

# Education Longitudinal Study of 2002 (ELS:2002): A First Look at the Postsecondary Transcripts of 2002 High School Sophomores

First Look



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# Education Longitudinal Study of 2002 (ELS:2002)

A First Look at the Postsecondary Transcripts of 2002  
High School Sophomores

First Look

**APRIL 2015**

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# Introduction

The Education Longitudinal Study of 2002 (ELS:2002) tracks the educational and developmental experiences of a nationally representative sample of United States high school students who were sophomores in the spring of 2002.<sup>1</sup> This First Look report provides a descriptive portrait of their postsecondary education experiences through the end of the 2012–13 academic year by using information obtained during the postsecondary transcript data collection conducted in 2013–14.<sup>2</sup>

Because this report is descriptive in nature, readers are cautioned not to draw causal inferences based on the bivariate results presented. It is important to note that many of the variables examined in this report may be related to one another, and complex interactions and relationships among the variables have not been explored. The variables presented here are just a small subset of those that can be examined with the ELS:2002 data; they were selected to demonstrate the range of information available from the study and are not designed to emphasize any particular issue. The release of this report is intended to encourage more in-depth analysis of the ELS:2002 data using more sophisticated statistical methods.

Comparisons made in the text were tested for statistical significance to ensure that the differences were larger than might be expected as a result of sampling variation. All differences reported are significant at the  $p < .05$  level. There were no adjustments made for multiple comparisons. Given the short format of this release report, the findings presented in Selected Findings (beginning on pg. 3) do not include all statistically significant findings from the tables.

Section B.10 of this report includes information about the specific variables used in each table and figure. Further information about the ELS:2002 dataset and the methodologies employed in the collection and processing of those data can be found in the technical appendix to this report (appendix B) and, with greater detail, in the *ELS:2002 Postsecondary Education Transcript Study Data File Documentation (DFD)* (Ingels et al. 2015).

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<sup>1</sup> ELS:2002 data actually support two analysis cohorts (2002 high school sophomores and 2004 high school seniors), but the focus of this report is the 2002 sophomore cohort; more specifically, this report looks at the 11,522 members of the ELS:2002 sophomore cohort for whom at least one postsecondary transcript was collected.

<sup>2</sup> The ELS:2002 postsecondary transcript data collection began in March 2013 and continued through early April 2014. For the sake of comparability across the analytic sample, this report focuses on postsecondary education experiences through the end of the 2012–13 academic year.

ELS:2002 began with surveys administered in 2002 for students, their parents, teachers, school administrators, and school librarians. The students were also administered assessments in mathematics and reading in 2002. The first follow-up occurred in 2004 (when the majority of sample members were seniors in high school), and high school transcripts were collected in 2005. The second follow-up was conducted in 2006, approximately 2 years after the sample students' modal high school graduation date. The third and final follow-up was conducted in 2012, when the majority of sample members were approximately 26 years old. During the second and third follow-up surveys, respondents were asked to provide the name and location of each postsecondary institution that they had attended. Those institutions were subsequently contacted in 2013–14, and postsecondary transcripts were requested for each ELS:2002 sample member who reported attendance. The ELS:2002 postsecondary transcript data used in this report include 11,522 members of the sophomore cohort for whom at least one postsecondary transcript was collected. Overall, transcripts were obtained for 11,623 of 12,549 eligible sample members for a weighted response rate of 77 percent.<sup>3</sup>

Additional information about ELS:2002 sample members was also collected from extant data sources such as the College Board/ACT (postsecondary entrance exam scores), the National Student Loan Data System, and the U.S. Department of Education Central Processing System (financial aid data).

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<sup>3</sup> Eligible sample members include those who satisfied all three of the following conditions: (1) they were either a 2002 high school sophomore or a 2004 high school senior; (2) they had attended one or more postsecondary institutions since 2002; and (3) they were alive as of the third follow-up (students who were no longer alive at the time of third follow-up (2012) were excluded from the postsecondary transcript data collection). Because the focus of this report is 2002 high school sophomores with subsequent postsecondary attendance, this report does not use transcript data received for any 2004 high school senior who was not also a 2002 high school sophomore.



## Selected Findings

Eighty-four percent of spring 2002 high school sophomores had at least some postsecondary enrollment as of the 2012–13 academic year. Among spring 2002 high school sophomores with subsequent postsecondary enrollment as of the 2012–13 academic year:

- Approximately 62 percent were White non-Hispanic; 14 percent Black non-Hispanic; 15 percent Hispanic; and 4 percent Asian non-Hispanic (table 1).
- The highest levels of education completed were as follows: no postsecondary credential (43 percent); undergraduate certificate<sup>4</sup> (7 percent); associate’s degree (10 percent); bachelor’s degree (33 percent); and master’s degree or higher (8 percent) (table 2).
- One percent of those whose 10th-grade reading assessment score was in the lowest quartile had attained a master’s degree or higher, and an additional 13 percent had attained a bachelor’s degree; by comparison, 17 percent of those whose 10th-grade reading assessment score was in the highest quartile had attained a master’s degree or higher, and an additional 47 percent had attained a bachelor’s degree (table 3).
- Among those who earned less than 6 credits in their first year of postsecondary enrollment, 37 percent had earned a postsecondary credential by 2012–13; by comparison, among those who earned 12 credits or more in their first year of enrollment, 69 percent had earned a postsecondary credential by 2012–13 (table 4).
- In terms of the level of the first two postsecondary institutions attended, 41 percent had attended 4-year institution(s) only, and 28 percent had attended 2-year institution(s) only. Twelve percent first attended a 4-year institution followed by attendance at a 2-year institution, and an additional 13 percent first attended a 2-year institution followed by attendance at a 4-year institution (figure 1).
- Among those who did not attend a 4-year institution, 12 percent attained an associate’s degree, 16 percent attained an undergraduate certificate, and 71 percent did not earn a postsecondary credential. Among those who did attend a 4-year institution, 59 percent attained a bachelor’s degree (or higher), 8 percent attained an associate’s degree, 3 percent attained an undergraduate certificate, and 31 percent did not earn a postsecondary credential (figure 2).
- The overall cumulative undergraduate grade point average (GPA) was 2.65; cumulative undergraduate GPA was 1.99 among those who did not attend a 4-year institution and did not earn a postsecondary credential, and was 3.16 among those who earned a bachelor’s degree or higher (table 5).
- Those who attended a 4-year institution earned, on average, 86 percent of the undergraduate credits they attempted; those who did not attend a 4-year institution earned, on average, 68 percent of the undergraduate credits they attempted (table 6).
- Twenty-five percent of high school academic concentrators took at least one postsecondary remedial course, while 52 percent of those who were not academic concentrators while in high school took at least one postsecondary remedial course<sup>5</sup> (table 7).

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<sup>4</sup> Undergraduate certificates usually take less than 2 years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>5</sup> “Academic concentrators” satisfied all of the following requirements: 4 high school credits of English, 3 high school credits of mathematics with at least 1 credit higher than algebra II, 3 high school credits of science with at least 1 credit higher than biology, 3 high school credits of social studies with at least 1 credit in U.S. or world history, and 2 high school credits in a single foreign language.

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## Figures and Tables

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**Table 1.**  
**Distribution of selected student/family background characteristics among spring 2002 high school sophomores with and without subsequent postsecondary enrollment: 2012–13**

<b>Student/family background characteristic</b>	<b>At least some postsecondary enrollment<sup>1</sup></b>	<b>No postsecondary enrollment<sup>1</sup></b>	<b>Overall</b>
<b>Sex</b>			
Male	46.8	61.6	49.1
Female	53.2	38.4	50.9
<b>Race/ethnicity</b>			
White, non-Hispanic	61.9	52.2	60.4
Black or African American, non-Hispanic	13.9	16.4	14.3
Hispanic or Latino	15.0	21.7	16.0
Asian, non-Hispanic	4.4	1.9	4.0
Other non-Hispanic	4.8	7.9	5.3
<b>Student's native language<sup>2</sup></b>			
English	86.6	83.8	86.1
Non-English	13.4	16.2	13.9
<b>Family composition<sup>3</sup></b>			
Two parents/guardians	77.8	70.6	76.7
Single parent/guardian	22.2	29.4	23.3
<b>Highest parental education<sup>3</sup></b>			
High school credential or less	23.4	48.9	27.3
Some college	34.8	34.6	34.8
Bachelor's degree	23.8	10.9	21.8
Master's degree or higher	18.0	5.6	16.1
<b>Household socioeconomic status<sup>3,4</sup></b>			
Lowest quartile	20.6	45.2	24.3
Middle two quartiles	50.6	48.9	50.3
Highest quartile	28.9	5.9	25.4
<b>Parental education expectations for student<sup>3</sup></b>			
High school credential or less	4.2	29.3	7.7
Some college	15.4	30.2	17.4
Bachelor's degree	46.2	29.5	43.9
Master's degree or higher	34.2	11.0	31.0

<sup>1</sup> Eighty-four percent of spring 2002 high school sophomores had at least some postsecondary enrollment as of the 2012–13 academic year, and 16 percent had no postsecondary enrollment as of the 2012–13 academic year.

<sup>2</sup> The language the student first learned to speak as a child.

<sup>3</sup> As of student's 10th-grade year (i.e., spring 2002).

<sup>4</sup> Household socioeconomic status (SES) is a measure of a family's relative social position; the ELS:2002 SES measure is based on five equally weighted, standardized components: family income, father's/guardian's education, mother's/guardian's education, father's/guardian's prestige of occupation, and mother's/guardian's prestige of occupation.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table 2.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected student/family background characteristics: 2012–13

Student/family background characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Under-graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher	Total
<b>Total</b>	<b>15.1</b>	<b>7.0</b>	<b>20.4</b>	<b>42.6</b>	<b>6.7</b>	<b>9.7</b>	<b>32.7</b>	<b>8.3</b>	<b>57.4</b>
Sex									
Male	18.2	8.1	21.5	47.9	5.1	9.1	31.7	6.2	52.1
Female	12.4	6.1	19.5	37.9	8.1	10.2	33.6	10.3	62.1
Race/ethnicity									
White, non-Hispanic	11.5	5.7	18.8	36.0	5.6	9.9	38.1	10.3	64.0
Black or African American, non-Hispanic	23.4	10.4	24.3	58.1	8.7	8.0	21.0	4.3	41.9
Hispanic or Latino	23.0	8.8	24.3	56.0	10.1	10.6	19.2	4.1	44.0
Asian, non-Hispanic	6.9	5.7	18.3	30.8	3.8	6.8	47.3	11.3	69.2
Other non-Hispanic	20.9	9.6	20.7	51.2	6.4	11.0	26.1	5.3	48.8
Student's native language <sup>3</sup>									
English	14.4	6.9	20.3	41.6	6.3	9.6	33.9	8.6	58.4
Non-English	20.0	7.7	21.2	48.9	8.9	10.4	25.3	6.5	51.1
Family composition <sup>4</sup>									
Two parents/guardians	13.8	6.4	20.0	40.1	6.1	9.8	34.7	9.2	59.9
Single parent/guardian	19.1	8.3	23.2	50.7	8.5	9.1	26.4	5.3	49.3
Highest parental education <sup>4</sup>									
High school credential or less	21.8	9.3	22.7	53.8	10.7	11.6	20.5	3.5	46.2
Some college	17.4	9.0	22.5	48.9	8.2	10.7	27.3	4.9	51.1
Bachelor's degree	10.5	4.8	19.6	34.8	4.3	8.6	41.1	11.1	65.2
Master's degree or higher	8.3	3.2	16.2	27.7	2.2	6.5	46.6	17.1	72.3
Household socioeconomic status <sup>4, 5</sup>									
Lowest quartile	23.8	10.3	23.6	57.7	10.9	10.7	17.5	3.2	42.3
Middle two quartiles	16.2	7.8	22.1	46.0	7.7	10.7	29.7	5.8	54.0
Highest quartile	7.4	3.5	16.8	27.6	2.4	7.1	47.3	15.6	72.4

See notes at end of table.



**Table 2.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected student/family background characteristics: 2012–13—Continued**

Student/family background characteristic	Did not earn a postsecondary credential			Earned a postsecondary credential (highest credential earned)					Total
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Under-graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher		
Parental education expectations for student <sup>4</sup>									
High school credential or less	39.6	10.5	17.7	67.8	16.7	9.3	5.9 !	‡	32.2
Some college	25.8	12.2	23.9	61.9	11.8	13.3	11.3	1.6	38.1
Bachelor's degree	12.0	5.9	21.5	39.4	5.3	10.1	37.5	7.6	60.6
Master's degree or higher	8.4	4.8	18.1	31.4	4.0	6.8	42.8	15.0	68.6

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent (but less than 50 percent) of the estimate.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> Includes post-bachelor's certificate.

<sup>3</sup> The language the student first learned to speak as a child.

<sup>4</sup> As of student's 10th-grade year (i.e., spring 2002).

<sup>5</sup> Household socioeconomic status (SES) is a measure of a family's relative social position; the ELS:2002 SES measure is based on five equally weighted, standardized components: family income, father's/guardian's education, mother's/guardian's education, father's/guardian's prestige of occupation, and mother's/guardian's prestige of occupation.

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

**Table 3.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected high school experiences/characteristics: 2012–13**

High school experience/characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post- secondary credits earned	16–29 post- secondary credits earned	30+ post- secondary credits earned	Total	Under- graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher	Total
<b>Total</b>	<b>15.1</b>	<b>7.0</b>	<b>20.4</b>	<b>42.6</b>	<b>6.7</b>	<b>9.7</b>	<b>32.7</b>	<b>8.3</b>	<b>57.4</b>
Student's educational expectation in 10th grade (spring 2002)									
High school credential or less	36.5	12.0	20.1	68.6	14.4	10.2	6.3	‡	31.4
Some college	26.3	10.8	21.4	58.5	13.9	14.4	11.9	1.3 !	41.5
Bachelor's degree	14.0	7.1	21.9	43.0	6.0	10.9	34.0	6.1	57.0
Master's degree or higher	9.6	5.1	19.5	34.2	4.2	7.6	40.8	13.3	65.8
Don't know	24.2	9.0	20.9	54.0	11.4	8.7	21.2	4.7	46.0
Student's educational expectation in spring 2004									
High school credential or less	38.7	11.7	16.2	66.6	14.3	10.0	7.4	‡	33.4
Some college	29.2	12.0	21.3	62.5	14.7	14.9	7.8	‡	37.5
Bachelor's degree	12.0	6.9	22.6	41.5	4.3	10.2	38.3	5.6	58.5
Master's degree or higher	7.4	3.9	18.4	29.7	3.2	6.7	44.3	16.1	70.3
Don't know	27.2	7.6	23.1	57.9	13.5	11.8	14.5	2.3 !	42.1
High school curriculum concentration <sup>3</sup>									
Academic concentrator	3.6	2.7	16.1	22.4	2.2	6.4	51.9	17.1	77.6
Not an academic concentrator	19.5	8.8	22.1	50.4	8.4	11.0	25.4	4.8	49.6
Cumulative high school GPA									
0.00–1.99	41.0	13.4	22.3	76.7	11.2	7.0	4.9	‡	23.3
2.00–2.49	24.6	11.7	26.7	63.0	9.1	12.2	14.8	1.0	37.0
2.50–2.99	12.8	8.4	25.2	46.4	8.2	13.3	28.2	3.8	53.6
3.00–3.49	6.1	3.8	19.9	29.9	5.1	9.3	46.5	9.2	70.1
3.50+	1.9	1.3	8.8	12.0	1.4	5.8	56.8	24.1	88.0
2002 reading assessment score									
Lowest quartile	28.9	10.5	23.0	62.4	11.4	12.0	13.0	1.3	37.6
Middle two quartiles	15.3	7.7	22.1	45.2	7.5	10.3	31.1	5.8	54.8
Highest quartile	6.3	3.8	16.0	26.1	2.2	7.1	47.5	17.1	73.9

See notes at end of table.

