis. Course taking patterns are examined by select student background characteristics, high school experiences, and measures of preparation.

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### **Course taking Patterns of the High School Graduating Class of 2003-04**

High school course taking patterns are based on the Secondary School Taxonomy (Bradby and Hoachlander 1999), which divides high school coursework into four distinct curricula: academic, vocational, enrichment/other, and special education.

- These high school graduates earned an average of 25.8 course credits, 19.0 in academic subjects.
- The high school graduating class of 2003-04 earned an average of 3.6 mathematics course credits, 3.3 science credits, 4.3 English credits, 3.9 social studies credits, 2.0 fine arts credits, and another 2.0 credits in non-English language courses.
- Overall, about 30 percent of the high school graduating class of 2003-04 earned credit in AP or IB courses. Around 12 percent earned credit in a mathematics AP/IB course.
- Among the high school graduating class of 2003-04, 33 percent of females and 27 percent of males earned any credit in AP/IB courses.
- Among the high school graduating class of 2003-04, 53 percent of Asians, 33 percent of Whites, 25 percent of Hispanics, and 16 percent of Blacks earned any credit in AP/IB courses.
- Among the high school graduating class of 2003-04, 26 percent followed an academic curriculum concentration, 15 percent followed an occupational curriculum concentration, 3 percent followed both an academic and occupational curriculum concentration, and another 56 percent followed a general curriculum. (An occupational curriculum concentration includes at least three credits in one specific labor market preparation area, such as agriculture, business, marketing, health care, protective services, trade and industrial, technology, food service, child care, and personal and other services programs.)
- Among the 2003-04 high school graduates, 5 percent took level 2 math; 45 percent took level 3 math; 36 percent took level 4 math; and 14 percent took level 5 mathematics as their highest mathematics course in high school . (Course levels include: level 1-no math; level 2-basic math/pre-algebra; level 3-core secondary through algebra II; level 4-trigonometry, statistics, pre-calculus; and level 5-calculus.)

- Among the high school graduating class of 2003-04, 33 percent of Asians, 16 percent of Whites, 7 percent of Hispanics, 5 percent of Blacks, and 6 percent of American Indians took level 5 math as their highest mathematics course in high school.

### **Grade Point Average**

Grade point average is measured two ways: overall academic grade point average and overall grade point average. Academic grade point average is based on grades received in academic courses (math, science, English, social studies, fine arts, and non-English language), while overall grade point average is based on grades received in all courses.

The high school graduating class of 2003-04 had a mean GPA of 2.9 overall and 2.7 in academic courses.

- About 47 percent of the high school graduating class of 2003-04 earned at least a B average (3.0 GPA) in their courses.
- Among the high school graduating class of 2003-04, academic concentrators had a 3.3 overall GPA, and occupational concentrators had a 2.6 overall GPA.
- Among the high school graduating class of 2003-04, seniors who took calculus had an average overall GPA of 3.5, and seniors who took basic mathematics or pre-algebra as their highest mathematics course had an average GPA of 2.3.

### **Educational Expectations**

- Among the high school graduating class of 2003-04, those expecting to earn a graduate or professional degree earned 21 academic credits in high school, and those expecting to have some college experience but not a degree earned 17 credits.
- Among the high school graduating class of 2003-04, 45 percent of graduates expecting to earn a graduate or professional degree and 19 percent of graduates expecting to have some college experience but not a degree took level 4 mathematics (trigonometry, statistics, pre-calculus).