Table 3.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected high school experiences/characteristics: 2012–13—Continued

High school experience/characteristic	Did not earn a postsecondary credential			Earned a postsecondary credential (highest credential earned)					Total
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Undergraduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher		
2002 math assessment score									
Lowest quartile	29.6	11.0	22.7	63.4	13.8	9.9	11.7	1.2 †	36.6
Middle two quartiles	15.5	7.5	22.1	45.1	6.9	11.7	30.4	5.9	54.9
Highest quartile	5.9	4.0	16.3	26.2	2.0	6.0	49.0	16.9	73.8
Highest math course taken in high school									
No math, basic math, or pre-algebra	39.4	10.7	22.0	72.0	15.0	8.4	4.4	‡	28.0
Core secondary through algebra II	22.2	10.9	23.7	56.7	9.7	12.5	18.8	2.2	43.3
Trigonometry, statistics, pre-calculus	7.6	4.1	20.1	31.8	3.6	8.7	44.5	11.3	68.2
Calculus	2.1	1.3	10.2	13.6	1.5	3.8	58.4	22.7	86.4
Carnegie units earned in math									
0.0–1.9	35.7	13.9	18.9	68.5	13.1	8.5	8.5	1.5 †	31.5
2.0–2.9	26.3	9.8	25.4	61.4	10.1	9.1	16.7	2.7	38.6
3.0–3.9	16.2	7.7	22.0	46.0	7.9	10.9	29.2	6.0	54.0
4.0+	8.2	5.0	17.7	31.0	3.9	9.1	43.5	12.6	69.0
Carnegie units earned in non-English language									
0.0–0.9	34.0	12.9	20.1	67.0	13.1	9.8	9.2	0.9	33.0
1.0–1.9	20.7	10.1	23.5	54.3	8.7	13.2	20.1	3.8	45.7
2.0–2.9	11.2	6.5	22.8	40.6	5.8	9.9	36.3	7.5	59.4
3.0+	5.5	2.9	16.0	24.3	2.9	7.6	49.3	15.9	75.7

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

† Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent (but less than 50 percent) of the estimate.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> Includes post-bachelor's certificate.

<sup>3</sup> "Academic concentrators" satisfied all of the following requirements: 4 high school credits of English, 3 high school credits of mathematics with at least 1 credit higher than algebra II, 3 high school credits of science with at least 1 credit higher than biology, 3 high school credits of social studies with at least 1 credit in U.S. or world history, and 2 high school credits in a single foreign language.

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table 4.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected experiences/characteristics in postsecondary education: 2012–13

Postsecondary education experience/characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Undergraduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher	Total
<b>Total</b>	<b>15.1</b>	<b>7.0</b>	<b>20.4</b>	<b>42.6</b>	<b>6.7</b>	<b>9.7</b>	<b>32.7</b>	<b>8.3</b>	<b>57.4</b>
Timing of first postsecondary attendance									
Within 3 months of high school completion	9.2	5.5	20.2	34.9	4.5	9.8	40.5	10.3	65.1
Between 4 and 12 months following high school completion	22.9	9.7	20.4	52.9	10.2	10.2	21.5	5.2	47.1
13+ months following high school completion	35.8	12.0	22.2	69.9	14.0	8.8	5.8	1.5	30.1
Level/selectivity of first-attended postsecondary institution									
Highly selective 4-year institution	1.7	0.8 !	8.9	11.4	0.7 !	1.2	63.4	23.2	88.6
Moderately selective 4-year institution	5.4	3.5	19.3	28.2	1.6	5.0	51.4	13.7	71.8
Inclusive 4-year institution	12.6	7.3	26.4	46.3	2.7	9.5	34.6	6.8	53.7
2-year institution	23.8	10.3	23.7	57.8	9.5	14.5	16.1	2.0	42.2
Less-than 2-year institution	23.0	8.6	13.8	45.4	49.3	4.2 !	‡	‡	54.6
Control of first-attended postsecondary institution									
Public	16.3	7.4	21.8	45.6	4.9	10.4	32.0	7.2	54.4
Private not-for-profit	5.6	3.1	15.4	24.0	1.9	4.3	51.0	18.7	76.0
Private for-profit	21.2	10.5	16.6	48.3	31.5	13.6	6.5	‡	51.7
Number of credits earned in first year of enrollment									
Less than 6	33.4	9.2	19.9	62.6	11.1	9.4	14.5	2.4	37.4
At least 6 but less than 12	33.6	10.0	18.8	62.4	5.5	8.6	17.6	5.9	37.6
12 or more	2.5	6.3	22.1	30.9	5.6	10.5	42.5	10.5	69.1
Cumulative undergraduate grade point average (GPA)									
0.00–1.99	48.8	18.1	27.0	93.8	2.7	2.3	1.1	#	6.2
2.00–2.49	8.5	10.5	37.5	56.4	6.1	12.2	24.9	0.4 !	43.6
2.50–2.99	3.6	4.2	21.9	29.7	7.2	13.5	44.7	5.0	70.3
3.00–3.49	4.1	2.3	12.4	18.8	6.6	13.2	48.5	13.0	81.2
3.50+	5.5	2.6	9.7	17.8	8.2	7.4	43.9	22.8	82.2
Total number of undergraduate remedial courses taken									
0	12.3	5.0	14.9	32.2	7.4	7.2	41.0	12.3	67.8
1	18.8	7.8	22.3	48.8	5.4	10.9	29.7	5.2	51.2
2	22.1	11.4	24.8	58.4	6.0	12.5	21.5	1.6 !	41.6
3	21.3	7.0	29.9	58.2	5.2	14.3	20.5	1.9 !	41.8
4 or more	14.5	12.3	37.1	63.9	6.2	15.5	13.7	0.8 !	36.1

See notes at end of table.

**Table 4.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected experiences/characteristics in postsecondary education: 2012–13—Continued**

Postsecondary education experience/characteristic	Did not earn a postsecondary credential			Earned a postsecondary credential (highest credential earned)					
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Undergraduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree <sup>2</sup>	Master's degree or higher	Total
Total number of postsecondary institutions attended									
1	25.7	9.6	22.1	57.4	8.3	8.5	23.5	2.3	42.6
2	10.5	6.8	19.2	36.5	5.9	9.9	37.8	10.0	63.5
3 or more	3.9	3.1	19.2	26.2	5.1	11.3	41.2	16.2	73.8
Postsecondary attendance pattern <sup>3</sup>									
4-year institution(s) only <sup>4</sup>	8.1	3.8	16.8	28.7	0.8	4.8	50.4	15.3	71.3
2-year institution(s) only <sup>5</sup>	31.7	12.8	26.6	71.1	11.3	14.5	2.8	0.4 !	28.9
Less-than 2-year institution(s) only <sup>6</sup>	16.1	11.8	11.5 !	39.4	60.6	#	#	#	60.6
4-year then 2-year <sup>7</sup>	6.2	5.6	22.6	34.3	4.5	11.3	40.4	9.5	65.7
2-year then 4-year <sup>8</sup>	4.6	4.5	19.1	28.2	3.1	15.2	47.4	6.1	71.8
Other	30.6	7.8	16.8	55.2	27.1	8.3	9.0	‡	44.8
Total number of stop-outs <sup>9</sup>									
0	19.4	6.3	14.5	40.2	5.7	6.7	36.6	10.8	59.8
1	14.6	9.7	28.1	52.4	7.1	12.2	25.5	2.8	47.6
2 or more	6.0	10.6	39.9	56.5	9.7	18.5	14.8	0.5 !	43.5

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent (but less than 50 percent) of the estimate.

# Rounds to zero.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> Includes post-bachelor's certificate.

<sup>3</sup> In terms of the level of the first two postsecondary institutions attended.

<sup>4</sup> Includes (1) those whose only attended postsecondary institution was a 4-year institution, and (2) those whose first- and second-attended postsecondary institutions were 4-year institutions.

<sup>5</sup> Includes (1) those whose only attended postsecondary institution was a 2-year institution, and (2) those whose first- and second-attended postsecondary institutions were 2-year institutions.

<sup>6</sup> Includes (1) those whose only attended postsecondary institution was a less-than 2-year institution, and (2) those whose first- and second-attended postsecondary institutions were less-than 2-year institutions.

<sup>7</sup> Includes those whose first-attended postsecondary institution was a 4-year institution and second-attended postsecondary institution was a 2-year institution.

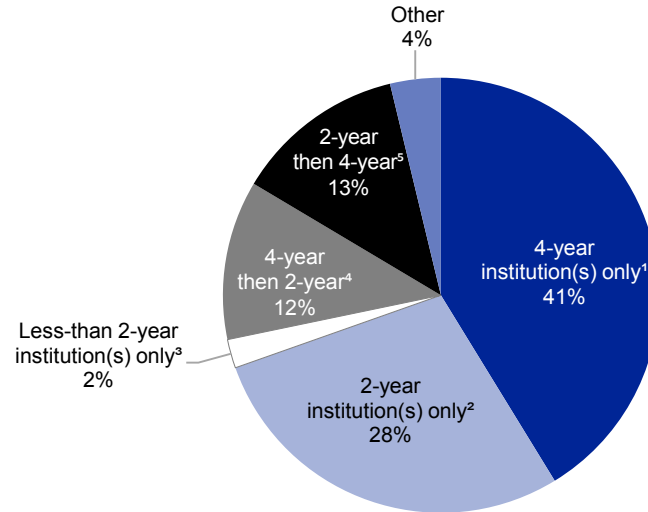
<sup>8</sup> Includes those whose first-attended postsecondary institution was a 2-year institution and second-attended postsecondary institution was a 4-year institution.

<sup>9</sup> A "stop-out" is defined as a gap in undergraduate enrollment lasting 4 or more months.

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

**Figure 1.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary attendance patterns, in terms of the level of the first two postsecondary institution(s) attended: 2012–13**



<sup>1</sup> Includes (1) those whose only attended postsecondary institution was a 4-year institution, and (2) those whose first- and second-attended postsecondary institutions were 4-year institutions.

<sup>2</sup> Includes (1) those whose only attended postsecondary institution was a 2-year institution, and (2) those whose first- and second-attended postsecondary institutions were 2-year institutions.

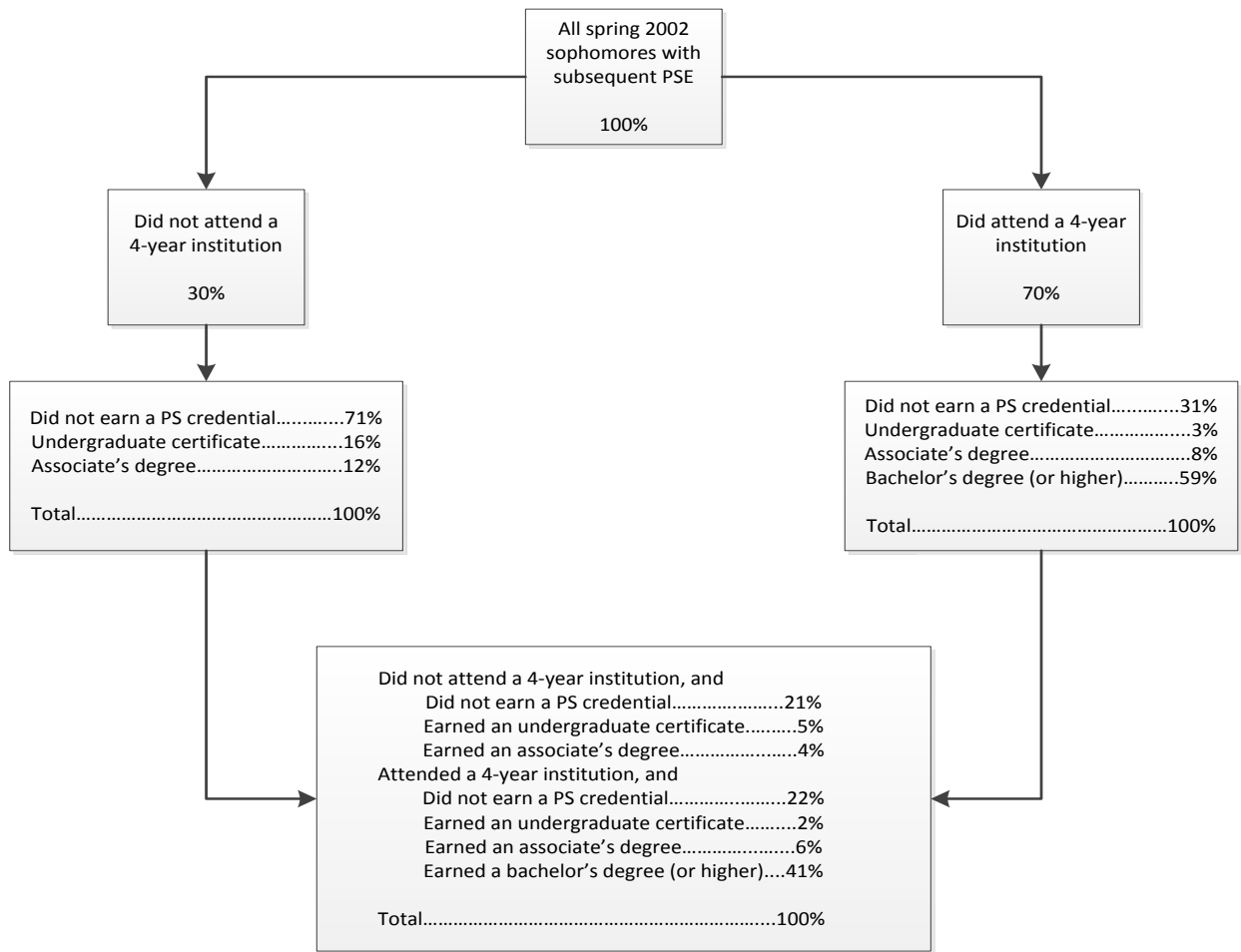
<sup>3</sup> Includes (1) those whose only attended postsecondary institution was a less-than 2-year institution, and (2) those whose first- and second-attended postsecondary institutions were less-than 2-year institutions.

<sup>4</sup> Includes those whose first-attended postsecondary institution was a 4-year institution and second-attended postsecondary institution was a 2-year institution.

<sup>5</sup> Includes those whose first-attended postsecondary institution was a 2-year institution and second-attended postsecondary institution was a 4-year institution.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

**Figure 2.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Highest postsecondary educational attainment, by level of postsecondary institution attended: 2012–13**



NOTE: Figure 2 disaggregates 2002 high school sophomores with subsequent postsecondary enrollment in three different ways: in the second row of boxes above, the cohort is disaggregated according to whether they ever attended a 4-year institution; in the third row of boxes above, two subgroups (i.e., those who did not attend a 4-year institution, and those who did attend a 4-year institution) are disaggregated according to their highest level of educational attainment as of 2012–13; and in the fourth (final) row above, the entire cohort (i.e., all spring 2002 high school sophomores with subsequent postsecondary enrollment) is disaggregated according to whether they ever attended a 4-year institution, and their highest level of educational attainment as of 2012–13.

Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called “partial” transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table 5.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Cumulative undergraduate grade point average (GPA), by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution					Attended a 4-year institution				
		Highest postsecondary attainment				Overall	Highest postsecondary attainment				Overall
		PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree			PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	
<b>Total</b>	<b>2.65</b>	<b>1.99</b>	<b>3.00</b>	<b>2.97</b>	<b>2.27</b>	<b>2.10</b>	<b>2.79</b>	<b>2.84</b>	<b>3.16</b>	<b>2.80</b>	
Sex											
Male	2.53	1.91	3.02	2.96	2.17	2.02	3.04	2.77	3.07	2.68	
Female	2.76	2.07	2.99	2.98	2.37	2.19	2.65	2.90	3.22	2.91	
Race/ethnicity											
White, non-Hispanic	2.80	2.06	3.11	3.04	2.37	2.25	2.89	2.93	3.21	2.94	
Black or African American, non-Hispanic	2.15	1.67	2.76	‡	1.94	1.73	2.51	2.56	2.81	2.24	
Hispanic or Latino	2.46	2.03	2.92	2.88	2.27	2.06	‡	2.76	3.08	2.64	
Asian, non-Hispanic	2.80	1.96	‡	2.75	2.23	2.23	‡	2.75	3.15	2.93	
Other non-Hispanic	2.50	1.97	‡	‡	2.23	2.10	‡	2.81	3.05	2.62	
Household socioeconomic status <sup>2</sup>											
Lowest quartile	2.44	2.05	3.00	2.92	2.32	2.05	2.94	2.86	3.03	2.57	
Middle two quartiles	2.59	1.98	3.00	3.00	2.27	2.10	2.75	2.81	3.13	2.74	
Highest quartile	2.86	1.92	2.78	2.99	2.17	2.16	2.70	2.87	3.20	2.97	
Student's educational expectation in 10th grade (spring 2002)											
High school credential or less	2.31	1.92	3.11	‡	2.21	2.10	‡	‡	2.96	2.48	
Some college	2.43	2.12	3.02	3.04	2.40	2.03	‡	2.74	2.98	2.50	
Bachelor's degree	2.63	2.01	2.89	3.00	2.29	2.07	2.75	2.89	3.12	2.76	
Master's degree or higher	2.79	2.01	3.01	2.93	2.28	2.16	2.71	2.80	3.20	2.90	
Don't know	2.39	1.82	2.98	2.86	2.11	2.03	‡	2.82	3.05	2.64	

See notes at end of table.



**Table 5.**

**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Cumulative undergraduate grade point average (GPA), by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution					
		Highest postsecondary attainment				Highest postsecondary attainment					
		PSE, but no postsecondary credential	Undergraduate certificate <sup>1</sup>	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	Overall	
High school curriculum concentration <sup>3</sup>											
Academic concentrator	2.98	2.34	‡	3.19	2.62	2.29	2.70	2.84	3.21	3.01	
Not an academic concentrator	2.51	1.96	2.98	2.95	2.25	2.03	2.79	2.84	3.11	2.67	
Cumulative high school GPA											
0.00–1.99	2.00	1.73	2.93	2.59	1.96	1.78	‡	2.59	2.79	2.06	
2.00–2.49	2.23	1.90	2.96	2.93	2.16	1.89	2.71	2.65	2.79	2.30	
2.50–2.99	2.50	2.12	2.92	2.96	2.40	2.04	2.57	2.77	2.87	2.54	
3.00–3.49	2.86	2.42	3.18	3.07	2.70	2.30	2.93	2.95	3.09	2.89	
3.50+	3.33	2.70	‡	3.37	3.00	2.81	‡	3.24	3.42	3.35	
2002 math assessment score											
Lowest quartile	2.22	1.83	2.97	2.91	2.15	1.86	2.71	2.69	2.86	2.29	
Middle two quartiles	2.58	2.02	3.00	2.98	2.30	2.08	2.71	2.86	3.06	2.72	
Highest quartile	3.00	2.28	3.18	3.11	2.47	2.31	3.15	2.89	3.27	3.06	

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> As of student's 10th-grade year. Household socioeconomic status (SES) is a measure of a family's relative social position; the ELS:2002 SES measure is based on five equally weighted, standardized components: family income, father's/guardian's education, mother's/guardian's education, father's/guardian's prestige of occupation, and mother's/guardian's prestige of occupation.

<sup>3</sup> "Academic concentrators" satisfied all of the following requirements: 4 high school credits of English, 3 high school credits of mathematics with at least 1 credit higher than algebra II, 3 high school credits of science with at least 1 credit higher than biology, 3 high school credits of social studies with at least 1 credit in U.S. or world history, and 2 high school credits in a single foreign language.

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table 6.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Undergraduate credits earned as a percentage of undergraduate credits attempted, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution				
		Highest postsecondary attainment				Highest postsecondary attainment				
		PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree	Overall	PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	Overall
<b>Total</b>	<b>80.4</b>	<b>58.5</b>	<b>92.2</b>	<b>92.1</b>	<b>68.1</b>	<b>66.3</b>	<b>83.9</b>	<b>86.5</b>	<b>95.4</b>	<b>85.5</b>
Sex										
Male	77.6	55.9	92.9	92.7	64.7	64.9	88.8	85.2	94.7	83.3
Female	82.8	61.3	91.7	91.6	71.3	68.0	81.2	87.6	95.9	87.4
Race/ethnicity										
White, non-Hispanic	83.9	60.8	93.4	93.2	70.8	69.3	86.0	87.7	95.9	88.4
Black or African American, non-Hispanic	69.4	50.6	88.4	‡	59.6	58.2	80.3	82.8	91.5	73.6
Hispanic or Latino	75.4	59.3	92.6	91.4	68.0	66.8	‡	84.5	94.8	82.3
Asian, non-Hispanic	85.7	59.6	‡	82.3	67.3	71.7	‡	87.9	95.6	89.8
Other non-Hispanic	76.5	56.4	‡	‡	64.3	65.6	‡	87.4	95.5	81.7
Household socioeconomic status <sup>2</sup>										
Lowest quartile	74.2	59.1	91.6	91.4	68.6	65.0	88.4	87.3	93.6	79.8
Middle two quartiles	79.3	59.1	93.5	92.5	68.8	66.4	83.5	85.9	95.3	84.1
Highest quartile	86.2	56.5	85.7	91.5	65.1	68.1	78.7	86.7	95.9	89.6
Student's educational expectation in 10th grade (spring 2002)										
High school credential or less	68.9	56.6	94.8	‡	66.0	59.4	‡	‡	91.6	72.9
Some college	73.8	59.3	94.0	96.0	70.7	64.5	‡	86.9	93.5	78.6
Bachelor's degree	80.3	59.6	89.8	91.8	68.7	66.1	84.8	87.5	95.2	84.9
Master's degree or higher	84.3	60.2	90.0	90.3	68.4	68.6	80.9	84.8	95.8	87.7
Don't know	73.5	54.1	95.5	90.0	64.8	62.8	‡	87.2	94.7	81.4

See notes at end of table.

**Table 6.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Undergraduate credits earned as a percentage of undergraduate credits attempted, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution					Attended a 4-year institution				
		Highest postsecondary attainment					Highest postsecondary attainment				
		PSE, but no postsecondary credential	Under-graduate certificate <sup>1</sup>	Associate's degree	Overall	PSE, but no postsecondary credential	Under-graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	Overall	
High school curriculum concentration <sup>3</sup>											
Academic concentrator	90.2	71.0	‡	93.3	78.2	74.0	82.8	85.3	96.1	91.2	
Not an academic concentrator	76.7	57.9	92.2	92.3	67.6	64.3	83.7	87.0	94.9	82.4	
Cumulative high school GPA											
0.00–1.99	61.3	49.8	92.2	86.8	58.2	57.4	‡	83.4	89.6	65.6	
2.00–2.49	70.3	57.2	91.6	92.2	65.6	62.4	83.3	84.0	90.8	74.8	
2.50–2.99	78.9	64.1	91.9	92.4	73.9	66.3	78.8	85.4	92.2	81.2	
3.00–3.49	87.8	72.2	92.7	93.9	80.3	72.6	87.3	88.5	95.4	89.3	
3.50+	95.4	74.5	‡	96.3	84.8	80.5	‡	92.6	98.0	96.1	
2002 math assessment score											
Lowest quartile	69.4	54.8	93.0	91.8	65.7	60.1	84.8	85.9	92.0	73.3	
Middle two quartiles	79.2	59.0	91.8	92.2	68.7	66.7	81.7	87.0	94.7	84.4	
Highest quartile	88.8	67.0	91.2	93.2	72.3	70.7	90.1	85.6	96.5	90.6	

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> As of student's 10th-grade year. Household socioeconomic status (SES) is a measure of a family's relative social position; the ELS:2002 SES measure is based on five equally weighted, standardized components: family income, father's/guardian's education, mother's/guardian's education, father's/guardian's prestige of occupation, and mother's/guardian's prestige of occupation.

<sup>3</sup> "Academic concentrators" satisfied all of the following requirements: 4 high school credits of English, 3 high school credits of mathematics with at least 1 credit higher than algebra II, 3 high school credits of science with at least 1 credit higher than biology, 3 high school credits of social studies with at least 1 credit in U.S. or world history, and 2 high school credits in a single foreign language. Details may not sum to total because of nonresponse on the transcript collection (see "Definitions of Analysis Variables" [section B.10 of this report] for further information regarding table 6 estimates related to "high school curriculum concentration").

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table 7.

Spring 2002 high school sophomores with subsequent postsecondary enrollment: Percentage who took at least one remedial postsecondary course, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution				
		Highest postsecondary attainment				Highest postsecondary attainment				
		PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree	Overall	PSE, but no postsecondary credential	Under- graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	Overall
<b>Total</b>	<b>44.0</b>	<b>64.7</b>	<b>30.8</b>	<b>60.5</b>	<b>58.7</b>	<b>50.6</b>	<b>56.2</b>	<b>57.4</b>	<b>27.2</b>	<b>37.6</b>
Sex										
Male	42.8	62.5	27.0	49.9	56.7	49.0	54.5	58.4	24.8	36.7
Female	45.0	67.1	33.0	68.8	60.6	52.3	57.1	56.6	29.0	38.4
Race/ethnicity										
White, non-Hispanic	37.8	61.3	30.7	59.0	56.2	44.4	52.8	53.6	23.2	31.4
Black or African American, non-Hispanic	58.4	71.3	34.4	‡	64.9	57.9	70.7	73.8	45.0	55.0
Hispanic or Latino	57.1	68.0	29.7	61.1	60.6	63.3	‡	64.1	43.0	53.6
Asian, non-Hispanic	38.7	66.3	‡	65.0	61.4	51.0	‡	60.4	26.0	33.3
Other non-Hispanic	45.6	63.0	‡	‡	57.1	49.1	‡	42.9	31.8	41.0
Household socioeconomic status <sup>2</sup>										
Lowest quartile	54.8	65.6	34.4	61.9	59.5	56.5	55.1	62.3	39.5	50.3
Middle two quartiles	47.0	62.1	26.4	61.4	56.0	51.8	59.8	56.2	33.1	42.6
Highest quartile	30.9	65.6	46.9	54.0	61.9	40.7	45.5	57.3	19.0	25.9
Student's educational expectation in 10th grade (spring 2002)										
High school credential or less	56.5	68.5	25.8	‡	60.0	47.7	‡	‡	61.5	51.0
Some college	54.4	62.8	26.3	50.8	54.1	51.6	‡	61.0	55.5	54.7
Bachelor's degree	46.3	61.4	43.1	57.2	58.1	54.9	56.1	57.5	30.6	41.5
Master's degree or higher	36.0	63.2	31.8	65.6	59.1	44.3	60.6	58.8	22.0	30.9
Don't know	51.7	68.9	15.0 !	79.8	59.0	54.9	‡	48.4	34.3	44.1

See notes at end of table.

**Table 7.**  
**Spring 2002 high school sophomores with subsequent postsecondary enrollment: Percentage who took at least one remedial postsecondary course, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution					
		Highest postsecondary attainment				Highest postsecondary attainment					
		PSE, but no postsecondary credential	Under-graduate certificate <sup>1</sup>	Associate's degree	Overall	PSE, but no postsecondary credential	Under-graduate certificate <sup>1</sup>	Associate's degree	Bachelor's degree or higher	Overall	
High school curriculum concentration <sup>3</sup>											
Academic concentrator	24.8	49.8	‡	43.0	45.6	34.4	39.8	43.5	18.3	22.9	
Not an academic concentrator	51.8	65.8	32.2	62.4	59.9	55.9	59.9	60.9	35.8	46.6	
Cumulative high school GPA											
0.00–1.99	60.9	69.9	27.7	47.1	62.5	55.4	‡	71.6	60.9	58.0	
2.00–2.49	60.5	66.2	31.2	62.4	60.9	61.0	52.6	67.5	56.7	60.2	
2.50–2.99	53.2	63.9	37.4	70.0	60.0	57.7	61.3	54.8	41.9	50.0	
3.00–3.49	35.8	56.0	31.9	64.6	53.1	37.2	55.4	51.3	27.4	32.1	
3.50+	17.9	35.0	‡	28.4	30.5	28.3	‡	45.9	14.6	17.1	
2002 math assessment score											
Lowest quartile	64.4	69.6	33.8	67.3	61.8	68.0	57.2	69.2	66.7	67.2	
Middle two quartiles	50.4	65.2	28.9	61.9	59.4	54.1	60.3	62.5	37.0	45.9	
Highest quartile	20.7	47.1	26.9 !	33.8	43.7	29.6	41.1	37.5	13.2	18.1	

‡ Does not meet NCES reporting standards. The standard error represents 50 percent or more of the estimate, and/or the numerator is less than 3, and/or the denominator is less than 30.

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent (but less than 50 percent) of the estimate.

<sup>1</sup> Undergraduate certificates usually take less than two years to complete and are usually designed to equip people with skills needed for direct entry to employment or to earn a license such as a cosmetology license. Other examples include certificates in administrative support, computer programming, and medical records.

<sup>2</sup> As of student's 10th-grade year. Household socioeconomic status (SES) is a measure of a family's relative social position; the ELS:2002 SES measure is based on five equally weighted, standardized components: family income, father's/guardian's education, mother's/guardian's education, father's/guardian's prestige of occupation, and mother's/guardian's prestige of occupation.

<sup>3</sup> "Academic concentrators" satisfied all of the following requirements: 4 high school credits of English, 3 high school credits of mathematics with at least 1 credit higher than algebra II, 3 high school credits of science with at least 1 credit higher than biology, 3 high school credits of social studies with at least 1 credit in U.S. or world history, and 2 high school credits in a single foreign language.

NOTE: Respondents for whom postsecondary transcripts were received from some, but not all, of their known attended postsecondary institutions were included in the calculation of these estimates. Such respondents were included to minimize to the extent possible any bias toward either higher or lower levels of postsecondary attainment/completion. See section B.7 of this report for further information regarding these so-called "partial" transcript respondents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

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# Appendix A: Standard Error Tables

**Table A-1.**

**Standard errors for table 1 estimates (Distribution of selected student/family background characteristics among spring 2002 high school sophomores with and without subsequent postsecondary enrollment: 2012–13)**

Student/family background characteristic	At least some postsecondary enrollment	No postsecondary enrollment	Overall
<b>Sex</b>			
Male	0.65	1.45	0.59
Female	0.65	1.45	0.59
<b>Race/ethnicity</b>			
White, non-Hispanic	0.95	1.71	0.93
Black or African American, non-Hispanic	0.62	1.36	0.66
Hispanic or Latino	0.74	1.57	0.74
Asian, non-Hispanic	0.28	0.29	0.25
Other non-Hispanic	0.31	0.81	0.32
<b>Student's native language</b>			
English	0.58	1.22	0.56
Non-English	0.58	1.22	0.56
<b>Family composition</b>			
Two parents/guardians	0.51	1.40	0.49
Single parent/guardian	0.51	1.40	0.49
<b>Highest parental education</b>			
High school credential or less	0.64	1.48	0.65
Some college	0.64	1.33	0.60
Bachelor's degree	0.54	0.84	0.51
Master's degree or higher	0.62	0.67	0.58
<b>Household socioeconomic status</b>			
Lowest quartile	0.62	1.48	0.65
Middle two quartiles	0.69	1.39	0.64
Highest quartile	0.80	0.73	0.76
<b>Parental education expectations for student</b>			
High school credential or less	0.28	1.46	0.38
Some college	0.54	1.61	0.53
Bachelor's degree	0.63	1.56	0.58
Master's degree or higher	0.68	1.12	0.63

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).



Table A-2.

Standard errors for table 2 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected student/family background characteristics: 2012–13)

Student/family background characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Under-graduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	Total
<b>Total</b>	<b>0.57</b>	<b>0.33</b>	<b>0.48</b>	<b>0.81</b>	<b>0.32</b>	<b>0.36</b>	<b>0.72</b>	<b>0.35</b>	<b>0.81</b>
Sex									
Male	0.86	0.51	0.80	1.13	0.41	0.49	1.05	0.45	1.13
Female	0.58	0.43	0.66	0.90	0.46	0.52	0.86	0.53	0.90
Race/ethnicity									
White, non-Hispanic	0.63	0.34	0.58	0.92	0.37	0.50	0.87	0.46	0.92
Black or African American, non-Hispanic	1.47	1.09	1.53	1.70	1.00	0.86	1.23	0.64	1.70
Hispanic or Latino	1.47	0.90	1.52	1.82	0.99	1.19	1.32	0.72	1.82
Asian, non-Hispanic	1.14	1.12	1.79	2.23	0.80	1.20	2.51	1.20	2.23
Other non-Hispanic	2.52	1.57	2.05	2.95	1.28	1.58	2.53	1.28	2.95
Student's native language									
English	0.62	0.33	0.50	0.87	0.32	0.41	0.73	0.39	0.87
Non-English	1.27	0.93	1.43	1.78	1.00	1.08	1.73	0.75	1.78
Family composition									
Two parents/guardians	0.58	0.33	0.58	0.79	0.36	0.46	0.75	0.38	0.79
Single parent/guardian	1.15	0.81	1.06	1.44	0.75	0.71	1.26	0.61	1.44
Highest parental education									
High school credential or less	1.16	0.73	1.17	1.33	0.86	0.85	1.08	0.47	1.33
Some college	0.97	0.60	0.87	1.14	0.57	0.64	1.01	0.44	1.14
Bachelor's degree	0.76	0.59	0.98	1.36	0.53	0.73	1.28	0.82	1.36
Master's degree or higher	0.94	0.52	1.05	1.51	0.42	0.69	1.54	1.04	1.51
Household socioeconomic status									
Lowest quartile	1.27	0.83	1.34	1.62	0.97	0.84	1.13	0.48	1.62
Middle two quartiles	0.76	0.51	0.66	0.93	0.51	0.55	0.91	0.40	0.93
Highest quartile	0.58	0.39	0.90	1.14	0.34	0.58	1.20	0.74	1.14

See notes at end of table.

**Table A-2.**

**Standard errors for table 2 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected student/family background characteristics: 2012–13)—Continued**

Student/family background characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Under-graduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	Total
Parental education expectations for student									
High school credential or less	3.76	2.21	2.80	3.34	2.47	2.28	1.76	†	3.34
Some college	1.95	1.22	1.60	1.99	1.23	1.33	1.08	0.44	1.99
Bachelor's degree	0.64	0.50	0.86	1.07	0.46	0.59	1.03	0.55	1.07
Master's degree or higher	0.71	0.55	0.86	1.09	0.45	0.56	1.10	0.80	1.09

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table A-3.

Standard errors for table 3 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected high school experiences/characteristics: 2012–13)

High school experience/characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post- secondary credits earned	16–29 post- secondary credits earned	30+ post- secondary credits earned	Total	Under- graduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	Total
<b>Total</b>	<b>0.57</b>	<b>0.33</b>	<b>0.48</b>	<b>0.81</b>	<b>0.32</b>	<b>0.36</b>	<b>0.72</b>	<b>0.35</b>	<b>0.81</b>
Student's educational expectation in 10th grade (spring 2002)									
High school credential or less	3.27	2.17	2.99	3.07	2.05	1.86	1.46	†	3.07
Some college	1.94	1.30	1.82	2.11	1.72	1.51	1.37	0.47	2.11
Bachelor's degree	0.72	0.55	0.88	1.13	0.47	0.64	0.97	0.48	1.13
Master's degree or higher	0.59	0.44	0.80	0.99	0.42	0.50	0.95	0.65	0.99
Don't know	2.08	1.47	1.79	2.47	1.31	1.23	1.93	0.87	2.47
Student's educational expectation in spring 2004									
High school credential or less	3.61	2.49	3.10	3.37	2.11	2.17	1.87	†	3.37
Some college	1.78	1.07	1.36	1.63	1.18	1.15	0.76	†	1.63
Bachelor's degree	0.62	0.56	0.97	1.23	0.44	0.66	1.08	0.52	1.23
Master's degree or higher	0.53	0.43	0.78	0.97	0.38	0.47	0.99	0.67	0.97
Don't know	2.07	1.20	2.08	2.25	1.46	1.49	1.72	0.78	2.25
High school curriculum concentration									
Academic concentrator	0.41	0.37	0.89	0.96	0.34	0.66	1.12	0.83	0.96
Not an academic concentrator	0.76	0.43	0.64	0.99	0.43	0.46	0.82	0.32	0.99
Cumulative high school GPA									
0.00–1.99	1.89	1.26	1.53	1.60	1.13	0.96	0.72	†	1.60
2.00–2.49	1.33	1.00	1.35	1.45	0.85	0.93	1.01	0.23	1.45
2.50–2.99	0.92	0.79	1.04	1.34	0.77	0.96	1.26	0.58	1.34
3.00–3.49	0.72	0.49	0.97	1.26	0.64	0.82	1.35	0.74	1.26
3.50+	0.37	0.31	0.86	1.03	0.33	0.61	1.34	1.13	1.03
2002 reading assessment score									
Lowest quartile	1.54	0.94	1.21	1.47	0.96	0.87	1.03	0.33	1.47
Middle two quartiles	0.69	0.44	0.68	1.03	0.50	0.53	1.00	0.43	1.03
Highest quartile	0.61	0.43	0.84	1.09	0.33	0.62	1.11	0.84	1.09

See notes at end of table.

**Table A-3.**

**Standard errors for table 3 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected high school experiences/characteristics: 2012–13)—Continued**

High school experience/characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post- secondary credits earned	16–29 post- secondary credits earned	30+ post- secondary credits earned	Total	Under- graduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	Total
<b>2002 math assessment score</b>									
Lowest quartile	1.55	0.97	1.30	1.58	1.04	0.84	1.00	0.39	1.58
Middle two quartiles	0.73	0.43	0.68	0.91	0.46	0.60	0.85	0.41	0.91
Highest quartile	0.57	0.46	0.85	1.20	0.30	0.57	1.26	0.80	1.20
<b>Highest math course taken in high school</b>									
No math, basic math, or pre-algebra	3.03	1.93	2.44	2.59	2.02	2.00	1.12	†	2.59
Core secondary through algebra II	0.91	0.58	0.80	1.13	0.59	0.60	0.84	0.29	1.13
Trigonometry, statistics, pre-calculus	0.54	0.42	0.88	1.14	0.39	0.65	1.10	0.71	1.14
Calculus	0.52	0.39	0.97	1.20	0.38	0.65	1.57	1.24	1.20
<b>Carnegie units earned in math</b>									
0.0–1.9	3.44	2.37	2.44	3.09	2.18	1.98	1.73	0.71	3.09
2.0–2.9	1.46	1.11	1.56	1.81	1.01	1.04	1.37	0.51	1.81
3.0–3.9	0.92	0.58	0.97	1.23	0.60	0.65	1.19	0.54	1.23
4.0+	0.61	0.45	0.77	1.02	0.36	0.59	0.99	0.61	1.02
<b>Carnegie units earned in non-English language</b>									
0.0–0.9	1.64	1.11	1.22	1.62	1.04	1.03	0.97	0.26	1.62
1.0–1.9	1.32	1.05	1.56	1.89	0.87	1.11	1.53	0.66	1.89
2.0–2.9	0.75	0.52	0.84	1.20	0.47	0.68	1.08	0.48	1.20
3.0+	0.62	0.38	0.76	1.06	0.44	0.66	1.10	0.84	1.06

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table A-4.

Standard errors for table 4 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected experiences/characteristics in postsecondary education: 2012–13)

Postsecondary education experience/characteristic	Did not earn a postsecondary credential			Total	Earned a postsecondary credential (highest credential earned)				Total
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned		Undergraduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	
<b>Total</b>	<b>0.57</b>	<b>0.33</b>	<b>0.48</b>	<b>0.81</b>	<b>0.32</b>	<b>0.36</b>	<b>0.72</b>	<b>0.35</b>	<b>0.81</b>
Timing of first postsecondary attendance									
Within 3 months of high school completion	0.49	0.32	0.61	0.79	0.29	0.45	0.74	0.41	0.79
Between 4 and 12 months following high school completion	1.70	1.15	1.65	2.23	1.19	1.08	1.60	0.82	2.23
13+ months following high school completion	1.54	1.04	1.43	1.38	1.04	0.85	0.77	0.35	1.38
Level/selectivity of first attended postsecondary institution									
Highly selective 4-year institution	0.40	0.28	0.87	1.06	0.26	0.33	1.49	1.17	1.06
Moderately selective 4-year institution	0.61	0.49	0.94	1.20	0.28	0.58	1.25	1.03	1.20
Inclusive 4-year institution	1.39	1.00	1.75	2.16	0.66	1.37	2.06	1.01	2.16
2-year institution	0.93	0.57	0.79	1.13	0.60	0.64	0.80	0.26	1.13
Less-than 2-year institution	3.60	2.26	2.99	3.72	3.82	1.54	†	†	3.72
Control of first attended postsecondary institution									
Public	0.63	0.37	0.59	0.90	0.31	0.41	0.80	0.36	0.90
Private not-for-profit	0.80	0.57	1.13	1.44	0.54	0.68	1.59	1.22	1.44
Private for-profit	1.82	1.46	1.66	2.25	2.00	1.50	1.02	†	2.25
Number of credits earned in first year of enrollment									
less than 6	1.49	0.89	1.11	1.59	1.11	0.82	1.14	0.47	1.59
at least 6 but less than 12	1.87	1.01	1.41	1.95	0.76	0.94	1.40	0.74	1.95
12 or more	0.26	0.39	0.61	0.76	0.35	0.50	0.79	0.46	0.76
Cumulative undergraduate GPA									
0.00–1.99	1.76	1.08	1.39	0.65	0.45	0.41	0.31	†	0.65
2.00–2.49	0.92	0.99	1.41	1.48	0.71	1.01	1.33	0.17	1.48
2.50–2.99	0.50	0.52	1.07	1.21	0.67	0.98	1.35	0.57	1.21
3.00–3.49	0.52	0.39	0.79	1.01	0.69	0.92	1.37	0.74	1.01
3.50+	0.71	0.45	0.97	1.16	0.90	0.78	1.38	1.17	1.16
Total # of undergraduate remedial courses taken									
0	0.72	0.37	0.57	0.98	0.47	0.45	1.02	0.52	0.98
1	1.19	0.82	1.27	1.71	0.76	1.00	1.26	0.68	1.71
2	1.47	1.29	1.69	1.99	0.91	1.37	1.51	0.53	1.99
3	2.07	1.28	2.42	2.36	1.14	1.68	1.94	0.64	2.36
4 or more	1.30	1.29	1.83	1.79	0.88	1.41	1.28	0.33	1.79

See notes at end of table.

Table A-4.

Standard errors for table 4 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Postsecondary educational attainment by selected experiences/characteristics in postsecondary education: 2012–13)—Continued

Postsecondary education experience/characteristic	Did not earn a postsecondary credential				Earned a postsecondary credential (highest credential earned)				
	0–15 post-secondary credits earned	16–29 post-secondary credits earned	30+ post-secondary credits earned	Total	Under-graduate certificate	Associate's degree	Bachelor's degree	Master's degree or higher	Total
Total number of postsecondary institutions attended									
1	0.92	0.62	0.80	1.06	0.53	0.63	1.08	0.28	1.06
2	0.66	0.56	0.77	1.15	0.60	0.57	1.05	0.62	1.15
3 or more	0.46	0.48	0.99	1.14	0.52	0.90	1.10	0.91	1.14
Postsecondary attendance pattern									
4-year institution(s) only	0.62	0.36	0.68	1.00	0.15	0.52	0.96	0.71	1.00
2-year institution(s) only	1.12	0.78	1.04	1.13	0.80	0.83	0.48	0.15	1.13
Less-than 2-year institution(s) only	3.44	3.41	3.49	4.34	4.34	†	†	†	4.34
4-year then 2-year	0.77	0.84	1.37	1.67	0.71	1.18	1.79	1.02	1.67
2-year then 4-year	0.71	0.65	1.23	1.37	0.57	1.04	1.67	0.81	1.37
Other	3.39	1.81	2.44	3.64	3.21	1.82	1.93	†	3.64
Total number of stop-outs									
0	0.86	0.41	0.57	1.10	0.41	0.40	1.00	0.57	1.10
1	1.00	0.79	1.20	1.51	0.72	0.93	1.20	0.40	1.51
2 or more	0.94	1.18	1.72	1.92	1.07	1.31	1.27	0.24	1.92

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table A-5.

Standard errors for table 5 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Cumulative undergraduate grade point average, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution				
		Highest postsecondary attainment				Highest postsecondary attainment				
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall
<b>Total</b>	<b>0.015</b>	<b>0.032</b>	<b>0.048</b>	<b>0.037</b>	<b>0.028</b>	<b>0.024</b>	<b>0.063</b>	<b>0.027</b>	<b>0.009</b>	<b>0.014</b>
Sex										
Male	0.021	0.047	0.087	0.064	0.045	0.035	0.093	0.041	0.013	0.020
Female	0.016	0.042	0.057	0.044	0.034	0.034	0.077	0.035	0.012	0.016
Race/ethnicity										
White, non-Hispanic	0.015	0.039	0.056	0.043	0.032	0.032	0.086	0.036	0.010	0.014
Black or African American, non-Hispanic	0.035	0.077	0.122	†	0.069	0.049	0.122	0.090	0.029	0.036
Hispanic or Latino	0.031	0.064	0.096	0.097	0.053	0.065	†	0.072	0.030	0.041
Asian, non-Hispanic	0.039	0.123	†	0.139	0.121	0.074	†	0.110	0.026	0.034
Other non-Hispanic	0.059	0.147	†	†	0.124	0.121	†	0.078	0.046	0.063
Household socioeconomic status										
Lowest quartile	0.031	0.061	0.078	0.067	0.051	0.057	0.125	0.074	0.029	0.036
Middle two quartiles	0.019	0.042	0.071	0.046	0.036	0.033	0.074	0.040	0.014	0.019
Highest quartile	0.020	0.078	0.182	0.093	0.073	0.051	0.234	0.050	0.014	0.019
Student's educational expectation in 10th grade (spring 2002)										
High school credential or less	0.072	0.103	0.122	†	0.087	0.219	†	†	0.079	0.143
Some college	0.050	0.088	0.126	0.079	0.072	0.102	†	0.099	0.067	0.062
Bachelor's degree	0.019	0.051	0.075	0.053	0.042	0.036	0.119	0.041	0.015	0.020
Master's degree or higher	0.017	0.060	0.096	0.080	0.054	0.035	0.117	0.041	0.012	0.018
Don't know	0.053	0.091	0.115	0.171	0.083	0.119	†	0.139	0.040	0.055

See notes at end of table.

**Table A-5.**

**Standard errors for table 5 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Cumulative undergraduate grade point average, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution				
		Highest postsecondary attainment				Highest postsecondary attainment				
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall
High school curriculum concentration										
Academic concentrator	0.017	0.082	†	0.057	0.069	0.045	0.153	0.064	0.012	0.017
Not an academic concentrator	0.020	0.036	0.049	0.041	0.031	0.031	0.074	0.029	0.014	0.020
Cumulative high school GPA										
0.00–1.99	0.042	0.063	0.093	0.139	0.057	0.069	†	0.121	0.081	0.060
2.00–2.49	0.032	0.060	0.081	0.086	0.051	0.049	0.152	0.054	0.028	0.034
2.50–2.99	0.024	0.061	0.106	0.059	0.050	0.046	0.158	0.045	0.021	0.027
3.00–3.49	0.018	0.071	0.066	0.056	0.053	0.049	0.108	0.061	0.014	0.019
3.50+	0.014	0.161	†	0.063	0.093	0.068	†	0.058	0.012	0.014
2002 math assessment score										
Lowest quartile	0.034	0.064	0.063	0.079	0.051	0.057	0.145	0.066	0.040	0.043
Middle two quartiles	0.017	0.041	0.073	0.048	0.035	0.029	0.090	0.037	0.012	0.016
Highest quartile	0.019	0.083	0.104	0.085	0.073	0.047	0.100	0.058	0.013	0.018

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).



Table A-6.

Standard errors for table 6 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Undergraduate credits earned as a percentage of undergraduate credits attempted, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution					
		Highest postsecondary attainment				Highest postsecondary attainment					
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall	
<b>Total</b>	<b>0.39</b>	<b>0.95</b>	<b>0.85</b>	<b>0.68</b>	<b>0.79</b>	<b>0.73</b>	<b>1.48</b>	<b>0.64</b>	<b>0.13</b>	<b>0.36</b>	
Sex											
Male	0.56	1.33	1.38	1.20	1.18	1.03	1.94	1.10	0.21	0.51	
Female	0.44	1.28	0.98	0.85	1.03	1.04	1.81	0.76	0.15	0.43	
Race/ethnicity											
White, non-Hispanic	0.41	1.24	0.94	0.75	1.00	0.94	1.99	0.82	0.14	0.37	
Black or African American, non-Hispanic	0.98	2.19	2.72	†	2.00	1.48	2.55	1.85	0.53	0.94	
Hispanic or Latino	0.96	1.94	1.78	1.61	1.57	2.17	†	1.87	0.44	1.16	
Asian, non-Hispanic	1.11	3.74	†	3.28	3.32	2.18	†	2.79	0.37	0.80	
Other non-Hispanic	1.78	4.34	†	†	3.61	3.57	†	2.49	0.53	1.86	
Household socioeconomic status											
Lowest quartile	0.93	2.00	1.49	1.31	1.59	1.54	2.27	1.60	0.39	0.93	
Middle two quartiles	0.51	1.26	0.99	0.76	1.07	0.99	1.71	0.97	0.19	0.51	
Highest quartile	0.53	2.17	3.66	1.69	1.93	1.53	5.10	1.17	0.18	0.46	
Student's educational expectation in 10th grade (spring 2002)											
High school credential or less	2.08	3.29	1.30	†	2.68	5.98	†	†	2.19	4.03	
Some college	1.32	2.41	1.85	1.15	1.88	3.12	†	1.93	0.91	1.72	
Bachelor's degree	0.56	1.57	1.49	1.08	1.23	1.14	2.64	0.96	0.22	0.55	
Master's degree or higher	0.43	1.77	2.22	1.45	1.49	0.98	2.35	1.11	0.16	0.43	
Don't know	1.45	2.55	1.27	2.72	2.32	2.93	†	3.37	0.47	1.44	

See notes at end of table.

**Table A-6.**

**Standard errors for table 6 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Undergraduate credits earned as a percentage of undergraduate credits attempted, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution					
		Highest postsecondary attainment				Highest postsecondary attainment					
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall	
<b>High school curriculum concentration</b>											
Academic concentrator	0.40	2.33	†	1.10	1.80	1.17	3.64	1.54	0.17	0.39	
Not an academic concentrator	0.53	1.05	0.88	0.73	0.89	0.94	1.70	0.73	0.18	0.53	
<b>Cumulative high school GPA</b>											
0.00–1.99	1.17	1.83	1.58	2.96	1.64	2.09	†	3.02	1.47	1.68	
2.00–2.49	0.95	1.66	1.53	1.26	1.47	1.56	2.53	1.50	0.61	0.99	
2.50–2.99	0.63	1.70	1.40	1.06	1.29	1.36	3.87	0.98	0.40	0.73	
3.00–3.49	0.47	2.23	1.96	0.99	1.59	1.25	2.21	1.27	0.23	0.45	
3.50+	0.31	4.34	†	1.03	2.72	1.93	†	1.55	0.12	0.27	
<b>2002 math assessment score</b>											
Lowest quartile	0.97	1.90	0.95	1.26	1.49	1.70	2.75	1.22	0.64	1.24	
Middle two quartiles	0.51	1.29	1.40	0.77	1.09	0.97	2.02	0.81	0.18	0.44	
Highest quartile	0.48	2.12	3.59	1.75	1.93	1.32	2.24	1.51	0.16	0.42	

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

Table A-7.

Standard errors for table 7 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Percentage who took at least one remedial postsecondary course, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution				
		Highest postsecondary attainment				Highest postsecondary attainment				
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall
<b>Total</b>	<b>0.73</b>	<b>1.44</b>	<b>2.92</b>	<b>3.42</b>	<b>1.36</b>	<b>1.20</b>	<b>4.76</b>	<b>2.44</b>	<b>0.90</b>	<b>0.73</b>
Sex										
Male	0.97	1.96	4.21	5.74	1.83	1.80	8.76	3.88	1.27	1.01
Female	0.93	2.07	3.56	4.29	1.80	1.75	5.61	3.56	1.20	1.03
Race/ethnicity										
White, non-Hispanic	0.90	2.09	3.74	4.30	1.97	1.98	6.69	3.19	0.95	0.87
Black or African American, non-Hispanic	1.53	3.44	6.75	†	2.86	2.68	7.90	5.66	3.55	1.87
Hispanic or Latino	1.65	2.67	6.10	7.52	2.28	3.07	†	5.50	3.43	2.34
Asian, non-Hispanic	2.97	6.11	†	11.60	5.46	5.50	†	13.84	3.08	3.01
Other non-Hispanic	2.75	5.66	†	†	4.85	4.90	†	10.24	4.52	3.26
Household socioeconomic status										
Lowest quartile	1.63	2.59	4.79	6.25	2.29	3.05	9.46	6.27	3.11	2.16
Middle two quartiles	0.93	1.94	3.96	4.30	1.86	1.96	5.37	3.48	1.31	1.00
Highest quartile	1.21	3.83	10.56	8.52	3.37	2.60	13.21	5.75	1.09	1.11
Student's educational expectation in 10th grade (spring 2002)										
High school credential or less	3.46	4.55	7.19	†	4.22	7.94	†	†	11.81	5.50
Some college	2.31	3.45	5.52	9.33	3.02	4.75	†	7.92	5.64	3.38
Bachelor's degree	0.99	2.45	5.15	5.50	2.09	2.12	8.72	4.16	1.35	1.09
Master's degree or higher	1.03	2.93	6.40	7.10	2.66	2.10	7.44	3.95	1.14	1.04
Don't know	2.52	3.81	5.70	9.68	3.24	4.53	†	10.41	4.29	3.31

See notes at end of table.

**Table A-7.**

**Standard errors for table 7 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Percentage who took at least one remedial postsecondary course, by postsecondary institution level, highest postsecondary attainment, and selected student background and high school characteristics: 2012–13)—Continued**

Characteristic	All spring 2002 high school sophomores with subsequent postsecondary enrollment	Did not attend a 4-year institution				Attended a 4-year institution					
		Highest postsecondary attainment				Highest postsecondary attainment					
		PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Overall	PSE, but no postsecondary credential	Undergraduate certificate	Associate's degree	Bachelor's degree or higher	Overall	
<b>High school curriculum concentration</b>											
Academic concentrator	1.28	5.76	†	9.67	4.49	2.56	9.93	6.61	1.21	1.19	
Not an academic concentrator	0.89	1.59	3.26	3.74	1.48	1.39	5.46	3.02	1.40	0.95	
<b>Cumulative high school GPA</b>											
0.00–1.99	1.94	2.73	6.41	11.43	2.59	3.19	†	8.25	9.23	2.80	
2.00–2.49	1.47	2.49	5.45	7.17	2.34	2.81	9.12	5.97	3.05	1.96	
2.50–2.99	1.48	3.30	5.45	6.86	2.69	2.37	8.44	4.67	2.32	1.68	
3.00–3.49	1.34	4.79	6.98	6.52	3.45	2.95	8.62	5.78	1.50	1.31	
3.50+	1.19	9.54	†	7.90	6.28	3.94	†	9.57	1.14	1.18	
<b>2002 math assessment score</b>											
Lowest quartile	1.35	2.22	4.70	8.05	1.90	2.46	9.23	5.18	4.21	1.90	
Middle two quartiles	0.93	1.94	3.84	4.24	1.81	1.64	6.05	3.01	1.37	0.99	
Highest quartile	1.03	4.14	10.93	9.40	3.75	2.53	11.16	5.32	0.88	0.91	

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

**Table A-8.****Standard errors for figure 1 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment:  
Postsecondary attendance patterns, in terms of the level of the first two postsecondary institution(s) attended: 2012–13)**

Postsecondary attendance pattern	Standard error
4-year institution(s) only	0.8
2-year institution(s) only	0.8
Less-than 2-year institution(s) only	0.2
4-year then 2-year	0.4
2-year then 4-year	0.5
Other	0.2

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

**Table A-9.**

**Standard errors for figure 2 estimates (Spring 2002 high school sophomores with subsequent postsecondary enrollment: Highest postsecondary educational attainment, by level of the postsecondary institution attended: 2012–13)**

Characteristic	Did not attend a 4-year institution	Did attend a 4-year institution	Overall
<b>Overall</b>	<b>0.9</b>	<b>0.9</b>	<b>†</b>
Did not attend a 4-year institution, and did not earn a postsecondary credential	1.0	†	0.7
Did not attend a 4-year institution, and earned an undergraduate certificate	0.8	†	0.3
Did not attend a 4-year institution, and earned an associate's degree	0.8	†	0.2
Did attend a 4-year institution, and did not earn a postsecondary credential	†	0.8	0.6
Did attend a 4-year institution, and earned an undergraduate certificate	†	0.2	0.2
Did attend a 4-year institution, and earned an associate's degree	†	0.4	0.3
Did attend a 4-year institution, and earned a bachelor's degree (or higher)	†	0.8	0.8

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Transcript Restricted-Use File (NCES 2015-035).

# Appendix B: Technical Notes and Methodology

Appendix B provides technical information and study methodology related to the ELS:2002 postsecondary transcript study. For further information about ELS:2002, see the *ELS:2002 Postsecondary Education Transcript Study Data File Documentation (DFD)* (Ingels et al. 2015) or any of the prior-round DFDs:

- *ELS:2002 Base-Year to Third Follow-up Data File Documentation (DFD)* (Ingels et al. 2014)
- *ELS:2002 Base-Year to Second Follow-up Data File Documentation (DFD)* (Ingels et al. 2007)
- *ELS:2002 Base-Year to First Follow-up Data File Documentation (DFD)* (Ingels et al. 2005)
- *ELS:2002 First Follow-up Transcript Component Data File Documentation (Restricted Use DFD)* (Bozick et al. 2006)<sup>6</sup>
- *ELS:2002 Base-Year Data File User's Manual* (Ingels et al. 2004)

## B.1 Design and Purposes of ELS:2002

ELS:2002 is the fourth in a series of secondary school longitudinal surveys sponsored by the National Center for Education Statistics.<sup>7</sup> All of these studies monitor the transition of national samples of young people from their high school years to postsecondary statuses, including further education, participation in the work force, and the assumption of other adult roles. ELS:2002 tracks these critical

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<sup>6</sup> The ELS:2002 First Follow-up Transcript Component DFD is a restricted-use product; however, publicly available documentation of this study component is available in the ELS:2002 Base-Year to Second Follow-up DFD. Specifically, sections 2.4, 5.2, 6.2.4, and 6.2.7 of the Second Follow-up DFD address such issues as transcript data processing, design effects, and weighting; in addition, a variables list—inclusive of high school transcript variables—can be found in Appendix L.

<sup>7</sup> The three predecessor studies to ELS:2002 are the National Longitudinal Study of the High School Class of 1972 (NLS:72); High School and Beyond (HS&B); and the National Education Longitudinal Study of 1988 (NELS:88).

transitions for two analysis cohorts: 2002 high school sophomores and 2004 high school seniors.

In the high school years, ELS:2002 was an integrated multilevel survey involving multiple respondent populations. Base-year surveys were administered in 2002, including separate questionnaires for students and their parents, teachers, school administrators, and librarians. The base-year data collection also included student assessments in math and reading, as well as a facilities checklist. The first follow-up was conducted in 2004, when base-year students were surveyed regardless of whether they were still in their base-year school, had transferred to a new school, or were out of school. High school-based data collections concluded in 2005, when schools were asked to provide high school transcripts for each sample member, regardless of the sample member's high school completion status.

In addition to the aforementioned high school survey components, follow-up surveys were also administered during the sample members' postsecondary years: the second follow-up was conducted in 2006 (approximately 2 years after the sample's modal high school graduation date), and the third follow-up was conducted in 2012 (when the majority of the sample was approximately 26 years old). As part of both the second and third follow-up surveys, respondents were asked to provide the name and location of each postsecondary institution they had attended. Those institutions were subsequently contacted in 2013–14, and postsecondary transcripts were requested for each ELS:2002 sample member who reported attendance (see also sections B.2 and B.3 of this report for further information on the sample design and data collection results of the ELS:2002 Postsecondary Education Transcript Study [PETS]).

On their own, the postsecondary transcript data can inform public policy discussions on, for example, community college curricula, public university graduation rates, and postsecondary attainment. Taken with the 10-year accumulation of data (2002–12) collected in previous rounds of ELS:2002, postsecondary transcript information can be used to shape discussions on the correlates of successful transitions from high school to college and nontraditional routes through the postsecondary education system, among many additional topics. Further issues include the later educational and labor market activities of college-bound students; persistence in attaining postsecondary educational goals; rate of progress through the postsecondary curriculum (time to degree or certificate); degree attainment at both the sub-baccalaureate and baccalaureate levels; barriers to persistence and attainment; entry of new postsecondary graduates into the workforce; and the social and economic rate of return on education to both the individual and society.



Finally, it may be worth noting that ELS:2002 was designed to be comparable with the aforementioned NCES predecessor studies (NLS:72, HS&B, and NELS:88). Each of these studies includes similarly defined postsecondary transcript information, which can be used in conjunction with ELS:2002 PETS data to investigate trends over time.

## B.2 Sample Design

The ELS:2002 base-year sample design began with a nationally representative, two-stage stratified probability sample. The first stage of selection was schools; high schools were selected with probability proportional to size. The public high school sample was stratified by the nine U.S. Census divisions and by location (metropolitan status of urban, suburban, or rural). Private high schools (Catholic and other private) were stratified by four levels of geography (Census regions) and three of location (urbanicity); private high schools were oversampled. The target sample size was 800 high schools (600 public and 200 private). Cooperation was sought from 1,221 eligible high schools. The realized sample was made up of 752 participating 10th-grade schools. The second stage of selection was students. Of 17,591 eligible sampled students in the schools, 15,362 students participated, with some groups (e.g., Asians, students in nonpublic schools) being oversampled.

Base-year schools were again invited to participate in the first follow-up, as were base-year sophomore respondents (and a sample of base-year nonrespondents), regardless of whether they remained in their base-year school or had transferred to another school. In addition, at participating base-year schools in the first follow-up, a sample freshening procedure was implemented so that spring-term 2004 seniors who had not had a chance of selection into the sophomore cohort 2 years before would have a chance of selection into ELS:2002 as seniors. Ten base-year schools were ineligible in the first follow-up because they no longer enrolled ELS:2002 sample members. Overall, there were 16,515 sample members (students, dropouts, homeschooled students, or early graduates), of whom 14,989 participated.

In autumn 2004, high school transcripts were requested for all sample members who participated in at least one of the first two student interviews: the base-year interview or the first follow-up interview. Thus, sample members who were dropouts, freshened sample members, transfer students, homeschooled students, and early graduates are included if they were respondents in either the 2002 or 2004 interview. Transcripts were also requested for students who could not participate in either of the interviews because of a physical disability, a mental disability, or a language barrier. Further information about the high school transcript component

may be found in the *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (Bozick et al. 2006), available to licensed users of the transcript data.

The second follow-up contacted sample members in 2006, at a time when the overwhelming majority of them were 2 years past high school graduation and had entered the labor force or postsecondary education, or some combination of the two. The second follow-up included all first follow-up-eligible sample members except deceased students, students who were determined study ineligible at prior rounds, and sample members who were out of scope<sup>8</sup> in the first follow-up study. Eligible sample members who had not responded in the base year and the first follow-up were not fielded for the second follow-up. Similarly, freshened sample nonrespondents were not fielded for the second follow-up. For additional details, see the *Education Longitudinal Study of 2002 (ELS:2002) Base-Year to Second Follow-up Data File Documentation* (Ingels et al. 2007).

The administration of the third and final follow-up took place in 2012, 8 years after modal graduation from high school. The third follow-up included all first follow-up-eligible sample members except deceased students, students who were determined to be study ineligible at prior rounds, and sample members who were out of scope in the first follow-up collection. Double nonrespondents, eligible sample members who had not responded in the base year and the first follow-up, were not fielded for the third follow-up.

The basis for the ELS:2002 postsecondary transcript data collection is the same as the basis for the third follow-up, although the target population for the postsecondary transcript data collection corresponds to a specific subpopulation of the two overarching ELS student populations; namely, the students in the 10th grade in 2002 or the 12th grade in 2004 who had attended one or more postsecondary institutions since 2002 and who were alive as of the third follow-up.

### B.3 Data Collection Results

Response rates for ELS:2002 are calculated by dividing the number of sample units that completed a particular study component by the number of eligible sample units—regardless of whether they are fielded—except for the deceased (sample members are not eligible for follow-up if they are classified as deceased). Out-of-scope cases

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<sup>8</sup> Out-of-scope sample members include individuals who had not responded in any prior round, prior-round respondents who were incarcerated or out of the country, and prior-round study refusals.

(those who have withdrawn from the study, those who have completed neither in-school round, as well as those who were incarcerated, institutionalized, out of the country, or otherwise unavailable for the duration of the study round) were not fielded but are counted in the full sample (as contrasted to the fielded sample). The full sample is used to establish population parameters; the fielded sample is a measure of the success of the data collection effort. Unweighted participation rates for the fielded sample may be found in the *ELS:2002 Postsecondary Education Transcript Study Data File Documentation (DFD)* (Ingels et al. 2015). Response rates for the full sample are provided in table B-1 below.

All response rates are calculated using the base weight. For each round of data collection, nonresponse bias analyses were performed to ensure that any identified biases because of nonresponse were small or were adjusted for (see section B.5 of this report for further information on nonresponse bias analyses).

*Base-year school and student questionnaire response rates.* Of the 1,221 eligible contacted schools, 752 participated in the survey, for an overall weighted school response rate of 68 percent. These schools are nationally representative of public and private schools. The student response rate (see table B-1 below) was 87 percent. For further information on base-year data collection results, see the *Education Longitudinal Study of 2002: Base Year Data File User's Manual* (Ingels et al. 2004).

*First follow-up student questionnaire response rates.* In the first follow-up, the weighted response rate was 89 percent. For further information on first follow-up data collection results, see the *Education Longitudinal Study of 2002: Base-Year to First Follow-up Data File Documentation (DFD)* (Ingels et al. 2005). For further information on the high school transcript data collection, see the *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation (Restricted Use DFD)* (Bozick et al. 2006).

*Second follow-up response rates.* A weighted student response rate of 82 percent was achieved. For further information on second follow-up data collection results, see the *Education Longitudinal Study of 2002 (ELS:2002) Base-Year to Second Follow-up Data File Documentation (DFD)* (Ingels et al. 2007).

*Third follow-up response rates.* For the third follow-up interview, a weighted student response rate of 78 percent was achieved. For further information on third follow-up data collection results, see the *Education Longitudinal Study of 2002 (ELS:2002) Base-Year to Third Follow-up Data File Documentation (DFD)* (Ingels et al. 2014).

*Postsecondary transcript response rates.* The fielded institution sample for the postsecondary transcript collection included 3,700 distinct Integrated Postsecondary

Education Data System (IPEDS) institutions attended by ELS:2002 sample members. Of the 3,700 institutions, 2 percent were determined to be ineligible because the institution had closed or because a sample member had reported a school that was not a postsecondary institution. Of the remaining 3,600 institutions, 3,300 (92 percent) provided transcripts.

Postsecondary transcripts were requested for each of the ELS:2002 sample members who reported attending an IPEDS postsecondary institution (n=12,549). At the student level, a transcript was received from at least one institution for 11,623 sample members. The weighted response rate was 77 percent. For further information on postsecondary transcript data collection results, see the *ELS:2002 Postsecondary Education Transcript Study Data File Documentation (DFD)* (Ingels et al. 2015).

Sample sizes and response rate data are summarized in table B-1.

**Table B-1.**  
**Eligible sample and weighted response rates for ELS:2002**

Study round	Eligible <sup>1</sup>	Weighted response rate
Base-year	17,754	87.4
First follow-up	16,733	88.7
Second follow-up	16,700	81.9
Third follow-up	16,562	77.8
Postsecondary transcripts	12,549	77.2

<sup>1</sup> Eligibility is based on membership in the sophomore or freshmen senior cohort. Detected sampling errors (based on erroneous school report of grade level)—and deceased individuals—have been removed. In addition, sample members who did not report postsecondary education participation have been removed from the postsecondary transcript response rate denominator.

NOTE: The numbers of eligible sample members reported here, as well as the weighted response rates reported here, may differ somewhat from statistics reported in previous ELS:2002 documentation, owing to changing status of questionnaire-incapable sample members over time, and factors such as the selective use of rounding (in the second follow-up, data were initially released in restricted form, which employs rounding as a data perturbation technique helping to protect against disclosure of respondent identity). Note also that while table B-1 reports response rates, participation rates based on the fielded sample only (thus excluding temporary out-of-scopes from the response rate denominator) are reported separately, using unweighted response rates, and appear in the *ELS:2002 Postsecondary Education Transcript Study Data File Documentation (DFD)* (Ingels et al. 2015).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

## B.4 Weighting and Imputation

*Weighting.* The general purpose of weighting data is to compensate for unequal probabilities of selection and to adjust for the effects of nonresponse. Weights are typically calculated in two main steps. In the first step, unadjusted weights (called base weights or design weights) are calculated as the inverse of the probabilities of selection, taking into account all stages of the sample selection process. In the second step, these initial weights are adjusted to compensate for nonresponse.

Weights are critical for population estimation. Analytic weights should be used in combination with software that accounts for the ELS:2002 complex survey design to produce estimates for the target population, with appropriate standard errors. The ELS: 2002 PETS weights, further, were specifically designed to support analyses that incorporate information gleaned from postsecondary transcripts in such a way as to retain the generalizability of results to the two ELS:2002 cohorts, the 10th- and 12th-grade student populations. Students who attended postsecondary institutions may be in either cohort or both.

Eight student weights were computed for ELS: 2002 PETS (for detailed information about these weights, and the weighting process, see chapter 5 of the ELS:2002 PETS DFD [Ingels et al. 2015]). Analyses presented in this First Look report employed the postsecondary transcript respondent weight (PSWT), the weight developed to support analyses of the postsecondary transcript data (either alone or in conjunction with high school transcript data).<sup>9</sup> Further, the analyses were performed with the 2002 10th-grade population as the target cohort.

*Imputation.* While imputation was not performed specifically for ELS:2002 PETS, imputation of values for missing items had an important role in prior rounds of the study, and some of the classification variables used in this report's tables (for example, socioeconomic status) reflect imputation conducted in earlier rounds. Information on imputation procedures and results can be found in any of the earlier ELS:2002 DFDs (see, especially, Ingels et al. 2007).

## B.5 Unit Nonresponse Bias Analysis

Unit nonresponse causes bias in survey estimates when the outcomes of respondents and nonrespondents are different. For PETS, response is defined as having a postsecondary transcript. The weighted response rate was 77 percent overall. The weighted response rate represents the proportion of the ELS:2002 student populations with postsecondary attendance for whom at least one postsecondary transcript was obtained.

As the overall response rate (77 percent) was below the National Center for Education Statistics (NCES) nonresponse cutoff (85 percent), nonresponse bias analyses were conducted as required under NCES standards. All postsecondary transcript weights were used in the analyses. The nonresponse bias was estimated for

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<sup>9</sup> PSWT was supplemented by F3QWT in table 1 of this report (see section B.10 for further information).

variables known for both respondents and nonrespondents. The sample member data that were used in analysis include:

- Student’s race/ethnicity
- Student’s sex
- Student’s native language
- Family composition
- Parent’s highest level of education
- Mother/female guardian’s occupation
- Father/male guardian’s occupation
- Total family income from all sources
- Socioeconomic status (SES)
- Spring 2004 enrollment status

The procedures used for the nonresponse bias analysis were similar to those used in prior rounds of the study.

After the sample member weights were adjusted for nonresponse, remaining bias for data known for most respondents and nonrespondents was estimated and statistically tested to check if there was any remaining significant nonresponse bias. The ELS PETS DFD (Ingels et al. 2015) provides a summary of the before- and after-adjustment significant bias. Bias analyses for the postsecondary transcript respondent weight (PSWT), i.e., the primary weight used for analysis in this report, are summarized in table B-2:

**Table B-2.**

**Summary of student bias analysis for PSWT**

Nonresponse bias statistics <sup>1</sup>	Overall
Before weight adjustments—study member	
Mean percent relative bias across characteristics	1.7
Median percent relative bias across characteristics	1.1
Percent of characteristics with significant bias	41.6
After nonresponse weight adjustments—study member	
Mean percent relative bias across characteristics	0.2
Median percent relative bias across characteristics	#
Percent of characteristics with significant bias	#

# Rounds to zero.

<sup>1</sup> Relative bias and significance calculated on respondents versus full sample.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Education Transcript Study (PETS).

## B.6 Disclosure Risk Analysis and Protections

To protect the confidentiality of NCES data that contain information about specific individuals, ELS:2002 data were subject to various procedures to minimize disclosure risk. As a first step, all ELS:2002 data files were reviewed to identify high-risk variables (public-use variables that might point to specific individuals or schools, e.g., some fine-grained variables, particularly those in continuous form, and variables with extreme outliers), which were suppressed or altered through data coarsening techniques such as top coding, bottom coding, or recasting into categorical form. As a second step, a technique called “data swapping” was carried out, whereby some variables for a sample case that has been paired with another case were exchanged. As a final step, the ELS:2002 data were analyzed to confirm that the disclosure-limitation techniques did not compromise the analytic utility of the data.

## B.7 Partial Postsecondary Transcript Respondents

Data users should note the existence of certain ELS:2002 PETS respondents for whom postsecondary transcripts were received from some, but not all, of the known postsecondary institutions they attended. When generating estimates using ELS PETS data, analysts will be required to make decisions to minimize bias. If analysts include respondents with partial transcripts in their estimates, there is potential that missing information in the student records could yield lower key outcome estimates than is actually present in the population. On the other hand, if respondents with partial transcripts are excluded from the analysis, estimates may be biased due to underrepresentation of characteristics associated with students who transfer and/or attend more than one institution.

For this report, the authors made the decision to include partial transcript cases in the analysis to better reflect the highest degree attained in the population. This decision was made by comparing the different estimates and determining that, depending on how a “partial case” is operationalized, estimates generated without partial cases were statistically higher than estimates generated with partial cases included (table B-3).

**Table B-3.**  
**Population estimates for 2002 high school sophomores with subsequent postsecondary enrollment: Highest degree attained, by whether partial transcript respondents are included in the calculation: 2012–13**

Highest degree attained	Population estimate using all transcript respondents <sup>1</sup>	All partial cases excluded <sup>2</sup>		Partial cases excluded, except for those with transcript data derived from other institutions <sup>3</sup>	
		Population estimate	Difference <sup>4</sup>	Population estimate	Difference <sup>4</sup>
No postsecondary credential	42.8	41.0	1.9	38.8	4.1 *
Undergraduate certificate	6.6	7.4	0.8	7.0	0.3
Associate's degree	9.6	9.7	0.1	9.9	0.3
Bachelor's degree <sup>5</sup>	32.6	33.3	0.8	35.0	2.4 *
Master's degree or higher	8.3	8.6	0.2	9.4	1.1 *

\* Statistically significant difference (at  $p > 0.05$  level).

<sup>1</sup> Calculated using the postsecondary transcript cross-sectional weight (PSWT), including all cases where F3TZCOVERAGE = 1, 2, or 3.

<sup>2</sup> Calculated using the third follow-up—postsecondary transcript panel weight (F3QPSWT), excluding any case where F3TZCOVERAGE = 2 or 3.

<sup>3</sup> Calculated using the third follow-up—postsecondary transcript panel weight (F3QPSWT), excluding any case where F3TZCOVERAGE = 3.

<sup>4</sup> Relative to population estimate using all transcript respondents.

<sup>5</sup> Includes post-bachelor's certificate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002) Postsecondary Education Transcript Study (PETS).

This, combined with the conflicting attainment patterns among those with partial transcript information (see also the entry for “F3TZCOVERAGE” in the bulleted list immediately below), led to the decision that the higher estimate was due to bias (the exclusion of cases) rather than an observation in the population.

For the sake of generating results that are readily replicable, and/or to minimize to the extent possible any bias in either direction, data users may wish to include these partial transcript cases, apply special treatment to these partial transcript cases, or exclude them entirely from their analyses. One or more of the following variables may prove useful in identifying these so-called “partial” transcript cases:

- Total number of known postsecondary institutions attended (F3TZSCHTOTAL)
- Total number of known postsecondary institutions from which a postsecondary transcript was received (F3TZRECTRANS)
- Transcript coverage indicator (F3TZCOVERAGE): For each transcript respondent, F3TZCOVERAGE indicates whether: (1) transcripts were received from all known attended postsecondary institutions; (2) transcripts were received from some but not all known attended postsecondary institutions, but at least some transcript data is available for all attended institutions; or (3) transcripts



were received from some but not all known attended postsecondary institutions, and transcript data is missing for at least one attended institution.<sup>10</sup> For transcript respondents where F3TZCOVERAGE=2, information related to enrollment at a school that did not provide a transcript was included on a transcript provided by some other school (e.g., transfer coursework).

- Transcript response status at the student-institution level (F3TSTRANSTAT): This variable, available on the ELS:2002 PETS student-institution file, indicates transcript response status at the student-institution level as follows: (0) No transcript pursued for this student-institution pairing; (1) Transcript received for this student-institution pairing; (2) Transcript not received for this student-institution pairing, but info for this student-institution pairing appears on another institution's transcript; and (3) Transcript not received, and no info for this student-institution pairing appears on any other transcript. This variable may prove useful in identifying student-institution pairings for which ELS:2002 PETS data are available, despite the fact that an actual transcript was not received for that particular student-institution pairing.
- PETS-Third follow-up panel weight (F3QPSWT). Second follow-up respondents who did not respond in the third follow-up may have incomplete postsecondary transcript records, even if transcripts were received from all known postsecondary institutions attended. This is because such sample members may have attended additional postsecondary institutions subsequent to second follow-up participation which went unreported due to nonparticipation in the third follow-up. By using F3QPSWT in conjunction with ELS:2002 PETS data, such sample members will be excluded from analysis, as will all other third follow-up nonrespondents, regardless of whether their postsecondary transcript record is complete, partial, or unknown if complete or partial.

## B.8 Statistical Procedures Used in This Report

Comparisons that appear in the selected findings have been tested for statistical significance (set at a probability of .05) to ensure that the differences are larger than those that might be expected because of sampling variation. There were no

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<sup>10</sup> Postsecondary attainment/completion levels are higher among those where F3TZCOVERAGE=2 relative to those where F3TZCOVERAGE=1, and postsecondary attainment/completion levels are lower among those where F3TZCOVERAGE=3 relative to those where F3TZCOVERAGE=1. In hopes of avoiding bias toward either higher or lower levels of postsecondary attainment/completion, all postsecondary transcript respondents were included in the analytic sample for this report—irrespective of their F3TZCOVERAGE value—provided they were members of the ELS:2002 10<sup>th</sup>-grade cohort.

adjustments for multiple comparisons. The conclusions stated in this report are supported by a two-tailed test of statistical significance, specifically, a Student's  $t$  test. Whether the statistical test is considered significant is determined by calculating a  $t$  value for the difference between a pair of means or proportions and comparing this value to published tables of values, called *critical values*. The alpha level is an a priori statement of the probability that a difference exists in fact rather than by chance.

The  $t$  statistic between estimates from various subgroups presented in the tables can be computed by using the following formula:

$$t = \frac{x_1 - x_2}{\sqrt{(SE_1^2 + SE_2^2)}}$$

where  $x_1$  and  $x_2$  are the estimates to be compared (e.g., the means of sample members in two groups), and  $SE_1$  and  $SE_2$  are their corresponding standard errors. This formula is valid only for independent estimates.

## B.9 Survey Standard Errors in This Report

Because the ELS:2002 sample design involved stratification, the disproportionate sampling of certain strata, and clustered (i.e., multistage) probability sampling, the resulting statistics are more variable than they would have been if they had been based on data from a simple random sample of the same size.

Calculating exact standard errors for survey estimates can be difficult. Several procedures are available for calculating precise estimates of sampling errors for complex samples. Procedures such as Taylor Series approximations, balanced repeated replication (BRR), and Jackknife Repeated Replication, which can be found in advanced statistical programs such as SUDAAN, AM, or WESVAR, produce similar results. The ELS:2002 analyses included in this report used the BRR procedure to calculate standard errors.

## B.10 Definitions of Analysis Variables

This section describes the variables used in each of the figures and tables of this report. These variables were used in conjunction with the postsecondary transcript

respondent weight (PSWT)<sup>11</sup> to generate estimates and standard errors. Researchers can consult <http://nces.ed.gov/surveys/els2002/questionnaires.asp> to (1) access flow charts representing how respondents were assigned survey items, and (2) access questionnaires/facsimiles to see the exact wording of survey items that were ultimately used to generate these variables.

### **Variables Used Across All Figures and Tables**

- *2001–02 sophomore cohort member (G10COHRT)*: This cohort flag identifies spring 2002 high school sophomores; for each figure and table included in this report, G10COHRT is used in concert with PSWT (the postsecondary transcript respondent weight) to generate nationally representative estimates of spring 2002 high school sophomores with subsequent postsecondary enrollment.

### **Student/Family Background Variables**

- *Sex (F1SEX)*: For base-year respondents, this variable was constructed from the base-year student questionnaire or, where missing, from (in order of preference) the school roster or logical imputation based on first name. Base-year nonrespondents were asked to self-report their sex in the first follow-up interview.
- *Race/ethnicity (F1RACE\_R)*: F1RACE\_R includes eight categories: (1) American Indian/Alaska Native, non-Hispanic; (2) Asian, non-Hispanic; (3) Black or African American, non-Hispanic; (4) Hispanic, no race specified; (5) Hispanic, race specified; (6) More than one race, non-Hispanic; (7) Native Hawaiian/Pacific Islander, non-Hispanic; and (8) White, non-Hispanic. For the purposes of this report, the eight F1RACE\_R categories have been collapsed into five: White (8), Black (3), Asian (2), Hispanic (4 and 5), and Other (1, 6, and 7). The ELS:2002 race variables reflect new federal standards that require collecting race separately from ethnicity and allow respondents to mark more than one choice for race. For base-year respondents, information on race/ethnicity was obtained from the base-year student questionnaire when available or (in order of preference) from the sampling roster, the parent questionnaire (if the parent respondent was a biological parent), or logical imputation based on other questionnaire items

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<sup>11</sup> PSWT is used to generate all estimates and standard errors in this report, except for those displayed in table 1 and the associated standard error table A-1. Unlike the remaining figures and tables included in this report, table 1 (and associated standard error table A-1) pertain to all spring 2002 high school sophomores (as opposed to all spring 2002 high school sophomores with subsequent postsecondary enrollment). As such, table 1 (and associated standard error table A-1) employs the third follow-up cross-sectional weight (F3QWT).

(e.g., surname, native language). Base-year nonrespondents were asked to self-report their race/ethnicity in the first follow-up interview.

- *Student's native language (F1STLANG)*: This variable classifies the language the student first learned to speak as either English or non-English. F1STLANG is taken directly from the base-year student questionnaire for base-year respondents or from the first follow-up new participant supplement. If information regarding native language is missing from both of these sources, F1STLANG is imputed.
- *Family composition/configuration in 2002 (BYFCOMP)*: BYFCOMP is drawn from the base-year parent questionnaire and indicates the relationship of the parent questionnaire respondent to the ELS:2002 sample member (BYP01), as well as the relationship of the parent questionnaire respondent's spouse/partner to the sample member (BYP04). If the parent questionnaire respondent indicated that the 10th grader lived with him/her less than half the time (BYP05) and the 10th grader did not attend a boarding school (BYA03O), then the family was classified as "Lives with student less than half the time." If requisite information from the base-year parent questionnaire was missing, then BYFCOMP was imputed. The resulting nine categories for BYFCOMP are (1) Mother and father; (2) Mother and guardian; (3) Father and guardian; (4) Two guardians; (5) Mother only; (6) Father only; (7) Female guardian only; (8) Male guardian only; and (9) Lives with student less than half time. For the purposes of this report, the nine categories for BYFCOMP are collapsed into two: (1) Two parents/guardians (BYFCOMP is 1, 2, 3, or 4) and (2) Single parent/guardian (BYFCOMP is 5, 6, 7, or 8).<sup>12</sup>
- *Parent's highest level of education as of 2002 (BYPARED)*: BYPARED indicates the higher of mother's highest level of education as of 2002 (BYMOTHED) or father's highest level of education as of 2002 (BYFATHED). BYMOTHED and BYFATHED are drawn from the base-year parent questionnaire when available or from the base-year student questionnaire if missing from the parent questionnaire. If missing from both sources, BYMOTHED/BYFATHED were imputed. BYPARED includes the following eight categories: (1) Did not finish high school; (2) Graduated from high school or attained a General Educational Development (GED) credential; (3) Attended 2-year school, no degree; (4) Graduated from 2-year school; (5) Attended college, no 4-year degree; (6) Graduated from college; (7) Completed Master's degree or equivalent; and

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<sup>12</sup> "Mother"/"Father" refers to either a biological or adoptive mother/father; a "guardian" may be either male or female. Less than 1 percent of the analytic sample for this report are coded as "lives with student less than half the time"; this small subset of sample members is excluded from the "family composition" estimates shown in tables 1 and 2 of this report.

(8) Completed PhD, MD, or other advanced degree. For the purposes of this report, the eight categories for BYPARED are collapsed into four: (1) High school diploma or less (BYPARED is 1 or 2); (2) Some college (BYPARED is 3, 4, or 5); (3) Bachelor's degree (BYPARED is 6); and (4) Master's degree or higher (BYPARED is 7 or 8).

- *Quartile coding of parental/family SES as of 2002 (BYSES1QU)*: Socioeconomic status is conceptualized as the relative social position (or social class) of an individual or group of individuals and is measured, for ELS:2002 sample members, as a combination of mother's and father's education level, prestige of occupation, and family income. Specifically, SES is based on five equally weighted, standardized components: father's/guardian's education (BYFATHED), mother's/guardian's education (BYMOTHEd), family income (BYINCOME), father's/guardian's occupation (BYOCCUF), and mother's/guardian's occupation (BYOCCUM). Each of the five input variables was drawn from the base-year parent questionnaire when available and from the base-year student questionnaire when not; if available from neither of these sources, the input variables were imputed. For the purposes of this report, the middle two quartiles were combined into a single category labeled as "Middle two quartiles."
- *Parental education expectations of student as of 2002 (BYP81)*: BYP81 is drawn directly from the base-year questionnaire, where respondents were asked "In Question 79, you reported how far in school you want your tenth grader to go. For this question, please indicate how far in school you expect your tenth grader will go." The response options for this question were as follows: (1) Less than high school graduation; (2) High school graduation or GED only; (3) Attend or complete a 2-year school course in a community or vocational school; (4) Attend college, but not complete a 4-year degree; (5) Graduate from college; (6) Obtain a master's degree or equivalent; (7) Obtain a PhD, MD, or other advanced degree; and (8) Don't know. For the purposes of this report, these eight categories were collapsed as follows: High school diploma or less (BYP81 is 1 or 2); Some college (BYP81 is 3 or 4); Bachelor's degree (BYP81 is 5); Master's degree or higher (BYP81 is 6 or 7); and Don't know.
- *Ever attended a postsecondary institution (F3EVRATT)*: F3EVRATT indicates whether the respondent has ever attended a postsecondary institution; it is taken directly from the third follow-up interview (F3A11) if available, and imputed for third follow-up respondents if missing. For the purposes of this report, F3EVRATT is only used (in conjunction with the third follow-up questionnaire weight F3QWT) in producing table 1 estimates and table A-1 standard errors.

## High School Variables

- *Student's educational expectations in the 10th grade/spring of 2002 (BYSTEXP)*: BYSTEXP is taken directly from the base-year student questionnaire when available and was imputed when missing for base-year respondents. Students were asked, "As things stand now, how far in school do you think you will get?" The eight response options were (1) Less than high school graduation; (2) High school graduation or GED only; (3) Attend or complete a 2-year community college or vocational school; (4) Attend college, but not complete a 4-year degree; (5) Graduate from college; (6) Obtain a master's degree or equivalent; (7) Obtain a PhD, MD, or other advanced degree; and (8) Don't know. For the purposes of this report, these eight categories are collapsed into five: High school diploma or less (1 and 2); Some college (3 and 4); Bachelor's degree (5); Master's degree or higher (6 and 7); and Don't Know (8).
- *Student's educational expectations in spring of 2004 (F1STEXP)*: F1STEXP is drawn directly from the first follow-up questionnaire when available and was imputed when not. The nine categories for F1STEXP include (1) Less than high school graduation; (2) GED or other equivalency; (3) High school graduation only; (4) Attend or complete a 2-year college/school; (5) Attend college, 4-year degree incomplete; (6) Graduate from college; (7) Obtain a master's degree or equivalent; (8) Obtain a PhD, MD, or other advanced degree; and (9) Don't know. For the purposes of this report, these nine categories are collapsed into five: High school diploma or less (1, 2, and 3); Some college (4 and 5); Bachelor's degree (6); Master's degree or higher (7 and 8); and Don't Know (9).
- *High school transcript indicated curriculum concentration (F1RTRCC)*: This variable is drawn from high school transcript data and indicates whether the student met the requirements for an "academic concentrator," an "occupational concentrator," both, or neither. An "academic concentrator" is defined as a student who met the following requirements: 4 credits of English; 3 credits of mathematics with at least 1 credit higher than algebra II; 3 credits of science with at least 1 credit

higher than biology; 3 credits of social studies with at least 1 credit in U.S. or world history; and 2 credits in a single foreign language.<sup>13</sup>

- *GPA for all courses taken in 9th through 12th grades (F1RGP)*: Grade point average for all courses taken in 9th through 12th grade, standardized to a 4-point scale (A = 4.0; F = 0.0). The *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (Bozick et al. 2006) includes further detail on the standardization of grades.
- *Quartile coding of 2002 reading assessment score (BYTXRQU)*: BYTXRQU divides the weighted distribution of the ELS:2002 base-year reading assessment T-scores into four equal groups (quartiles). The standardized T score is a transformation of the IRT theta (ability) estimate, rescaled to a mean of 50 and standard deviation of 10. For the purposes of this report, the middle two reading assessment quartiles are combined into a single category labeled as “Middle two quartiles.”
- *Quartile coding of 2002 math assessment score (BYTXMQU)*: BYTXMQU divides the weighted distribution of the ELS:2002 base-year math assessment T-scores into four equal groups (quartiles). The standardized T score is a transformation of the IRT theta (ability) estimate, rescaled to a mean of 50 and standard deviation of 10. For the purposes of this report, the middle two math assessment quartiles are combined into a single category labeled as “Middle two quartiles.”
- *Highest math course taken in high school (F1RMAPIP)*: F1RMAPIP indicates the highest level of mathematics for which the student received nonzero credit while in high school. The original mathematics pipeline measure was created by Burkam and Lee (2003) using transcript data from NELS:88.<sup>14</sup> They assigned 47 high school courses (with nonzero enrollment) to one of four levels based on Classification of Secondary School Courses (CSSC) codes and a description of

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<sup>13</sup> In table 6, readers may note slight inconsistencies between estimates shown in the “high school curriculum concentration” rows and estimates shown in the “total” row. Inconsistencies are as follows: in the column for “did not attend a 4-year institution, attained an associate’s degree,” the estimate for both academic concentrator (93.3 percent) and not an academic concentrator (92.3 percent) are greater than the total estimate (92.1 percent); and, in the column for “attended a 4-year institution, attained an undergraduate certificate,” the estimate for both academic concentrator (82.8 percent) and not an academic concentrator (83.7 percent) are less than the total estimate (83.9). These slight inconsistencies are a product of a small set of ELS:2002 PETS respondents who were high school transcript nonrespondents; these sample members were excluded when calculating estimates shown in the “high school curriculum concentration” rows, but were included when calculating estimates shown in the “total” row.

<sup>14</sup> The conceptualization and construction of the mathematics coursetaking pipeline (F1RMAPIP), the science coursetaking pipeline (F1RSCPIP), and the non-English language pipeline (F1RNEPIP) were modeled after initial research done by Burkam and Lee (2003) using the transcript data in NELS:88. See Burkam and Lee (2003) for more detailed information on these measures.



course content: nonacademic mathematics courses, low academic mathematics courses, middle academic mathematics courses, and advanced academic mathematics courses. This initial 4-level measure was later expanded to create a more sensitive 8-level measure. Additionally, as new courses were detected in subsequent transcript studies, they were incorporated into the pipeline at the appropriate level:<sup>15</sup> (1) No mathematics; (2) Nonacademic mathematics (basic mathematics, consumer mathematics); (3) Low academic mathematics (pre-algebra); (4) Middle academic mathematics I (algebra I and geometry); (5) Middle academic mathematics II (algebra II); (6) Advanced mathematics I (trigonometry, analytical geometry, statistics); (7) Advanced mathematics II (precalculus); and (8) Advanced mathematics III (calculus). For this report, the eight levels of F1RMAPIP were collapsed into four: No mathematics, basic mathematics, and pre-algebra (F1RMAPIP = 1, 2, or 3); Core secondary through algebra II (F1RMAPIP = 4 or 5); trigonometry, statistics, precalculus (F1RMAPIP = 6 or 7); and calculus (F1RMAPIP = 8).

- *Total number of high school Carnegie units earned in mathematics (F1RMAT\_C)*: This variable is drawn from high school transcript information; courses were classified as “mathematics” courses based upon the 1998 revision of the Secondary School Taxonomy (SST) as listed in appendix D in the *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (Bozick et al. 2006). A Carnegie unit is equivalent to a 1-year academic course taken one period a day, 5 days a week.
- *Total number of high school Carnegie units earned in non-English language (F1RNON\_C)*: This variable is drawn from high school transcript information; courses were classified as “non-English language” courses based upon the 1998 revision of the Secondary School Taxonomy (SST) as listed in appendix D in the *Education Longitudinal Study of 2002: First Follow-up Transcript Component Data File Documentation* (Bozick et al. 2006). A Carnegie unit is equivalent to a 1-year academic course taken one period a day, 5 days a week.

## Postsecondary Transcript Variables

- *Highest level of education completed (F3TZHIGHDEG)*: This variable indicates the highest degree completed as of June 2013 as follows: Postsecondary attendance

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<sup>15</sup> When analyzing multiple indicators of coursetaking, users may note that students coded as having taken “no math” on F1RMAPIP have some mathematics credit recorded on their transcript (e.g., vocational or occupational mathematics). This is because the original mathematics pipeline construction was based on 47 courses and did not consider certain lower level and/or remedial courses to count toward the pipeline.



but no postsecondary credential; Undergraduate certificate; Associate's degree; Bachelor's degree; Post-bachelor's certificate; Master's degree; Post-master's certificate; Doctoral degree for professional practice; and Doctoral degree for research/scholarship/other. In tables 2, 3, and 4 of this report, "Post-bachelor's certificate" is lumped together with "Bachelor's degree"; and "Master's degree," "Post-master's certificate," and both "Doctoral degree" categories are combined to form the category of "Master's degree (or higher)". In figure 2, as well as tables 5, 6, and 7, "Bachelor's degree," "Post-bachelor's certificate," "Master's degree," "Post-master's certificate," and both "Doctoral degree" categories are combined to form the category of "Bachelor's degree (or higher)."<sup>16</sup>

- *Total number of undergraduate credits earned (F3TZPOSTERN)*: This variable indicates the total number of undergraduate credits earned as of June 2013. F3TZPOSTERN is based on a normalized credit value that places the hours or credit units received for a course on a common scale such that credit units can be compared across students and/or institutions.
- *Number of months between high school completion and postsecondary entry (F3TZHS2PS1)*: F3TZHS2PS1 calculates the number of months between the respondent's high school credential date (F3HSCPDR) and the date they began enrollment at their first-attended postsecondary institution (F3TZPS1START).
- *Level and selectivity of first-attended postsecondary institution (F3TZPS1SLC)*: F3TZPS1SLC is based on the IPEDS variable "CCUGPROF" (Carnegie Classification 2010: Undergraduate Profile). Four-year institutions coded as "highly selective" refer to those whose first-year students' test scores places them in roughly the top fifth of baccalaureate institutions; 4-year institutions coded as "moderately selective" refer to those whose first-year students' test scores places them in roughly the middle two-fifths of baccalaureate institutions. Four-year institutions coded as "inclusive" either did not report test score data or the scores indicate that they extend educational opportunity to a wide range of students with respect to academic preparation and achievement.
- *Control of first-attended postsecondary institution (F3TZPS1CTR)*: F3TZPS1CTR indicates the control of the respondent's first-attended postsecondary institution. For most respondents, this is the control associated with the Integrated

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<sup>16</sup> Readers/data users should note the existence of a third follow-up survey-based version of the "highest level of education completed" variable (F3ATTAINMENT). Due to source differences between these two variables (i.e., F3ATTAINMENT is based on information reported by respondents in late 2012, while F3TZHIGHDEG is based on information drawn from postsecondary transcripts collected from early 2013 through early 2014), it may be possible to generate slightly different estimates of educational attainment depending on which attainment variable is used.

Postsecondary Education Data System (IPEDS) code of the first institution attended. For institutions without an IPEDS code, institutional control (if available) was provided by the respondent. Institutional control includes (1) public; (2) private not-for-profit; and (3) private for-profit.

- *Number of credits earned during first year of undergraduate enrollment (F3TZYR1ERN):* F3TZYR1ERN is based on a normalized credit value that places the hours or credit units received for a course on a common scale such that credit units can be compared across students and/or institutions. In so doing, F3TZYR1ERN indicates the total number of credits earned during the first year of undergraduate enrollment.
- *Cumulative undergraduate grade point average (GPA) (F3TZGPAALL):* This variable indicates each student's cumulative undergraduate GPA as of June 2013. F3TZGPAALL is based on normalized grade values and normalized credit values; these normalized inputs place both grades received and credits earned on common scales such that those grades, credits, and resulting GPAs can be compared across students and/or institutions. Courses associated with traditional letter and number grades (e.g. A, AB, B+, 80) were normalized on a 4-point scale, where an F = 0.0 and an A = 4.0. Courses associated with failing grades such as "withdraw failing" and "unauthorized withdrawal" also received a value of 0.0. Other courses associated with grades equivalent to "withdrawal" (e.g., "W") were excluded when calculating F3TZGPAALL, as were courses associated with grades equivalent to "incomplete," "in-progress," "drop," or "audit." Pass/Fail courses were also excluded from the calculation of F3TZGPAALL.
- *Total number of undergraduate remedial courses taken (F3TZREMTOT):* This variable indicates the total number of undergraduate remedial courses taken as of June 2013.
- *Total number of postsecondary institutions attended (F3TZSCHTOTAL):* F3TZSCHTOTAL indicates the total number of postsecondary institutions known to be attended by the student, regardless of whether or not those institutions provided postsecondary transcripts for the sample member.
- *Total number of postsecondary stop-outs longer than 4 months (F3TZSTOPGT4M):* F3TZSTOPGT4M indicates the number of undergraduate stop-outs as of June 2013. For the purposes of this variable, a "stop-out" is defined as a gap in undergraduate enrollment lasting 4 or more months.
- *Postsecondary attendance pattern (F3TZSCHCOMBO):* This variable categorizes the sample member's postsecondary attendance pattern in terms of the level of the first two postsecondary institutions they attended. Only the first two institutions attended by a given sample member were considered when constructing this

variable (for sample members who attended only a single postsecondary institution, F3TZSCHCOMBO reflects the level of the single institution they attended).

F3TZSCHCOMBO categories are as follows: (1) 4-year only; (2) 2-year only; (3) Less-than 2-year only; (4) Less-than 2-year, then 2-year; (5) Less-than 2-year, then 4-year; (6) 2-year, then 4-year; (7) 2-year, then less-than 2-year; (8) 4-year, then less-than 2-year; and (9) 4-year, then 2-year. For the purposes of this report, categories 4, 5, 7, and 8 are combined to form the category of “other.”

- *Ever attended a 4-year institution (F3TZEVER4YR)*: F3TZEVER4YR indicates whether any of the attended institutions associated with a given sample member are 4-year institutions. For the vast majority of institutions, institutional level is drawn from the Integrated Postsecondary Education Data System (IPEDS). For institutions without an IPEDS code, institutional level (if available) was provided by the respondent.
- *Ratio of undergraduate credits earned to undergraduate credits attempted (F3TZPSEERNAT)*: This variable is the ratio of all undergraduate credits earned to all undergraduate credits attempted as of June 2013. F3TZPSEERNAT is based on normalized credit values that place the hours or credit units received for a course on a common scale such that credit units can be compared across students and/or institutions. Because certain postsecondary transcript entries (e.g., AP courses) are counted as credits earned but are not counted as credits attempted, it is possible for sample members to have a F3TZPSEERNAT value that exceeds 100%; however, for the purposes of this report, F3TZPSEERNAT values have been top-coded at 100%.